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March 27, 2012

Via e-mail: clee@baaqmd.gov

Ms. Carol Lee
Bay Area Air Quality Management District
939 Ellis Street
San Francisco, California 94109

Re: Comments on the Bay Area Air Quality Management District's Proposed Amendments to Regulation 2 (Permits) New Source Review and Title V Permit Programs

Dear Ms. Lee:

Calpine Corporation ("Calpine") appreciates the opportunity to provide these comments on the Bay Area Air Quality Management District's ("BAAQMD" or the "District") proposed amendments to its New Source Review and Title V permit programs, as set forth at BAAQMD Regulation 2 (Permits), Rule 1 (General Requirements), Rule 2 (New Source Review), Rule 4 (Emissions Banking) and Rule 6 (Major Facility Review) ("Proposed Amendments").

I. INTRODUCTION AND SUMMARY

Calpine is the state's largest independent power producer, owns the state's largest fleet of combined heat and power ("CHP") or cogeneration facilities and is also the state's largest provider of renewable energy, generating over 725 megawatts ("MW") of renewable energy at the geothermal reservoir known as The Geysers, located just to the north of the Bay Area in Northern Sonoma and Lake Counties. Calpine also owns and operates more facilities subject to the District's Major Facility Review (Title V) permitting program than any other company.

Calpine understands and appreciates that the District's Proposed Amendments of its new source review ("NSR"), prevention of significant deterioration ("PSD") and Title V permit programs are needed to satisfy the requirements of the U.S. Environmental Protection Agency's ("EPA's") Greenhouse Gas ("GHG") Tailoring Rule, as well as to address the federal requirements for fine particulate matter (less than 2.5 microns in diameter ("$PM_{2.5}$")). Indeed, Calpine obtained the most recent federal PSD permit issued by the District for the ongoing construction of Russell City Energy Center, a highly efficient 620-MW combined cycle natural gas-fired power plant located in Hayward, California. The project's PSD permit, which was issued by the District pursuant to delegation of authority from EPA Region 9, was the first federal PSD permit to include "best available control technology" ("BACT") limits on GHG emissions. Calpine voluntarily agreed to the inclusion of these limits in the permit, even before they became required under EPA's Tailoring Rule. Since then, the District's PSD permit for Russell City has stood as an example for EPA in its development of guidance on how to apply BACT to GHGs

and has been followed by EPA and state permitting agencies in several permits they have issued pursuant to the Tailoring Rule.

Given Calpine's experience working with the District to obtain and defend the PSD permit for Russell City and, more generally, our experience permitting more major facilities in the Bay Area than any other company, Calpine strongly endorses the District's proposal to move forward with adoption of amendments to Regulation 2 that can ultimately be approved by EPA as part of the California State Implementation Plan ("SIP") pursuant to 40 CFR § 51.166. Implementation of the federal PSD program requirements pursuant to a SIP-approved program, rather than a delegation of authority from EPA Region 9, should avoid unnecessarily duplicative and lengthy processes associated with issuance of separate permits pursuant to both the District's rules and 40 CFR § 52.21.

Although it supports the District's overall goals, Calpine has concerns that, as drafted, the Proposed Amendments could trigger the requirements of New Source Review and PSD for efficiency improvements at existing facilities that would result in no increase in daily or annual emissions above currently permitted levels. Calpine therefore offers the following comments, which are described in more detail below, to assure that the District's rules do not stand as an obstacle to the accomplishment of important upgrades that would achieve real reductions in both GHGs and criteria pollutants, per unit of energy generated, and to clarify application of the District's rules:

- The District should consider adopting the federal program's "actual-to-projected actual" applicability test and flexible baseline period, as other California air districts have done upon adopting revisions to their permitting programs in response to the Tailoring Rule. The fact that these other Districts have done so confirms these elements of the federal program do not amount to a relaxation in requirements that existed prior to EPA's adoption of its New Source Review ("NSR") reform, which would be precluded by Senate Bill ("SB") 288. Moreover, the District has never previously adopted rules that apply to either GHGs or $PM_{2.5}$. As a consequence, adoption of the actual-to-projected actual test and flexible baseline period cannot constitute a relaxation of existing requirements with respect to these newly regulated pollutants. Accordingly, the District should follow the model of other major air districts and consider adoption of these elements of the federal program, at the very least with respect to pollutants that were never previously regulated by District rules.

