

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Draft Staff Report

Proposed Amended Rule 1134 – Emissions of Oxides of Nitrogen from Stationary Gas Turbines

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TABLE OF CONTENTS

CHAPTER 1: BACKGROUND

| | |
|--|-----|
| INTRODUCTION | 1-1 |
| BACKGROUND | 1-1 |
| REGULATORY BACKGROUND | 1-2 |
| <i>Stationary Gas Turbines and RECLAIM</i> | 1-2 |
| PUBLIC PROCESS | 1-3 |

CHAPTER 2: BARCT ASSESSMENT

| | |
|---|------|
| INTRODUCTION | 2-1 |
| BARCT – RETROFIT VERSUS REPLACEMENT | 2-1 |
| <i>Public Policy Supports the SCAQMD’s Interpretation</i> | 2-1 |
| <i>Dictionary Definitions Support SCAQMD’s Interpretation</i> | 2-2 |
| <i>Statutory Definition of BARCT Supports SCAQMD’s Interpretation</i> | 2-3 |
| <i>Other Statutory References to “Retrofit” Are Inapplicable</i> | 2-4 |
| <i>Statute Discussing Best Available Control Technology Determinations Does Not</i> <i>Circumscribe BARCT Definition</i> | 2-4 |
| <i>SCAQMD Has Authority to Require Equipment Replacement Which is Not Limited by the</i> <i>BARCT Definition</i> | 2-5 |
| <i>Conclusion</i> | 2-7 |
| BARCT ANALYSIS APPROACH | 2-7 |
| <i>Assessment of SCAQMD Regulatory Requirements</i> | 2-8 |
| <i>Assessment of Emission Limit for Existing Units</i> | 2-8 |
| <i>Other Regulatory Requirements</i> | 2-12 |
| <i>Assessment of Pollution Control Technologies</i> | 2-13 |
| <i>Initial BARCT Emission Limit and Other Considerations</i> | 2-15 |
| <i>Cost-Effectiveness Analysis</i> | 2-18 |
| <i>BARCT Emission Limit Recommendation</i> | 2-21 |

CHAPTER 3: SUMMARY OF PROPOSALS

| | |
|--|-----|
| INTRODUCTION | 3-1 |
| PURPOSE (SUBDIVISION (A)) | 3-1 |
| APPLICABILITY (SUBDIVISION (B)) | 3-1 |
| DEFINITIONS (SUBDIVISION (C)) | 3-1 |
| EMISSIONS LIMITS (SUBDIVISION (D)) | 3-2 |
| MONITORING, RECORDKEEPING, AND REPORTING (SUBDIVISION (E)) | 3-4 |
| TEST METHODS (SUBDIVISION (F)) | 3-6 |
| RECORDKEEPING (SUBDIVISION (G)) | 3-6 |
| EXEMPTIONS (SUBDIVISION (H)) | 3-6 |

CHAPTER 4: IMPACT ASSESSMENT

POTENTIALLY IMPACTED FACILITIES 4-1
 Analysis of Facilities with PAR 1134 Equipment and Other Landing Rules..... 4-2
EMISSION INVENTORY AND EMISSION REDUCTIONS 4-2
COST-EFFECTIVENESS 4-3
INCREMENTAL COST-EFFECTIVENESS..... 4-4
RULE ADOPTION RELATIVE TO COST-EFFECTIVENESS 4-5
SOCIOECONOMIC ASSESSMENT 4-5
CALIFORNIA ENVIRONMENTAL QUALITY ACT 4-5
DRAFT FINDINGS UNDER CALIFORNIA HEALTH AND SAFETY CODE SECTION
40727..... 4-6
 Requirements to Make Findings 4-6
 Necessity 4-6
 Authority 4-6
 Clarity 4-6
 Consistency 4-6
 Non-Duplication 4-6
 Reference..... 4-6
COMPARATIVE ANALYSIS 4-7

REFERENCES

APPENDIX A – COMMENTS AND RESPONSES

COMMENT LETTER 1 A-1
COMMENT LETTER 2 A-4
COMMENT LETTER 3 A-8

CHAPTER 1: BACKGROUND

INTRODUCTION

BACKGROUND

REGULATORY BACKGROUND

PUBLIC PROCESS

INTRODUCTION

In March 2017, the SCAQMD adopted the Final 2016 Air Quality Management Plan (2016 AQMP) which includes a series of control measures to achieve the National Ambient Air Quality Standards for ozone. The adoption resolution of the 2016 AQMP directed staff to achieve additional NO_x emission reductions and to transition the Regional Clean Air Incentives Market (RECLAIM) program to a command-and-control regulatory structure requiring Best Available Retrofit Control Technology (BARCT) as soon as practicable. In addition, California State Assembly Bill 617 (AB 617), which was signed by the Governor on July 26, 2017 and affects RECLAIM facilities that are also in the California Greenhouse Gas Cap and Trade program, requires implementation of Best Available Retrofit Control Technology (BARCT) no later than December 31, 2023, with priority given to older, higher polluting units.

Rule 1134 – Emissions of Oxides of Nitrogen from Stationary Gas Turbines (Rule 1134) was adopted in 1989. Proposed Amended Rule (PAR) 1134 – Emissions of Oxides of Nitrogen from Stationary Gas Turbines will facilitate the transition of the NO_x RECLAIM program to a command-and-control regulatory structure and to implement Control Measure CMB-05 – Further NO_x Reductions from RECLAIM Assessment (Control Measure CMB-05) of the 2016 AQMP. PAR 1134 applies to stationary gas turbines that are located at RECLAIM and non-RECLAIM facilities. PAR 1134 does not apply to gas turbines that are subject to Rule 1135 – Emissions of Oxides of Nitrogen from Electricity Generating Facilities (Rule 1135), turbines located at landfills, petroleum refineries, or publicly owned treatment works, or turbines fueled by landfill gas.

BACKGROUND

The SCAQMD Governing Board adopted the RECLAIM program in October 1993. The purpose of RECLAIM is to reduce NO_x and SO_x emissions through a market-based approach. The program replaced a series of existing and future command-and-control rules and was designed to provide facilities with the flexibility to seek the most cost-effective solution to reduce their emissions. It also was designed to provide equivalent emission reductions, in the aggregate, for the facilities in the program compared to what would occur under a command-and-control regulatory approach. Regulation XX – Regional Clean Air Incentives Market (RECLAIM) (Regulation XX) includes a series of rules that specify the applicability and procedures for determining NO_x and SO_x facility emissions allocations, program requirements, as well as monitoring, reporting, and recordkeeping requirements for RECLAIM facilities.

Various rules within Regulation XX have been amended throughout the years. On December 4, 2015, Regulation XX was amended to achieve programmatic NO_x emission reductions through an overall reduction in RECLAIM trading credits (RTC) of 12 tons per day from compliance years 2016 through 2022. Regulation XX was amended on October 7, 2016 to incorporate provisions that limited use of RTCs from facility shutdowns. On January 5, 2018, Regulation XX, Rule 2001 – Applicability (Rule 2001) and Rule 2002 – Allocations for Oxides of Nitrogen (NO_x) and Oxides of Sulfur (SO_x) (Rule 2002), were amended to commence the initial steps to transition RECLAIM facilities to a command-and-control regulatory approach. On October 5, 2018, Rules 2001 and 2002 were amended to support ongoing efforts for transitioning RECLAIM facilities. Rule 2001 includes a provision to allow facilities to opt-out of RECLAIM if certain criteria are met. Rule 2002 provides an option for facilities that receive an initial determination notification to stay in RECLAIM for a limited time while complying with applicable command-and-control

requirements. Additionally, Rule 2002 establishes a provision that precludes any former RECLAIM facility from obtaining offsets from the SCAQMD internal bank.

In response to concerns regarding actual emission reductions and implementation of BARCT under RECLAIM, Control Measure CMB-05 of the 2016 AQMP committed to an assessment of the RECLAIM program in order to achieve further NO_x emission reductions of five tons per day, including actions to sunset the program and ensure future equivalency to command-and-control regulations. During the adoption of the 2016 AQMP, the Resolution directed staff to modify Control Measure CMB-05 to achieve the five tons per day NO_x emission reduction as soon as feasible but no later than 2025, and to transition the RECLAIM program to a command-and-control regulatory structure requiring BARCT-level controls as soon as practicable. Staff provided a report on transitioning the NO_x RECLAIM program to a command-and-control regulatory structure at the May 5, 2017 Governing Board meeting and provides quarterly updates to the Stationary Source Committee, with the first quarterly report provided on October 20, 2017.

On July 26, 2017, AB 617 was approved by the Governor, which addresses non-vehicular air pollution (criteria pollutants and toxic air contaminants). It is a companion legislation to AB 398, which was also approved, and extends California's cap-and-trade program for reducing greenhouse gas emissions from stationary industrial sources. RECLAIM facilities that are in the cap-and-trade program are subject to the requirements of AB 617. Among the requirements of this bill is an expedited schedule for implementing BARCT for cap-and-trade facilities. Air Districts are to develop by January 1, 2019, an expedited schedule for the implementation of BARCT no later than December 31, 2023. The highest priority would be given to older, higher polluting units that will need to install retrofit controls.

REGULATORY BACKGROUND

Rule 1134 was adopted in 1989. The rule applies to stationary gas turbines rated at 0.3 MW and larger that were issued a permit to operate by the SCAQMD prior to August 4, 1989. The origin of the rule can be traced to a 1979 United States Environmental Protection Agency (EPA) New Source Performance Standard for Stationary Gas Turbines. In 1981, the California Air Resources Board (CARB) adopted a Suggested Control Measure for this same equipment. Rule 1134 was subsequently amended three times; each to provide regulatory flexibility.

- In December 1995, Rule 1134 was amended to exempt gas turbines located on San Clemente Island and the South East Desert Air Basin.
- In April 1997, Rule 1134 was amended to increase the NO_x concentration limit for turbines utilizing sewage digester gas.
- In August 1997, Rule 1134 was amended to clarify the need for continuous emission monitoring systems (CEMS) on turbines with a power output of 2.9 MW or larger.

EPA approved Rule 1134 into the SIP on August 1, 2000.

Stationary Gas Turbines and RECLAIM

Beginning in 1994, a large number of utilities and third-party-owned cogeneration facilities were included in the RECLAIM program and as such were not required to meet the NO_x concentration limits imposed by Rule 1134 which had effective dates post 1994. However, gas turbines permitted prior to August 4, 1989 that were used at publicly-owned treatment works, landfills,

hospitals, and other public facilities, were not included in RECLAIM and were required to meet the concentration limits in Rule 1134. PAR 1134 will apply to all stationary gas turbines located at non-RECLAIM and RECLAIM facilities (excluding those subject to Rule 1135, located at a petroleum refineries, landfills, or publicly owned treatment works), or turbines fueled with landfill gas, regardless of the date they were permitted.

PUBLIC PROCESS

Development of Proposed Amended Rule 1134 – Emissions of Oxides of Nitrogen from Stationary Gas Turbines was conducted through a public process. SCAQMD has held four working group meetings at the SCAQMD Headquarters in Diamond Bar on February 22, 2018, April 26, 2018, June 13, 2018, and August 10, 2018. The Working Group is composed of representatives from businesses, environmental groups, public agencies, and consultants. The purpose of the working group meetings is to discuss proposed concepts and work through the details of staff's proposal. Additionally, a Public Workshop will be held at the SCAQMD Headquarters in Diamond Bar on December 18, 2018.

CHAPTER 2: BARCT ASSESSMENT

INTRODUCTION

BARCT – RETROFIT VERSUS REPLACEMENT

BARCT ANALYSIS APPROACH

INTRODUCTION

Staff conducted an assessment of Best Available Retrofit Control Technology (BARCT) for stationary gas turbines. BARCT is defined in the California Health and Safety Code section 40406 as “an emission limitation that is based on the maximum degree of reduction achievable, taking into account environmental, energy, and economic impacts by each class or category of source.” Consistent with state law, BARCT emissions limits take into consideration environmental impacts, energy impacts, and economic impacts. In addition to NO_x reductions sought in the proposed amended rule, SCAQMD, through the California Environmental Quality Act (CEQA) process, identified potential environmental and energy effects of the proposed rule. Economic impacts are assessed at the equipment category level by a review of cost-effectiveness and incremental cost-effectives contained in this report and at the macro level as part of the socio-economic assessment contained in a separate report.

BARCT – RETROFIT VERSUS REPLACEMENT

A question was raised in the Regional Clean Air Incentives Market (RECLAIM) Working Group concerning the scope of “best available retrofit control technology,” which the SCAQMD must impose for all existing stationary sources, including sources that exit RECLAIM or that exist after RECLAIM has ended pursuant to Health & Safety Code section 40440(b)(1). A commenter stated that the use of the word “retrofit” precludes the SCAQMD from requiring emissions limits that can only be cost-effectively met by replacing the basic equipment with new equipment.

As explained in detail below, BARCT may certainly include the replacement of equipment. In summary, we explain the particular instance in which SCAQMD has sought to specify a level equivalent to equipment replacement as BARCT for internal combustion engines on Santa Catalina Island. This demonstrates how public policy supports SCAQMD’s interpretation. Moreover, as we explained in the Preliminary Draft Staff Report, the statutory definition of BARCT supports a broad interpretation. And applicable dictionary definitions do not preclude the view that BARCT can include equipment replacement. Finally, even if a court were to conclude that BARCT cannot encompass equipment replacement, BARCT is not a limitation on SCAQMD authority. The SCAQMD retains broad statutory authority to adopt emission-control requirements for stationary sources, and that authority may require equipment replacement, as long as the requirement is not arbitrary and capricious.

Public Policy Supports the SCAQMD’s Interpretation

As noted in the staff report for PAR 1135, staff has proposed a BARCT for diesel fueled engines that appears to be more cost-effectively met by replacing the engine rather than trying to install additional add-on controls. If SCAQMD were precluded from requiring the replacement of these engines, the oldest and dirtiest power-producing equipment would continue to operate for possibly many years, even though it would be cost-effective and otherwise reasonable to replace those engines. As long as an emissions limit meets the requirements of the definition set forth in section 40406, there is no policy reason why replacement equipment cannot be an element of BARCT. And there is no policy reason why BARCT – if it does not include replacements – would somehow limit the SCAQMD from requiring equipment replacement where that requirement is reasonable and feasible. “If the statutory language permits more than one reasonable interpretation, courts may consider other aids, such as the statute’s purpose, legislative history, and public policy.” *Jones*

v. Lodge at Torrey Pines Partnership, 42 Cal. 3d. 1158, 1163 (2008). In this case, the statute permits two reasonable interpretations, since the statutory definition in 40406 does not preclude requiring equipment replacement if it is reasonable considering economic and other factors. The legislative history and public policy both support the SCAQMD's interpretation, and a narrow interpretation is inconsistent with the broad language of the statutory definition.

The BARCT proposed for internal combustion engine power producers (replacement with Tier IV engines) is economically and practically reasonable and therefore does not "go beyond" BARCT if we look strictly at the statutory definition. As stated by the Supreme Court, the "statutes that provide the districts with regulatory authority serve a public purpose of the highest order-protection of the public health." *W. Oil & Gas Assn. v. Monterey Bay Unified Air Pollution Control Dist.*, 49 Cal. 3d 408, 419 (1989) ("WOGA"). Therefore, courts should not find that any statute causes an "implied repeal" of the districts' authority. *Id.*

While PAR 1134 does not require replacement of any equipment as BARCT, in the recently amended Rule 1135, replacement of certain equipment was required as BARCT. In that rule, the proposal to require replacement of five out of the six internal combustion engines at Santa Catalina Island was supported by overwhelming policy justifications. There are six internal combustion engines at the facility, of which three are at least 50 years old. The other three were installed in 1974, 1985, and 1995. The 1995 engine was installed with SCR; the other five had SCR installed in 2003. Staff concludes that it would be more cost-effective to replace the five oldest of these engines with new Tier IV engines rather than to install additional add-on controls. (The sixth engine was found not to be cost-effective to replace). These engines account for 0.06% of the electric utility power produced in the District (PAR 1135 Final Staff Report, Table 4-3, 9 MWhr divided by 15,904 MWhr). But they account for 5.7% of the emissions inventory from electricity generating facilities (PAR 1135 Staff Report, Table 4-4, 0.2 tpd divided by 3.5 tpd). If the SCAQMD could not require replacement of these engines, then paradoxically the oldest, highest-emitting equipment would escape control.

The SCAQMD has in the past required replacement of old equipment in appropriate cases. The SCAQMD has required replacement, for example, in its dry-cleaning rule, adopted in 2002, which required all perchloroethylene dry-cleaning machines to be phased out by 2020, with other specific requirements implemented starting shortly after rule adoption. Rule 1421(d)(1)(F). Thus, a perchloroethylene machine that was installed in 2001 would be required to be replaced with a non-perchloroethylene machine when it is 19 years old. While this is a rule relating to toxic air contaminants, we do not believe the SCAQMD's authority is any less for criteria pollutants.

Dictionary Definitions Support SCAQMD's Interpretation

We do not agree that the term "retrofit" excludes replacement, such as replacement of an engine. We do not find that limitation in the dictionary definitions for the term "retrofit," including those cited in the SCAQMD staff report for Rule 1135. Instead, at least one definition provides that "retrofit" can mean "to replace existing parts, equipment, etc., with updated parts or systems." <http://www.dictionary.com/browse/retrofit>. Nothing in this definition requires that only part of a piece of equipment can be replaced. Indeed, according to this definition, a retrofit can include the replacement of an entire system. In our view, at least one dictionary definition of the term "retrofit" encompasses "replacement of equipment or systems." *See* definition cited above. This

definition is broad enough to include replacing the entire piece of equipment or system. Therefore, the key question is what did the legislature mean when it imposed the BARCT requirement on SCAQMD?

Statutory Definition of BARCT Supports SCAQMD's Interpretation

The statutory definition of BARCT, as found in Health & Safety Code section 40406, does not contain any language precluding replacement technology. Section 40406 defines BARCT as “an emissions limitation that is based on the maximum degree of reduction achievable, taking into account environmental, energy, and economic impacts by each class or category of source.” Thus, BARCT is an emissions limitation. Nothing in the statutory definition specifies the type of technology that may be used. The California Supreme Court has made it clear that it is the definition of BARCT that controls, not implications from the language used in the term itself. Thus, the Supreme Court rejected the argument that “best available retrofit control technology” is limited to that which is readily available at the time when the regulation is enacted, and instead concluded that it encompasses technology that is “achievable,” i.e. expected to become available at a future date. *American Coatings Ass’n. v. South Coast Air Quality Mgt. Dist.*, 54 Cal. 4th 446, 462 (2012). The Court focused on the actual statutory definition, which provides that BARCT is “an emissions limitation that is based on the maximum degree of reduction achievable, taking into account environmental, energy, and economic impacts by each class or category of source.” *American Coatings*, 54 Cal. 4th at 463. The Court concluded that in common usage, “achievable” means “capable of being achieved,” which in turn includes “a potentiality to be fulfilled or a goal to be achieved at some future date.” *Id.*

Thus, an emissions reduction was “achievable” when the rule was adopted in 1999 if it was “capable of being achieved” by the rule deadline of 2006. *American Coatings*, 54 Cal. 4th at 464. This was so even if that reduction was not “readily available” in 1999, notwithstanding the use of the word “available” in the term being defined. The Supreme Court held that the statutory definition controls, and in this case the statutory definition does not preclude replacement technology.

When the Legislature has defined a term, courts must follow that definition. *People v. Ward*, 62 Cal. App. 4th 122, 126 (1998). Following the California Supreme Court’s analysis in *American Coatings*, the test of whether an emission limit constitutes BARCT is whether it meets the definition found in the statute, section 40406. If so, then it is within the statutory definition of BARCT, whether or not it is within the most common understanding of “retrofit.” This does not mean that the word “retrofit” is surplusage. The use of the word “retrofit” serves to distinguish an emission limit that is imposed on existing sources, and which, under the statutory definition, must consider economic and other factors, from the emissions limit imposed on new sources. The limit for new sources must be met if it has been achieved in practice, regardless of cost. *See* definition of “best available control technology” [BACT] in section 40405, which includes “the most stringent emission limitation that is achieved in practice by that class or category of source.” We do not argue that a replacement can be BARCT if it does not meet the definition of BARCT. Instead, if a limit meets that definition, it can be BARCT even if it can most cost-effectively be met by replacing the equipment with new equipment, as recognized in the dictionary definition discussed above.

