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1.	Public Hearing Documents (4/7/15)
2.	MCAQD Letter to APS (4/29/15)
3.	APS Letter to MCAQD (6/26/15)
4.	APS Application (9/21/15)
5.	APS Application (9/25/15)
6.	MCAQD Correspondence with Petitioner (9/28/15)
7.	Public Hearing Documents (1/19/16)
8.	NSR Manual
9.	Title V Permitting Guidance Document

INTRODUCTION

Pursuant to 40 C.F.R. § 124.19(a) and section IV.D.4 of the Environmental Appeals Board Practice Manual (“EAB” or “Board”), Maricopa County Air Quality Department (“MCAQD” or “Respondent”) respectfully requests that the Board deny review of Sierra Club’s (“Sierra Club” or “Petitioner”) Petition for Review (“Petition”) of Prevention of Significant Deterioration (“PSD”) permit 16-01 (“Permit”) for the construction of the Ocotillo Power Plant Modernization Project (“Project”) at the Arizona Public Service (“APS” or “Applicant” or “Permittee”) Ocotillo Power Plant (“Ocotillo”).

Sierra Club’s Petition has no merit. The Petition seeks review of the Permit and alleges MCAQD based its decision on “clearly erroneous findings of fact and conclusions of law.” Petition at 2. However, the record shows MCAQD’s permit decision is based on a careful consideration of the facts and law, including a detailed Technical Support Document (“TSD”) and Responsiveness Summary (“RS”). MCAQD provided Petitioner and the public not one but *two* opportunities to comment (Petitioner eschewed the second).

Petitioner has failed to demonstrate clear error, abuse of discretion, or an important policy consideration warranting review of MCAQD’s decision. Additionally, Petitioner has failed in some instances to meet the applicable procedural requirements for Board review. Therefore, MCAQD respectfully requests that the Board deny review of the Petition.

ISSUES PRESENTED

The Petition raises two issues: (1) whether MCAQD conducted a proper Best Available Control Technology (“BACT”) analysis in determining energy storage paired with turbines would redefine the source proposed by APS; and (2) whether MCAQD adequately addressed Petitioner’s comments lodged during the public comment period.

SUMMARY OF ARGUMENT

MCAQD respectfully requests that the Board deny review. The record establishes MCAQD's decision to issue the APS Ocotillo Permit was both legally and factually justified and within its discretion. MCAQD presents two main arguments to support the Board's denial of the Petition.

First, MCAQD more than adequately responded to Petitioner's comments on the first draft permit, which lacked the specific technical details or configurations Petitioner now attempts to raise in its Petition. MCAQD's detailed response more than satisfied its legal obligations. MCAQD's reasoning in rejecting energy storage is abundantly evident from the record, rendering remand inappropriate in any event. Petitioner's failure to comment on MCAQD's draft permit and revised BACT analysis, despite the fact these materials were prepared specifically to address Petitioner's comments, raises serious questions regarding Petitioner's standing to appeal those specific issues.

Second, MCAQD properly declined to undertake a detailed examination of energy storage paired with turbines as part of its analysis of BACT for greenhouse gas ("GHG") emissions because that alternative would redefine the source. The purpose of the Project is to expand the capacity of the existing gas-fired generation at Ocotillo and to provide large amounts of peaking capacity (up to 500 MW) within a very short time-frame (approximately two minutes) so that APS can provide the needed backup to renewable power sources, such as rooftop solar. After conducting a "hard look" analysis, MCAQD properly determined that it was not required to consider energy storage in BACT Step 1 because it constitutes a new process for supplying electricity and would be inconsistent with the basic purpose of the project. As such, batteries would redefine the source, in light of EPA's recent decisions regarding how to undertake a

proper BACT analysis. Battery storage also would redefine the source because it cannot provide the amount of power needed within the time needed, which is a basic objective of the project. For the same reason, it is technically infeasible and would have been eliminated under BACT Step 2 regardless.

FACTUAL AND PROCEDURAL BACKGROUND

On March 22, 2016, MCAQD issued the Permit to APS to execute and operate the Project. Petitioner's Exhibit (hereinafter "PET-Ex.") 8. Ocotillo is located at 1500 East University Drive, Tempe, Arizona in Maricopa County, Arizona. PET-Ex. 5 at 7. Ocotillo began operating in 1960 and currently consists of two steam boiler generating units and two simple cycle gas turbine generators ("GT"). *Id.* Ocotillo is a major stationary air emission source as defined in MCAQD Rules. *Id.*

On April 9, 2014, APS filed its initial PSD and Title V renewal application requesting permission to execute and operate the Project. On January 23, 2015, APS updated its earlier application to update the GHG emissions modeling and rule applicability. PET-Ex. 7. Since then, APS has submitted revised materials addressing and updating the GHG emissions analysis, resulting in an extensive factual record of public input received and multiple supplements to the application.

The Project proposed to install five new natural gas-fired GE Model LMS100 simple cycle GTs (GT3 through GT7) and associated equipment, including a hybrid Partial Dry Cooling System and two 2.5 MW emergency generators. *Id.* APS would retire the two existing steam electric generating units and associated cooling towers before commencing commercial operation of the proposed new GTs. *Id.* at 7. The existing GT1 and GT2 will no longer have dual-fuel capability and will only burn Pipeline Natural Gas. *Id.*

MCAQD engaged in a thorough evaluation of the applications. MCAQD began its review by consulting the prevailing EPA Region 9-MCAQD Delegation Agreement (December 20, 1993), which was subsequently reissued on February 8, 2016 (“Delegation Agreement”). *See, generally*, PET-Ex. 3. The Delegation Agreement required MCAQD to “[stand] in the shoes” of EPA and operate on EPA’s behalf for the purpose of conducting PSD source review under 40 C.F.R. 52.21 for sources within MCAQD’s jurisdiction that are subject to PSD requirements. PET-Ex. 3 at 1, 2. In doing so, MCAQD had to “follow and implement the same substantive and procedural requirements as EPA would if it were conducting the PSD source review and issuing the PSD permit itself.” *Id.* As EPA is bound by the CAA and PSD regulations, and has its own policies and interpretations regarding the PSD program, as expressed in its guidance documents and prior permitting decisions, MCAQD was also bound, and therefore complied with the same.

In compliance with CAA § 165, 42 U.S.C. §7475, MCAQD’s overall process consisted of analysis of the permit application and effect on ambient air quality, opportunity for public comment, a determination that APS demonstrated compliance with the NAAQS and PSD increments; notice to the Federal Land Manager, and a BACT analysis.

MCAQD began its review by analyzing the applications, including a review of the BACT analysis provided by Applicant. As noted in MCAQD’s RS, MCAQD determined that the Project is designed to address the rapidly changing nature and sources of electric generation. APS and others continue to add renewable energy, especially solar energy, to the electric power grid. PET-Ex. 2 at 3. MCAQD noted, “because renewable energy is an intermittent source of electricity, a balanced resource mix is essential to maintain reliable electric service.” *Id.* In the RS, MCAQD explained that the increase in renewables means “APS must have firm electric capacity with quick and reliable dispatch capability when renewable power, or other distributed

energy sources are unavailable.” *Id.* Supporting this fundamental business purpose of the Project, the proposed LMS100 GTs have the quick start and power escalation capability necessary to meet changing power demands and mitigate grid instability caused by the intermittency of renewable energy generation. *Id.* MCAQD assessed the Project as follows:

- The Ocotillo plant will utilize highly efficient simple-cycle gas turbines;
- The PSD permitting requirements apply to the Project only for carbon monoxide (CO), particulate matter less than 100 microns (PM), particulate matter less than or equal to 2.5 microns (PM2.5), and GHG emissions. The proposed control technologies and emission limits for these pollutants represent BACT for simple-cycle gas turbines;
- After the first new GT commences operation, the Ocotillo Plant will no longer be a major source of particulate matter less than or equal to 10 microns (PM10);
- The nonattainment NSR permitting requirements do not apply to the Project; and
- The air quality impacts of the Project are insignificant when compared to EPA impact thresholds.

Id.

Next, MCAQD followed EPA’s BACT analysis as provided in the New Source Review Workshop Manual (Draft Oct. 1990) (“NSR Manual”). *See* MCAQD Exhibit (hereinafter “MCAQD-Ex.”) 8. Subsequently, on March 4, 2015, MCAQD published the initial draft permit and TSD for public notice and comment for the period March 4, 2015 through April 3, 2015 and hearing date April 7, 2015. MCAQD-Ex. 1 (Public Hearing Documents (4/7/15)).