- The District should revise the Proposed Amendments' definition of "Modify", so it does not include changes resulting in no increase in emissions above limits which apply to the combined emissions from both a changed source and a related source dependent on the changed source for its operation.

- The District should revise the Proposed Amendments' definition of "PSD Pollutant" so it does not confusingly suggest that, where a particular pollutant – in particular, $PM_{2.5}$ – is subject to a "split" designation pursuant to National Ambient

Air Quality Standards ("NAAQS") for different averaging periods, it will remain subject to PSD for any NAAQS and averaging period for which the Bay Area continues to be designated attainment/unclassifiable.

II. DISCUSSION

A. The District Should Consider Adopting The Federal Program's "Actual-to-Projected Actual" Applicability Test And Flexible Baseline Period, At Least With Respect To GHGs And $PM_{2.5}$

Calpine is concerned that, as drafted, the Proposed Amendments could trigger BACT for efficiency improvements at existing facilities that would not trigger the requirements of NSR and PSD under the federal regulations. In particular, Calpine is currently undertaking a program of efficiency upgrades for existing combined cycle gas turbines ("CCGTs") throughout its fleet. These turbine upgrades incorporate state-of-the-art improvements in CCGT design and performance, making it possible for existing facilities to generate more power more efficiently. Upon issuing the PSD permit for Russell City, the District recently found – and EPA has since then similarly found – that such advanced CCGT upgrades constitute BACT for GHG emissions. While such upgrade projects would result in a net reduction in the GHG and criteria pollutant emissions per unit of energy generated, the possibility of triggering a full BACT review could stand as an obstacle to the accomplishment of such upgrades, foregoing the important air quality and climate change benefits they would achieve.

For these reasons, Calpine would encourage the District to consider the approach that other California air districts have taken in seeking to satisfy the requirements of the Tailoring Rule in rules submitted by the California Air Resources Board ("CARB") to EPA. A number of these districts have relied upon the California Air Pollution Control Officers' Association's ("CAPCOA's") model rule, which incorporates by reference almost the entirety of EPA's PSD permitting regulations, excluding only certain elements of EPA's NSR reform initiative,[1] *e.g.*, the judicially stayed exemption for replacement of functionally equivalent equipment components that do not exceed a certain percentage of the process unit's replacement value (40 CFR § 52.21(b)(55)-(58) and (cc)).

Importantly, these districts have adopted the federal program's calculation methodologies, which allow for comparison of actual emissions with projected actual emissions to determine whether a change results in a significant emissions increase triggering PSD. For examples of this approach, please review the following rules: San Joaquin Valley Air Pollution Control District ("APCD") Rule 2410, adopted June 16, 2011, submitted to EPA by CARB on August 23, 2011[2]; Santa Barbara County APCD Rule 810, adopted January 20, 2011, submitted to EPA by CARB on June 21, 2011[3]; Ventura County APCD Rule 26.13, adopted June 28, 2011, submitted to EPA by

[1] 67 Fed. Reg. 80186 (Dec. 31, 2002).

[2] Available at: http://www.valleyair.org/rules/currntrules/3.%20Rule_2410_6.16.2011.pdf.

[3] Available at: http://www.sbcapcd.org/rules/download/rule810.pdf.