The *American Coatings* ruling is not irrelevant just because it dealt with a rule for architectural coatings requiring coating reformulation, which “does not typically involve the manufacture of modified production equipment or new add-on controls,” whereas control technologies that require physical modification of existing equipment or installation of add-on controls may require “significant disruption to the operation of the facility.” We do not know whether the claim regarding architectural coatings is correct, but even if it is, we do not understand how this relates to the question at issue since *both* retrofit add-on controls and replacements would involve the disruption of facility operations for some time.

Other Statutory References to “Retrofit” Are Inapplicable

The legislature has used the term replacement as well as retrofit in certain sections of the Health and Safety Code. §§ 43021(a), 44281(a). Furthermore, the legislature defined retrofit in sections 44275(a)(19) and 44299.80(o), and the definition does not mention replacement but rather making modifications to the engine and fuel system. Finally, these same code sections define “repower” as replacing an engine with a different engine. §§ 44275(a)(18), 44299.80(n). However, all of these code sections were adopted long after 1987, when the legislature mandated SCAQMD to require BARCT for existing sources. They do not shed any light on what the legislature meant by “retrofit” in 1987 when section 40406 was adopted. All of the sections cited (except section 43021(a)) deal with incentive programs, and the definitions are specifically stated to be only “as used in this chapter”; i.e. for the specific incentive program. §§ 44275(a); 44299.80(a). These definitions facilitate the administering agency in implementing the programs, which generally provide different amounts of funding for different types of projects, including “repowering” or “retrofitting.” *See e.g.*

https://www.arb.ca.gov/msprog/moyer/source_categories/moyer_sc_on_road_hdv_2.htm

Therefore, the legislature had a specific purpose in distinguishing between replacements and retrofits in these particular chapters, whereas no one has identified a policy reason that the legislature would have wanted to exclude replacement projects from BARCT, as long as they met the statutory definition.

Section 43021(a), enacted in 2017 as Part of SB1, prohibits Air Resources Board rules that require the “retirement, replacement, retrofit, or repower” of a commercial motor vehicle for a period of time. An argument can be made that this language means that a replacement must be different than a retrofit, under that theory it must also mean that a replacement is different from a repower, whereas under the sections cited above, a repower IS a replacement. Presumably, the legislature wanted to make very sure it covered all possibilities. And to add to the confusion, the Carl Moyer statutes appear to distinguish “retrofit” (an eligible project under §44282(a)(2)) from “use of emission-reducing add-on equipment” (an eligible project under §44281(a)(3)). Normally installing add-on controls is considered a type of retrofit.

Statute Discussing Best Available Control Technology Determinations Does Not Circumscribe BARCT Definition

Section 40920.6 states that in establishing the best available control technology, (BACT), the District shall consider only “control options or emission limits to be applied to the basic production or process equipment.” BACT is frequently applied to replacement of an entire source (such as repowers of electric generating units) as well as to new and modified sources. Obviously, in the

case of a new source, there is no existing equipment to which to apply the technology. We interpret this statutory language to mean that in establishing BACT, the SCAQMD is not to fundamentally change the nature of the underlying process. For example, if an applicant seeks approval of a simple cycle turbine, the SCAQMD cannot require it to instead construct a combined cycle turbine, since they have different operational characteristics and needs to fill. This would be consistent with EPA's Draft NSR Workshop Manual, p. B-13, which specifies that in determining BACT, states need not redefine the design of the source, although they retain discretion to do so where warranted (i.e. to require consideration of inherently cleaner technology). <https://www.epa.gov/nsr/nsr-workshop-manual-draft-october-1990>. Similarly, SCAQMD does not propose to require a facility subject to BARCT to "redefine" the nature of its source but merely, in the case of recently amended Rule 1135, to replace old diesel internal combustion engines with diesel internal combustion engines meeting EPA's Tier IV standards. Therefore, section 40920.6 does not speak to the question at hand: whether BARCT precludes replacing old equipment with new equipment of the same type.

SCAQMD Has Authority to Require Equipment Replacement, Which is Not Limited by the BARCT Definition

Finally, even if BARCT by itself did not include replacement equipment, the SCAQMD could still require the equipment to be replaced. We disagree that only section 40440(a)(1) grants the authority to require BARCT (i.e., that without that section, the district would have no authority to require BARCT). We also disagree with the proposition that Section 40440(a)(1) limits the District's authority.

State law has explicitly granted air districts primary authority over the control of pollution from all sources except motor vehicles since at least 1975, when the air pollution regulation provisions were recodified. *See* § 40000, enacted Stats. 1975, ch. 957, §12; *see also* § 39002, containing similar language and adopted in that same section. As held by the California Supreme Court, these two sections (and their predecessors dating back to 1947) confirm that the air districts had plenary authority to regulate non-vehicular sources "for many years." *WOGA*, 49 Cal. 3d. at 418-19. And the Supreme Court had previously recognized the air districts' authority to adopt local regulations for non-vehicular sources under the predecessor statutes. *Orange County Air Pollution Control Dist. v. Public Util. Comm.*, 4 Cal. 3d 945, 948 (1971). Under these broad statutes, the districts could have adopted BARCT requirements for non-vehicular sources. Section 40440(a)(1), therefore, was not a statute granting authority, since the districts already had authority, but a statute imposing a mandate to adopt BARCT.

We also disagree with the claim that section 40440(a)(1) requiring the SCAQMD to impose BARCT on existing sources was a "limitation" of district authority. State law expressly provides that districts "may establish additional, stricter standards than those set forth by law" unless the Legislature has specifically provided otherwise §§ 39002; 41508. Nothing in Section 40440(a)(1) specifically limits the District's authority. In fact, the legislative history of the bill requiring SCAQMD to impose BARCT – among other requirements – states that "this bill is intended to encourage more aggressive improvements in air quality and to give the District new authority to implement such improvements." *American Coatings*, 54 Cal. 4th at 466 (emphasis added). As stated by the Supreme Court, "[t]he BARCT standard was therefore part of a legislative enactment designed to augment rather than restrain the District's regulatory power." *Id.* As explained by the

legislative history, BARCT is a “minimum” requirement, and the legislature did not intend it to preclude the District from adopting requirements that go beyond BARCT.

Among the new authorities granted were section 40447.5, authorizing fleet rules and limits on heavy duty truck traffic and section 40447.6, authorizing the SCAQMD to adopt sulfur limits for motor vehicle diesel fuel. We do not believe that section 40440(a)(1) granted “new” authority to require BARCT, as the districts already had authority over non-vehicular sources.

Moreover, when the Legislature extended the BARCT requirement to other districts with significant air pollution, section 40919(a)(3) (districts with serious pollution and worse) the legislature expressly stated that the bill “is intended to establish minimum requirements for air pollution control districts and quality management districts” and that “[n]othing in this act is intended to limit or otherwise discourage those district from adopting rules and regulations which exceed those requirements.” Stats. 1992, ch. 945 § 18. Thus it is clear that BARCT is not intended to be a limitation or restriction on existing authority.

Although the California Supreme Court found it unnecessary to decide whether the SCAQMD could adopt rules going beyond BARCT, because it held that BARCT could include technology-forcing measures, it did state that BARCT was not designed to restrain the District’s regulatory power. *American Coatings*, 54 Cal 4th at 466, 469.

In an earlier case, the California Supreme Court made it clear that new legislation does not impliedly repeal an air district’s existing authority unless it “gives undebatable evidence of an intent to supersede” the earlier law. *WOGA*, 49 Cal. 3d. at 420 (internal citation omitted; emphasis by Supreme Court). There the court noted that the present statutes and their predecessors giving air districts authority over non-vehicular sources, including the authority to regulate air toxics, had been in effect before the allegedly preempting law was enacted (in 1983; Stats 1983 Ch. 1047), and had been generally understood and acted upon. *Id.* at 419. The court concluded there was no “undebatable evidence of a legislative intent to repeal the districts’ statutory authority to protect the health of their citizens by controlling air pollution.” *WOGA*, 49 Cal 3d at 420. By the same token here, there is no undebatable evidence of an intent to limit air districts’ existing authority by imposing a mandate to adopt BARCT requirements. Instead, BARCT was a minimum requirement that SCAQMD must impose, not a limit on its ability to impose additional, including more stringent, requirements. Indeed, the argument that BARCT limits SCAQMD’s authority is illogical. It would make no sense for the Legislature in 1987 to limit only the district with the worst air pollution (SCAQMD) while leaving untouched the authority of other districts with lesser levels of pollution.

Nor does this conclusion leave the SCAQMD with unlimited regulatory power. In going beyond the statutory minimum of BARCT for existing sources, the District would still be limited by the requirement that its rules may not be arbitrary and capricious, or without reasonable or rational basis, or entirely lacking in evidentiary support. *American Coatings*, 54 Cal. 4th at 460. And of course, the SCAQMD’s rulemaking authority is limited by applicable constitutional principles. Therefore, stakeholders need not rely on an argument that BARCT restricts the SCAQMD’s authority in order to ensure the SCAQMD does not implement any arbitrary action.

Conclusion

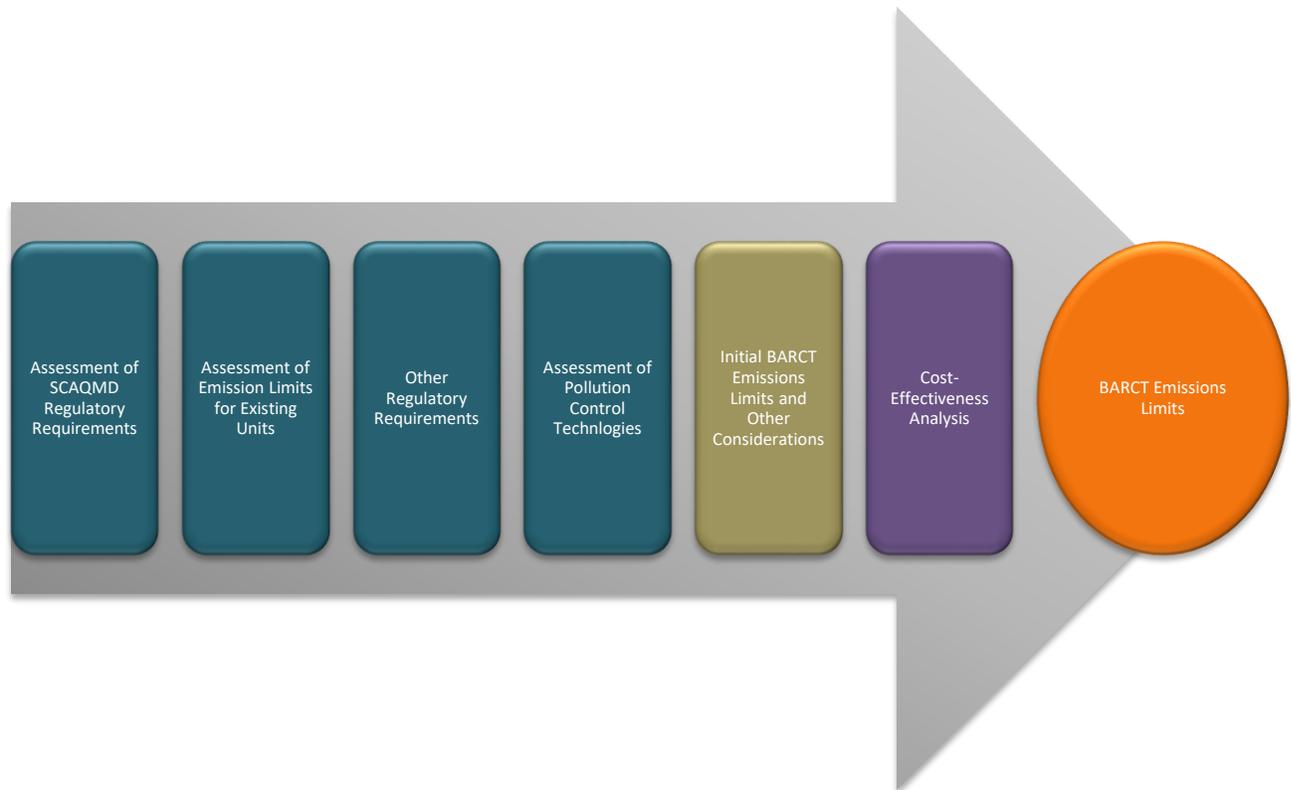
SCAQMD has the authority to require equipment replacement as a BARCT requirement as long as the requirement meets the statutory definition of BARCT. But even if BARCT were to exclude equipment replacement, the SCAQMD would still have the authority to require replacement, as long as the replacement is not arbitrary and capricious.

BARCT ANALYSIS APPROACH

The BARCT analysis approach follows a series of steps conducted for each equipment category and fuel type. For Proposed Amended Rule 1134 – Emissions of Oxides of Nitrogen from Stationary Gas Turbines (PAR 1134), stationary gas turbines were analyzed by process and fuel type.

The steps for BARCT analysis consist of:

- Assessment of SCAQMD Regulatory Requirements
- Assessment of Emissions Limits for Existing Units
- Other Regulatory Requirements
- Assessment of Pollution Control Technologies
- Initial BARCT Emissions Limits and Other Considerations
- Cost-Effectiveness Analysis
- Final BARCT Emissions Limits



Assessment of SCAQMD Regulatory Requirements

As part of the BARCT assessment, staff reviewed existing SCAQMD regulatory requirements that affect NOx emissions from stationary gas turbines. NOx emissions from stationary gas turbines permitted prior to August 4, 1989 located at non-RECLAIM facilities are regulated under Rule 1134 – Emissions of Oxides of Nitrogen from Stationary Gas Turbines (Rule 1134). Under Rule 1134, the NOx emission concentration limits are as follows in Table 2-1 below.

Table 2-1 – Current Rule 1134 NOx Concentration Limits

| Unit Size (MW) | NOx Reference Limit (ppmv at 15% oxygen, dry) |
|-------------------------------------|---|
| No Selective Catalytic Reduction | |
| 0.3 to < 2.9 | 25 |
| 2.9 to < 10 | 15 |
| 2.9 to < 10 (Sewage Digester Gas) | 25 |
| 10 and Over | 12 |
| 60 and Over (Combined Cycle) | 15 |
| With Selective Catalytic Reductions | |
| 2.9 to < 10 | 9 |
| 10 and Over | 9 |
| 60 and Over (Combined Cycle) | 9 |

Assessment of Emission Limit for Existing Units

Staff examined all of the current non-emergency stationary gas turbines, excluding those subject to Rule 1135, located at a petroleum refinery, landfill, or publicly owned treatment work, or powered by landfill gas to assess the emission rate of equipment located in SCAQMD. Emissions limits are established at the time of permitting, and permits include concentration limits for NOx and emissions limits for non-RECLAIM pollutants such as particulate matter. Stationary gas turbines installed after August 4, 1989 and not located at a RECLAIM facility only have emissions limits established at the time of permitting. Permit limits for NOx concentrations were identified for all equipment to identify what is already being done in practice. Currently, there are approximately 73 turbines at 39 facilities: 40 natural gas turbines at 27 facilities; 3 produced gas turbines at two facilities; 7 compressor gas turbines at two facilities, six produced gas turbines at two offshore facilities; and 17 emergency standby gas turbines at six facilities.

Natural Gas Combined Cycle Gas Turbines

For natural gas combined cycle gas turbines, one of eighteen units are permitted at 2 ppmv NOx at 15% oxygen on a dry basis. Six natural gas combined cycle gas turbines are permitted at 2.5 ppmv NOx at 15% oxygen on a dry basis. These seven units were replacement units installed in 2009 or later. Units that were permitted at 2 ppmv or 2.5 ppmv NOx at 15% oxygen on a dry basis also had ammonia permit limits of 5 ppmv at 15% oxygen on a dry basis. The lowest permitted NOx limit for a natural gas combined cycle gas turbines in SCAQMD is 2 ppmv at 15% oxygen on a dry basis. Table 2-2 lists the information regarding natural gas combined cycle gas turbines.

Table 2-2 – Natural Gas Combined Cycle Gas Turbines

| Unit | Size (MMBTU/HR) | MW Rating | Install Year | Control ¹ | NOx Permit Limit ² (ppmv @ 15% oxygen, dry) | Ammonia Permit Limit (ppmv @ 15% oxygen, dry) | 2015 NOx Emissions (tons) |
|----------------------|-----------------|-----------|--------------|--|--|---|---------------------------|
| NG CS10 ³ | 410 | 60 | 1996 | SCR | 102 ⁴ | 5 | 192.7 |
| NG CS3 | 16 | 1.1 | 1989 | Water injection | 41 | Not applicable | 2.4 |
| NG CS1 | 59 | 2.9 | 1989 | Water injection | 25 | Not applicable | 10.8 |
| NG CS2 | 59 | 2.9 | 1989 | Water injection | 25 | Not applicable | 4.0 |
| NG CS8 ³ | 59 | 6 | 1993 | Water injection/Low NOx duct burner | 21 | Not applicable | 26.2 |
| NG CS9 ³ | 59 | 6 | 1993 | Water injection/Low NOx duct burner | 21 | Not applicable | 24.1 |
| NG CS4 | 234 | 23.6 | 1989 | Steam or water injection/SCR/Vaporization system | 12 | None | 33.3 |
| NG CS6 ³ | 46 | 2.8 | 1992 | Water injection | 9 | Not applicable | 5.3 |
| NG CS7 | 49 | 2.9 | 1992 | Water injection | 9 | Not applicable | 5.6 |
| NG CS17 | 446 | 48.2 | 1987 | SCR/Water Injection | 9 | None | 10.2 |
| NG CS5 | 221 | 21.7 | 1990 | SCR/Water Injection | 9 | 5 | 45.4 |
| NG CS18 | 350 | 30 | 2010 | SCR/Water Injection | 2.5 | 5 | 1.0 |
| NG CS11 ³ | 57 | 5 | 2009 | SCR | 2.5 | 5 | 0.6 |
| NG CS12 ³ | 57 | 5 | 2009 | SCR | 2.5 | 5 | 0.2 |
| NG CS13 | 162 | 13.4 | 2010 | SCR | 2.5 | 5 | 3.5 |
| NG CS15 | 114 | 5.6 | 2015 | SCR | 2.5 | 5 | 0.4 |
| NG CS16 | 114 | 5.6 | 2015 | SCR | 2.5 | 5 | 0.4 |
| NG CS14 | 173 | 13.5 | 2013 | SCR | 2 | 5 | 0.9 |

¹ – SCR: Selective Catalytic Reduction

² – Actual NOx concentrations emitted are generally lower than the NOx permit limit

³ – Natural Gas Combined Cycle Gas Turbine with Associated Duct Burner

⁴ – Actual NOx concentration emitted are much lower than NOx permit limit

Natural Gas Simple Cycle Gas Turbines

For natural gas simple cycle gas turbines, two of twenty-two units are permitted at 2.5 ppmv NOx at 15% oxygen on a dry basis. Some simple cycle gas turbines have permitted ammonia concentrations of 5 ppmv at 15% oxygen on a dry basis. However, many have no limits whatsoever because the addition of ammonia limits is a relatively recent addition. Table 2-3 lists the information regarding natural gas simple cycle turbines.