MCAQD held a public hearing regarding the draft permit on April 7, 2015. PET-Ex. 2 at 1. Petitioner submitted written comments on the initial draft permit on April 9, 2015. Ex. 4. In the comments, Petitioner argued (among many other things) that MCAQD erred in Step 1 of its GHG BACT analysis because MCAQD did not consider reducing the Project’s GHG emissions by using energy storage technologies, such as batteries. Specifically, Petitioner argued in its comments that Steps 1, 2, and 5 of MCAQD’s top-down BACT analysis were flawed. *Id.* at 3-

34. The clear thrust of these comments was that Sierra Club wanted MCAQD to require energy storage technologies, like batteries, as replacements for some or all of the turbines APS proposed to construct for the Project. For example, Petitioner stated APS's need to "provide temporary peaking capacity" could be satisfied "using energy storage to replace some or all of the proposed LMS100 turbines." *Id.* at 4.

After careful consideration of Petitioner's comments, on April 29, 2015, MCAQD requested APS to update the BACT analysis for GHGs. MCAQD-Ex. 2 (MCAQD Letter to APS (4/29/15)). APS submitted additional information on June 26, 2015, responding in detail to Sierra Club's comment about battery storage, as well as other issues. MCAQD-Ex. 3 (APS Letter to MCAQD (6/26/15)). APS also submitted updated PSD applications on September 21, 25, and 30, 2015. MCAQD-Ex. 4 (APS Application (9/21/15)); MCAQD-Ex. 5 (APS Application (9/25/15)); PET-Ex. 5 (APS Application (9/30/15)). The September 21 version contained the updated BACT analysis for GHGs. *See* MCAQD-Ex. 4. The September 30, 2015 application was simply a consolidation of the September 21 and 25 applications, along with other supporting appendices. *See* PET-Ex. 5. MCAQD provided the September 21 and 25 revised applications, containing the updated BACT analysis, to Petitioner on September 28, 2015, such that Petitioner was clearly aware of the fact that MCAQD had taken steps to address Petitioner's comments. *See* MCAQD-Ex. 6 (MCAQD Correspondence with Petitioner (9/28/15), which is included in the Certified Index at E3 as an email chain of correspondence between MCAQD and Petitioner) at 3.

Based on the additional information supplied by APS and its own further investigation, MCAQD re-evaluated the BACT analysis for GHGs. As part of its own investigation, MCAQD reviewed EPA and Board precedent on discretionary limits of redefining a source, including cases involving strikingly similar issues. *See, generally*, PET-Ex. 2 (analyzing EPA Region 6

and 4 responses to comments in Red Gate and Shady Hills, respectively). Specifically, MCAQD noted, “EPA has addressed the issue of whether a peaking facility must consider incorporation of energy storage into a project in the BACT analysis,” and “concluded that energy storage, either to replace all or part of the proposed...project would fundamentally redefine the source.” *Id.* at 6 (internal quotations omitted). The BACT analysis in the revised draft permit addressed the energy storage issues Petitioner raised in its April 9, 2015 comments. PET-Ex. 5, at Appendix B, pp. 48-49; PET-Ex. 6 at 38-41.

MCAQD made available the updated analysis and revised permit through a second public review and comment period. On December 11, 2015, MCAQD noticed the second thirty-day comment period for December 16, 2015 through January 22, 2016, and second public hearing for January 19, 2016. MCAQD-Ex. 7 (MCAQD Public Hearing Documents (1/19/16), included at K9 and K10 in the Certified Index) at 3. MCAQD delivered the notice to stakeholders, including Petitioner. *Id.* at 1 (listing at least *two* Sierra Club email addresses as recipients. Note: one of the emails may have been undeliverable). Notwithstanding, Petitioner was aware of the forthcoming notice and public hearing. On September 28, 2015, Petitioner contacted MCAQD noting “[i]t looks like [APS] made some pretty significant changes” and to ask if Sierra Club would have an opportunity to respond to the changes to which MCAQD responded there would be another notice and hearing period. MCAQD-Ex. 6 (MCAQD Correspondence with Petitioner (9/28/15)) at 2.

No party, including Petitioner, commented on the revised draft permit or appeared at the second public hearing on January 19, 2016. MCAQD-Ex. 7 (Public Hearing Documents (1/19/16)) at 10. In fact, Petitioner did not even attend the hearing. *Id.* at 6.

In light of the lack of public comment, MCAQD issued the final permit without any substantive changes to the revised draft permit on March 22, 2016. Approximately one month later, Petitioner filed this Petition on April 21, 2016. This response by MCAQD is timely under 40 C.F.R. § 124.19(b).

A. Permitting Agency's Obligations Regarding Analysis of Energy Storage Paired with Turbines

1. BACT

The CAA and PSD regulations require PSD permits to contain emissions limitations based on BACT. *See* CAA § 165 (a)(4), 42 U.S.C. § 7475 (a)(4); 40 C.F.R. § 52.21 (j)(2). BACT is an emissions limitation determined by the permitting authority on a case-by-case basis, taking into account available technologies and energy, environmental, and economic impacts. *See* CAA § 169 (3), 42 U.S.C. § 7479(3); 40 C.F.R. § 52.21 (b)(12); *see In re Prairie State Generating Co.*, 13 E.A.D. 1, 12 (EAB 2006), *aff'd sub. nom Sierra Club v. U.S. EPA*, 499 F.3d 653 (7th Cir. 2007); *In re Three Mountain Power, LLC*, 10 E.A.D. 39, 47 (EAB 2001); *In re Knauf Fiber Glass, GmbH*, 8 E.A.D. 121, 128-29 (EAB 1999). BACT applies to each individual major new or modified emissions unit at which a net emissions increase would occur. *See* 40 C.F.R. § 52.21 (b)(12).

BACT is a case-by-case analysis. 40 C.F.R. § 52.21 (b)(12); *In re BP Cherry Point*, 12 E.A.D. 209, 213-14 n.11 (EAB 2005). The analysis must take into account site-specific and source-specific characteristics. *Alaska Dep't of Env'tl. Conservation v. EPA*, 540 U.S. 461, 488 (2004); *see also United States v. Minnkota Power Co-op., Inc.*, 831 F. Supp. 2d 1109, 1120 (D.N.D. 2011) (“[i]t is clear that Congress insisted that a state’s BACT analysis be conducted on a site specific, case-by-case basis so that generalized assertions of suitability would not

prevail.”) (emphasis added); MCAQD-Ex. 7 (EPA, PSD and Title V Permitting Guidance for Greenhouse Gases, EPA-457/B.11-001, March 2011) (“Title V Permitting Guidance”) at 17.

MCAQD followed EPA’s recommended top-down approach for the Ocotillo BACT analysis. In 1990, the EPA developed a five step “top-down” BACT analysis to ensure consistent application of BACT:

- Step 1: Identify all available control options with potential application to the source and the targeted pollutant;
- Step 2: Analyze the control options’ technical feasibility;
- Step 3: Rank feasible options in order of effectiveness;
- Step 4: Evaluate the energy, environmental, and economic impacts of the options; and
- Step 5: Select a pollutant emission limit achievable by the most effective control option not eliminated in a preceding step.

MCAQD-Ex. 8 (NSR Manual) at B.5-B.9. The most stringent, or “top,” alternative becomes BACT, unless the applicant shows that technical, energy, environmental, or economic considerations justify that the “top” technology is not achievable in the particular case. *Id.* at B.1. A detailed analysis in Step 1 is not required if the option would redefine source. *Prairie State*, 13 E.A.D. at 18 (noting EPA interpretation that BACT does not require consideration of alternatives that redefine the source and Board decisions affirming it).

Although the NSR Manual is not a binding regulation, it provides a careful and detailed analysis of the criteria identified in the definition of BACT, which in turn provides “a framework that assures adequate consideration of the regulatory criteria and consistency within the PSD permitting program.” *Id.* at 13.

2. “Redefining the Source”

Under the plain language of the CAA, a BACT analysis focuses on the “proposed facility.” CAA § 164, 42 U.S.C. § 7474. Accordingly, EPA and the Board have long recognized that the BACT analysis is not considered a means to “redefine the source.” *See In re Pennsauken*

Cty., New Jersey, Res. Recovery Facility, 2 E.A.D. 667 at 674 (EAB 1988); *In re Spokane Regional Waste- to-Energy*, PSD Appeal No. 88-12, at 5 n.7 (June 9, 1989); *Prairie State*, 13 E.A.D. at 21 (“We have specifically stated that ‘EPA has not generally required a source to change (i.e., redefine) its basic design.’”) (citing *Knauf Fiber Glass*, 8 E.A.D. at 136; *see also* MCAQD-Ex. 8 (NSR Manual) at B.13 (“EPA has not considered the BACT requirement as a means to redefine the design of the source when considering available control alternatives.”)). EPA’s GHG Guidance expressly adopts this position for GHGs. MCAQD-Ex. 7 (Title V Permitting Guidance) at 26 (“EPA has recognized that a Step 1 list of options need not necessarily include inherently lower polluting processes that would fundamentally redefine the nature of the source proposed by the permit applicant. BACT should generally not be applied to regulate the applicant’s purpose or objective for the proposed facility.”).