CARB on August 23, 2011[4]; Imperial County APCD Rule 904, adopted June 28, 2011, revised December 20, 2011 and submitted to EPA by CARB on February 23, 2012[5]; Placer County APCD Rule 518, adopted February 10, 2011 and sent to EPA on June 21, 2011[6]; San Luis Obispo County APCD Rule 220, adopted March 23, 2011[7], sent to EPA August 23, 2011; and Feather River Air Quality Management District Rule 10.10, adopted August 1, 2011[8]. Similarly, the San Diego County APCD recently proposed to adopt Rule 20.3.1, which is also based on the CAPCOA model rule and would incorporate-by-reference the actual-to-projected actual calculation methodology and federal baseline period.[9] San Diego County APCD's Board is scheduled to consider adopting this proposal on April 4, 2012.

The fact that CARB has already submitted these rules to EPA for approval as part of the SIP confirms that adoption of the actual-to-projected actual calculation methodology does not constitute a relaxation of existing requirements prohibited by SB 288 (Cal. Health and Safety Code §§ 42500 *et seq.*), which was adopted to prevent California air districts from relaxing their existing rules in response to EPA's promulgation of NSR reform. Indeed, even before NSR reform, as a result of the decision in *Wisconsin Electric Power Corp. v. Reilly*, 893 F.2d 901 (7th Cir. 1990), EPA had authorized the use of the actual-to-projected actual test for changes to electric utility steam generating units. *See* 57 Fed. Reg. 32314 (July 21, 1992).[10] Thus, for more than a decade before promulgation of NSR reform, electric utility steam generating units, such as Calpine's combined-cycle facilities, were authorized by the federal PSD program to utilize the actual-to-projected actual test. Therefore, it simply is not the case that allowing electric generators within the District to apply the actual-to-projected actual test would amount to a relaxation of the requirements that existed at the time of EPA's 2002 NSR reform initiative.

The Proposed Amendments' adoption of an actual-to-potential test could be particularly problematic with respect to GHGs. As the District is aware, GHGs are emitted in vastly greater amounts than other regulated pollutants. As such, it is possible that the 75,000-ton per year threshold for GHGs could trigger a BACT review under the actual-to-potential methodology, when no such increase would occur under the actual-to-projected actual methodology. The same

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[4] Available at: http://www.vcapcd.org/Rulebook/Reg2/RULE%202613f.pdf.

[5] Available at: http://www.co.imperial.ca.us/AirPollution/Forms%20&%20Documents/RULEBOOK/2012%20RULES/1RULE904.pdf.

[6] Available at: http://www.arb.ca.gov/DRDB/PLA/CURHTML/R518.PDF.

[7] Available at: http://www.arb.ca.gov/DRDB/SLO/CURHTML/R220.PDF.

[8] Available at: http://www.fraqmd.org/Rules/Updates/Rule_10-10.pdf.

[9] Available at: http://www.sdapcd.org/homepage/public_part/Tailoring_Rules.pdf.

[10] This decision was based in part upon EPA's "extensive experience with electric utilities", which "provide EPA an adequate basis on which to predict future actual emissions from such units in most cases." 56 Fed. Reg. 27630, 27631 (June 14, 1991) (proposed rule).

holds true with respect to $PM_{2.5}$ because it is not capable of continuous emissions monitoring and can only be quantified through calculations which are based upon fuel usage.

This problem is only compounded by the proposal to adopt a "one-size-fits-all" baseline period. *See* Proposed Amendments, Reg. 2-2-603, 2-2-604. In light of the serious economic decline experienced by sources throughout the country and Bay Area in the past three years, application of such a uniform three-year baseline could result in illusory increases in emissions for many maintenance and improvement projects, when no actual increase would result if a more representative baseline period were selected instead, as authorized by the federal rules.

For the foregoing reasons, Calpine would strongly urge the District to follow the same approach as the other California air districts that have found that adoption of these important elements of the federal program would not amount to a relaxation of existing requirements prohibited by SB 288. This includes the San Joaquin Valley APCD, Santa Barbara County APCD, Ventura County APCD, Imperial County APCD, Placer County APCD, San Luis Obispo County APCD and Feather River Air Quality Management District. As noted above, the San Diego County APCD is similarly poised to adopt such an approach.