Table 2-3 – Natural Gas Simple Cycle Gas Turbines

| Unit | Size (MMBTU/HR) | Output (MW) | Install Year | Control ¹ | NOx Permit Limit ² (ppmv at 15% oxygen, dry) | Ammonia (ppmv at 15% oxygen, dry) | 2015 NOx Emissions (tons) |
|----------|-----------------|-------------|--------------|------------------------|---|-----------------------------------|---------------------------|
| NG SS13 | 246 | 23 | 1987 | Steam injection | 42 | Not applicable | 26.1 |
| NG SS14 | 466 | 42 | 1987 | Steam injection | 42 | Not applicable | 279.2 |
| NG SS8 | 50 | 4 | 1988 | Steam injection | 40 | Not applicable | 29.3 |
| NG SS9 | 50 | 4 | 1989 | Steam injection | 40 | Not applicable | 29.3 |
| NG SS10 | 229 | 22.4 | | SCR/Steam injection | 9 | 20 | 32.4 |
| NG SS11 | 250.6 | 23.1 | 2002 | SCR/Steam injection | 9 | 20 | 27.3 |
| NG SS 28 | 221 | 21.8 | 1989 | SCR | 9 | 20 | 19.0 |
| NG SS 29 | 221 | 21.8 | 1989 | SCR | 9 | 20 | 23.1 |
| NG SS12 | 1080 | 158 | 2009 | Steam injection | 7.5 | Not applicable | 4.9 |
| NG SS19 | 530.2 | 43.8 | 2008 | SCR/Steam injection | 7 | 20 | 0 |
| NG SS15 | 472.5 | 39 | | SCR/Steam injection | 5 | 5 | 4.8 |
| NG SS17 | 43.8 | 4.6 | 2009 | Lean pre-mix combustor | 5 | Not applicable | 3.2 |
| NG SS20 | 136.5 | 10.5 | 2001 | SCR | 5 | 5 | 0 |
| NG SS21 | 136.5 | 10.5 | 2001 | SCR | 5 | 5 | 0 |
| NG SS22 | 136.5 | 10.5 | 2001 | SCR | 5 | 5 | 0 |
| NG SS23 | 136.5 | 10.5 | 2001 | SCR | 5 | 5 | 0 |
| NG SS24 | 136.5 | 10.5 | 2001 | SCR | 5 | 5 | 0.1 |
| NG SS25 | 136.5 | 10.5 | 2001 | SCR | 5 | 5 | 0 |
| NG SS26 | 136.5 | 10.5 | 2001 | SCR | 5 | 5 | 0 |
| NG SS27 | 136.5 | 10.5 | 2001 | SCR | 5 | 5 | 0 |
| NG SS16 | 126 | 10 | 2008 | SCR | 2.5 | None | 8.7 |
| NG SS18 | 407.7 | 39 | | SCR | 2.5 | 10 | 1.7 |

¹ – SCR: Selective Catalytic Reductions

² – Actual NOx concentration emitted are generally lower than the NOx permit limit

Produced Gas Turbines

Currently there are three non-Outer Continental Shelf (OCS) produced gas turbines subject to PAR 1134. One produced gas turbine is permitted at 5 ppmv NOx and 5 ppmv ammonia at 15% oxygen on a dry basis. Table 2-4 lists the information regarding the non-OCS produced gas turbines.

Table 2-4 – Produced Gas Turbines (Non-OCS)

| Unit | Size (MMBTU/HR) | Output (MW) | Install Year | Control ¹ | NOx Permit Limit ² (ppmv at 15% oxygen, dry) | Ammonia (ppmv at 15% oxygen, dry) | 2016 NOx Emissions (tons) |
|------|-----------------|-------------|--------------|----------------------|---|-----------------------------------|---------------------------|
| PGT2 | 49 | 4.8 | 2001 | SCR | 9 | 10 | 4.0 |
| PGT3 | 49 | 4.8 | 2001 | SCR | 9 | 10 | 1.5 |
| PGT5 | 63 | 5.7 | 2003 | SCR | 5 | 5 | 4.6 |

¹ – SCR: Selective Catalytic Reduction

² – Actual NOx concentration emitted are generally lower than the NOx permit limit

Outer Continental Shelf Produced Gas and Liquid Fueled Turbines

Currently there are six OCS produced gas turbines subject to PAR 1134. They also have the capability to burn liquid fuel when produced gas is not available. The turbines are permitted between 65 and 140 ppmv NOx at 15% oxygen on a dry basis. Table 2-5 lists the information regarding the OCS produced gas turbines.

Table 2-5 – Outer Continental Shelf Produced Gas Turbines

| Unit | Size (MMBTU/HR) | Output (MW) | Install Year | Control | NOx Permit Limit ¹ (ppmv at 15% oxygen, dry) | Ammonia (ppmv at 15% oxygen, dry) | 2016 NOx Emissions (tons) |
|---------|-----------------|-------------|--------------|---------|---|-----------------------------------|---------------------------|
| PGOCST1 | 29 | 2.5 | 1984 | N/A | 140 | Not applicable | 47.7 |
| PGOCST2 | 29 | 2.5 | 1984 | N/A | 140 | Not applicable | 42.3 |
| PGOCST3 | 29 | 2.5 | 1984 | N/A | 130 | Not applicable | 40.1 |
| PGOCST4 | 42 | 2.5 | 1984 | N/A | 65 | Not applicable | 7.2 |
| PGOCST5 | 42 | 2.5 | 1984 | N/A | 65 | Not applicable | 3.0 |
| PGOCST6 | 42 | 2.5 | 1984 | N/A | 65 | Not applicable | 8.9 |

¹ – Actual NOx concentration emitted are generally lower than the NOx permit limit

Compressor Gas Turbines

Currently there are seven compressor gas turbines subject to PAR 1134. The turbines are permitted between 64 and 81 ppmv NOx at 15% oxygen on a dry basis. Table 2-6 lists the information regarding the compressor gas turbines.

Table 2-6 – Compressor Gas Turbines

| Unit | Size (MMBTU/HR) | Output (MW) | Install Year | Control | NOx Permit Limit ¹ (ppmv at 15% oxygen, dry) | Ammonia (ppmv at 15% oxygen, dry) | 2015 NOx Emissions (tons) |
|--------|-----------------|-------------|--------------|---------|---|-----------------------------------|---------------------------|
| NG SS1 | 150 | 11 | 1980 | None | 81 | Not applicable | 58.1 |
| NG SS2 | 150 | 11 | 1980 | None | 81 | Not applicable | 54.3 |
| NG SS3 | 150 | 11 | 1980 | None | 81 | Not applicable | 52.4 |
| NG SS4 | 13.11 | 0.9 | 1980 | None | 68 | Not applicable | 3.7 |
| NG SS6 | 13.11 | 0.9 | 1990 | None | 68 | Not applicable | 3.9 |
| NG SS5 | 13.11 | 0.9 | 2002 | None | 67 | Not applicable | 4.3 |
| NG SS7 | 13.11 | 0.9 | 1987 | None | 64 | Not applicable | 3.7 |

¹ – Actual NOx concentration emitted are generally lower than the NOx permit limit

Summary

A summary of permitted limits in SCAQMD for the five types of stationary gas turbines is provided in Table 2-7.

Table 2-7 – Assessment of NOx Concentration Levels for Existing Units

| Equipment | Initial Recommendation for NOx Concentration Limit Based on Existing Units | Number of Units Meeting Retrofit Concentration Limit | Pollution Control Technology |
|---|---|---|---|
| Natural Gas Combined Cycle Gas Turbine | 2 ppmv at 15% oxygen, dry | 1 unit | Selective Catalytic Reduction (Replacement) |
| Natural Gas Simple Cycle Gas Turbine | 2.5 ppmv at 15% oxygen, dry | 2 units | Selective Catalytic Reduction (Replacement) |
| Produced Gas Turbines | 5 ppmv at 15% oxygen, dry | 1 unit | Selective Catalytic Reduction (Replacement) |
| Outer Continental Shelf Produced Gas Turbines | 65 ppmv at 15% oxygen, dry | 3 units | None |
| Compressor Gas Turbines | 64 ppmv at 15% oxygen, dry | 1 unit | None |

Other Regulatory Requirements

As part of the BARCT assessment, staff examined NOx limits for stationary gas turbines promulgated by Bay Area Air Quality Management District (BAAQMD) and San Joaquin Valley Air Pollution Control District (SJVAPCD). BAAQMD Regulation 9, Rule 9 – Nitrogen Oxides and Carbon Monoxide from Stationary Gas Turbines and SJVAPCD Rule 4703 – Stationary Gas Turbines were reviewed. Table 2-8 below notes the NOx limits in the two air districts for stationary gas turbines.

Table 2-8 – Stationary Gas Turbine Limits in Other Air Districts

| Agency | Rule Adoption Date | Rule Effective Date | Capacity (MMBTU/HR) | Output (MW) | NOx Limit (ppmv @ 15% oxygen, dry) |
|---------------------|--------------------|---------------------|------------------------|-------------|--|
| BAAQMD ¹ | December 2006 | January 2010 | 5 - 50 | N/A | 42 |
| | | | >50 - 150 | N/A | 25-42 |
| | | | >150 - 250 | N/A | 15 |
| | | | >250 - 500 | N/A | 9 |
| | | | >500 | N/A | 5 |
| SJVAPCD | September 2007 | January 2012 | <35 ² | <3 | 25 |
| | | | >35 – 130 ² | >3 – 10 | 25 |
| | | | >35 – 130 ² | >3 – 10 | 8 steady and 12 transition (Pipeline/Compressor) |
| | | | >130 ² | >10 | 25-42 |

¹ – Currently under review

² – Non-regulatory, converted for comparison purposes only

For natural gas turbines, the NOx concentration limits in other Air District regulations were higher than existing units located in SCAQMD. The exception is the SJVAPCD compressor gas turbine limit.

Assessment of Pollution Control Technologies

As part of the BARCT assessment, staff conducted a technology assessment to evaluate NOx pollution control technologies for stationary gas turbines. Staff reviewed scientific literature, vendor information, and strategies utilized in practice. The technologies are presented below and the applicability for use with various stationary gas turbines is noted. In most cases, post-combustion technologies may be utilized in conjunction with pre-combustion technologies.

Pre-Combustion Technologies

Dry Low-NOx or Lean Premix Emission Combustors (Natural Gas, Produced Gas Turbines, Compressor)

Prior to combustion, gaseous fuel and compressed air are pre-mixed, minimizing localized hot spots that produce elevated combustion temperatures and therefore, less NOx is formed. Atmospheric nitrogen from the combustion air is mixed with air upstream of the combustor at deliberately fuel-lean conditions. Approximately twice as much air is supplied as is actually needed to burn the fuel. This excess air is a key to limiting NOx formation, as very lean conditions cannot produce the high temperatures that create thermal NOx. Using this technology, NOx emissions, without further controls, have been demonstrated at single digits (< 9 ppmv at 15% oxygen, dry). The technology is engineered into the combustor that becomes an intrinsic part of the turbine design. Fuel staging or air staging is utilized to keep the flame within its operating boundaries. It is not available as a “retrofit” technology and must be designed for each turbine application.

Water or Steam Injection (Natural Gas, Produced Gas Turbines, Compressor)

Demineralized water is injected into the combustor through the fuel nozzles to lower flame temperature and reduce NO_x emissions. Water or steam provides a heat sink that lowers flame temperature. Imprecise application leads to some hot zones so NO_x is still created. NO_x levels in natural gas turbines can be lowered by 80% to 25 ppmv at 15% oxygen on a dry basis. Addition of water or steam increases mass flow through the turbine and creates a small amount of additional power. The addition of water increases carbon monoxide emissions and there is added cost to demineralize the water. Turbines using water or steam injection have increased maintenance due to erosion and wear.

Catalytic Combustion (Natural Gas, Produced Gas Turbines, Compressor)

A catalytic process is used instead of a flame to combust the natural gas. Flameless combustion lowers combustion temperature resulting in reduced NO_x formation. The overriding constraints are operating efficiency over a wide operating range of the turbine. Initial engine demonstrations have shown that catalytic combustion reduces NO_x emissions. In its first commercial installation, NO_x concentrations were lowered from approximately 20 ppmv to below 3 ppmv at 15% oxygen on a dry basis without post-combustion controls. Several turbine manufacturers are in the development stage to incorporate this technology.

Post-Combustion Technologies

Selective Catalytic Reduction (Natural Gas, Produced Gas Turbines, Compressor)

Selective catalytic reduction is the primary post-combustion technology for NO_x reduction and is widely used in turbines. The technology can reduce NO_x emissions 95% or greater. In many cases the NO_x reduction is limited by the release of other pollutants (ammonia and carbon monoxide), space constraints, or reaches the practical limit of the NO_x measuring device. Many stationary gas turbines already utilize selective catalytic reduction. Further reductions could be possible by adding catalyst modules. From observations made during site visits, not all turbines have space readily available to add catalyst modules and would require construction.

Ammonia is injected into the flue gas and reacts with NO_x to form nitrogen and water. Catalysts are made from ceramic materials and active catalytic components of base metals, zeolites, or precious metals. The catalyst may be configured into plates but many new systems are configured into honeycombs to ensure uniform dispersion and reduce ammonia emissions to below 5 ppmv. The reductant, ammonia, is available as anhydrous ammonia, aqueous ammonia, or urea. Anhydrous ammonia is toxic and SCAQMD does not permit new installations of anhydrous ammonia storage tanks. Urea is an alternative but requires conversion to ammonia to be used. Most new selective catalytic reduction installations utilize aqueous ammonia in a 19 percent solution.

To perform optimally, the gas temperature in the control device should be between 400°F and 800°F. During start-up and shutdown, the temperature will be below optimal range greatly reducing the effectiveness. Thus, NO_x concentration limits are generally not applicable during start-up or shutdown. Newer stationary gas turbines reduce the low temperature periods where emissions are out of control.

The catalyst is susceptible to “poisoning” if the flue gas contains contaminants including sulfur compounds, particulates, reagent salts, or siloxanes. These contaminants are readily found in landfill gas, sewage digester gas, and other biogas. Poisoned catalysts require cleaning or replacement, resulting in additional costs and extended periods of non-operation for the stationary gas turbine. In those cases, filtering may be used to reduce the impacts on the catalyst.

Catalytic Absorption Systems (Natural Gas Turbines)

Catalytic absorption is based on an integration of catalytic oxidation and absorption technology resulting in similar control efficiency as selective catalytic reduction without the use of ammonia. Carbon monoxide and nitrogen oxide catalytically oxidize to carbon dioxide and nitrogen dioxide, then the nitrogen dioxide molecules are absorbed onto the catalyst. The catalyst is a platinum-based substrate with a potassium carbonate coating. The catalyst appears to be very sensitive to sulfur, even the small amounts in pipeline natural gas. Initial issues regarding catalyst failures have been addressed by conducting more frequent and extensive catalyst washing. At one facility, they have determined that emission levels are best met when all three layers of catalyst are washed about every four months. During the wash process, the turbine is non-operational for about three days.

The NO_x concentration levels achieved by the various technologies assessed were consistent with the NO_x concentration levels found in existing stationary gas turbines located in SCAQMD.

Initial BARCT Emission Limit and Other Considerations

The recommendation for the NO_x BARCT emission limits are established using information gathered from existing SCAQMD regulations, existing units permitted in SCAQMD, regulatory requirements for other air districts, and the technology assessment. Both retrofit and new installations are considered. Once the initial limits are established, a cost-effectiveness determination is made at that initial limit. If the initial limit is not cost-effective, an alternative limit may be recommended. Unique circumstances are taken under consideration to distinguish alternative limits or to create provisions in the rule to address equipment that would otherwise not be cost-effective.

Natural Gas Combined Cycle Gas Turbines

Natural gas combined cycle gas turbines have been new installations. The lowest NO_x concentration limit for new installations in SCAQMD is 2 ppmv at 15% oxygen on a dry basis. Other air districts limit NO_x emissions to between 5-25 ppmv at 15% oxygen on a dry basis for existing units and 2-25 ppmv at 15% oxygen on a dry basis for new installations. The technology assessment found that for natural gas combined cycle turbines, a combination of pre-combustion technology and post-combustion control can meet a concentration of 2 ppmv NO_x at 15% oxygen on a dry basis. The initial BARCT recommendation for both new installations and retrofits of natural gas combined cycle gas turbines is 2 ppmv NO_x at 15% oxygen on a dry basis.

Table 2-9 – Initial BARCT Recommendation for Natural Gas Combined Cycle Gas Turbines

| | Existing Units (ppmv @ 15% oxygen, dry) | Other Regulatory Requirements (ppmv @ 15% oxygen, dry) | Technology Assessment (ppmv @ 15% oxygen, dry) | Initial BARCT Recommendation (ppmv @ 15% oxygen, dry) |
|-------------|--|---|---|--|
| Retrofit | 5 | 5-25 | 2 | 2 |
| New Install | 2 | 2-25 | 2 | 2 |

Natural Gas Simple Cycle Gas Turbines

For new installations, numerous natural gas simple cycle gas turbines have a NOx concentration limit of 2.5 ppmv at 15% oxygen on a dry basis. Other air districts limit NOx emissions to between 5 and 25 ppmv at 15% oxygen on a dry basis for existing units and 2.5-25 ppmv at 15% oxygen on a dry basis for new installations. The technology assessment found that a combination of pre-combustion technology and post-combustion control can meet a concentration of 2.5 ppmv NOx at 15% oxygen on a dry basis for natural gas simple cycle gas turbines. The initial BARCT recommendation for both new installations and retrofits of natural gas simple cycle gas turbines is 2.5 ppmv NOx at 15% oxygen on a dry basis.

Table 2-10 – Initial BARCT Recommendation for Natural Gas Simple Cycle Gas Turbines

| | Existing Units (ppmv @ 15% oxygen, dry) | Other Regulatory Requirements (ppmv @ 15% oxygen, dry) | Technology Assessment (ppmv @ 15% oxygen, dry) | Initial BARCT Recommendation (ppmv @ 15% oxygen, dry) |
|-------------|--|---|---|--|
| Retrofit | 9 | 5-25 | 2.5 | 2.5 |
| New Install | 2.5 | 2.5-25 | 2.5 | 2.5 |

Produced Gas Turbines

One produced gas turbines has a NOx concentration limit of 5 ppmv at 15% oxygen on a dry basis. Other air districts do not have specific limits for produced gas turbine NOx emissions. They default to natural gas limits based on the size of the turbine. In this case (3-10 MW or 50-150 MMBtu/hr) the limit ranges between 25-42 ppmv at 15% oxygen on a dry basis. The technology assessment found that a combination of pre-combustion technology and post-combustion control can meet a concentration of 5 ppmv NOx at 15% oxygen on a dry basis. The initial BARCT recommendation for both new installations and retrofits of produced gas turbines is 5 ppmv NOx at 15% oxygen on a dry basis.

Table 2-11 – Initial BARCT Recommendation for Produce Gas Turbines

| | Existing Units (ppmv @ 15% oxygen, dry) | Other Regulatory Requirements (ppmv @ 15% oxygen, dry) | Technology Assessment (ppmv @ 15% oxygen, dry) | Initial BARCT Recommendation (ppmv @ 15% oxygen, dry) |
|-------------|--|---|---|--|
| Retrofit | 5 | 25 | 5 | 5 |
| New Install | 5 | 25 | 5 | 5 |

Outer Continental Shelf Produced Gas and Liquid Turbines

Three OCS produced gas turbines have a NO_x concentration limit of 65 ppmv at 15% oxygen on a dry basis. Other air districts do not have specific NO_x emissions limits for OCS produced gas turbine; they default to natural gas limits based on the size of the turbine. In this case (< 3 MW or < 50 MMBtu/hr) the limit ranges between 25-42 ppmv at 15% oxygen on a dry basis. The technology assessment found that pre-combustion technology can meet a concentration of 15 ppmv NO_x at 15% oxygen on a dry basis. When firing on liquid fuel, the technology assessment found that pre-combustion technology can meet a concentration of 30 ppmv NO_x at 15% oxygen on a dry basis. The initial BARCT recommendation for both new installations and retrofits of OCS produced gas turbines is 15 ppmv NO_x at 15% oxygen on a dry basis.

Table 2-12 – Initial BARCT Recommendation for Produce Gas Turbines

| | Existing Units (ppmv @ 15% oxygen, dry) | Other Regulatory Requirements (ppmv @ 15% oxygen, dry) | Technology Assessment (ppmv @ 15% oxygen, dry) | Initial BARCT Recommendation (ppmv @ 15% oxygen, dry) |
|-------------|--|---|---|--|
| Retrofit | 65 | 25 | 15 | 15 |
| New Install | 65 | 25 | 15 | 15 |

Compressor Gas Turbines

Two new installations have permitted limits of 3.5 ppmv NO_x at 15% oxygen on a dry basis. Other air districts have a limit of 8 ppmv NO_x during normal operations and 12 ppmv during transitional operations at 15% oxygen on a dry basis. The technology assessment found that that a combination of pre-combustion technology and post-combustion control can meet a concentration of 3.5 ppmv NO_x at 15% oxygen on a dry basis. The initial BARCT recommendation for compressor gas turbines is 3.5 ppmv NO_x at 15% oxygen on a dry basis.