The permitting authority has discretion to determine whether an alternative “redefines the source.” *Prairie State*, 13 E.A.D. at 31 (citing NSR Manual at B.13). In assessing whether an option would fundamentally redefine a proposed source, the EPA recommends that permitting authorities apply the analytical framework recently articulated by the Board. *See, generally, In the Matter of American Electric Power Service Corporation, Southwest Electric Power Company, John W. Turk Plant*, Petition No. VI-2008-01 (Order on Petition) (December 15, 2009) (Title V order referencing and applying framework developed by the EAB); *In the Matter of Cash Creek Generation, LLC*, Petition Nos. IV-2008-1 & IV-2008-2 (Order on Petition) (December 15, 2009) (same).

Under this framework, a permitting authority should first look to the application to see how the permit applicant, “in proposing the facility, defines the goals, objectives, purpose, or basic design for the proposed facility.” *Prairie State*, 13 E.A.D. at 23; This approach

“harmonizes the BACT definition with the permit application process in which the definition must be applied,” is “consistent with [EPA’s] long-standing policy against redefining the proposed facility,” and fulfills congressional intent that “the permit applicant [have] the prerogative to define certain aspects of the proposed facility that may not be redesigned through application of BACT and that other aspects must remain open to redesign through the application of BACT.” *Id.* at 20, 23. In *In re Pennsauken*, where the Board first developed this position, the Board concluded, “permit conditions defining the emissions control systems are imposed on the source as the applicant has defined it and that the source itself is not a condition of the permit.” *Id.* at 23 (citing *Pennsauken*, 2 E.A.D. at 673)(internal quotations omitted).

The permitting authority should then take a “hard look” at the proposed project to see if additional pollution reductions can be made. *Id.* at 26. In doing so, the permitting authority generally may not require consideration of a change in primary fuel choice or manufacturing process, *see* MCAQD-Ex. 7 (Title V Permitting Guidance) at 27-28, but it considers which elements of the proposed project can be changed to reduce emissions without “disrupting the applicant’s basic business purpose for the proposed facility.” *Id.* at 23. Accordingly, the permitting authority is not required to consider changing parts of the design that are “independent of air quality permitting,” *id.* at 26, or those elements that would, in fact, disrupt the applicant’s purpose for the project. *Id.* at 23. The permitting authority must provide a case-specific justification for concluding that a proposed technology would redefine the source. *In re La Paloma Energy Center, LLC*, PSD Appeal No. 13-10, slip op. at 26 (EAB Mar. 14, 2014). However, the permitting authority has broad discretion in making this determination. *In re Palmdale*, 15 E.A.D. 700, 732 (EAB 2012). The Board reviews the permitting authority’s determination under an abuse of discretion standard, and will uphold the authority’s exercise of

discretion if it is cogently explained and supported in the record. *See, e.g., In re Ash Grove Cement Co.*, 7 E.A.D. 387, 397 (EAB 1997); *Palmdale*, 15 E.A.D. at 732; *La Paloma*, slip op. at 23; *In re Russell City Energy Ctr.*, PSD Appeal Nos. 10-01 through 10-05, slip op. at 97 (EAB Nov. 18, 2010), 15 E.A.D. ____, *petition denied sub nom. Chabot-Las Positas Cmty. Coll. Dist. v. EPA*, 428 F. App'x 219 (9th Cir. 2012).

Indeed, the Board will uphold the permitting authority's determination that an option presented by a commenter would redefine the source so long as "there is sufficient evidence to support" it. *La Paloma*, slip op. at 30.

B. Public Comment Obligations

The permitting authority must "describe and respond to all significant comments on the draft permit." *In re Pio Pico Energy Ctr.*, 16 E.A.D. ____, slip op. at 36 (EAB 2013) (quoting 40 C.F.R. § 124.17(a)(2)) (internal quotations omitted). The permit issuer's response is only required to be as detailed as the comment. *Id.* at 37 (quoting *In re Scituate Wastewater Treatment Plant*, 12 E.A.D. 708, 723 (EAB 2004)) (stating permitting authorities are not required to "guess the meaning behind imprecise comments" or "speculate about possible concerns that were not articulated in the comments") (internal quotations omitted); *id.* at 37 (quoting *In re Encogen Cogeneration Facility*, 8 E.A.D. 244, 251 n.12 (1999)) (where an "issue is raised only generically during the public comment period, the permit issuer is not required to provide more than a generic justification for its decision."); *Prairie State*, 13 E.A.D. at 59-60 (stating that permitting authorities are "not expected to be prescient in their understanding of imprecise comments") (internal citations and quotations omitted).

Persons challenging a PSD permit condition must have "[raised] all reasonably ascertainable issues and [submitted] all reasonably available arguments supporting their position by the close of the public comment period." *Pio Pico*, slip op. at 36 (citing 40 C.F.R. § 124.13).

If an issue was “raised only generically during the public comment period . . . the petitioners cannot raise more specific concerns for the first time on appeal.” *Id.* (quoting *Encogen*, 8 E.A.D. at 251 n.12). In addition, it is not enough for a person to raise an issue *before* the public comment period for a draft permit; once a draft permit is issued, it is the person’s responsibility to reassert that issue in comments submitted to the permitting authority. *See In re City of Phoenix, Arizona*, 9 E.A.D. 515, 526-27 (EAB 2000). Otherwise, the permitting authority would be forced to “divine, by means unknown, whether or not the comments were still being preserved for consideration or whether they had been resolved or abandoned by the commenter” in light of the agency’s action in the draft permit. *Id.* at 527.

These requirements serve several important functions. The purpose of public comment is to inform the permitting authority of issues that commenters believe should be changed before the draft permit becomes final. The Board has long recognized that allowing the permit issuer to “address potential problems with draft permits *before they become final*” is a key part of the “effective, efficient and predictable administration of the permitting process.” *Pio Pico*, slip op. at 36 (internal quotations omitted) (emphasis added). However, the permit issuer can only make timely and appropriate adjustments to its permit determination if the public comments are sufficiently specific “to alert the permit issuer of the concern.” *Prairie State*, 13 E.A.D. at 59 (internal citations and quotations omitted); *see, e.g., Pio Pico*, slip op. at 36; *In re Scituate Wastewater Treatment Plant*, 12 E.A.D. at 722 ; *In re Sutter Power Plant*, 8 E.A.D. 680, 687, 694 (EAB 1999); *In re RockGen Energy Ctr.*, 8 E.A.D. 536, 540, 547-48 (EAB 1999). Specific comments are also crucial because they allow the permitting authority to provide proper feedback. *Prairie State*, 13 E.A.D. at 59-60 (“Absent such specificity, the permit issuer cannot meaningfully respond to comments.”). Because the permitting authority’s response to comments

forms the basis for appeal, the EAB recognizes “the accountability of the permit issuer for providing a full, meaningful response to comments is tempered by the commenter’s own responsibility to convey its thoughts clearly in the first instance.” *Pio Pico*, slip op. at 36 (internal quotations and citations omitted). Indeed, an agency’s responses to comments are meaningless unless the commenter clearly states its position. *Id.*

Specific comments are particularly important when they concern alternatives to the proposed source. Permitting authorities are not required to consider alternatives to the proposed source *sua sponte*. *Prairie State*, 13 E.A.D. at 30 (holding that permitting authority was not required to “conduct an independent analysis of available alternatives”). Instead, the scope and depth of the permitting authority’s analysis of alternatives is defined by the public comments received. *Id.* at 30 (holding that “the extent of the permitting authority’s consideration and analysis of alternatives need be no broader than the analysis supplied in public comments”); *see also* CAA § 165 (a)(2), 42 U.S.C. 7475 (a)(2) (allowing for public comments to be submitted regarding alternatives to the proposed source).

Without sufficiently specific comments regarding alternatives, the permitting authority would be saddled with a “heavy burden” that “goes well beyond the permitting authority’s obligations” in the BACT permitting context. *Palmdale*, 15 E.A.D. at 735. As the Board has recognized previously, “[t]he permit process cannot work efficiently or as designed by Congress if the permit issuer is obliged to anticipate and analyze multiple permutations or variations of conceivable options that an overbroad and vague question can invoke.” *Id.* A “lack of specificity . . . effectively calls upon [a permit issuer] to analyze a myriad of potential [] configurations for [a] proposed plant.” *Id.*

As long as the permit issuer's path is "reasonably discerned" from the record, even a response presented with "less than ideal clarity" is sufficient. *See, e.g., In re Steel Dynamics, Inc.*, 9 E.A.D. 165, 191 (EAB 2000) ("[W]hile [the agency] should have clearly explained its decision-making process in the record,...the reality in this case is that petitioners could deduce the likely basis for [agency's] choice ... and we are able to discern that [agency] applied its considered judgment in setting that limit."); *accord Alaska Dep't of Env'tl. Conservation*, 540 U.S. at 497 ("Even when an agency explains its decisions with 'less than ideal clarity,' a reviewing court will not upset the decision on that account 'if the agency's path may be reasonably discerned.'").