Further, the South Coast Air Quality Management District has also adopted CAPCOA's model rule specifically with respect to GHGs. *See* South Coast Air Quality Management District Rule 1714, adopted November 5, 2010, sent to EPA December 30, 2010.[11] As a consequence, in the South Coast Air Quality Management District, PSD and BACT for GHGs will not be triggered solely by virtue of illusory "increases" in GHG (relative to a historic baseline that reflects the decreased economic activity of the recession). Nor would such efficiency improvements trigger PSD review for either GHGs or other attainment pollutants in any of the other air pollution control districts that have taken the incorporation-by-reference approach, as described above.

At the very least, the District should consider adopting the federal calculation methodologies and baseline with respect to GHGs and $PM_{2.5}$. For the same reason that the South Coast Air Quality Management District concluded that the incorporation-by-reference approach with respect to GHGs would result in no relaxation of its existing NSR program, the District could certainly take this approach with respect to emissions of GHGs and $PM_{2.5}$, neither of which has previously been subject to regulation under the District's NSR rules. Further, we see no reason why the District could not adopt such an approach, both with respect to its PSD program and its non-attainment NSR provisions for pollutants that never were previously regulated by District rules.

B. The District Should Revise The Proposed Definition Of "Modify" To Confirm It Does Not Include Changes That Result In No Increase Above Combined Limits Applicable To Both A Dependent And Related Source

The District has proposed to amend the definition of "Modified Source" in several respects to clarify when increases in potential emissions constitute a modification and therefore trigger applicability of New Source Review requirements set forth at Regulation 2, Rule 2. *See*

[11] Available at: http://www.aqmd.gov/rules/reg/reg17/R1714.pdf.

Proposed Amendments, Reg. 2-1-234. If the source is subject to daily or annual emissions limits imposed pursuant to New Source Review requirements or to avoid such requirements, then the source will not be deemed to be modified unless it increased emissions above such permitted limits. *Id.*, Reg. 2-1-234.1.[12] The Proposed Amendments would preclude source owners from relying for this purpose on "any permit limit that applies to combined emissions from multiple sources, unless it imposes an effective limit specifically on the emissions from the individual source at which the change will occur." *Id.* This is problematic and could cause certain efficiency upgrades to be deemed a "modification", when they would not constitute a modification under the District's existing rules.

In many cases, Calpine's CCGT facilities are subject to limits on emissions from both the CCGT and supplemental (*i.e.*, duct) firing in the heat recovery steam generator ("HRSG"), on a combined basis. Supplemental firing cannot occur in the HRSG unless the CCGT is already being operated. Thus, the HRSG is not an independent source, although it may be permitted as one by the District. Further, although the CCGT may be subject to separate emissions limits when operated without any supplemental firing, emissions from both the CCGT and HRSG are measured continuously at the same stack on a combined basis.

Under the Proposed Amendments, it is possible that certain CCGT upgrade projects (as described above) would be deemed a "modification", even though there would be no increase in emissions above permitted levels. This is because such upgrade projects may make it possible to increase firing of natural gas in the CCGT itself, *i.e.*, more gas could be combusted on an hourly basis to generate more energy more efficiently. Emissions of oxides of nitrogen ("NOx") and carbon monoxide ("CO") would experience no increase on an hourly, daily or annual basis and would, in fact, be reduced, when measured in terms of emissions per unit of either energy generated (in megawatt-hours ("MWh")) or fuel combusted (in million British thermal units ("MMBtu")). However, because emissions of both precursor organic compounds ("POC") and particulate matter ("PM") are not instantaneously measured at the stack, but are calculated based upon source test results and the amount of fuel combusted, the ability to fire more gas in the CCGT could be mistaken to result in an increase in emissions of these pollutants as well, when no such increase would actually occur. The same holds true with respect to GHGs, which are calculated based upon fuel flow and standard emissions factors. This illusory "increase" in emissions could trigger BACT for the CCGT, posing serious practical and economic barriers to accomplishment of such upgrade projects within the District. Undoubtedly, this would lead to the cancellation of projects within the District or their proposal elsewhere, in jurisdictions that more closely followed the federal regulations.