Table 2-13 – Initial BARCT Recommendation for Compressor Gas Turbines

| | Existing Units (ppmv @ 15% oxygen, dry) | Other Regulatory Requirements (ppmv @ 15% oxygen, dry) | Technology Assessment (ppmv @ 15% oxygen, dry) | Initial BARCT Recommendation (ppmv @ 15% oxygen, dry) |
|-------------|--|---|---|--|
| Retrofit | 64 | 50 | 3.5 | 3.5 |
| New Install | 64 | 50 | 3.5 | 3.5 |

Other Gas Turbines

The BARCT assessment provided above analyzed existing gas turbines. However, the rule may apply to gas turbines using a fuel besides those listed above. The most likely alternative fuel is biogas that will have contaminant issues such as hydrogen sulfide and siloxanes, which will limit the ability to utilize post-combustion technologies. The technology assessment found that the use of pre-combustion technology can meet a concentration of 12.5 ppmv NO_x at 15% oxygen on a dry basis. The initial BARCT recommendation for other gas turbines is 12.5 ppmv at 15% oxygen on a dry basis.

In summary, the initial BARCT recommendations are presented in Table 2-14 below:

Table 2-14 – Summary of Initial BARCT Recommendation

| Equipment | Initial BARCT Recommendation |
|--|-------------------------------------|
| Natural Gas Combined Cycle Gas Turbine | 2 ppmv @ 15% oxygen, dry |
| Natural Gas Simple Cycle Gas Turbine | 2.5 ppmv @ 15% oxygen, dry |
| Compressor Gas Turbine | 3.5 ppmv @ 15% oxygen, dry |
| Produced Gas Turbine | 5 ppmv @ 15% oxygen, dry |
| Outer Continental Shelf Produced Gas Turbine | 15 ppmv @ 15% oxygen, dry |
| Outer Continental Shelf Liquid Fuel Turbine | 30 ppmv @ 15% oxygen, dry |
| Other Gas Turbine | 12.5 ppmv @ 15% oxygen, dry |

Cost-Effectiveness Analysis

Cost-effectiveness is examined for each equipment category type. Cost-effectiveness is measured in terms of control costs (dollars) per air emissions reduced (tons). If the cost per ton of emissions reduced is less than the maximum required cost-effectiveness, then the control method is considered to be cost-effective. The 2016 Air Quality Management Plan (AQMP) establishes a cost-effectiveness threshold of \$50,000 per ton of NOx reduced.

The discounted cash flow method (DCF) is used in to determine cost-effectiveness. The DCF method calculates the present value of the control costs over the life of the equipment by adding the capital cost to the present value of all annual costs and other periodic costs over the life of the equipment. A real interest rate of four per cent and a 25-year equipment life is used. The cost-effectiveness is determined by dividing the total present value of the control costs by the total emission reductions in tons over the same 25-year equipment life.

Baseline emissions are determined by using reported fuel consumption and the permit NOx concentration limit corrected to 15% oxygen on a dry basis. Proposed Amended 1134 – Emissions of Oxides of Nitrogen from Stationary Gas Turbines (PAR 1134) emissions are determined by using reported fuel consumption and the proposed emission limit. Emission reductions are the difference between baseline emissions and PAR 1134 emissions.

Costs for retrofitting stationary gas turbines were determined using U.S. EPA’s Air Pollution Control Cost Estimation Spreadsheet for Selective Catalytic Reduction. The methodology used in the spreadsheet is based on U.S. EPA Clean Air Markets Division Integrated Planning Model. Size and costs of selective catalytic reduction control equipment and operational costs are based on size, fuel burned, NOx removal efficiency, reagent consumption rate, and catalyst costs. Fuel consumption is based on 2015 reported fuel usage. Values are reported in 2015 dollars. Cost-effectiveness is not reported for turbines that are already meet the proposed BARCT emission limits.

Natural Gas Combined Cycle Gas Turbines

All but one of the eighteen natural gas combined cycle gas turbines currently have NOx permit limits greater than the proposed NOx concentration limit of 2 ppmv at 15% oxygen on a dry basis. Six units are permitted at 2.5 ppmv NOx at 15% oxygen on a dry basis. The remaining eleven units are permitted at 9 ppmv NOx at 15% oxygen on a dry basis or above. The cost-effectiveness for natural gas combined cycle gas turbines is presented below in Table 2-15 below.

Table 2-15 – Natural Gas Combined Cycle Gas Turbine¹ Cost-Effectiveness

| Unit | Input (MMBTU/HR) | Output (MW) | 2015 Annual NOx Emissions (tons) | Estimated MWh/yr | % Capacity | NOx Permit Limit (ppmv @ 15% oxygen, dry) | Capital Cost (Millions) | Operating Cost (millions) | Emission Reductions (tons) | Cost-Effectiveness (\$/ton reduced) | Annual Capacity Factor (%) at \$50,000 per ton of NOx Reduced |
|---------|------------------|-------------|----------------------------------|------------------|------------|---|-------------------------|---------------------------|----------------------------|-------------------------------------|---|
| NG CS10 | 410 | 60 | 192.7 | 7,500 | 1.4% | 102 | \$7.21 | \$0.49 | 188.9 | \$3,229 | 0.1% |
| NG CS3 | 16 | 1 | 2.4 | 4,800 | 49.8% | 41 | \$0.54 | \$0.04 | 2.3 | \$21,064 | 21.0% |
| NG CS1 | 59 | 3 | 10.8 | 22,800 | 90.1% | 25 | \$1.00 | \$0.09 | 9.9 | \$9,802 | 17.7% |
| NG CS2 | 59 | 3 | 4 | 22,800 | 90.1% | 25 | \$1.00 | \$0.09 | 3.7 | \$26,465 | 47.7% |
| NG CS8 | 59 | 6 | 26.2 | 47,000 | 89.4% | 21 | \$1.61 | \$0.14 | 23.7 | \$6,477 | 11.6% |
| NG CS9 | 59 | 6 | 24.1 | 44,000 | 83.7% | 21 | \$1.61 | \$0.14 | 21.8 | \$7,042 | 11.8% |
| NG CS4 | 234 | 24 | 33.3 | 75,000 | 36.3% | 12 | \$3.93 | \$0.29 | 27.8 | \$12,516 | 9.1% |
| NG CS6 | 46 | 3 | 5.3 | 18,000 | 68.4% | 9 | \$0.98 | \$0.07 | 4.1 | \$42,269 | 57.8% |
| NG CS7 | 49 | 3 | 5.6 | 19,000 | 72.3% | 9 | \$0.98 | \$0.07 | 4.4 | \$40,256 | 58.2% |
| NG CS17 | 446 | 48 | 10.2 | 75,000 | 17.7% | 9 | \$6.25 | \$0.44 | 8.0 | \$67,219 | 23.8% |
| NG CS5 | 221 | 21 | 19.2 | 140,000 | 76.1% | 9 | \$3.72 | \$0.30 | 14.8 | \$23,418 | 35.6% |
| NG CS18 | 350 | 30 | 1 | 6,000 | 2.3% | 2.5 | \$4.59 | \$0.33 | 0.2 | \$1,826,656 | 84.0% |
| NG CS11 | 57 | 5 | 0.6 | 20,000 | 45.7% | 2.5 | \$1.43 | \$0.11 | 0.1 | \$1,094,878 | 999.9% |
| NG CS12 | 57 | 5 | 0.2 | 10,000 | 22.8% | 2.5 | \$1.43 | \$0.11 | 0.0 | \$3,284,635 | 1499.8% |
| NG CS13 | 162 | 13 | 3.5 | 100,000 | 85.2% | 2.5 | \$2.72 | \$0.22 | 0.6 | \$422,044 | 719.1% |
| NG CS15 | 114 | 6 | 0.4 | 44,000 | 89.7% | 2.5 | \$1.54 | \$0.11 | 0.1 | \$1,668,033 | 2992.2% |
| NG CS16 | 114 | 6 | 0.4 | 44,000 | 89.7% | 2.5 | \$1.54 | \$0.11 | 0.1 | \$1,668,033 | 2992.2% |

Average Cost-Effectiveness (Excluding Near-Limit Turbines): \$11,500

1 – Natural Gas Combined Cycle Gas Turbine with Associated Duct Burner

For the natural gas combined cycle gas turbines as a class permitted at 2.5 ppmv NOx at 15% oxygen on a dry basis (near-limit turbines), the cost-effectiveness threshold of \$50,000 per ton reduced is never reached, even when used at 100% annual capacity factor. Those six units will not be required to retrofit to the proposed BARCT limit. For the remaining units, a low-use provision is included in the proposed rule allowing the units to operate at current permitted levels if their annual capacity factor remains below 25% in any one year and 10% averaged over three consecutive years. Otherwise, it is cost-effective for the combined cycle natural gas turbines to meet the proposed 2 ppmv NOx at 15% oxygen on a dry basis.

Natural Gas Simple Cycle Gas Turbines

Twenty of twenty-two natural gas simple cycle gas turbines have permitted NOx limits greater than the proposed BARCT limit of 2.5 ppmv at 15% oxygen on a dry basis. Ten of the natural gas simple cycle gas turbines that are permitted at NOx concentration levels above the proposed limit are used sporadically to support renewable power generation or are no longer in use. The cost-effectiveness for natural gas simple cycle gas turbines is presented below in Table 2-16 below.

Table 2-16 – Natural Gas Simple Cycle Gas Turbine Cost-Effectiveness

| Unit | Input (MMBTU/HR) | Output (MW) | 2015 Annual NOx Emissions (tons) | Estimated MWh/yr | %Capacity | NOx Permit Limit (ppmv @ 15% oxygen, dry) | Capital Cost (Millions) | Operating Cost (millions) | Emission Reductions (tons) | Cost-Effectiveness (\$/ton reduced) | Annual Capacity Factor (%) at \$50,000 per ton of NOx Reduced |
|---------|------------------|-------------|----------------------------------|------------------|-----------|---|-------------------------|---------------------------|----------------------------|-------------------------------------|---|
| NG SS13 | 246 | 23 | 26.1 | 22,000 | 10.9% | 42 | \$3.87 | \$0.33 | 24.5 | \$15,067 | 3.3% |
| NG SS14 | 466 | 42 | 279.2 | 250,000 | 67.9% | 42 | \$5.72 | \$0.69 | 262.4 | \$2,586 | 3.5% |
| NG SS8 | 50 | 4 | 29.3 | 31,500 | 89.9% | 40 | \$1.24 | \$0.12 | 27.5 | \$4,675 | 8.4% |
| NG SS9 | 50 | 4 | 29.3 | 31,500 | 89.9% | 40 | \$1.24 | \$0.12 | 27.5 | \$4,675 | 8.4% |
| NG SS10 | 229 | 22.4 | 32.4 | 75,000 | 38.2% | 9 | \$3.80 | \$0.34 | 23.4 | \$15,927 | 12.2% |
| NG SS11 | 250.6 | 23.1 | 27.3 | 190,000 | 94.1 | 9 | \$3.88 | \$0.32 | 19.7 | \$18,352 | 34.5% |
| NG SS28 | 221 | 21.8 | 19.0 | 140,000 | 73.3% | 9 | \$3.72 | \$0.29 | 14.8 | \$23,418 | 65.7% |
| NG SS29 | 221 | 21.8 | 23.1 | 160,000 | 83.7% | 9 | \$3.72 | \$0.30 | 18.2 | \$19,043 | 55.5% |
| NG SS12 | 1080 | 158 | 4.9 | 20,000 | 1.4% | 8 | \$13.53 | \$1.02 | 3.3 | \$376,566 | 10.5% |
| NG SS19 | 530.2 | 43.8 | 0.0 | 0 | 0.0% | 7 | \$5.88 | \$0.43 | 0.0 | N/A | 17.1% |
| NG SS15 | 472.5 | 39 | 32.6 | 340,000 | 99.5% | 5 | \$12.70 | \$0.45 | 16.3 | \$49,026 | 99.0% |
| NG SS17 | 43.8 | 4.6 | 7.0 | 4,000 | 9.9% | 5 | \$1.36 | \$0.11 | 1.6 | \$78,135 | 15.5% |
| NG SS20 | 136.5 | 10.5 | 0.0 | 0 | 0% | 5 | \$2.3 | \$0.15 | 0 | N/A | 34.0% |
| NG SS21 | 136.5 | 10.5 | 0.0 | 0 | 0% | 5 | \$2.3 | \$0.15 | 0 | N/A | 34.0% |
| NG SS22 | 136.5 | 10.5 | 0.0 | 0 | 0% | 5 | \$2.3 | \$0.15 | 0 | N/A | 34.0% |
| NG SS23 | 136.5 | 10.5 | 0.0 | 0 | 0% | 5 | \$2.3 | \$0.15 | 0 | N/A | 34.0% |
| NG SS24 | 136.5 | 10.5 | 0.1 | 100 | 0.1% | 5 | \$2.3 | \$0.15 | 0 | N/A | 34.0% |
| NG SS25 | 136.5 | 10.5 | 0.0 | 0 | 0% | 5 | \$2.3 | \$0.15 | 0 | N/A | 34.0% |
| NG SS26 | 136.5 | 10.5 | 0.0 | 0 | 0% | 5 | \$2.3 | \$0.15 | 0 | N/A | 34.0% |
| NG SS27 | 136.5 | 10.5 | 0.0 | 0 | 0% | 5 | \$2.3 | \$0.15 | 0 | N/A | 34.0% |

Average Cost-Effectiveness (Excluding Low-Use Turbines): \$8,400

A low-use provision is included in the proposed rule allowing the units to operate at current permitted levels if their annual capacity factor remains below 25% in any one year and 10% averaged over three consecutive years. Otherwise, it is cost-effective for the simple cycle natural gas turbines to meet the proposed 2.5 ppmv NOx at 15% oxygen on a dry basis.

Produced Gas Turbines

There are nine produced gas turbines employed in oil and gas production; six are OCS turbines. These do not include turbines used for refining of oil or gas which will be subject to Proposed Rule 1109.1 when it is adopted. Produced gas turbines use the gas released from oil fields. Because the flow of gas from oil fields is inconsistent, there is significant variation in the operating load level of the turbines. In some cases, the gas may be supplemented with natural gas. In the case of OCS turbines, natural gas is unavailable and the produced gas may be supplemented with diesel fuel. One of the three non-OCS produced gas turbines currently meets the proposed BARCT limit of 5 ppmv at 15% oxygen on a dry basis.

Table 2-17 – Produced Gas Turbine Cost-Effectiveness

| Unit | Input (MMBTU/HR) | Output (MW) | 2015 Annual NOx Emissions (tons) | Estimated MWh/yr | %Capacity | NOx Permit Limit (ppmv @ 15% oxygen, dry) | Capital Cost (Millions) | Operating Cost (millions) | Emission Reductions (tons) | Cost-Effectiveness (\$/ton reduced) | Annual Capacity Factor (%) at \$50,000 per ton of NOx Reduced |
|------|------------------|-------------|----------------------------------|------------------|-----------|---|-------------------------|---------------------------|----------------------------|-------------------------------------|---|
| PGT2 | 49 | 4.8 | 4.0 | 30,000 | 71.4% | 9 | \$1.24 | \$0.09 | 1.8 | \$47,213 | 67.4% |
| PGT3 | 49 | 4.8 | 1.5 | 15,000 | 35.7% | 9 | \$1.24 | \$0.07 | 0.7 | \$136,500 | 97.5% |

Average Cost-Effectiveness: \$81,400

As a class, produced gas turbines cannot cost-effectively meet the proposed BARCT limit of 5 ppmv at 15% oxygen on a dry basis.

Table 2-18 – Outer Continental Shelf Produced Gas Turbine Cost-Effectiveness

| Unit | Input (MMBTU/HR) | Output (MW) | 2015 Annual NOx Emissions (tons) | Estimated MWh/yr | %Capacity | NOx Permit Limit (ppmv @ 15% oxygen, dry) | Capital Cost (Millions) | Operating Cost (millions) | Emission Reductions (tons) | Cost-Effectiveness (\$/ton reduced) | Annual Capacity Factor (%) at \$50,000 per ton of NOx Reduced |
|---------|------------------|-------------|----------------------------------|------------------|-----------|---|-------------------------|---------------------------|----------------------------|-------------------------------------|---|
| PGOCST1 | 29 | 2.5 | 53.8 | 20,000 | 91.3% | 65 | \$0.91 | \$0.09 | 46.3 | \$2,012 | 3.7% |
| PGOCST2 | 29 | 2.5 | 47.8 | 20,000 | 91.3% | 65 | \$0.91 | \$0.09 | 41.1 | \$2,267 | 4.1% |
| PGOCST3 | 29 | 2.5 | 45.2 | 20,000 | 91.3% | 65 | \$0.91 | \$0.09 | 38.9 | \$2,395 | 4.4% |
| PGOCST4 | 42 | 2.5 | 8.0 | 3,500 | 16.0% | 140 | \$0.91 | \$0.07 | 7 | \$11,481 | 3.7% |
| PGOCST5 | 42 | 2.5 | 3.4 | 1,500 | 6.8% | 140 | \$0.91 | \$0.07 | 2.9 | \$27,351 | 3.7% |
| PGOCST6 | 42 | 2.5 | 9.2 | 4,300 | 19.6% | 130 | \$0.91 | \$0.07 | 8.6 | \$9,804 | 3.9% |

Average Cost-Effectiveness: \$3,600

As a class, OCS produced gas turbines can cost-effectively meet the proposed BARCT limit of 5 ppmv at 15% oxygen on a dry basis. Cost-effectiveness is not calculated for liquid fuel use on outer continental shelf produced gas turbines because the emissions concentration that can be met is twice the value of the produced gas limit.

Compressor Gas Turbines

There are seven compressor gas turbines; all are permitted over the proposed BARCT limit of 3.5 ppmv NOx at 15% oxygen on a dry bases. The cost-effectiveness for compressor gas turbines is presented below in Table 2-19 below.

Table 2-19 – Compressor Gas Turbine Cost-Effectiveness

| Unit | Input (MMBTU/HR) | Output (MW) | 2015 Annual NOx Emissions (tons) | Estimated MWh/yr | %Capacity | NOx Permit Limit (ppmv @ 15% oxygen, dry) | Capital Cost (Millions) | Operating Cost (millions) | Emission Reductions (tons) | Cost-Effectiveness (\$/ton reduced) | Annual Capacity Factor (%) at \$50,000 per ton of NOx Reduced |
|--------|------------------|-------------|----------------------------------|------------------|-----------|---|-------------------------|---------------------------|----------------------------|-------------------------------------|---|
| NG CG1 | 150 | 11 | 62.1 | 48,000 | 49.8% | 81 | \$2.39 | \$0.24 | 59.6 | \$ 4,230 | 4.3% |
| NG CG2 | 150 | 11 | 61.7 | 44,000 | 45.7% | 81 | \$2.39 | \$0.24 | 59.2 | \$ 4,258 | 4.3% |
| NG CG3 | 150 | 11 | 60.0 | 42,000 | 43.6% | 81 | \$2.39 | \$0.24 | 57.5 | \$ 4,384 | 4.4% |
| NG CG4 | 13.11 | 0.9 | 4.3 | 2,500 | 31.7% | 68 | \$0.47 | \$0.04 | 4.1 | \$ 10,946 | 4.5% |
| NG CG6 | 13.11 | 0.9 | 3.9 | 1,800 | 22.8% | 68 | \$0.47 | \$0.04 | 3.7 | \$ 12,130 | 5.1% |
| NG CG5 | 13.11 | 0.9 | 3.9 | 1,800 | 22.8% | 67 | \$0.47 | \$0.04 | 3.7 | \$ 12,130 | 5.1% |
| NG CG7 | 13.11 | 0.9 | 3.7 | 1,700 | 21.6% | 64 | \$0.47 | \$0.04 | 3.5 | \$ 12,823 | 7.6% |

Average Cost-Effectiveness: \$4,900

As a class, compressor gas turbines can cost-effectively meet the proposed BARCT limit of 3.5 ppmv at 15% oxygen on a dry basis.