STANDARD AND SCOPE OF REVIEW

The Board has discretion regarding whether to review a PSD permit. The Board will deny review of a permit decision unless the petitioner demonstrates "each challenge to the permit decision is based on [a] finding of fact or conclusion of law that is clearly erroneous, or [a]n exercise of discretion or an important policy consideration that the [Board] should, in its discretion, review." 40 C.F.R. §§ 124.19(a)(4)(i)(A)-(B); *accord, e.g., Pio Pico*, 16 E.A.D. ____; *Prairie State*, 13 E.A.D. at 10. The Board will uphold a permitting authority's reasonable exercise of discretion if that decision is cogently explained and supported in the record. *See In re Ash Grove Cement Co.*, 7 E.A.D. 387, 397 (EAB 1997). The petitioner bears the burden of demonstrating review is warranted. *See* 40 C.F.R. §124.19(a)(4); *In re Prairie State Generating Co.*, 13 E.A.D. at 10.

The power of review "should be only sparingly exercised," and "most permit conditions should be finally determined at the [permit issuer's] level." 45 Fed. Reg. at 33,412 (May 19, 1980) *Accord Prairie State*, 13 E.A.D. at 10 (citing 45 Fed. Reg. 33,290 (May 19, 1980), 45 Fed.

Reg.33,412); *see also* Revisions to Procedural Rules Applicable in Permit Appeals, 78 Fed. Reg. 5,280, 5,281 (Jan. 25, 2013) On matters that are fundamentally technical or scientific in nature, the Board typically will 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. *See, e.g., In re Dominion Energy Brayton Point, LLC*, 12 E.A.D. 490, 510, 560-62, 645-47, 668, 670-74 (EAB 2006); *Russell City Energy Ctr.*, slip op. at 37-41.

To the extent a petitioner challenges an issue the permit issuer addressed in its response to comments, the petitioner must explain why the permit issuer’s previous response to those comments was clearly erroneous or otherwise warrants review. 40 C.F.R. 124.19(a); *accord, e.g., Pio Pico*, 16 E.A.D. ____; *In re City of Irving*, 10 E.A.D. 111, 129-30 (EAB 2001), *review denied sub nom. City of Abilene v. EPA*, 325 F.3d 657 (5th Cir. 2003).

The Board consistently has denied review of petitions that merely cite, attach, incorporate, or reiterate comments previously submitted on the draft permit. *See, e.g., In re City of Pittsfield*, NPDES Appeal No. 08-19 (EAB Mar. 4, 2009) (Order Denying Review), *aff’d*, 614 F.3d 7, 11-13 (1st Cir. 2010); *Knauf II*, 9 E.A.D. at 5 (“Petitions for review may not simply repeat objections made during the comment period; instead they must demonstrate why the permitting authority’s response to those objections warrants review.”); *In re Hadson Power 14*, 4 E.A.D. 258, 294-95 (EAB 1992) (denying review where petitioners merely reiterated comments on draft permit and attached a copy of their comments without addressing permit issuer’s responses to comments).

ARGUMENT

Sierra Club failed to demonstrate review is warranted. The record is replete with evidence supporting MCAQD’s conclusion that incorporating battery storage into the Ocotillo plant would

redefine the source. In addition, MCAQD's response to comments was more than adequate. Petitioner failed to comment on several specific issues raised in its Petition when they were first considered in the revised draft permit, which itself necessitates that review on those comments be denied. Nevertheless, MCAQD fully responded to all of the issues raised in Sierra Club's comments on the initial draft permit.

I. DESPITE THE LACK OF "SUFFICIENT SPECIFICITY" IN PETITIONER'S COMMENTS, REMAND IS UNWARRANTED BECAUSE MCAQD RESPONDED IN SUFFICIENT DETAIL TO ALL OF PETITIONER'S REASONABLY ASCERTAINABLE COMMENTS.

A. A Lack Of A Detailed Response To Comments Lacking In "Sufficient Specificity" Does Not Warrant Board Review.

Among many allegations in its comments, Petitioner picked out one issue to focus on in this Petition (battery storage). It is not clear to MCAQD whether it even had to respond to these comments due to the vague and unspecific nature in which Petitioner raised them in its comments. MCAQD followed the same approach taken by EPA Region 6 in addressing the petitioner's comments on a draft permit for the Red Gate power plant. Following this precedent, MCAQD concluded the options proposed by Petitioner were vague and lacked specific technical details in defining the design alternative. A fair reading of Petitioner's comment demonstrates it was clearly focused on total replacement of some or all the turbines with energy storage. PET-Ex. 4 at 4-16. In one brief section of its comments, Petitioner suggested energy storage could somehow serve to reduce or eliminate low load operation of the Project's turbines. Specifically Petitioner stated: "[i]nterfacing energy storage with gas turbines would eliminate the need to operate the LMS100 turbines at low loads." *Id.* at 6. However, Petitioner did not provide specific configurations that it believed MCAQD should have considered. *See id.* Petitioner did not assert

or provide information showing that the alternative technology, either alone or as part of a hybrid energy storage configuration, could satisfy the Project's basic business objectives or need. *Id.*

Due to the broad nature of the comments and the lack of specific technical information supporting Petitioner's options, MCAQD determined Petitioner failed to provide enough technical information to warrant a highly detailed response that considered the myriad of permutations available. *Accord, Palmdale*, 15 E.A.D. at 735 (finding a lack of specificity in public comments "effectively calls upon the Region to analyze a myriad of potential...configurations for the proposed plant" that "goes well beyond the permitting authority's obligations") (internal quotations omitted).

Board review is unwarranted because MCAQD had no duty to provide a detailed response to these unspecific comments, and therefore did not abuse its discretion.

Even had MCAQD failed to respond to comment – and it did respond fully – remand is not warranted because the purported agency silence did not demonstrate an arbitrary and capricious issuance of the permit. *See Natural Res. Defense Council v. EPA*, 859 F.2d 156, 188 (D.C. Cir. 1988) (holding that, in order to justify remand, agency silence must demonstrate rulemaking to be arbitrary and capricious); *Steel Dynamics*, 9 E.A.D. at 191 (“[W]hile [agency] should have clearly explained its decision-making process in the record,...the reality in this case is that petitioners could deduce the likely basis for [agency's] choice...and we are able to discern that IDEM applied its considered judgment in setting that limit.”); *Alaska Dep't of Env'tl. Conservation*, 124 S.Ct. at 1006 (“Even when an agency explains its decisions with ‘less than ideal clarity,’ a reviewing court will not upset the decision on that account ‘if the agency’s path may be reasonably discerned.’”).

B. Contrary to Petitioner's Claim That MCAQD “Ignored” The Issue, MCAQD Provided Sufficient Response To Petitioner's Comments

Regarding Augmentation With Batteries Or Energy Storage and MCAQD's Path Is Easily Discerned In The Record.

Despite the lack of detail in Petitioner's comments regarding augmentation with batteries or energy storage, and contrary to Petitioner's claim that MCAQD "ignored" the issue, a cursory look at the record will show MCAQD addressed Petitioner's comments and provided very detailed responses to Petitioner's comments on the same. On April 29, 2015, MCAQD formally requested APS to respond to Petitioner's comments. MCAQD-Ex. 2 (MCAQD Letter to (4/29/15)). On June 26, 2015, APS offered additional information in response to Petitioner's comments, including information relating whether it would be appropriate to consider energy storage at Step 1 of the GHG BACT analysis. MCAQD-Ex. 3 (APS Letter to MCAQD (6/26/15)).

On September 30, 2015, APS submitted an updated application with revisions and updates to the GHG BACT analysis. PET-Ex. 5. MCAQD issued a revised draft permit and draft TSD containing a substantially updated GHG BACT analysis, including an assessment of whether energy storage should be included in Step 1 of the analysis and a more stringent GHG BACT emission limit. PET-Ex. 5 at Appendix B.

After the close of the comment period on the initial draft permit, MCAQD took numerous steps to investigate and address the issues raised by Petitioner and even extended the notice and comment period to provide Petitioner the opportunity to address the revisions. Nonetheless, Petitioner *ignored* the extended opportunity to comment and instead chose not to provide feedback on the revisions made to the draft permit and TSD.

On December 11, 2015, MCAQD published the revised draft permit and TSD for public notice and comment reflecting the changes and additional analyses. MCAQD-Ex. 7 (Public Hearing Documents (1/19/16) at 1. Petitioner did not comment on the revised draft permit,

despite the fact MCAQD gave Petitioner actual notice of APS’s updated application and MCAQD’s publication of the revised draft permit. *Id.* at 8. In fact, Petitioner did not even attend the hearing. *Id.* at 4.