[12] If the source is not subject to such limits, then the source will be deemed to be modified if its actual physical capacity to emit air pollutants as installed is increased above the lowest of its: (1) maximum operational capacity, based on design information, engineering specifications, historical operational records or other reliable information; (2) effective capacity, as limited by any bottleneck imposed by upstream or downstream processes; or (3) capacity, as represented at the time the source was permitted. *Id.*, Reg. 2-1-234.2.

The Proposed Amendments could be revised to avoid such a result by clarifying that, so long as the emissions from, and fuel flow to, an individual CCGT-HRSG train does not exceed the existing combined limitations for same, then it would not constitute a modification. This could be accomplished by creating a new definition of "dependent source" and revising the Proposed Amendments' exclusion from Subsection 234.1 so it specifically provides that, where the emissions from a source and its dependent source would not exceed the existing limitation on the two sources, on a combined basis, the change would not constitute a modification.

Our proposed language to accomplish this change is as follows:

2-1-243 **Dependent Source**: A source that may be separately permitted by the District, but is dependent upon another source for its operation, such that the dependent source cannot be operated unless its related source is also being operated, e.g., in a combined-cycle power plant, a heat recovery steam generator with supplemental firing is a dependent source whose operation depends upon that of the related gas turbine.

2-1-234 **Modify**: To make any physical change, change in method of operation, change in throughput or production, or other similar change at an existing source that results in an increase in daily or annual emissions in any one of the following amounts:

234.1 If the source's daily and/or annual emissions are subject to an enforceable permit limit (including a surrogate limit on operating conditions such as production rate or capacity that is effective as a limit on daily or annual emissions) that was imposed pursuant to New Source Review requirements under District Regulation 2, Rule 2 or 40 C.F.R. Section 52.21, or as a limit imposed to avoid such New Source Review requirements by keeping emissions below New Source Review applicability thresholds, an increase in the source's potential to emit above such permitted limit. This Subsection 234.1 does not apply to any permit limit that applies to combined emissions from multiple sources, unless it imposes an effective limit specifically on the emissions from the individual source at which the change will occur or on the combined emissions from both a dependent source and its related source. If the daily and/or annual emissions from a dependent source and its related source will not exceed such an enforceable permit limit on the combined emissions from the two sources, then the change shall not constitute a modification pursuant to this Subsection.

Under this proposal, the CCGT upgrade project would still constitute an alteration and the District would have the authority to impose any conditions it deems necessary to assure that no actual increase in emissions would occur. The CCGT would also continue to meet any existing unit-specific emissions limits. However, so long as combined emissions from, and heat input to, each CCGT and its dependent HRSG remained below the combined CCGT-HRSG train's permitted emissions levels and heat input, the change would not constitute a "modification".

This proposed revision would merely clarify how the District's existing definition of "Modified Source" applies to the circumstance where a CCGT and HRSG are subject to combined limitations on emissions and/or heat input. Accordingly, our proposed revision would not constitute a relaxation of any of the existing applicability tests, but would avoid the potential consequences of the District's Proposed Amendments, which unduly preclude reliance upon combined limits in all circumstances.

C. The District Should Confirm That, Where The Bay Area Is Designated Non-Attainment For One NAAQS For A Particular Pollutant, The Pollutant Does Not Constitute A "PSD Pollutant"