BARCT Emission Limit Recommendation

In all categories, the technology is available to meet the Initial BARCT NOx concentration limits. Low-use and near-limit provisions are included in the rule to address units that are not cost-effective. The provision allows low-use equipment to continue operating without retrofit provided

that they do not exceed an annual capacity factor limit and that they include an annual capacity factor in their Permit to Operate. This ensures that turbines that increase use to the point where the cost-effectiveness threshold is reached, that they will be required to retrofit the units to meet the proposed BARCT concentration limits.

The BARCT emission limits for the proposed rule are listed below in Table 2-20.

Table 2-20 – Summary of BARCT Recommendation

| Equipment | Final BARCT Recommendation |
|---|-----------------------------------|
| Natural Gas Combined Cycle Gas Turbine | 2 ppmv @ 15% oxygen, dry |
| Natural Gas Simple Cycle Gas Turbine | 2.5 ppmv @ 15% oxygen, dry |
| Natural Gas Simple Cycle Compressor Gas Turbine | 3.5 ppmv @ 15% oxygen, dry |
| Produced Gas Turbine | 9 ppmv @ 15% oxygen, dry |
| Outer Continental Shelf Produced Gas Turbine | 15 ppmv @ 15% oxygen, dry |
| Outer Continental Shelf Liquid Fuel Turbine | 30 ppmv @ 15% oxygen, dry |
| Other Gas Turbine | 12.5 ppmv @ 15% oxygen, dry |

CHAPTER 3: SUMMARY OF PROPOSALS

INTRODUCTION

TITLE

PURPOSE (Subdivision (a))

APPLICABILITY (Subdivision (b))

DEFINITIONS (Subdivision (c))

EMISSIONS LIMITS (Subdivision (d))

MONITORING, RECORDKEEPING, AND REPORTING (Subdivision (e))

TEST METHODS (Subdivision (f))

RECORDKEEPING (Subdivision (g))

EXEMPTIONS (Subdivision (h))

INTRODUCTION

Proposed Amended Rule 1134 – Emissions of Oxides of Nitrogen from Stationary Gas Turbines (PAR 1134) establishes NO_x and ammonia emission limits gas turbines. Additionally, PAR 1134 establishes provisions for monitoring, reporting, and recordkeeping, and establishes exemptions from specific provisions.

PURPOSE (Subdivision (a))

Purpose (subdivision (a)) is added to PAR 1134 to be consistent with the structure of current SCAQMD rules. The purpose of PAR 1134 is to reduce emissions of oxides of nitrogen from stationary gas turbines.

APPLICABILITY (Subdivision (b))

While there is no specific language excluding RECLAIM facilities from current Rule 1134, a few turbines are currently subject to Rule 1134. Many turbines are included in the RECLAIM program and as such are not required to meet the NO_x concentration limits imposed by Rule 1134. However, gas turbines existing as of August 4, 1989 and used at publicly-owned treatment works, landfills, hospitals and other public facilities, and sources which were not covered under RECLAIM, were still required to meet the concentration limits in Rule 1134 through application of various control technologies. New turbines installed at non-RECLAIM facilities after August 4, 1989 are not subject to Rule 1134. PAR 1134 will apply to all stationary gas turbines located at non-RECLAIM and RECLAIM facilities, regardless of the date they were permitted. NO_x generating equipment located at petroleum refineries and refinery associated facilities will be subject to forthcoming Proposed Rule 1109.1 – Refinery Equipment. Similarly, NO_x generating equipment located at landfills or fueled with landfill gas will be subject to Proposed Rule 1150.3 – NO_x Emission Reduction from Combustion Equipment at Landfills and NO_x generating equipment located at publicly owned treatment works will be subject to Proposed Rule 1179.1 – NO_x Emission Reduction from Combustion Equipment at Publicly Owned Treatment Work Facilities. In the interim, those facilities subject to Rule 1134 or having permit conditions referencing Rule 1134 will remain subject to those conditions until the new source-specific rules are adopted.

DEFINITIONS (Subdivision (c))

PAR 1134 adds and modifies definition to clarify and explain key concepts and removes obsolete definitions. Please refer to PAR 1134 for each definition.

Proposed Deleted Definitions:

- Chemical Processing Gas Turbine
- Emission Control Plan
- Higher Heating Value of Fuel (HHV)
- Lower Heating Value of Fuel (LLV)
- Peaking Gas Turbine Unit
- Sewage Digester Gas
- Southeast Desert Air Basin (SEDAB)

Proposed Modified Definitions: Cogeneration Gas Turbine
Combined Cycle Gas Turbine
Compressor Gas Turbine (formerly Pipeline Gas Turbine Unit)
Emergency Standby Gas Turbine
Existing Gas Turbine
Stationary Gas Turbine

Proposed Added Definitions: Annual Capacity Factor
Duct Burner
Former RECLAIM NO_x Facility
Landfill
Natural Gas
Non-RECLAIM NO_x Facility
Oxides of Nitrogen (NO_x) Emissions
Outer Continental Shelf
Petroleum Refinery
Produced Gas
Publicly Owned Treatment Works
RECLAIM NO_x Facility
Shutdown
Simple Cycle Gas Turbine
Start-Up
Tuning

EMISSIONS LIMITS (Subdivision (d))

The emissions limits in paragraph (d)(1) will be applicable to existing turbines currently subject to Rule 1134. The emissions limits in (d)(1) are applicable in the interim until the turbine can comply with emissions limits in Table I of paragraph (d)(3) or December 31, 2023, whichever comes first. Turbines that are located at a RECLAIM NO_x facility or a former RECLAIM NO_x facility are not subject to (d)(1).

The emission limits in Tables I of PAR 1134 are based on the BARCT assessment presented in Chapter 2 – BARCT Assessment. The effective date is January 1, 2024.

PAR 1134, Table I: Emissions Limits for Stationary Gas Turbines

| Fuel Type | NO_x¹ (ppmv) | Ammonia (ppmv) | Oxygen Correction (%, dry) |
|--|--|---------------------------|---------------------------------------|
| Liquid – Outer Continental Shelf | 30 | 5 | 15 |
| Natural Gas – Combined Cycle | 2 | 5 | 15 |
| Natural Gas – Simple Cycle | 2.5 | 5 | 15 |
| Produced Gas | 9 | 5 | 15 |
| Produced Gas – Outer Continental Shelf | 15 | 5 | 15 |
| Other | 12.5 | 5 | 15 |

¹ – The NO_x emission limits in Table 1 shall not apply during start-up, shutdown, and tuning.

The emission limits in Table II of PAR 1134 also reflect the BARCT assessment presented in Chapter 2 – BARCT Assessment. The effective date for compressor gas turbines is two years after a permit to construct is issued by the Executive Officer. The application must be submitted to SCAQMD by July 1, 2022 as required in paragraph (d)(8).

PAR 1134, Table II: Emissions Limits for Compressor Gas Turbines

| Fuel Type | NO_x¹ (ppmv) | Ammonia (ppmv) | Oxygen Correction (%, dry) |
|--------------------------------------|--|---------------------------|---------------------------------------|
| Natural Gas – Compressor Gas Turbine | 3.5 | 10 | 15 |

¹ – The NO_x emission limits in Table 1 shall not apply during start-up, shutdown, and tuning.

Subparagraph (d)(5) states that requirements for start-up, shutdown, and tuning periods will be included in each stationary gas turbine's permit. The requirements will specify duration, mass emissions, and number of start-ups, shutdowns, and, if applicable, tunings. Requirements for start-up, shutdown, and tuning of existing stationary gas turbines are currently in the operating permits for that equipment. Additionally, start-up, shutdown, and tuning are unique to each unit and evaluated during the permitting process.

Subparagraph (d)(6)(B) requires the emissions limits of turbines that are installed after [*Date of Adoption*] to be averaged over a 60-minute rolling average. For stationary gas turbines installed before [*Date of Adoption*], subparagraph (d)(6)(A) requires turbines to retain their current averaging time. The averaging times for these units were evaluated during the permitting process and shall be maintained.

Paragraph (d)(7) prohibits the use of liquid fuel in a stationary gas turbine except for outer continental shelf gas turbines which do not have access to natural gas.

Paragraph (d)(8) requires that by July 1, 2022 facilities must submit applications for a permit to construct or to reconcile their permits with Rule 1134. As facilities transition out of RECLAIM to Rule 1134, their permits will need to be revised to remove references to RECLAIM rules and include references to Rule 1134.

To address the technology forcing nature of the compressor gas turbine emissions limits, an extension of up to one year for compliance with the NO_x and ammonia emissions limits in Table II is included and a three year extension for compliance with the ammonia emissions limits in Table II. The one year extension is allowed to address permitting, land acquisition, or some other extenuating circumstance that prevents the implementation of the lower emitting technology. The three year extension is to allow time to confirm that ammonia limits can be complied with at various load conditions. The time extension must be submitted at least 30 days before the compliance deadlines and must include: which units need a time extension, the reason(s) an extension is needed, the progress to date of the project, and the length of time requested. The facility must also demonstrate that at least 25% of NO_x emission reductions will be realized by December 31, 2023 in comparison to 2017 NO_x emissions. If an extension greater than 12 months is requested for compliance with the ammonia emission limits, the turbine must be equipped with an ammonia continuous emission monitoring system certified under an approved SCAQMD protocol. If an extension greater than 24 months is requested for compliance with the ammonia emission limits, the facility must demonstrate that the turbine is operating less than 1,000 hours per year. To be approved for the time extension, the Executive Officer will determine if the facility followed the proper procedure for submitting a request for time extension and if the time extension was needed due to an extenuating circumstance. Examples of extenuating circumstances includes, but is not limited to engineering designs, construction plans, land acquisition contracts, permit applications, test results, and purchase orders that impact scheduling.

MONITORING, RECORDKEEPING, AND REPORTING (Subdivision (e))

Staff is currently working on adopting Rule 113 – Monitoring, Reporting, and Recordkeeping (MRR) Requirements for NO_x and SO_x Sources. Once Rule 113 is adopted, all Rule 1134 equipment will transition to Rule 113 for MRR. For the interim period, the intention of the PAR 1134 MRR is to maintain current MRR for all facilities and streamline reporting requirements for former RECLAIM NO_x facilities. Turbines that are non-RECLAIM NO_x sources already comply with Rule 218 – Continuous Emission Monitoring (Rule 218) in addition to other MRR requirements. Therefore, requiring compliance with Rule 218 will not affect these units.

Paragraph (e)(1) requires that turbines 2.9 MW and larger located at non-RECLAIM NO_x facilities retain their continuous emission monitoring systems (CEMS).

Subparagraph (e)(2)(A) requires turbines smaller than 2.9 MW and located at a non-RECLAIM NO_x facility to conduct a source test to demonstrate compliance with NO_x and carbon monoxide concentrations and demonstrated percent efficiency (EFF), if applicable.

Subparagraph (e)(2)(B) requires stationary gas turbines operating with a catalytic control device to conduct source testing to determine compliance with the ammonia concentration emission limit. Alternatively, a certified ammonia CEMS may be used to determine compliance in lieu of source testing. At this time, SCAQMD is in the process of finding a host site for an ammonia CEMS demonstration project. Upon successful demonstration, SCAQMD will develop an ammonia CEMS protocol. Once an ammonia CEMS protocol is developed then SCAQMD intends to require ammonia CEMS instead of source testing to demonstrate compliance with the ammonia limits. At this time, an ammonia CEMS is approximately \$60,000. The provision that allows for ammonia CEMS instead of source testing allows facilities to transition to ammonia CEMS once a protocol is ready, but is not specifically required by Rule 1134.

Source tests to determine compliance with NO_x concentration limits for turbines not equipped with NO_x CEMS shall be conducted every calendar year according to clause (e)(2)(C)(i). Clause (e)(2)(C)(ii) states that turbines emitting less than 25 tons per year of NO_x may source test at least once every three calendar years. Additionally, clause (e)(2)(C)(iii) requires turbines not equipped with ammonia CEMS to source test quarterly when initially installed and after an annual test is failed. After four consecutive compliant ammonia source tests, source testing of ammonia may be conducted every calendar year. Turbines currently testing for ammonia annually may retain that schedule until an annual test is failed.

Paragraph (e)(3) applies to RECLAIM NO_x facilities and requires that current MRR be maintained until the facility leaves RECLAIM.

Paragraph (e)(4) applies to former RECLAIM NO_x facilities. To demonstrate compliance with the NO_x emissions limits, these facilities will be required to comply with SCAQMD Rule 2012 with the exception of the following provisions that reference reporting requirements or that do not apply to stationary gas turbines:

- Rule 2012 (c)(3) – facility permit holder of a major NO_x source
- Rule 2012 (c)(4) – Super Compliant Facilities
- Rule 2012 (c)(5) – facility Permit holder of a facility which is provisionally approved for NO_x Super Compliant status
- Rule 2012 (c)(6) – after final approval of Super Compliant status
- Rule 2012 (c)(7) – facility designated as a NO_x Super Compliant Facility
- Rule 2012 (c)(8) – super Compliant Facility exceeds its adjusted allocations
- Rule 2012 (d)(2)(B) – install, maintain and operate a modem
- Rule 2012 (d)(2)(C) – equipment-specific emission rate or concentration limit
- Rule 2012 (d)(2)(D) – monitor one or more measured variables as specified in Appendix A
- Rule 2012 (d)(2)(E) – comply with all applicable provisions of subdivision (f)
- Rule 2012 (e) – NO_x Process Unit
- Rule 2012 (g)(5) – system is inadequate to accurately determine mass emissions
- Rule 2012 (g)(6) – sharing of totalizing fuel meters
- Rule 2012 (g)(7) – equipment which is exempt from permit requirements pursuant to Rule 219 - Equipment Not Requiring A Written Permit Pursuant to Regulation II
- Rule 2012 (g)(8) – rule 2012 and Appendix A

- Rule 2012 (h)(1) – facilities with existing CEMS and fuel meters as of October 15, 1993
- Rule 2012 (h)(2) – interim emission reports
- Rule 2012 (h)(4) – installation of all required or elected monitoring and reporting systems
- Rule 2012 (h)(5) – existing or new facility which elects to enter RECLAIM or a facility which is required to enter RECLAIM
- Rule 2012 (h)(6) – new major NO_x source at an existing facility
- Rule 2012 (i) – Recordkeeping
- Rule 2012 (k) – Exemption
- Rule 2012 (l) – Appeals
- Reported Data and Transmitting/Reporting Frequency requirements from Rule 2012 Appendix A – “Protocol for Monitoring, Reporting and Recordkeeping for Oxides of Nitrogen (NO_x) Emissions”

TEST METHODS (Subdivision (f))

SCAQMD Method 207.1 is included to determine ammonia concentration during source testing.

RECORDKEEPING (Subdivision (g))

The recordkeeping provisions in subdivision (g) are maintained with two minor changes. Paragraph (g)(3) will require the use of a data acquisition system as a replacement for monthly reporting for units that require CEMS. Also, results from source tests shall be submitted within 60 days after source testing is completed.

EXEMPTIONS (Subdivision (h))

The current exemption for chemical processing gas turbine units in subparagraph (h)(1)(C) has been removed and those units must comply with applicable limits in Proposed Rule 1109.1 – Refinery Equipment when it is adopted. The current exemptions in subparagraph (h)(1)(D) and (h)(2)(B) have been removed, these exemptions are no longer necessary because Southeast Desert Air Basin is located outside the SCAQMD. There are no turbines located on San Clemente Island and therefore the exemption in subparagraph (h)(2)(C) is unnecessary.

Rule 1134 will be amended to include several new exemptions. The first new exemption, subparagraph (h)(3), exempts existing combined cycle gas turbines at 2.5 ppmv NO_x at 15% oxygen on a dry basis from the emissions limitations in paragraph (d)(3), with the condition that the units keep their NO_x and ammonia limits, start-up, shutdown, and tuning requirements, and averaging times on the current permit. According to the BARCT assessment, it is not cost-effective for combined cycle gas turbines at 2.5 ppmv NO_x at 15% oxygen on a dry basis to reduce their limits to 2 ppmv at 15% oxygen on a dry basis.

To address low-use stationary gas turbines, a low-use provision, paragraph (h)(4) is included in PAR 1134. The provision allows low-use equipment to continue operating without retrofit provided that they: do not exceed annual capacity factor limits; include annual capacity factor limits in their permit; and keep the NO_x and ammonia limits, start-up, shutdown, and tuning requirements, and averaging times on their current permit. The annual capacity factor, paragraph (c)(1), is defined as the ratio between the actual annual input and the annual maximum heat input

if operated continuous over one year. The annual capacity factor limits for gas turbines in subparagraph (h)(4)(A) is less than twenty-five percent in one calendar year and less than ten percent averaged over three years. In order to obtain the low-use exemption, subparagraph (h)(4)(B) requires that an application for the low-use exemption be submitted by July 1, 2022. Subparagraph (h)(4)(C) requires that annual capacity factor to be determined annually and submitted to the Executive Officer no later than March 1 following the reporting year. If a unit exceeds the annual capacity factor, subparagraph (h)(4)(D) states the owner or operator is subject to a notice of violation for each year of exceedance and for each annual and/or three-year exceedance. Clause (h)(4)(D)(iii) requires that after two years of the date of reported exceedance, the unit must come into compliance with the emissions limits in Table I. There are also interim milestone requirements in clauses (h)(4)(D)(i) and (h)(4)(D)(ii): submitting a permit application within six months from the date of reported exceedance and a CEMS plan within six months from the date of permit application submittal.

If a stationary gas turbine is not using selective catalytic reduction or other processes that add ammonia into the exhaust gas, then paragraph (h)(5) exempts those turbines from ammonia concentration limits and source testing requirements.

CHAPTER 4: IMPACT ASSESSMENT

POTENTIALLY IMPACTED FACILITIES

EMISSIONS INVENTORY AND EMISSION REDUCTIONS

COST-EFFECTIVENESS

INCREMENTAL COST-EFFECTIVENESS

RULE ADOPTION RELATIVE TO COST-EFFECTIVENESS

SOCIOECONOMIC ASSESSMENT

CALIFORNIA ENVIRONMENTAL QUALITY ACT

**DRAFT FINDINGS UNDER CALIFORNIA HEALTH AND SAFETY CODE
SECTION 40727**

COMPARATIVE ANALYSIS

POTENTIALLY IMPACTED FACILITIES

There are 39 facilities that are potentially impacted by Proposed Amended Rule 1134 – Emissions of Oxides of Nitrogen from Stationary Gas Turbines (PAR 1134). Of these 39 facilities, 24 are currently in the NO_x RECLAIM program. The remaining facilities are not in the RECLAIM program and eight of these are currently subject to SCAQMD Rule 1134. Seven facilities are not subject to RECLAIM nor Rule 1134 because of the applicability requirements of RECLAIM and Rule 1134 (i.e., the turbines were built after 1989).

There are approximately 73 turbines at these 39 facilities: 6 are at the proposed emissions limits, 17 are emergency standby gas turbines, 6 are exempt, and 11 qualify for the low-use provisions. The remaining 33 turbines will need to be replaced, repowered, or retrofitted to come into compliance with PAR 1134.

The seven exempt units are exempt from emissions limits in PAR 1134 Table I because of the exemption in paragraph (h)(3) and listed in Table 4-1 below.

Table 4-1: Combined Cycle Turbines Exempt Due to PAR 1134 Paragraph (h)(3)

| Facility | SCAQMD Permit | Current NO _x Permit Limit (ppmv at 15% oxygen, dry) |
|--|---------------|--|
| City of Riverside, Public Utilities Department | Turbine D1 | 2.5 |
| MillerCoors USA | F99403 | 2.5 |
| MillerCoors USA | F99402 | 2.5 |
| Kimberly-Clark Worldwide | G33192 | 2.5 |
| Orange County, Central Utility Facility | G35244 | 2.5 |
| Orange County, Central Utility Facility | G35245 | 2.5 |
| University of California at Irvine | G46888 | 2.5 |

Assuming similar usage as in 2015, 11 turbines would qualify for the low-use provisions, as summarized in Table 4-2.