On March 23, 2016, in conjunction with the final PSD permit for the Project, MCAQD issued the RS. Because Petitioner never commented on the revised draft permit for the Project, the RS could only directly address Petitioner’s original comments on energy storage, even though those comments had been directed at the initial draft permit and TSD. MCAQD responded point-by-point to Petitioner’s comments. *See, generally*, PET-Ex. 2.

Despite the comprehensiveness of MCAQD’s responses to Petitioner’s comments, it argues MCAQD “ignored” one of the variations of energy storage – battery pairing (i.e., augmentation). It is Petitioner, though, who ignored the content of MCAQD’s responses. The RS specifically addressed technical problems with battery augmentation, as well as why augmentation would, like wholesale replacement of some or all of the turbines, redefine the source. *Id.* Table 1 below lists excerpts from the Responsiveness Summary demonstrating that the concept of battery augmentation was included within the scope of MCAQD’s responses to Sierra Club’s comments.¹

Table 1: MCAQD Responses and Summary to Petitioner’s Energy Storage Comments

MCAQD RS Excerpt	RS at #	How Response Relates to Battery Augmentation
MCAQD noted “Sierra Club’s comments that steam injection, dry low-NOx (DLN) combustors, combined cycle combustion turbines, <i>batteries</i> , or other energy storage options <i>could either be used in addition to or in place of</i> the proposed LMS100 CTGs”	4	Demonstrates MCAQD considered option of using batteries “in addition to” turbines, meaning battery augmentation, and not merely to replace turbines.

¹ Petitioner’s comments included battery augmentation within its laundry list of proposed battery storage alternatives. *See, e.g.*, PET-Ex. 4 at 16 (“Neither the Applicant nor the County considered either a full energy storage facility or a hybrid energy storage-LMS100 facility.”). MCAQD logically responded in kind, framing its responses to address battery augmentation together with the other storage alternatives. *See* Table 1.

In Red Gate RS, “EPA has addressed the issue of whether a peaking facility must consider <i>incorporation</i> of energy storage into a project in the BACT analysis.”	6	“Incorporation” includes augmentation, not just replacement.
Red Gate RS explained that “ <i>incorporating</i> energy storage in Step 1 of the BACT analysis for a RICE resource would constitute the consideration of an <i>alternative means of power production</i> in violation of long-established principles for what can occur in Step 1 of the BACT analysis.”	6	“Incorporation” includes augmentation, not just replacement, and would also be “an alternative means of power production.”
In Red Gate RS, “EPA concluded that energy storage, either ‘to replace <i>all or part</i> of the proposed...project,’ would fundamentally redefine the source.”	6	Petitioner’s battery augmentation proposal would replace part of the project during low load periods (i.e., replace some operations, even if not an entire turbine).
“Because ‘energy storage <i>first requires separate generation</i> and the transfer of the energy to storage to be effective...it is a <i>fundamentally different design</i> than a RICE resource that does not depend upon any other generation source to put energy on the grid. Energy storage <i>could not meet that production purpose for the duration or scale needed.</i> ”	6	Response addresses battery augmentation, which, like battery replacement, would also require separate generation to charge the batteries and would be vulnerable to limits on duration and scale.
“”The nature of energy storage and the <i>requirement to replenish that storage</i> with another resource goes against the fundamental purpose of the facility.”	6	Response addresses battery augmentation, which, like battery replacement, would require recharging.
“MCAQD has determined combined cycle combustion turbines, batteries, and other energy storage options would fundamentally redefine the source, and therefore will not be considered in the BACT analysis.”	6	Response is plainly not limited to total replacement with battery storage and includes battery augmentation.
“[I]ncorporating energy storage into the project would fundamentally redefine the source.”	8	Response is plainly not limited to total replacement with battery storage and includes battery augmentation.
Energy storage “is an <i>alternative means of power production</i> , the consideration of which would stretch the term control technology beyond the breaking point.”	8	Response applies to battery augmentation, which is as much an alternative means of power production as is battery replacement.

<p>“[T]he use of energy storage would not fulfill the site-specific purpose and need of the Project, which is to provide up to 500 MW of peak electric generating capacity for potentially extended periods of time at an existing plant site.”</p>	8	<p>Response notes battery augmentation is not appropriate because plant is an existing site (i.e., already connected to natural gas infrastructure) and batteries are not available in sufficient capacity, cannot provide generation for a sufficiently long time, and cannot facilitate quick-ramping peak capacity.</p>
<p>“APS, in order to assure reliability, must build a system that can meet not only a short peak demand, but also <i>several short peak demands in a row, an extended peak demand, or even several extended peak demands</i>. If the utility is reliant upon stored energy for some or all of its peaking power...at some point the stored energy <i>may run out before it can be recharged</i>, making the solution unreliable for meeting the full demand.”</p>	8	<p>Battery augmentation cannot serve purpose Petitioner proposes here because if peak power is needed again before the batteries can recharge, then batteries cannot provide power during turbine ramp-up, and the turbines will still need the ability to idle.</p>
<p>“[T]he battery storage option may be eliminated at Step 1 of the BACT analysis because it would not meet the business purpose of the Project—to provide between 25 MW to 500 MW of electrical energy as needed on an immediate basis, and potentially for an extended period of time.”</p>	9	<p>Response notes battery augmentation is not appropriate because batteries cannot provide generation for a sufficiently long time, cannot provide sufficient capacity to meet Project need on an immediate basis, and do not allow turbines to provide capacity on an immediate basis.</p>
<p>Battery storage can also be eliminated under Step 2 because “it is not technically feasible at this time to produce up to 500 MW of electrical energy using this technology, and may not even be technically feasible at much lower capacities.”</p>	9	<p>Response includes battery augmentation, which would also require substantial capacity to cover demand until turbines reach full load</p>
<p>“The commenter suggests that the project should use smaller turbines or a combination of smaller and larger turbines, or even a combination of smaller turbines, larger turbines, <i>and some form of four possible energy storage options</i>. However, the commenter has not provided any specific project designs which could meet the purpose and needs of the project[.]”</p>	10	<p>Petitioner’s comments were too vague to allow more detailed response regarding battery augmentation.</p>
<p>Startup time of 10 minutes to full load “is not adequate to meet the grid stability requirements.”</p>	11-12	<p>Minimum 10-minute startup time for turbines under Petitioners’ battery augmentation approach is not adequate to meet Project purpose.</p>

<p>“The proposed LMS100 CTGs can provide an electric power ramp rate equal to 50 MW per minute per CTG which is critical for the project to meet its purpose. When all 5 proposed CTGs are operating at 25% load, the entire project can provide approximately 375 MW of capacity (i.e., from 125 to 500 MW) in less than 2 minutes.”</p>	<p>12</p>	<p>Petitioners’ battery augmentation approach eliminates turbine operation at 25% load and prohibits achievement of “critical” 50 MW per minute per turbine ramp rate.</p>
<p>“APS has demonstrated that other technologies and options, <i>including energy storage options</i>, smaller turbines, and combined cycle turbines do not meet the project requirements. MCAQD agrees with that demonstration.”</p>	<p>17</p>	<p>Response applies to battery augmentation as well as other storage options.</p>

On April 21, 2016, three months after Petitioner chose not to comment on the revisions, Petitioner filed this Petition, alleging MCAQD failed to respond to its comments regarding energy storage. Petition at 26-33. Petitioner’s appeal is clearly limited to its comments on the *initial* draft permit, barely acknowledging the work done in the *revised* draft permit to address those comments.

The record clearly establishes MCAQD applied its judgment in addressing the issue of energy storage, whether to augment or totally replace the combustion turbines. *See Pio Pico*, 16 E.A.D. at 36 (rejecting similar challenge by petitioner where the region responded point-by-point to petitioner and finding the region did not clearly err or abuse its discretion by not providing detailed responses to undetailed comments). The record establishes MCAQD took great care in researching, assessing, and addressing each of Petitioner’s comments.

C. MCAQD Did Not Commit Error In Failing To Address Those Specifics Petitioner Raises Now For The First Time.

MCAQD acknowledges that Petitioner initially commented on the Permit. However, Petitioner did not comment on the revised permit, which addressed its original comments and squarely presented the issues raised in this appeal. By failing to comment on the revised draft

permit and TSD, Petitioner has raised entirely new technical arguments in its Petition that have *never* been presented to MCAQD but that could have been presented in response to the revised permit. Thus, to the extent MCAQD's responses lacked detail regarding battery and energy augmentation, it is because Petitioner's comments lacked the requisite detail in its comments regarding partial augmentation. *See, generally*, PET-Ex. 4. Therefore, even if MCAQD's responses to Petitioner's comments were not as sufficient as they could have been, the lack of sufficiency is not a demonstration of arbitrary and capricious discretion because MCAQD's responses were in proportion to Petitioner's comments. *See, e.g., Alaska Dep't of Env'tl. Conservation*, 540 U.S. at 497 ("Even when an agency explains its decisions with 'less than ideal clarity,' a reviewing court will not upset the decision on that account 'if the agency's path may be reasonably discerned.'").