The Proposed Amendments include a new definition of "PSD Pollutant", which expressly excludes "pollutants for which the San Francisco Bay Area has been designated as non-attainment of a California or National Ambient Air Quality Standard (and precursors of such pollutants)." Proposed Amendments, Reg. 2-2-223. The definition of "Significant" also includes an explanatory note that states as follows: "Pollutants for which the Bay Area is designated as non-attainment of a NAAQS are not subject to the PSD requirements in Section 2-2-304 through 2-2-307 by operation of 40 C.F.R. Section 52.21(i)(2). $PM_{2.5}$ and VOC (as an ozone precursor) are therefore not subject to these PSD requirements as long as the Bay Area remains non-attainment for any $PM_{2.5}$ or ozone NAAQS, respectively." *Id.*, Reg. 2-2-226.2 (note *). This makes it clear that, although the Bay Area is currently subject to a "split designation" for the PM2.5 NAAQS (*i.e.*, it is non-attainment for the 24-hour $PM_{2.5}$ NAAQS, but attainment/unclassifiable for the annual PM2.5 NAAQS), PSD does not apply to $PM_{2.5}$ for either NAAQS.

We understand this to be consistent with EPA's interpretation and application of the exemption set forth at 40 C.F.R. Section 52.21(i)(2), which clearly states that all of the substantive requirements for PSD "shall not apply to a major stationary source or major modification with respect to a particular pollutant if the owner operate demonstrates that, as to that pollutant, the source or modification is located in an area designated as non-attainment under section 107 of the Act." 40 C.F.R. § 52.21(i)(2). Thus, the federal regulations make clear that applicability is determined "as to that *pollutant*", rather not standard (*id.*, emphasis added), regardless that the pollutant might be subject to multiple federal standards or averaging periods.

Against this clear understanding, the second sentence of the Proposed Amendments' definition of "PSD Pollutant" is both confusing and contradictory. It provides that, "[i]f a pollutant is subject to multiple ambient air quality standards (*e.g.*, state and federal standards or standards established for different averaging periods), the pollutant shall be treated as a PSD Pollutant only for the ambient air quality standard(s) for which the San Francisco Bay Area has not been designated as non-attainment." Proposed Amendments, Reg. 2-2-223. We understand that this sentence may be intended to confirm that, although the Bay Area may be designated non-attainment for the State standards for a particular pollutant, that same pollutant may nevertheless be subject to PSD review with respect to federal standards for which the Bay Area is designated attainment, and vice versa. This sentence incorrectly suggests, however, that, where a pollutant, such as $PM_{2.5}$, is subject to multiple federal standards for different averaging periods, it would

continue to be subject to PSD review for any standard and averaging period for which the Bay Area remains in attainment. This is not the way the federal exemption at 40 C.F.R. § 52.21(i)(2) applies. Although the explanatory note to the definition of "Significant" is clear that $PM_{2.5}$ shall not be subject to PSD so long as the existing nonattainment designation (for the 24-hour standard) continues, the second sentence of the definition of "PSD Pollutant" suggests a contrary result that is wholly inconsistent with the federal regulations.

To resolve this confusion, we would suggest amending the definition of "PSD Pollutant" as follows:

2-2-223 **PSD Pollutant**: Any Regulated NSR Pollutant as defined in 40 C.F.R. Section 52.21(b)(50), except (i) hazardous air pollutants listed pursuant to Section 112(b) of the Clean Air Act and (ii) pollutants for which the San Francisco Bay Area has been designated as non-attainment of a California or National Ambient Air Quality Standard (and precursors of such pollutants). If the San Francisco Bay Area has been designated as non-attainment for a National Ambient Air Quality Standard for a particular pollutant, but is designated attainment for a California standard for such pollutant, that pollutant may continue to be a PSD Pollutant solely with respect to the California standard, and vice versa ~~a pollutant is subject to multiple ambient air quality standards (e.g., state and federal standards or standards established for different averaging periods), the pollutant shall be treated as a PSD Pollutant only for the ambient air quality standard(s) for which the San Francisco Bay Area has not been designated as non-attainment~~.

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Thank you for the opportunity to submit these comments. Please feel free to contact me at 925.557.2238 or barbara.mcbride@calpine.com with any questions.

Sincerely,

Barbara McBride
Director, Environmental, Health and Safety,
Western Region

cc: Alexander Crockett, Esq., Assistant Counsel
Jim Karas, Director of Engineering
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