Table 4-2: Units Potentially Utilizing Low-Use Provisions in Paragraph (h)(4)

| Facility | SCAQMD Permit | Current NOx Permit Limit (ppmv at 15% oxygen, dry) |
|--|----------------------|---|
| | | |
| Harbor Cogeneration | G48131 | 8 |
| CES Placerita | F96765 | 7 |
| California State University, Fullerton | G20025 | 5 |
| Colton Power | Turbine D1 | 5 |
| Colton Power | Turbine D8 | 5 |
| Colton Power | Turbine D15 | 5 |
| Colton Power | Turbine D22 | 5 |
| Colton Power | Turbine D1 | 5 |
| Colton Power | Turbine D8 | 5 |
| Colton Power | Turbine D15 | 5 |
| Colton Power | Turbine D22 | 5 |

Analysis of Facilities with PAR 1134 Equipment and Other Landing Rules

Staff has reviewed permits for all PAR 1134 units, and identified the number of non-PAR 1134 combustion units a facility has that will require retrofit or replacement because of revisions to BARCT. Eight facilities had between one and five boilers subject to Rule 1146 or Rule 1146.1 which were amended in fall 2018. Two facilities have more than five internal combustion engines that will be subject to Rule 1110.2 that is scheduled to be amended in summer 2019. One of the two facilities already has indicated that they will have completed retrofit or replacement by December 31, 2023. The second facility has requested that more time be allotted to conduct retrofits and replacement. That corporation also has three other facilities with equipment likely to require retrofit or replacement from PAR 1110.2. The emissions from internal combustion engines significantly exceeds the emissions from the turbines. However, the facility is considering replacing some internal combustion engines with turbines. Additional time has been allotted for that facility as contained in paragraphs (d)(4) and (d)(9).

EMISSION INVENTORY AND EMISSION REDUCTIONS

The NOx emission inventory for turbines subject to PAR 1134 is 3.2 tons per day in 2015 as seen in Table 4-3 below.

Table 4-3 – NO_x Emission Inventory and MWh Capacity

| Equipment Type | 2015 NO_x Emission Inventory (tons per day) | MWh Capacity |
|--------------------------------------|--|-------------------------|
| Combined Cycle Turbines | 0.9 | 258 |
| Simple Cycle Turbines | 1.2 | 540 |
| Produced Gas Turbines | < 0.1 | 161 |
| Outer Continental Shelf Gas Turbines | 0.5 | 15 |
| Compressor Gas Turbines | 0.6 | 37 |
| Total | 3.2 | 1,011 |

After the implementation of the BARCT limits, 2.8 tons per day of NO_x emission reductions will be realized as seen in Table 4-4 below.

Table 4-4 – NO_x Emission Reductions

| Equipment Type | 2015 NO_x Emission Inventory (tons per day) | 2015 NO_x Emissions Reductions (tons per day) |
|--------------------------------------|--|--|
| Combined Cycle Turbines | 0.9 | 0.8 |
| Simple Cycle Turbines | 1.2 | 1.1 |
| Produced Gas Turbines | < 0.1 | 0.0 |
| Outer Continental Shelf Gas Turbines | 0.5 | 0.4 |
| Compressor Gas Turbines | 0.6 | 0.5 |
| Total | 3.2 | 2.8 |

The use of ammonia in the selective catalytic reduction (SCR) process results in an increase of particulate matter emissions. There are 7 turbines that already utilize SCR but will increase their ammonia usage by an estimated 30% to meet the proposed emissions limits. The particulate matter increase is 9,900 pounds annually or 0.01 tons per day. Twenty-three turbines do not currently utilize SCR. The particulate matter increase from incorporating SCR into their process is expected to increase particulate matter emissions by approximately 112,000 pounds annually or 0.15 tons per day.

COST-EFFECTIVENESS

Cost-effectiveness is examined for each equipment category type. Cost-effectiveness is measured in terms of control costs (dollars) per air emissions reduced (tons). The 2016 Air Quality Management Plan (AQMP) establishes a cost-effectiveness threshold of \$50,000 per ton of NO_x reduced. Costs for retrofitting stationary gas turbines were determined using U.S. EPA's Air

Pollution Control Cost Estimation Spreadsheet for Selective Catalytic Reduction. The methodology used in the spreadsheet is based on U.S. EPA Clean Air Markets Division Integrated Planning Model. Size and costs of selective catalytic reduction control equipment and operational costs are based on size, fuel burned, NO_x removal efficiency, reagent consumption rate, and catalyst costs. Fuel consumption is based on 2015 reported fuel usage. Values are reported in 2015 dollars in Table 4-5 below.

| Equipment Type | Cost-Effectiveness (Cost per ton of NO _x reduced) |
|--------------------------------------|---|
| Combined Cycle Turbines | \$11,500 |
| Simple Cycle Turbines | \$8,400 |
| Produced Gas Turbines | \$81,400 |
| Outer Continental Shelf Gas Turbines | \$3,600 |
| Compressor Gas Turbines | \$4,900 |

INCREMENTAL COST-EFFECTIVENESS

Health and Safety Code section 40920.6 requires an incremental cost-effectiveness analysis for Best Available Retrofit Control Technology (BARCT) rules or emission reduction strategies when there is more than one control option which would achieve the emission reduction objective of the proposed amendments relative to ozone, carbon monoxide, sulfur oxides, oxides of nitrogen, and their precursors. Incremental cost-effectiveness is the difference in the dollar costs divided by the difference in the emission reduction potentials between each progressively more stringent potential control option as compared to the next less expensive control option.

Incremental cost-effectiveness is calculated as follows:

$$\text{Incremental cost-effectiveness} = (C_{\text{alt}} - C_{\text{proposed}}) / (E_{\text{alt}} - E_{\text{proposed}})$$

Where:

- C_{proposed} is the present worth value of the proposed control option;
- E_{proposed} are the emission reductions of the proposed control option;
- C_{alt} is the present worth value of the alternative control option; and
- E_{alt} are the emission reductions of the alternative control option

Paragraph (h)(3) exempts natural gas combined cycle gas turbines meeting 2.5 ppmv NO_x at 15% oxygen on a dry basis from the proposed NO_x limit of 2 ppmv at 15% oxygen on a dry basis. The progressively more stringent potential control option would be to remove the exemption and require all natural gas combined cycle gas turbines to meet the 2 ppmv at 15% oxygen on a dry basis NO_x limit. The present worth value of the proposed control option is \$44,400,000 and the emission reductions are 1,923 tons over 25 years. The present worth value of the alternative control option is \$63,300,000 and the emission reductions of the alternative control option is 1,978 tons over 25 years. The incremental cost-effectiveness for removing the exemption for natural gas combined cycle gas turbines meeting 2.5 ppmv NO_x at 15% oxygen on a dry basis is \$343,600 per ton of NO_x reduced as calculated below.

$$\text{Incremental cost-effectiveness} = (\$63,300,000 - \$44,400,000) / (1,978 - 1,923) = \$343,600 \text{ per ton of NO}_x \text{ reduced}$$

The proposed rule also includes low-use provisions, paragraph (h)(4), for turbines that operate at less than ten percent of their annual capacity. The progressively more stringent proposal control option would be to remove the exemption. The present worth value of the proposed control option is \$117,000,000 and the emission reductions are 15,228 tons over 25 years. The present worth value of the alternative control option is \$195,700,000 and the emission reductions of the alternative control option is 15,350 tons over 25 years. The incremental cost-effectiveness for removing the exemption for low-use gas turbines is \$687,000 per ton of NO_x reduced as calculated below.

$$\text{Incremental cost-effectiveness} = (\$195,700,000 - \$117,000,000) / (15,350 - 15,228) = \$687,000 \text{ per ton of NO}_x \text{ reduced}$$

The incremental cost analyses presented above demonstrate that the provisions for low-use equipment and equipment already permitted near the proposed limit are necessary to avoid imposing costs that would exceed the cost-effectiveness threshold.

RULE ADOPTION RELATIVE TO COST-EFFECTIVENESS

On October 14, 1994, the Governing Board adopted a resolution that requires staff to address whether rules being proposed for amendment are considered in the order of cost-effectiveness. The 2016 Air Quality Management Plan (AQMP) ranked, in the order of cost-effectiveness, all of the control measures for which costs were quantified. It is generally recommended that the most cost-effective actions be taken first. Proposed Amended Rule 1134 implements Control Measure CMB-05. The 2016 AQMP ranked Control Measure CMB-05 sixth in cost-effectiveness.

SOCIOECONOMIC ASSESSMENT

A Draft Socioeconomic Impact Assessment has been prepared and will be released at least 30 days prior to the SCAQMD Governing Board Hearing on PAR 1134, which is anticipated to be heard on April 5, 2019.

CALIFORNIA ENVIRONMENTAL QUALITY ACT

PAR 1134 is considered a “project” as defined by the California Environmental Quality Act (CEQA), and the SCAQMD is the designated lead agency. Pursuant to CEQA and SCAQMD’s Certified Regulatory Program (Rule 110), the SCAQMD, as lead agency for the proposed project, prepared a Draft Subsequent Environmental Assessment (SEA) for PAR 1134 which was released for a 45-day public review and comment period from January 29, 2019 to March 15, 2019. As of the publication date of this Draft Staff Report, one comment letter was received. The Draft SEA indicated that while reducing NO_x emissions is an environmental benefit, secondary significant adverse environmental impacts are also expected for the topic area of hazards and hazardous materials. Since significant adverse impacts were identified, an alternatives analysis and mitigation measures are required and are included in the Draft SEA. [CEQA Guidelines Section 15252].

The proposed project may have statewide, regional, or area-wide significance; therefore, a CEQA scoping meeting was required (pursuant to Public Resources Code section 21083.9(a)(2)) and held at the SCAQMD's Headquarters in conjunction with the Public Workshop on December 18, 2019. No comments were made at the CEQA scoping meeting related to CEQA. All comment letters received relative to the Draft SEA and the responses to the comments will be included in Appendix G of the Final SEA.

Prior to making a decision on the adoption of the proposed project, the SCAQMD Governing Board must review and certify the Final SEA, including responses to comments, as providing adequate information on the potential adverse environmental impacts that may occur as a result of adopting the proposed project.

DRAFT FINDINGS UNDER CALIFORNIA HEALTH AND SAFETY CODE SECTION 40727

Requirements to Make Findings

California Health and Safety Code Section 40727 requires that prior to adopting, amending or repealing a rule or regulation, the SCAQMD Governing Board shall make findings of necessity, authority, clarity, consistency, non-duplication, and reference based on relevant information presented at the public hearing, and in the staff report.

Necessity

Proposed Amended Rule 1134 is needed to establish BARCT requirements for stationary gas turbines, including stationary gas turbines at facilities that will be transitioning from RECLAIM to a command-and-control regulatory structure.

Authority

The SCAQMD Governing Board has authority to adopt amendments to Proposed Amended Rule 1134 pursuant to the California Health and Safety Code Sections 39002, 40000, 40001, 40440, 40702, 40725 through 40728, 41508, and 41508.

Clarity

Proposed Amended Rule 1134 is written or displayed so that its meaning can be easily understood by the persons directly affected by it.

Consistency

Proposed Amended Rule 1134 is in harmony with and not in conflict with or contradictory to, existing statutes, court decisions, or state or federal regulations.

Non-Duplication

Proposed Amended Rule 1134 will not impose the same requirements as any existing state or federal regulations. The proposed amended rule is necessary and proper to execute the powers and duties granted to, and imposed upon, the SCAQMD.

Reference

In amending Rule 1134, the following statutes which the SCAQMD hereby implements, interprets or makes specific are referenced: Health and Safety Code sections 39002, 40000, 40001, 40702, 40440(a), and 40725 through 40728.5.

COMPARATIVE ANALYSIS

Health and Safety Code Section 40727.2 requires a comparative analysis of the proposed amended rule with any Federal or District rules and regulations applicable to the same source. A comparative analysis is presented below in Table 4-6.

Table 4-6: PAR 1134 Comparative Analysis

| Rule Element | PAR 1134 | RECLAIM | 40 CFR Part 60 GG | 40 CFR Part 60 KKKK |
|--------------------------|--|---|---|--|
| Applicability | Turbines with generating capacity greater than 0.3 MW except those located electric generating facilities, landfills, petroleum refineries, and publicly owned treatment works or fueled with landfill gas | Facilities regulated under the NOx RECLAIM program (SCAQMD Reg. XX) | Gas turbines with heat input of ≥ 10 MMBtu/hr constructed or modified before 2/18/2005 | Gas turbines with heat input of ≥ 10 MMBtu/hr constructed or modified after 2/18/2005 |
| Requirements | Emission limits: <ul style="list-style-type: none"> • Combined Cycle Gas Turbine and Associated Duct Burner: NOx 2 ppmv @ 15% O₂; Ammonia 5 ppmv @ 15% O₂ • Simple Cycle Gas Turbine: NOx 2.5 ppmv @ 15% O₂; Ammonia 5 ppmv @ 15% O₂ • Produced Gas Turbine: NOx 9 ppmv @ 15% O₂; Ammonia 5 ppmv @ 15% O₂ • Outer Continental Shelf Produced Gas Turbine: NOx 15 ppmv @ 15% O₂; Ammonia 5 ppmv @ 15% O₂ • Outer Continental Shelf Produced Gas Turbine (Liquid Fuel): NOx 30 ppmv @ 15% O₂; Ammonia 5 ppmv @ 15% O₂ • Compressor Gas Turbine: NOx 3.5 ppmv @ 15% O₂; Ammonia 10 ppmv @ 15% O₂ • Other Gas Turbine: NOx 12.5 ppmv @ 15% O₂; Ammonia 5 ppmv @ 15% O₂ | None | NOx limit @ 15% O ₂ : $0.0075*(14.4/Y)+F$ where Y = manufacture's rated heat input and F = NOx emission allowance for fuel-bound nitrogen | NOx limit for electric generating units (@ 15% O ₂): <ul style="list-style-type: none"> • ≤ 50 MMBtu/hr – 42 ppm when firing natural gas • 50 MMBtu/hr and ≤ 850 MMBtu/hr – 15 ppm when firing natural gas • >850 MMBtu/hr – 15 ppm when firing natural gas • ≤ 50 MMBtu/hr – 96 ppm when firing other fuel • 50 MMBtu/hr and ≤ 850 MMBtu/hr – 74 ppm when firing other fuel • >850 MMBtu/hr – 42 ppm when firing natural gas |
| Reporting | Annual reporting of NOx emissions | <ul style="list-style-type: none"> • Daily electronic reporting for major sources • Quarterly Certification of Emissions Report and Annual Permit Emissions Program for all units | Excess emissions and CEMS downtime within 30 days | Excess emissions and CEMS downtime within 30 days; annual performance testing within 60 days |
| Monitoring | A continuous in-stack NOx monitor for turbines with a capacity of 2.9 MW or greater. Periodic source testing for turbines with a capacity of < 2.9 . | A continuous in-stack NOx monitor for major sources | A continuous in-stack NOx monitor | A continuous in-stack NOx monitor |
| Recordkeeping | Performance testing; emission rates; monitoring data; CEMS audits and checks maintained for five years | <ul style="list-style-type: none"> • < 15-min. data = min. 48 hours; ≥ 15-min. data = 3 years (5 years if Title V) • Maintenance & emission records, source test reports, RATA reports, audit reports and fuel meter calibration records for Annual Permit Emissions Program = 3 years (5 years if Title V) | Performance testing; emission rates; monitoring data; CEMS audits and checks | Performance testing; emission rates; monitoring data; CEMS audits and checks |
| Fuel Restrictions | Liquid petroleum fuel limited to Outer Continental Shelf turbines | None | None | None |

REFERENCES

“Final 2016 Air Quality Management Plan”, South Coast Air Quality Management District, March 2017

“SCAQMD NO_x RECLAIM – BARCT Feasibility and Analysis Review, Norton Engineering Consultants, Inc., Nov 26, 2014

“Regulation 9, Rule 9: Nitrogen Oxides and Carbon Monoxide from Stationary Gas Turbines”, Bay Area Air Quality Management District, December 2006

“Regulation 9, Rule 11: Nitrogen Oxides and Carbon Monoxide from Utility Electric Power Generating Boilers”, Bay Area Air Quality Management District, May 2000

“Rule 4703 – Stationary Gas Turbines”, San Joaquin Valley Air Pollution Control District, September 2007

“Chapter 2 – Selective Catalytic Reduction”, U.S. Environmental Protection Agency, May 2016
“Air Pollution Control Cost Estimation Spreadsheet for Selective Catalytic Reduction (SCR), U.S. Environmental Protection Agency, May 2016

“Catalytic Combustion”, Office of Energy Efficiency and Renewable Energy, <https://www.energy.gov/eere/amo/catalytic-combustion>, accessed July 19, 2018

“Catalog of CHP Technologies”, U.S. Environmental Protection Agency Combined Heat and Power Partnership, September 2017

APPENDIX A – COMMENTS AND RESPONSES

Comment Letter 1

Beta Offshore – January 17, 2019



January 17, 2019

Michael Morris, Program Supervisor
South Coast Air Quality Management District
21865 E. Copley Drive,
Diamond Bar, CA 91765-0830

**Subject: Beta Offshore, OCS Lease Parcels Facility (ID 166073):
Comments for PAR 1134 Landing Rule**

Dear Mr. Morris:

Thank you for taking the time to meet with Beta Offshore (Beta) to discuss the December 6, 2018 version of Proposed Amended Rule (PAR) 1134. This letter is in response to the e-mail dated January 9, 2019. We appreciate the clarifications and would like to offer some additional information related to paragraph (d)(6).

Paragraph (d)(6)

Paragraph (d)(6) currently reads, along with the suggested revision (addition ~~deletion~~):

An owner or operator of a stationary gas turbine shall not burn liquid fuel in a stationary gas turbine except for those located in the Outer Continental Shelf. ~~Stationary gas turbines located on the Outer Continental Shelf burning 10 percent or less by volume liquid fuel shall be subject to the Produced Gas Turbines Located on Outer Continental Shelf limit at all times.~~

Beta's gas turbines consume either produced gas or liquid fuel (diesel) and would never consume both at the same time. This is not by choice: it is not possible to consume both at the same time.

Under the RECLAIM program, Beta conducts the triennial testing required by Rule 2012(j)(2), when consuming each fuel individually, to demonstrate compliance with the emission limit for each fuel type. Beta appreciates the concern that the gaseous fuel could be supplemented with small amounts of diesel but requests removal of the second sentence. This would make PAR 1134 consistent with the RECLAIM program, i.e., each fuel is used separately, each fuel would have its own emission limit, and compliance with each emission limit would be demonstrated when burning a single fuel.

Subparagraph (e)(2)(C)

Thank you for the clarification that the testing frequency for units without a CEMS is based on the emissions per turbine per year.

1-1

Paragraph (g)(3)

Thank you for the clarification that the DAS provisions apply only to units with a CEMS.

Paragraph (g)(4)

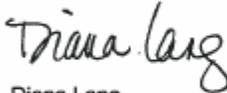
Paragraph (g)(4) currently reads:

The results of source tests shall be submitted to the SCAQMD in a form and manner as specified by the Executive Officer within 30 days after source testing is completed.

Thank you for confirmation that this will be changed from 30 days to 60 days.

Thank you for the clarifications and consideration of the suggested revision to paragraph (d)(6). Please let me know if you have any questions or require additional information. I can be reached at (562) 628-1529 or diana.lang@amplifyenergy.com.

Sincerely,



Diana Lang
HSE Manager

cc: Uyen Uyen Vo – SCAQMD (email)
Bruce Berwager – Beta Offshore VP (email)
Jazmin Tostado – Beta Offshore

1-2

Response to Comment 1-1

Staff agrees that liquid and gaseous fuels cannot be combusted in the turbine at the same time and the language has been removed.

Response to Comment 1-2

The length of time to submit source test results has been extended to 60 days and is now consistent with other similar source test report submittal times in other SCAQMD regulations.