Petitioner's failure to participate is quite notable because Petitioner proactively contacted MCAQD to ask if it would have an opportunity to respond to the changes. MCAQD-Ex. 6 (MCAQD Correspondence with Petitioner (9/28/15)) (stating "[i]t looks like [APS] made some pretty significant changes" and asking if Sierra Club would have an opportunity to respond to the changes, to which MCAQD responded it would). Petitioner still chose not to participate even after MCAQD delivered official notice to Petitioner. *See* MCAQD-Ex. 7 (Public Hearing Documents (1/19/16) at 1 (listing at least *two* Sierra Club email addresses as recipients. Note: one may have been undeliverable).

Nonetheless, despite all the technical details in its Petition about how batteries could be used to augment (rather than replace) the turbines, Petitioner provided none of that technical detail in its comments. *Compare* PET-Ex. 4 (Petitioner's Comments) at 6 *with* Petition at 13-14 & nn.9, 10. Petitioner's comment did not clearly propose the option (25-50 MW augmentation)

that it now advocates in detail in its brief for the first time. *See, e.g.*, Petition at 13 & nn. 9-10 (advocating specific configurations in brief that were not included in comments). Further, the Petition offers for the first time that “[t]he energy storage system would... provide power for the short duration of time it took the combustion turbine to reach 25% or 50% load, during which time the combustion unit could gradually take over for the energy storage system.” Petition at 13. While still significantly vague, this is an essential detail regarding how batteries might be used with the turbines in practice to reduce low load idling, but it is conspicuously absent from Petitioner’s comments. See PET-Ex. 4 at 6. This represents an additional failure to preserve the issue on which Petitioner now seeks review. Petitioner’s failure to provide these comments during the public comment period was not for lack of opportunity. MCAQD analyzed Petitioner’s comments on the initial draft permit and offered a new, revised draft permit to address them, but then heard nothing in response. If Petitioner had responded, MCAQD could have addressed the points it now makes in its Petition. Petitioner’s actions have undermined the efficiency, predictability, and finality of the permitting process.

The Board has rejected Petitions under similar circumstances for failing to preserve issues for review. *See, e.g., In re Christian Cty. Generation, LLC*, 13 E.A.D. 449, 459 (EAB 2008) (permit issuer must be given “the first opportunity to address any objections to the permit”). As the Board stated, the purpose of the public comment period is “so that issues may be raised and ‘the permit issuer can make timely and appropriate adjustments to the permit determination.’” *Id.* (quoting *In re Union Cty. Res. Recovery Facility*, 3 E.A.D. 455, 456 (Adm’r 1990)). The requirement that an issue first be raised in comments supports “the longstanding policy that most permit decisions should be decided at the [permit issuer’s] level.” *Palmdale*, 15 E.A.D. at 721. By waiting until filing its Petition to criticize MCAQD’s revised BACT analysis,

Petitioner in this case has deprived the permit issuer of the opportunity to address the issue in the first instance. The requirement that an issue argued in a petition must first be raised in comments “is not an arbitrary hurdle, placed in the path of potential petitioners simply to make the process of review more difficult.” *Prairie State*, 13 E.A.D. at 59 (citations and quotes omitted). Rather, the purpose is to protect the efficiency and integrity of the system and to ensure “the permitting authority has the first opportunity to address any objections to the permit, and that the permit process will have some finality.” *Id.* Entertaining an issue for the first time on appeal undermines the efficiency, predictability, and finality of the permitting process. *Id.* Therefore, Petitioner cannot argue that MCAQD clearly erred in failing to address comments it never raised until now.

The EAB should therefore deny Petitioner’s request because Petitioner had ample opportunity to address these issues with MCAQD without wasting Board resources with an appeal. *See, e.g., Pio Pico*, slip op. at 31 (rejecting petitioner’s similar argument where petitioner failed to address the region’s responses to comments on the same issues). To remand the issue back to MCAQD would reward Petitioner’s lying-in-wait instead of presenting its more detailed comments, as they are now reflected in the Petition, to MCAQD when these comments could have been addressed further.

II. MCAQD PROPERLY DECLINED TO UNDERTAKE A DETAILED EXAMINATION OF ENERGY STORAGE PAIRED WITH TURBINES AS PART OF ITS GHG BACT ANALYSIS BECAUSE THAT ALTERNATIVE WOULD REDEFINE THE SOURCE.

The record demonstrates MCAQD’s BACT analysis was proper and within its discretion. In arriving at the conclusion to exclude the proposed energy storage option at Step 1 and alternatively, Step 2, of the BACT analysis, MCAQD applied the Board’s framework suggested in *In re Prairie State* for assessing whether Petitioner’s proposed option would fundamentally redefine the Ocotillo Plant. In particular, MCAQD: (1) established Ocotillo’s purpose and need;

(2) took a “hard look” at the proposed design; and (3) conducted a BACT analysis. 13 E.A.D. at 23, 26.

A. First, MCAQD Established Ocotillo’s Purpose and Need.

MCAQD first looked to the permit application to see how APS, in proposing the facility, defined the goals, objectives, purpose, or basic design for the proposed facility.

The Ocotillo Plant Modernization Project is, as its name plainly indicates, a modification of an existing gas-fired electric generating plant. The application stated the basic purpose of the Project is “to provide peaking and load shaping electric capacity in the range of 25 to 500 MW including quick ramping capability to backup renewable power and other distributed energy sources...” PET-Ex. 5 at 12. The design “requires quick start and power escalation capability to meet changing power demands and mitigate grid instability caused by the intermittency of renewable energy generation.” *Id.* In particular, APS stated that given the specific solar capacity installed in Maricopa County, “the required electric generating capacity ramp rate required to back up these types of solar systems would therefore range from 165 to 310 MW per minute.” *Id.* The Project is designed to provide approximately 375 MW of ramping capacity in less than 2 minutes. *Id.* According to the applicant, the ability to increase output by 50 MW per minute per turbine is “critical for the project to meet its purpose.” *Id.*

B. Second, MCAQD Took A “Hard Look” At Ocotillo’s Proposed Design.

MCAQD then took a “hard look” at the proposed design, as described throughout the application and other supporting materials, to determine whether the Ocotillo Plant could be improved to reduce its pollutant emissions, including consideration of whether APS’s basic design was “independent of air quality permitting,” and whether energy storage should be considered in Step 1.

MCAQD verified Ocotillo was not avoiding air quality permitting requirements by rejecting energy storage. APS rejected energy storage because it is not consistent with the business purpose of the project, as it cannot provide the needed “rapidly dispatchable power to support renewables and the transmission grid.” PET-Ex. 2 at 8. The record demonstrates APS experiences load swings of up to 300 MW in just a few minutes, and that an alternate project design that would use batteries to replace turbines or eliminate low load operation of the turbines would not allow APS to meet those load swings. PET-Ex. 2 at 8 (stored battery power “may run out before it can be recharged, making the solution unreliable for meeting the full demand”), 9 (battery storage would not allow Project to meet need “on an immediate basis, and potentially for an extended period of time”), 12 (time required for turbines to ramp up from black start when batteries insufficient “is not adequate to meet the grid stability requirements”).

MCAQD evaluated EPA’s permitting history of the power plant industry. MCAQD compared EPA’s responses to similar energy storage issues and applied the analysis here. PET-Ex. 2 at 8-9; PET-Ex. 6 at 38-41. Thereafter, MCAQD issued a revised draft permit with a new draft TSD explaining the basis for the agency’s updated determination. After receiving public comments on the initial draft permit suggesting a variety of alternative sources of energy generation, MCAQD required APS to provide a detailed analysis of energy storage paired with turbines. MCAQD-Ex. 2 (MCAQD Letter to APS (April 29, 2015)). APS provided this initial analysis on June 26, 2015 followed by a complete supplemental application on September 30, 2015. MCAQD-Ex.3 (APS Letter to MCAQD (6/26/15)); PET-Ex. 5. MCAQD determined the proposed equipment was not an “add-on” technology, but rather a new process for supplying electricity. PET-Ex. 2 at 6 (noting that energy storage has a different design than a peaking

facility); *id.* at 5 (noting prior cases that have distinguished between peaking facilities, intermediate load facilities, and base load facilities).

MCAQD clearly satisfied the requirement to take a “hard look” at the issue. The foregoing establishes that the record shows this issue is one of a fundamentally technical nature of which is properly within MCAQD’s purview. *See Dominion Energy*, 12 E.A.D. at 510, 560-62, 645-47, 668, 670-74; *see also, e.g., Russell City Energy Ctr.*, slip op. at 37-41; *In re NE Hub Partners, L.P.*, 7 E.A.D. 561, 570-71 (EAB 1998). As this is a matter that is fundamentally technical in nature and since the record shows MCAQD adequately explained its rationale and supported its reasoning, the Board may defer to MCAQD’s technical expertise and experience and deny Petitioner’s request for remand. *See id.*

C. Under BACT Step 1, MCAQD Considered The Energy Storage Alternative And Properly Excluded It Because It Redefined The Source.