Comment Letter 2

Daniel R. McGivney
 Environmental Affairs
 Program Manager
 Tel: 951-225-2958
 dmcgivney@semprautilities.com

January 22, 2019

Michael Morris, Program Manager
 Planning, Rule Development & Area Sources
 South Coast Air Quality Management District
 21865 Copley Drive
 Diamond Bar, CA 91765

**RE: Comments on December 18, 2018 Public Workshop version of draft
 Proposed Amended Rule 1134 (v120318)**

Dear Mr. Morris:

Southern California Gas Company (SoCalGas) and San Diego Gas and Electric Company (SDG&E; SDG&E and SoCalGas are collectively referred to herein as the Utilities) appreciate the opportunity to provide comments to the South Coast Air Quality Management District (AQMD) regarding AQMD Proposed Amended Rule 1134 – Emissions of Oxides of Nitrogen from Stationary Gas Turbines (PAR 1134), version 120318, distributed at the December 18, 2018 public workshop.

Background

On December 18, 2018, the AQMD held a public workshop regarding PAR 1134. At the workshop, the AQMD distributed a draft rule (version 120318) to facilitate the discussion. The Utilities have existing turbines and are considering installation of new turbines which would be affected by these rule amendments.

Comments

After reviewing this proposed draft rule, the Utilities have the following comments and requests:

Alternative Emission Limits

As proposed, PAR 1134 (v120318), section (h) Exemptions, sub-section (6), would allow natural gas pipeline gas turbines to comply with emission limits specified in the turbine permit(s) as of January 1, 2024 (rather than the Table 1 limits proposed in the draft rule), provided the ammonia limit specified in the permit does not exceed 10 parts per million by volume (ppmv). The Utilities support this proposed exemption and requests that it be retained in the final rule.

The AQMD has proposed NO_x (8 ppm) and NH₃ (5 ppm) limits for pipeline turbines in PAR 1134. During discussions held with rulemaking staff, and in comments submitted to the AQMD (attached), the Utilities presented data detailing both current adopted BARCT (San Joaquin County Air Pollution Control District) for pipeline turbines and the difficulty in meeting lower

2-1

Page 2

NOx concentrations due to the wide range in operational loads (reference attachment, BARCT Technical Justification, page 3) that the Utilities' turbines experience, made especially difficult by the requirement of an ammonia slip limit of 5 ppm. Throughout the development of PAR 1134, the Utilities have noted that pipeline turbine operation differs significantly from other applications (e.g. power generation) due to wide operating ranges, varying from 30-95 percent load. This results in the need for an avenue to develop alternative emission limits should the proposed limits not be achievable across all turbine operating conditions. Emission limits in PAR 1134 should be consistent with those that have been demonstrated by this class and category of turbines (e.g. natural gas pipeline gas turbines). A mechanism should be provided within the rule to remedy potential technological failures that may occur to avoid putting the Utilities' in compliance jeopardy. As proposed, the exemption provided in version 120318, section (h)(6), would provide a path which would ensure the Utilities have an option where it can achieve continuous compliance with AQMD requirements across the equipment's entire operating range.

2-1
(Cont.)

Request: Maintain the current exemption (h)(6), as proposed in PAR 1134 version 120318, in the final Rule 1134.

30-Day Source Test Results Submittal Time Frame

Existing Rule 1134, section (f)(4) [and PAR 1134 versions 120318 & 120618, section (g)(4)], require that source test results be submitted to the AQMD within 30 days after the source test is completed. While Rule 1134 addresses specific turbines (those identified as of August 4, 1989), other existing and future new turbines will be affected by PAR 1134 once adopted. The Utilities are concerned that turbines that have Volatile Organic Compounds (VOC) limits, will have difficulty meeting a 30-day turn-a-round on VOC test results. Currently, a 60-day period is more typical [reference Rule 1110.2 (f)(1)(C)(vi)] for submittal of emissions test results, especially those sources that must test and report VOC data. Considering VOCs have a longer analysis time, data quality assurance/control that must be done, report preparation and review, it will be difficult to meet a 30-day submittal deadline.

2-2

Request: The Utilities request that the AQMD modify the current 30-day submittal deadline contained in Rule 1134/PAR 1134 for submittal of emissions test data, to a 60-day period, thereby providing an attainable time frame for the analysis and reporting of constituents (VOCs, etc.) other than NOx.

Use of "Pipeline Turbine" Terminology

Early in the development of PAR 1134, the Utilities used the phrase "Natural Gas Pipeline Turbines" to distinguish the use of turbine-driven compressors in the natural gas system (versus other industries) and the use of this terminology by other local air agencies in California. At the time, and currently, these "pipeline" gas turbines are the only units currently operating at the Utilities' facilities within the South Coast air basin, as the turbine-driven compressors previously at the Aliso Canyon natural gas storage facility had been replaced by electric-driven compressors. As part of the Utilities' continued efforts to modernize existing equipment and infrastructure at other facilities, and to reduce emissions in support of the Regional Clean Air Incentives Market (RECLAIM) transition to a command and control program, the use of natural gas turbine-driven compressors is being considered for other facilities. These new turbines may be located at a natural gas storage facility. Although natural gas storage is part of the Utilities' pipeline system, the use of the term "pipeline" turbine may not accurately reflect this use. So,

2-3

Page 3

the Utilities are proposing that the use of "Compressor Turbine" would be more appropriate and cover turbines used at both natural gas transmission and storage facilities.

Request: Currently, the AQMD uses the term "Natural Gas – Pipeline Gas Turbine" in PAR 1134. The Utilities request that the AQMD modify this terminology to "Natural Gas – ~~Pipeline~~ **Compressor** Turbine."

2-3
(Cont.)

Conclusion

The Utilities request that the AQMD consider and adopt the Utilities' recommendations regarding maintaining current language in version 120318 [e.g. PAR 1134 (h)(6)], providing an alternative option for developing emission limits for natural gas compressor turbines, revising the 30-day emission test results submittal deadline to 60-days, and modifying the existing terminology of "pipeline" turbine to "compressor" turbine.

The Utilities appreciate your consideration of these comments and recommendations. We would be pleased to discuss the above comments and answer any questions. You may contact me at 951-225-2958 or at dmcgivney@semprautilities.com.

Sincerely,

Daniel R. McGivney

Daniel R. McGivney
Environmental Affairs Program Manager
Southern California Gas Company

cc:
Phil Fine, SCAQMD
Susan Nakamura, SCAQMD

Response to Comment 2-1

Staff has reviewed compressor turbines in the same class as those referenced in the comment. Two recent installations¹ with concentration limits of 3.5 ppmv NOx and 10 ppmv ammonia corrected to 15% oxygen on a dry basis were identified. Staff is revising the limits to reflect this new information that will further reduce NOx emissions while providing the regulatory flexibility requested. Staff is also including additional time to meet these technology forcing limits with conditions as specified in paragraph (d)(9) of the proposed rule.

Response to Comment 2-2

See comment 1-2.

Response to Comment 2-3

Staff has revised the rule language to replace pipeline turbine with compressor turbine.

¹ https://www.deq.virginia.gov/Portals/0/DEQ/Air/BuckinghamCompressorStation/May_25_2018_Updated_Application.pdf

<https://mde.state.md.us/programs/Permits/AirManagementPermits/Documents/dom%20air%20dispersion%20supplement.pdf>

Comment Letter 3



Bridget McCann
 Manager, Technical and Regulatory Affairs

February 28, 2019

Dr. Philip Fine
 Deputy Executive Officer, Planning and Rules
 South Coast Air Quality Management District
 21865 Copley Drive
 Diamond Bar, CA 91765

sent via email: pfine@aqmd.gov

Re: WSPA Comments on Proposed Amended Rule 1134, Emissions of Oxides of Nitrogen from Stationary Gas Turbines

Dear Dr. Fine,

Western States Petroleum Association (WSPA) appreciates this opportunity to provide feedback on the transition of the Regional Clean Air Incentives Market (RECLAIM) program to a command-and-control regulatory structure (RECLAIM Transition Project) and specifically Proposed Amended Rule 1134 (PAR 1134). WSPA is a non-profit trade association representing companies that explore for, produce, refine, transport and market petroleum, petroleum products, natural gas and other energy supplies in five western states including California. WSPA has been an active participant in air quality planning issues for over 30 years. WSPA-member companies operate petroleum refineries and other facilities in the South Coast Air Basin that are within the purview of the RECLAIM program administered by the South Coast Air Quality Management District (District or SCAQMD).

PAR 1134 is intended to reduce emissions of oxides of nitrogen (NO_x) from stationary gas turbines. While this rule is not intended to apply to stationary gas turbines located at petroleum refineries, as those units would be subject to Proposed Rule 1109.1, NO_x Emission Reductions for Refinery Equipment (PR 1109.1), the Best Available Retrofit Control Technology (BARCT) determinations made under PAR 1134 could be relevant to the PR 1109.1 rulemaking as it pertains to turbines at refineries. As such, we respectfully offer the following comments on PAR 1134 and the BARCT determinations therein.

- 1. The District is obligated to demonstrate that proposed BARCT requirements are both technically feasible and cost effective. To that end, the District needs to provide stakeholders with the technical and economic information and analyses upon which the demonstration is based.**

The California Health and Safety Code defines BARCT as follows:

3-1

Dr. Philip Fine
February 28, 2019
Page 2

*"Best available retrofit control technology means an emission limitation that is based on the maximum degree of reduction achievable, taking into account environmental, energy, and economic impacts by each class or category of source."*¹

Health & Safety Code §40440.8 requires the District to conduct a socioeconomic assessment of any proposed rule, including rule amendments that will significantly affect air quality or emissions limitations, such as a BARCT amendment.²

Furthermore, Section 40920.6 of the Health & Safety Code requires the District to conduct an incremental cost-effectiveness analysis. In order to complete this analysis, the District must identify feasible control options, assess the cost-effectiveness of the option, calculate the incremental cost-effectiveness between the control options, and consider the effectiveness, cost-effectiveness and incremental cost-effectiveness between the control options.³

In short, prior to adopting updated BARCT requirements, the District Governing Board must find that the proposed emission limitation is both: (a) achievable; and (b) cost effective. These findings must be based on information and analyses contained in the rulemaking record.⁴ The evaluations must be provided to the public a minimum of 30 days before any hearing.⁵ This must include technical information concerning emissions performance, energy impacts, and environmental effects, as well as information concerning the capital and operating costs associated with the proposed BARCT. However, in order to ensure an open rulemaking process that allows the decision maker all the necessary data on which to base an informed decision, we encourage staff to provide such detailed information, as long as the data is not confidential business information (CBI), to Working Group stakeholders as early as possible so they have the opportunity to understand and evaluate the basis for Staff's recommendations and provide comments as appropriate, thereby making the rulemaking a legally meaningful exercise. High-level summaries in District Staff presentations are generally insufficient for meeting this objective.

With respect to the finding of cost effectiveness, California Health & Safety Code Section 40703 requires that when adopting any regulation "the district shall consider, pursuant to Section 40922, and make available to the public, its findings related to the cost-effectiveness of a control measure, as well as the basis for the findings and the consideration involved." Thus, the District is required by statute, unless the information is CBI, to make public the basis of its findings that the proposed and adopted BARCT standards are cost-effective.

3-1
(Cont.)

2. Mandating equipment replacement exceeds the SCAQMD's authority.

The Preliminary Draft Staff Report for PAR 1134⁶ includes a lengthy SCAQMD discussion which argues that "BARCT may certainly include the replacement of equipment." As WSPA

3-2

¹ Health & Saf. Code §40406.

² Health & Saf. Code §40440.8.

³ Health & Saf. Code §40920.6.

⁴ Health & Saf. Code §40728(c).

⁵ Health & Saf. Code §40440.5

⁶ SCAQMD, Preliminary Draft Staff Report, Proposed Amended Rule 1134 – Emissions of Oxides of Nitrogen from Stationary Gas Turbines, December 2018, see Chapter 2.

Dr. Philip Fine
February 28, 2019
Page 3

has noted in several prior comment letters, mandating replacement of basic equipment exceeds the authority of the SCAQMD to adopt BARCT standards for existing sources, as set forth in the California Health & Safety Code, and therefore runs afoul of the well-established legal principle that a regulatory agency must act within the scope of the authority delegated to it by the legislature.

Citing the *American Coatings* case, Staff has taken the position that the agency's authority is essentially unbounded as long as the requirement is not arbitrary and capricious, or without some reasonable or rational basis, or lacking in evidentiary support. We do not believe that the *American Coatings* decision expands the District's authority in the manner in which staff desires. However, as the cases relied upon in *American Coatings* make clear, a critical consideration in evaluating whether or not an agency action meets this standard is whether or not the action is within the scope of the agency's delegated authority. As stated in *Yamaha Corp. of America v. State Bd. of Equalization* (1998) 19 Cal.4th 1, citing *Wallace Berri & Co. v. State Bd. of Equalization* (1985) 40 Cal.3d 60, 65: "[I]n reviewing the legality of a regulation adopted pursuant to a delegation of legislative power, the judicial function is limited to determining whether the regulation (1) is 'within the scope of the authority conferred' [citation] and (2) is 'reasonably necessary to effectuate the purpose of the statute' [citation]. [Citation.]"

This issue was previously addressed in the following WSPA comments letters which are incorporated herein by reference.

- Attachment 1: July 3, 2018 comments from WSPA
- Attachment 2: August 15, 2018 comments from Latham & Watkins LLP on behalf of WSPA
- Attachment 3: November 1, 2018 comments from Latham & Watkins LLP on behalf of WSPA

3. New Source Review (NSR) issues must be fully addressed before Title V facilities are transitioned out of RECLAIM program.

WSPA continues to actively participate in the working groups for the RECLAIM transition as well as the individual BARCT rulemakings. In these forums the District has indicated that it is continuing discussions with U.S. Environmental Protection Agency (USEPA) staff regarding a variety of NSR issues. These include issues that will impact RECLAIM facilities both during the transition of their permits from the RECLAIM program (i.e., SCAQMD Regulation XX) to the District's command-and-control NSR program (i.e., Regulation XIII), and also affect how future NSR actions are regulated. At the present time, neither Regulation XX nor Regulation XIII includes USEPA-approved provisions to address these issues for RECLAIM facilities.

Since permits for Title V facilities are federally enforceable, and Regulation XX is USEPA-approved under the District's State Implementation Plan (SIP), Title V facilities will likely need to continue operating under the Regulation XX RECLAIM program at least until such time that the RECLAIM transition rules have been formally approved by USEPA into the District's SIP and the replaced Regulation XX provisions are rescinded. This would require an effective date for RECLAIM transition tied to the USEPA's approval which will be sometime after the Governing

3-2
(Cont.)

3-3

Dr. Philip Fine
February 28, 2019
Page 4

Board's adoption of the transition rules. Otherwise, Title V facilities could be left having to comply simultaneously with two different, and mutually exclusive, programs.

4. RECLAIM facilities subject to PAR 1134 will need to continue under the RECLAIM Monitoring, Reporting and Recordkeeping (MRR) requirements found in Rules 2011 and 2012 until such time as USEPA approves new Proposed Rule 113 to the SIP.

The sequencing issue discussed above will also be relevant to the proposed transition of RECLAIM facilities from the RECLAIM Monitoring, Reporting and Recordkeeping (MRR) requirements codified in Rules 2011 and 2012, towards future requirements of Proposed Rule 113 (Monitoring, Reporting, and Recordkeeping (MRR) Requirements for NO_x and SO_x Sources). RECLAIM facilities will likely need to continue MRR under the provisions of R2011/2012 at least until such time as PR113 has been approved by USEPA into the SIP as a replacement to R2011/2012. Otherwise, RECLAIM facilities subject to PAR 1134 could be caught trying to simultaneously comply with two different MRR programs. As PR 113 has not been drafted or adopted, it is unknown at this time whether such a feat would be possible.

3-4

5. The California Environmental Quality Act (CEQA) analysis for the RECLAIM transition project has been piecemealed.

It is a fundamental principle of California Environmental Quality Act (CEQA) review that environmental effects for the whole of a project must be analyzed together. In this case, the "project" is the RECLAIM transition project as a whole as required by Control Measure CMB-05 as adopted in the 2016 Air Quality Management Plan (AQMP). Yet, staff has continued to conduct CEQA review of RECLAIM transition rules, including PAR 1134,⁷ through a series of Supplemental or Subsequent Environmental Assessments (SEAs) that analyze only the impacts associated with individual BARCT "landing" rules. Staff argues that this approach is acceptable because each SEA "tiers off" the March 2017 Final Program Environmental Impact Report (EIR) for the 2016 AQMP and several other earlier certified CEQA documents. However, the March 2017 Final Program EIR for the 2016 AQMP, which was completed in January 2018, did not analyze the transition of the RECLAIM program because the transition was not even part of CMB-05 as proposed at that time. Therefore, tiering off the earlier CEQA documents to support rule amendments that seek to implement the transition is not possible (or valid) because there was no comprehensive analysis in the earlier documents. In the absence of a program level CEQA analysis that includes the whole of the RECLAIM transition project, Staff's segmented analysis of each proposed rulemaking action constitutes classic "piecemealing" in violation of CEQA. This issue was addressed in more detail in the following attachments which are incorporated herein by reference

3-5

- Attachment 4: May 1, 2018 comments from WSPA
- Attachment 5: September 7, 2018 comments from Latham & Watkins LLP on behalf of WSPA

⁷ SCAQMD, Draft Subsequent Environmental Assessment for Proposed Amended Rule 1134 – Emissions of Oxides of Nitrogen from Stationary Gas Turbines, January 2019.

Dr. Philip Fine
February 28, 2019
Page 5

Thank you for considering these comments. We look forward to continuing to work with you and your Staff on the RECLAIM rulemakings which are critically important to stakeholders as well as the regional economy. If you have any questions, please contact me at (310) 808-2146 or via e-mail at bridget@wspa.org.

Sincerely,



Bridget McCann
Manager, Technical and Regulatory Affairs

Cc: Wayne Nastri, SCAQMD
Susan Nakamura, SCAQMD
Michael Morris, SCAQMD
Tom Umenhofer, WSPA
Patty Senecal, WSPA



July 3, 2018

Dr. Philip Fine
Deputy Executive Officer
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765

Via e-mail at: pfine@aqmd.gov

Re: WSPA Comments on RECLAIM Transition Project Rules

- *Proposed Amended Rule 1135 (NO_x Emissions from Electric Power Generating Systems)*
- *Proposed Amended Rule 1134 (NO_x Emissions from Stationary Gas Turbines)*
- *Proposed Rule 1109.1 (Refinery Equipment)*

Dear Dr. Fine:

Western States Petroleum Association (WSPA) appreciates this opportunity to provide feedback on the transition of the Regional Clean Air Incentives Market (RECLAIM) program to a command-and-control regulatory structure (RECLAIM Transition Project). WSPA is a non-profit trade association representing companies that explore for, produce, refine, transport and market petroleum, petroleum products, natural gas and other energy supplies in five western states including California. WSPA has been an active participant in air quality planning issues for over 30 years. WSPA-member companies operate petroleum refineries and other facilities in the South Coast Air Basin that are within the purview of the RECLAIM program administered by the South Coast Air Quality Management District (District or SCAQMD) and they will be impacted by the RECLAIM Transition Project. We have several comments concerning pending rulemakings to implement new Best Available Retrofit Control Technology (BARCT) requirements.

WSPA and its members are active participants in the working groups related to the RECLAIM Transition Project. We respectfully offer the following comments on Proposed Amended Rule (PAR) 1135, NO_x Emissions from Electric Power Generating Systems, PAR 1134, NO_x Emissions from Stationary Gas Turbines, and Proposed Rule (PR) 1109.1, Refinery Equipment.

- 1. BARCT must be established, for each class and category of equipment. BARCT determinations for one class may be different than another class. Caution should be exercised when referencing or applying BARCT determinations from other classes within a category.**

1

The California Health and Safety Code (CHSC) defines BARCT as follows:

"Best available retrofit control technology means an emission limitation that is based on the maximum degree of reduction achievable, taking into account environmental, energy, and economic impacts by each class or category of source."¹ [Emphasis added]

Under District BARCT rules, an equipment category may consist of multiple classes. These classes may be defined by different design criteria or operational factors. Examples might include throughput ratings, duty cycles, or usage level (e.g., low v. high use). Such classifications within a category are necessary to establish what is technologically feasible and cost effective as required in the determination of BARCT.