MCAQD followed EPA’s guidance for a BACT analysis as provided in the NSR Manual. Petitioner argues Step 1 of the BACT analysis – thus the entire BACT analysis – was incomplete because MCAQD failed to identify energy storage as a control technology in Step 1. Petition at 17. However, Petitioner’s argument is flawed.

First, MCAQD was not required to consider alternatives that redefined the source. Energy storage redefines the source in this case because energy storage is a fundamentally different process, akin to a different fuel source. EPA and the Board recognize permitting authorities are not required to consider in Step 1 of the BACT analysis alternative controls that would fundamentally redefine the nature of the source proposed by the permit applicant. *See In re Prairie State Generating Co.*, 13 E.A.D. at 23; *see also Red Gate RS* at 5 (“PSD permitting authorities are not required to consider in Step 1 of the BACT analysis alternative controls that would fundamentally redefine the nature of the source proposed by the permit applicant.”);

Shady Hills RS at 10-11 (“EPA disagrees...that zero-emission energy storage should be considered as part of the BACT analysis for the Shady Hills project because it does not fulfill the purpose of the source and would therefore constitute a redefinition of the source.”).²

Second, MCAQD *did* in fact consider energy storage (both full replacement and augmentation) in both Steps 1 and 2 of the top-down analysis. PET-Ex. 2 at 8-9; MCAQD-Ex. 3 (APS Letter to MCAQD (June 26, 2015)) at 7. MCAQD properly eliminated energy storage at Step 1 because it would fundamentally redefine the source. Petitioner asserts that pairing battery storage with the five combustion turbines would not constitute redefinition of the source because it would not alter the Ocotillo facility’s ability to meet APS’s business goals. Specifically, petitioner asserts that a single 25-50 MW paired battery storage unit would eliminate the need for the five turbines to idle at 25% load, and would instead allow the turbines to be turned off. Petition at 19. In such a scenario, according to the petitioner, if grid stability requirements dictated startup of the turbines, the add-on battery unit would provide energy while the turbines begin their startup and ramp to full power, a process that would require 10 minutes. Petition at 19; PET-Ex. 2 at 10.

However, this alternative redefines the Project for two reasons. First, MCAQD properly rejected energy storage because it is a fundamentally different process from generating electricity through natural gas combustion. APS has proposed the modification of an existing gas-fired electric generating plant. As MCAQD noted in its response to comments, this project is similar to the Red Gate project that EPA Region 6 approved without requiring energy storage. PET-Ex. 2 at 6 (noting that “energy storage first requires separate generation and the transfer of the energy

² In clarification of MCAQD’s responses to Petitioner’s comments, PET-Ex. 2 at 4, EPA Region 4’s Red Gate RS did not assert that energy storage was inappropriate in Step 1 *as a matter of law*. Rather, Red Gate only asserted that those options that constitute redefinition of the source are not *required* to be included in Step 1 of a BACT analysis. *See* Red Gate RS at 5. Nonetheless, this characterization does not affect the outcome as the latter conforms to MCAQD’s analysis here.

to storage to be effective . . . [it] is a fundamentally different design than a RICE resource that does not depend upon any other generation source to put energy on the grid”) (quoting Red Gate RS at 2). Even if energy storage technology was merely added to the Project, that is, that all of the proposed turbines were constructed and battery technologies were then paired with the turbines as Sierra Club describes in the Petition, this would require a portion of the electricity that the Project produces to be based off of energy storage. That portion would essentially be from a different kind of energy generation process, and thus be analogous to a different kind of fuel. In many previous cases, the Board has rejected the suggestion that a source must use a different kind of fuel. For example, in *Prairie State*, the Board held the permitting authority did not clearly err when it ruled that a different source of fuel – in that case, low-sulfur coal – would require the permit applicant “to redefine the fundamental purpose or basic design” of the project, and thus “low-sulfur coal could appropriately be rejected from further BACT analysis at Step 1 of the top-down BACT review method.” 13 E.A.D. at 28.

The Board has also recognized that EPA’s position on this matter is that “proposed changes to an applicant’s proposed primary fuel” constitute “redefinition of the source.” *La Paloma*, slip op. at 24. As a delegated entity, MCAQD seeks to comply with EPA precedent. For that reason, MCAQD relied on EPA’s Response to Comments on the Red Gate PSD Permit, as noted in MCAQD’s response to comments here. RS at 6 (noting EPA’s conclusion that energy storage replacing part or all of the project results in a fundamental redefinition of the source). Adding battery storage is a far cry from merely another “primary fuel.” Strictly speaking, it is not even another process for *making* electricity, since a battery cannot produce electricity at all: it is another way of distributing electricity.

Second, the Petitioner’s recommendation redefines the source because it does not meet APS’s business goals for the Project. The key here is how “the *applicant*, in proposing the facility, defines the goals, objectives, purpose, or basic design for the proposed facility.” *Prairie State*, 13 E.A.D. at 23 (emphasis added). The purpose of the Project is “to provide peaking and load shaping electric capacity in the range of 25 to 500 MW including *quick ramping capability* to backup renewable power and other distributed energy sources...” PET-Ex. 5 at 12 (emphasis added)]; *see also* PET-Ex. 2 at 6-7 (discussing purpose of the Project). In particular, the Project is designed to provide a specific quick ramping capacity of approximately 375 MW in less than 2 minutes. *Id.* That design is essential to “meet changing power demands and mitigate grid instability caused by the intermittency of renewable energy generation.” *Id.*

Petitioner argues there is “no evidence on the record” that the Project’s specific ramping capacity “is part of APS’s business purpose or need,” Petition at 23, and even goes so far as to claim that this capacity was “not asserted as a purpose of the project.” *Id.* at 16. This is demonstrably incorrect. APS’s application materials are abundantly clear that the Project is designed to meet APS’s specific need for quick-ramping generating capacity as backup for intermittent solar generation on its grid. *See, e.g.*, PET-Ex. 5 at 12. The load fluctuations that already occur on APS’s grid match what the Project is designed to provide, and studies show that the projected need for ramping capacity will be even greater in the future. *Id.* Therefore, the ability to provide 375 MW in less than 2 minutes is not just a “descriptive capability of APS’s preferred configuration,” Petition at 23, it is an essential part of the Project’s design that is necessary to satisfy an identified business need for a specific amount of ramping capacity.

Petitioner claims this need is invalid because it was “only added *after* APS reviewed Sierra Club’s comments” on the initial draft permit. *Id.* However, throughout the permitting

process, APS was clear that the Project's purpose was to provide "firm electric capacity which can be *quickly and reliably dispatched* when renewable power, or other distributed energy sources are unavailable." PET-Ex. 7 at 2 (emphasis added). By specifying the exact ramping capacity it required, APS simply provided additional detail regarding the Project's purpose; it did not alter it. There is nothing unseemly or inappropriate about adding detail to refine the stated purpose for a source when questions are raised during the administrative process. Indeed, the purpose of the public comment period is to identify questions so they can be addressed. If Petitioner objected to MCAQD's consideration of APS's more specific statement of the Project's purpose, it should have raised those objections during the comment period on the revised draft permit.

MCAQD verified APS's description of the Project's purpose after taking a "hard look" at the APS application. In preparing the revised draft permit, MCAQD evaluated the revised application materials and recognized that the large amount of power (375 MW), the short time range (2 minutes), and the ramp rate (50 MW/minute/turbine) were all critical for this Project, based on the purposes as set out by APS. PET-Ex. 6 at 7; *see also* PET-Ex. 2 at 10 (stating that "when all 5 proposed CTGs are operating at 25% load, the entire project can provide approximately 375 MW of capacity (i.e., from 125 MW to 500 MW) in less than 2 minutes"). As noted in the TSD, the current solar capacity in Maricopa County means that "the required electric generating capacity ramp rate required to back up these types of solar systems would therefore range from 165 to 310 MW per minute." PET-Ex. 6 at 6. Further, increased renewable penetration in the grid may lead to "multiple times of peak demand throughout the day." *Id.* at 5. MCAQD took a hard look at the Project as proposed and determined these specific design elements were critical to meet the Project's purpose because they are what will allow APS to

mitigate the grid volatility resulting from increased integration of intermittent renewable energy generation into the grid, especially distributed rooftop solar units, as explained above. *See also id.* (“The LMS100 GTs have the quick start and power escalation capability that is necessary to meet changing power demands and mitigate grid instability caused by the intermittency of renewable energy generation.”); *id.* (noting that quick ramp up, idling at low load, and changing load quickly are all “absolutely necessary to integrate with and fully realize the benefits of distributed energy such as solar power and other renewable resources.”).

Idling the five turbines at 25% load provides the ability to quickly ramp all of the turbines to full power (500 MW) within 2 minutes, a design requirement of the Project that “is critical for the project to meet its purpose” and cannot be duplicated by paired battery storage. PET-Ex. 2 at 12. Because this ability is an inherent design element of this project, and because petitioner’s assertion does not provide the same ability, MCAQD concluded that paired battery storage would constitute redefinition of the source. As MCAQD stated in record, the needed ramping capacity can only be met by the turbines if they are left idling at 25% base load. *See* PET-Ex. 6 at 7; PET-Ex. 2 at 17 (noting that idling at 25% load “is indeed part of the normal operation of these units, and is in fact an important design concept for the LMS100 CTG and for the planned Project”); PET-Ex. 2 at 12 (10 minute period required to start up turbines from black start without low load idling “is not adequate to meet the grid stability requirements”).

But energy storage, as proposed by Sierra Club, does not provide the same magnitude of power, nor does it do so in the same response time, both of which are design requirements of the Project for it to handle multiple peak demands or deal with lengthy periods of demand. As MCAQD stated in the response to comments, Sierra Club “has not shown that combined cycle units can provide this *very fast response time* over a range of 25 MW to 500 MW, which is a

design requirement for this Project.” PET-Ex. 2 at 10 (emphasis added). MCAQD is still not aware of – and Petitioner has not presented – information showing a partial battery facility that can provide the proposed maximum power capacity of 375 MW in less than two minutes. Petitioner’s alternative fundamentally redefines the source because it does not allow Ocotillo to respond in two minutes, as designed. Indeed, even Petitioner concedes this in its brief in that its alternative fails to meet the two-minute design requirement. Petition at 16. For these reasons, MCAQD properly concluded in its Response to Comments that battery storage “is not compatible with the purpose and design of a true peaking facility such as the Project to provide rapid, reliable power.” PET-Ex. 2 at 8.

Further, Petitioner’s claim that a battery installation at a baseload coal-fired power plant in Chile means battery storage would not redefine the source proposed here is baseless. The battery at that facility is used for an entirely different purpose than what Sierra Club has proposed in the Petition. As Petitioner concedes, the Chilean facility is a baseload power plant, whereas the Ocotillo Project is designed to serve peak load requirements, meaning that the Project here will have to start and stop more frequently in response to changing demand. The Board has recognized that it is “appropriate for the permitting authority to distinguish between electric generating stations designed to function as ‘base load’ facilities and those designed to function as ‘peaking’ facilities, and that this distinction affects how the facility is designed and the pollutant emissions control equipment that can be effectively used by the facility.” *Prairie State*, 13 E.A.D. at 25. In addition, the Chilean facility does not use its small battery storage to replace operation at low loads or during startup, as Sierra Club argues should be done for the Ocotillo Project, or even to “improve efficiency,” Petition at 26. Instead, the Chilean facility uses its battery storage to satisfy its obligation to provide “spinning reserve” to the grid, allowing it to

use more of its coal-fired capacity to generate electricity. PET-Ex. 4 at 89. This is an entirely different use than Sierra Club suggests here, and it would not help meet the Ocotillo Project's purpose. Finally, Sierra Club's own documents show that the Chilean facility's battery can only provide 15 minutes of generation. *Id.* In that regard, the facility is no different from the Laurel Mountain and Notrees battery storage systems that MCAQD considered and rejected in the RS, which both also cannot generate sufficient electricity to serve the Project's needs. *See* PET-Ex. 2 at 8 (Laurel Mountain and Notrees only supply 8.0 and 9.0 MWh of output, representing 15 minutes of generation at their capacities of 32 and 36 MW, respectively).

Because MCAQD possesses the technical expertise, the Board may give deference to its determination. *See Dominion Energy*, 12 E.A.D. at 510, 560-62, 645-47, 668, 670-74; *see also*, *e.g.*, *Russell City Energy Ctr.*, slip op. at 37-41, 88; *NE Hub*, 7 E.A.D. at 570-71.

D. Under BACT Step 2, MCAQD Eliminated Technically Infeasible Options.

As the above analysis shows, even if the energy storage alternative passed Step 1, it would have been eliminated at Step 2 because it is technically infeasible for this project. *Cf. La Paloma*, slip op. at 27-28 (explaining that while technical feasibility considerations can be analyzed under BACT Step 2, they “may also inform a permitting authority’s decision whether a proposed use of a different fuel [or process] would require redesign of the source”). Petitioner’s proposed ten-minute ramp up timeframe makes it technically infeasible for the Project to be able to react, in all necessary circumstances, to the variability created by enhanced renewable generation. PET-Ex. 6 at 5 (noting need for quick ramp up time to address renewable resources); PET-Ex. 2 at 3. APS has already experienced “rapid load changes from renewable energy sources of 25 to 300 MW in very short time periods.” PET-Ex. 5 at 12. Based on the solar capacity of Maricopa County, MCAQD understands that APS may need access to a ramp rate between 165 and 310 MW *per minute*. PET-Ex. 6 at 6. As this information shows, the two-

minute ramp up rate is critical to be able to cover the such large and quick energy load swings. *See* PET-Ex. 2 at 12. A longer timeframe is unworkable because the solar energy load swings expected by APS can occur faster than ten minutes, meaning APS would not be able to provide the reliability needed for increasing amounts of renewables. *Id.* (10 minute startup time “is not adequate to meet the grid stability requirements”); PET-Ex. 6 at 6.

Battery storage on the scale and duration needed is technically infeasible. PET-Ex. 2 at 8 (“[T]here is no available energy storage option that could supply a maximum power output of 500 MW for a potentially extended period of time”); *id.* at 8-9 (describing limitations of existing battery technologies). As explained in the response to comments, ensuring reliability with increasing renewables requires “a system that can meet not only a short peak demand, but also several short peak demands in a row, an extended peak demand, or even several extended peak demands.” PET-Ex. 2 at 8. The prospect of running out of stored power, which would inevitably happen given that battery technology cannot store the large amounts of power needed here, means that reliability would be threatened. *Id.*

Further, Petitioner concedes that under its proposed battery storage approach, the Project’s turbines would still require at least ten minutes to reach full load from a black start. Petition at 16. As MCAQD explained in its Response to Comments, this ramp-up time is “not adequate to meet the grid stability requirements.” PET-Ex. 2 at 12. Therefore, in order to meet its purpose of quickly responding to load swings, APS would need to install sufficient battery storage to provide the Project’s entire ramping capacity of 375 MW. Petitioner has not suggested battery storage is feasible in amounts anywhere near that capacity. *See* Sierra Club Comments at 5 (largest battery facility cited is planned 100 MW facility). Moreover, MCAQD has concluded that it is not technically feasible. *See*, PET-Ex. 6 at 39.

Petitioner provides no alternative to satisfy these design requirements, *see, generally*, Petition and PET-Ex. 4, and Petitioner cites no other permitting agency that has found energy storage not to redefine the source.³ *See, generally, id.* That silence is telling.

Because MCAQD possesses the technical expertise, the Board may give deference to its determination. *See Dominion Energy*, 12 E.A.D. at 510, 560-62, 645-47, 668, 670-74; *see also, e.g., Russell City Energy Ctr.*, slip op. at 37-41, 88; *NE Hub*, 7 E.A.D. at 570-71.

CONCLUSION

Based on the foregoing, MCAQD respectfully requests that the Board deny review of MCAQD's Permit.

Date: May 12, 2016

Respectfully submitted,

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³ Petitioner cites to an excerpt from the application for the Mission Rock Energy Center as support for its argument that battery storage is technically feasible. Petition at 26-27 (citing PET-Ex. 9). This partial application does not warrant granting review in this case. First, the Mission Rock application was not the subject of any public comment, and it is not in the record. *See, e.g., Dominion Energy*, 12 E.A.D. at 518-19, 613 n.195 (explaining that Board cannot consider documents that were submitted for the first time after permit issuance and citing cases). Second, the Mission Rock excerpt does not refute MCAQD's analysis for the Ocotillo project in any event. Nothing in the Mission Rock excerpt suggests that its proposed battery storage technology could meet the Ocotillo requirements; namely, the capability to provide up to 375 MW within two minutes for peaking capacity needed to support renewable power sources.

STATEMENT OF COMPLIANCE WITH WORD LIMITATION

I hereby certify that this Response to Petition submitted by MCAQD, exclusive of the Table of Contents, this Statement of Compliance, and the attached Certificate of Service, contains 12,497 words, as calculated using the word count function in Microsoft Word word-processing software, and therefore complies with the 14,000 word limitation in 40 C.F.R. §§ 124.19(d)(1)(iv) and (3).

/s/ Robert C. Swan

Robert C. Swan

CERTIFICATE OF SERVICE

I hereby certify that MCAQD served copies of **MCAQD'S RESPONSE TO PETITION** in the matter of Arizona Public Service Company Ocotillo Power Plant, Appeal No. PSD 16-01, by email on the persons listed below.

Dated: May 12, 2016

/s/ Robert C. Swan

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