The District is presently considering BARCT rules for a number of equipment types within the RECLAIM Transition Project. Due to their inclusion in the RECLAIM program, many of these equipment types have not undergone an evaluation for command-and-control BARCT since the RECLAIM program's launch in 1993, at least with respect to equipment situated at RECLAIM facilities. In many cases, an equipment category is comprised of several different classes and therefore addressed under several different rules. Some notable examples include:

- Stationary gas turbines, which will be covered under a number of different classes pursuant to PAR 1134, PAR 1135 and PR 1109.1.
- Process heaters and boilers, which will be addressed under a number of different classes pursuant to PAR 1146, PAR 1146.1, PAR 1146.2, and PR 1109.1.

Despite similarities within the broader categories, BARCT determinations must be conducted specific to each class of equipment within a category. Take for example a stationary gas turbine; a given make/model of turbine might be deployed in a refinery cogeneration system, or an electric generating facility (EGF). However, operational design differences would place this equipment in different classes. That classification could be defined based on differences in fuel type (e.g., refinery fuel gas and/or utility quality natural gas), or duty (e.g., baseload vs. demand response, etc.).

We appreciate that the District is in the process of conducting a thorough BARCT analysis for these sources across the different proposed rules including PR 1109.1. Such BARCT analyses for refinery sources must be specific to refinery applications and BARCT determinations for similar types of equipment in non-refinery application may not be relevant because what is technologically feasible and cost effective in one application may not be in another application. For this reason, caution should be exercised when referencing or applying BARCT determinations from other classes within a category.

2. If a technically feasible endpoint is not cost effective, it cannot be considered BARCT since cost effectiveness is a fundamental requirement of BARCT. Some

¹ CHSC §40406.

endpoints presented by SCAQMD Staff to recent RECLAIM landing rule working groups exceed the District's \$50,000 per ton NO_x reduced cost effectiveness threshold.²

In establishing BARCT, a district must do all of the following:³

- 1) Identify one or more potential control options which achieves the emission reduction objectives for the regulation.
- 2) Review the information developed to assess the cost-effectiveness of the potential control option. For purposes of this paragraph, "cost-effectiveness" means the cost, in dollars, of the potential control option divided by emission reduction potential, in tons, of the potential control option.
- 3) Calculate the incremental cost-effectiveness for the potential control options. To determine the incremental cost-effectiveness under this paragraph, the district shall calculate the difference in the dollar costs divided by the difference in the emission reduction potentials between each progressively more stringent potential control option as compared to the next less expensive control option.
- 4) Consider the effectiveness of the proposed control option, the cost-effectiveness of each potential control option, and the incremental cost-effectiveness between the potential control options.

In short, BARCT must represent an emission limitation which is both technologically feasible and cost effective.

We note that District Staff recently presented at least one preliminary BARCT recommendation which Staff's (preliminary) analysis indicated was not cost effective. Staff presented the PAR 1135 Working Group with a "BARCT Recommendation" for "Combined-Cycle Turbines" as 2 ppm NO_x, despite data suggesting that every affected unit in the class would exceed the District's cost effectiveness threshold.⁴ Given that data, BARCT cannot be 2 ppm NO_x for the class/category and the District's BARCT recommendation would require revision.

3. **BARCT must be established at a class/category level. Device-level limitations are not appropriate unless the source class/category is classified to include a single device.**

As noted above, BARCT must represent an emission limitation which is both technologically feasible and cost effective for each class/category of source.⁵ In one instance, the District Staff presented a working group with a preliminary BARCT recommendation that would effectively establish device-level throughput limits as part of the BARCT rule.⁶ The District Staff's analysis for the category (i.e., EGF Utility Boilers) clearly indicated that the Staff's proposed BARCT level was not cost effective for the class/category. As part of that (preliminary) determination, Staff proposed "low use

² SCAQMD presentation to Proposed Amended Rule 1135 Working Group Meeting, 13 June 2018. Slides 30-46

³ CHSC §40920.6.

⁴ SCAQMD presentation to Proposed Amended Rule 1135 Working Group Meeting, 13 June 2018. Slides 27 and 30

⁵ CHSC §40406.

⁶ SCAQMD presentation to Proposed Amended Rule 1135 Working Group Meeting, 13 June 2018. Slides 40-43.

exemptions” would be imposed in the form of new operating limits for each of the individual devices to be calculated as a function of cost effectiveness. Such device-level limitations are not appropriate for a BARCT determination when the class/category consists of multiple devices. If the District wishes to establish a low-use exemption, it must set a class/category threshold above which the BARCT recommendation would be cost effective for the class/category.

- 4. Requirements which effectively force retirement of basic equipment must be accounted for in the cost effectiveness analysis for the proposed rule. Such a requirement would also need to be accounted for in the District’s socioeconomic analysis for the Proposed Rule.**

In the recent working group meetings for PAR 1135 and PAR 1134, District Staff indicated they are considering a “replacement requirement” for older equipment.^{7,8} In both cases, the concept of a replacement requirement appeared to be driven by Staff’s desire to impose a control level that was not demonstrated to be cost effective. BARCT is by definition a retrofit standard that applies to existing sources. The requirement that BARCT standards be both technologically achievable and cost effective is an acknowledgement that it may not be possible to achieve the same level of control on an existing source as might be possible with a new source. If there are no more stringent controls that are cost effective for a class or category of source, then that source is at BARCT and the analysis is concluded. To instead require replacement of that source (perhaps without any regard to the technological feasibility or cost effectiveness) with a new source (presumably equipped with best available control technology) renders the technological feasibility and cost effectiveness limitations in the BARCT definition meaningless. The Health and Safety Code grants the District authority to impose best available control technology (BACT) on new and modified sources and BARCT on existing sources.⁹ We are not aware of any authority that allows the District to compel replacement of an existing source when it finds that there are no cost effective retrofit controls. We do, however, support measures that would make it easier for a facility to replace aging equipment if it elects to do so on a voluntary basis, including streamlined new source review and available sources of emission offsets.

- 5. The timetable for transition to command-and-control BARCT could materially affect what is achievable, and whether it is cost effective.**

Under RECLAIM’s market-based design, covered facilities have successfully reduced aggregate program emissions for NO_x and SO_x in accordance with the program’s declining RTC caps. Facilities have implemented custom compliance strategies to meet these caps, which included installing emissions controls on equipment where it was cost effective and using the compliance market where physical changes were not cost effective. The District is now planning to transition RECLAIM facilities to command-and-control (under various directives).

Due to program design, RECLAIM facilities within a given sector may have pursued widely varied strategies and now find themselves in widely varied situations with respect

⁷ SCAQMD presentation to Proposed Amended Rule 1135 Working Group Meeting, 13 June 2018. Slide 48.

⁸ SCAQMD presentation to Proposed Amended Rule 1134 Working Group Meeting, 13 June 2018. Slide 42.

⁹ CHSC §40440(b)(1).

to their basic equipment and currently installed emissions controls. The investments and construction needed to achieve command-and-control BARCT limits have not yet been defined. Given these varied starting points, the implementation schedule for command-and-control BARCT rules could be an important factor in defining what is achievable or cost effective as BARCT. We recommend that BARCT discussions need to include consideration of both what will be required (i.e., the emission limit) and when (i.e., the schedule). This is especially true for refinery sector facilities where such investments must be coordinated with turnaround schedules and capital projects that require long planning and engineering timetables.

Thank you for considering these comments. We look forward to continuing to work with you and your Staff on these rulemakings which are critically important to stakeholders as well as the regional economy.

If you have any questions, please contact me at (310) 808-2146 or by email at bmccann@wspa.org.

Sincerely,



cc: Wayne Nastri, SCAQMD
Susan Nakamura, SCAQMD
Michael Morris, SCAQMD
Michael Krause, SCAQMD
Patty Senecal, WSPA

LATHAM & WATKINS LLP

August 15, 2018

VIA EMAIL

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Re: SCAQMD Staff Proposal to Require Equipment Replacement as BARCT

Dear Dr. Fine:

We are submitting these comments on behalf of our client Western States Petroleum Association ("WSPA") on an important issue that has arisen in connection with the transition of the Regional Clean Air Incentives Market ("RECLAIM") program to a command-and-control regulatory structure. WSPA is a non-profit trade association representing companies that explore for, produce, refine, transport and market petroleum, petroleum products, natural gas and other energy supplies in five western states including California. WSPA has been an active participant in air quality planning issues for over 30 years. WSPA-member companies operate petroleum refineries and other facilities in the South Coast Air Basin that will be impacted by the transition out of the RECLAIM program.

South Coast Air Quality Management District ("SCAQMD") staff has recently taken the position that a best available retrofit control technology ("BARCT") standard may require total replacement of the emitting piece of equipment. SCAQMD staff has articulated this position in various meetings and documents produced in connection with the RECLAIM transition. The most detailed explanation of the staff's position of which we are aware is contained in the July 2018 Draft Staff Report in support of proposed amendments to SCAQMD Rule 1135 ("Rule 1135 Staff Report") at pages 2-1 through 2-2.

In the Rule 1135 Staff Report, staff makes two arguments in support of its position. First, it cites to dictionary definitions of "retrofit" and concludes that "replacement" is not specifically excluded from those definitions. Second, it cites to a California Supreme Court case, *American Coatings Ass'n v. South Coast Air Quality Mgt. Dist.*, 54 Cal 4th 446 (2012), for the proposition that a BARCT standard may require replacement of the emitting equipment in its entirety. We provide a response to each of these arguments below.

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Dr. Philip Fine
August 15, 2018
Page 2

LATHAM & WATKINS LLP

“Common Sense Definition” Argument

The SCAQMD’s “common sense definition” argument is flawed in that it focuses on whether or not “replacements” are specifically excluded from the definitions of “retrofits,” as opposed to whether or not they are included within the definition. The SCAQMD’s backward approach to interpreting dictionary definitions is non-sensical. Under this approach, because the definition of “apple” does not specifically exclude “orange,” an orange may be an apple notwithstanding the fact that the definition of apple clearly does not include orange. When one focuses on what is included within the definitions of “retrofit,” as opposed to what is not excluded, it is clear that while replacement of certain elements of any particular object may be a “retrofit,” replacement of the object in its entirety is not.

One of the definitions relied upon by the SCAQMD is the following from the on-line Merriam-Webster Dictionary:

1: to furnish (something, such as a computer, airplane, or building) with new or modified parts or equipment not available or considered necessary at the time of manufacture, 2: to install (new or modified parts or equipment) in something previously manufactured or constructed, 3: to adapt to a new purpose or need: modify.

This definition makes clear that a “retrofit” involves an existing object – “(something, such as a computer, airplane, or building)” – upon which the act of retrofitting occurs, and which continues to exist following that action. The Rule 1135 Staff Report states: “This definition does not preclude the use of *replacement parts* as a retrofit.” (emphasis added). This statement is true, but it does not support the position taken by the SCAQMD that a retrofit may include the replacement of the entire object that is the subject of the retrofit. Note that in the case of BARCT, we are discussing retrofitting a piece of equipment and thus, the second of the definitions in Merriam Webster, “to install (new or modified parts or equipment) in something previously manufactured or constructed,” is the most applicable definition. When one retrofits equipment, such as a heater, the parts, such as a burner, may be updated, but the original heater itself remains.

It becomes even more clear that the staff’s interpretation of the term “retrofit” is incorrect when one considers the definition of the term “replace” from the same source:

2: to take the place of especially as a substitute or successor.

The distinction between these two terms is clear – in the case of “retrofit,” the pre-existing object that is the subject of the action continues to exist following the action, but in an altered state; whereas, in the case of “replace,” the pre-existing object of the action no longer exists following the action. So, if you replace a heater, the original heater no longer exists.

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Dr. Philip Fine
August 16, 2018
Page 3

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The other definition relied upon by the staff is from the on-line Dictionary.com:

1. To modify equipment (in airplanes, automobiles, a factory, etc.) that is already in service using parts developed or made available after the time of original manufacture, 2. To install, fit, or adapt (a device or system) or use with something older; to retrofit solar heating to a poorly insulated house, 3. (of new or modified parts, equipment, etc.) to fit into or onto existing equipment, 4. To replace existing parts, equipment, etc., with updated parts or systems.

Again, this definition makes clear that a retrofit involves the modification of existing equipment (e.g., airplane, automobile, factory), which continues to exist following such action. To the extent that the term “replacement” is used in the definition, it clearly refers to the replacement of *some element* of that object (e.g., parts of an airplane, equipment in a factory), and not to replacement of the entire object altogether.

And again, the distinction between the two terms becomes even clearer when one considers the definition of “replace” from the same source:

1: to assume the former role, position, or function of; substitute for (a person or thing), 2: to provide a substitute or equivalent in the place of.

“Replace” and “retrofit” are different terms with different meanings, and to suggest that the use of one term somehow includes the other, without some explicit statement of intent to do so, simply ignores the distinction between the two terms.

Furthermore, both “retrofit” and “replace” or “replacement” are terms commonly used in air quality statutes and regulations, and the difference between the terms is well understood. When a statute or regulation is intended to require, or apply to, “replacements,” that intention is typically clear on its face. When a legislative body means “replacement,” it says so explicitly, and to suggest that the California legislature intended to include “replacement” within the scope of a definition that uses the term “retrofit,” flies in the face of the distinction between these two terms that is embodied throughout the universe of air quality statutes and regulations. If the legislature had intended that equipment be replaced, they would have used the word “replacement” (best available replacement control technology). The SCAQMD staff cannot ignore the word “retrofit” in the term “best available retrofit control technology.” It is a fundamental principle of statutory interpretation that each term be given meaning.

“American Coatings” Argument

Neither the language from the *American Coatings* decision quoted in the Rule 1135 Staff Report, nor anything else in the decision, supports the proposition that a BARCT standard may require the replacement of the primary emitting equipment to which the standard is being applied. In fact, this issue is not even addressed in the case.

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Dr. Philip Fine
August 15, 2018
Page 4

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The *American Coatings* case addresses the issue of whether or not there are certain circumstances where an adopted BARCT standard may be more stringent than the currently applicable best available control technology ("BACT") standard for the same class or category of source. The court concludes that it is acceptable for an adopted BARCT standard *with a future compliance date* to be more stringent than the BACT standard that exists at the time the more stringent BARCT standard is adopted. *American Coatings*, 467. In explaining its decision, the court pointed out that a BARCT standard with a future compliance date need not be met until some point in the future after which advances in technology have occurred; whereas, a BACT standard must be met immediately in order for a source to obtain a pre-construction permit. The court also pointed out that BARCT standards with future compliance dates that could not be achieved as of the date of adoption are consistent with the concept that BARCT standards may be "technology-forcing."

The Rule 1135 Staff Report correctly articulates the *American Coatings* holdings described above but does not contain any analysis to support the staff's position that a BARCT standard can require the complete replacement of the emission unit. It simply includes the following conclusory statement: "Therefore, the SCAQMD may establish a BARCT emissions level that can cost-effectively be met by replacing existing equipment rather than installing add-on controls . . ." Rule 1135 Staff Report, p. 2-2. The staff report is devoid of any legal analysis or authority, including the *American Coatings* decision, that supports this conclusion.

Thank you for considering these comments. We look forward to continuing to work with you on these rulemakings which are critically important to stakeholders as well as the regional economy. If you have any questions, please contact me at (714) 401-8105 or by email at michael.carroll@lw.com, or Bridgit McCann of WSPA at (310) 808-2146 or by email at bmccann@wspa.org.

Sincerely,



Michael J. Carroll
of LATHAM & WATKINS LLP

cc: Cathy Reheis-Boyd, WSPA
Patty Senecal, WSPA
Bridgit McCann, WSPA
Wayne Nastri, SCAQMD
Barbara Baird, SCAQMD

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November 1, 2018

VIA EMAIL

Bayron T. Gilchrist, General Counsel
 Barbara Baird, Chief Deputy Counsel
 South Coast Air Quality Management District
 21865 Copley Drive
 Diamond Bar, CA 91765

Re: SCAQMD Staff Proposal to Require Equipment Replacement as BARCT

Dear Bayron and Barbara:

Thank you for your October 3, 2018 letter responding to our August 15, 2018 comments submitted on behalf of the Western States Petroleum Association ("WSPA"), and our August 24, 2018 comments submitted on behalf of the Regulatory Flexibility Group ("RFG"), regarding South Coast Air Quality Management District ("SCAQMD") staff's position that a best available retrofit control technology ("BARCT") standard may require total replacement of the emitting piece of equipment. Portions of your response reassert arguments that staff has made in the past in support of its position; namely, that neither the statutory definition of BARCT nor common dictionary definitions of "retrofit" specifically exclude replacements, and that the *American Coatings Ass'n v. South Coast Air Quality Mgt. Dist.*, 54 Cal 4th 446 (2012) case ("*American Coatings*") is supportive of staff's position. We responded to those arguments in our previous comment letters and will not revisit them here. This letter responds on behalf of WSPA and RFG to your assertions that the staff's position is supported by public policy considerations, and that we have failed to present any policy rationale for our position.

Staff asserts that requiring replacements under certain circumstances is supported by policy justifications, and, therefore, public policy supports an expansive interpretation of its authority that would include the authority to mandate replacements. This reasoning is contrary to two important public policies that are also well enshrined in administrative law. The first is that regulatory agencies must act within the scope of the authority delegated to them by the legislature, even if that means the agency may not undertake certain actions that it might otherwise view as sound public policy. The second is that public agencies may not substitute their own judgment for that of the legislature as reflected in the statutory grant of authority. These public policies and legal requirements support our position that staff cannot mandate replacements as BARCT.

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Bayron T. Gilchrist/Barbara Baird
November 1, 2018
Page 2

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Public policy and well established law dictate that the SCAQMD act within the scope of authority granted to it by the legislature.

An agency can adopt, administer or enforce a regulation only if it is within the scope of authority conferred on it by other provisions of law. Cal Gov. Code § 11342.1. No regulation is valid unless it is consistent and not in conflict with the statute conferring authority to the agency. Cal Gov. Code § 11342.2. As explained in our previous comment letters, the statutory provisions defining BARCT and the SCAQMD's authority to adopt and implement BARCT standards are clear. "In the construction of a statute or instrument, the office of the Judge is simply to ascertain and declare what is in terms or in substance contained therein, *not to insert what has been omitted*, or to omit what has been inserted . . ." Cal. Civ. Proc. Code § 1858 (emphasis added). The role of an agency charged with implementing a statute is no different. In this case, staff seeks to insert what has been omitted by arguing that the term "retrofit" encompasses replacement, notwithstanding that there are numerous examples of the distinction between those terms throughout the statute.

Finding ambiguity where there is none, staff then invokes "public policy" to support an expansive interpretation of its authority. Relying on the example of replacing engines on Santa Catalina Island, staff argues that because the replacements would further the broader statutory purpose of reducing emissions, a mandate to do so is sound public policy, and, therefore, public policy supports an expansive interpretation of the agency's authority to impose such a mandate.

According to staff's reasoning, the scope of the agency's authority should be interpreted to encompass any action which the agency deems sound public policy, regardless of the specific language contained in the statutory grant of authority. In fact, you argue in your letter, citing *American Coatings*, that the agency's authority is essentially unbounded as long as the requirement is not arbitrary and capricious, or without reasonable or rational basis, or lacking in evidentiary support. However, as the cases relied upon in *American Coatings* make clear, a critical consideration in evaluating whether or not an agency action meets this standard is whether or not the action is within the scope of the agency's delegated authority. As stated in *Yamaha Corp. of America v. State Bd. of Equalization* (1998) 19 Cal.4th 1, citing *Wallace Berri & Co. v. State Bd. of Equalization* (1985) 40 Cal.3d 60, 65: "[I]n reviewing the legality of a regulation adopted pursuant to a delegation of legislative power, the judicial function is limited to determining whether the regulation (1) is "within the scope of the authority conferred" [citation] and (2) is "reasonably necessary to effectuate the purpose of the statute" [citation].' [Citation.]"

The scope of authority delegated to an agency may not authorize it to take any and all actions that the agency deems sound public policy in light of its overall mission. In fact, acting as it does from a broader perspective, and balancing a broader range of policy considerations, the very reason the legislature imposes limitations on the authority of regulatory agencies is to prevent them from undertaking actions that they might otherwise be inclined to take because they deem them sound public policy. The fact that a proposed action may reflect sound public policy in the view of the agency does not mean that it is within the scope of the authority granted by the legislature.

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Bayron T. Gilchrist/Barbara Baird
November 1, 2018
Page 3

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Staff's position is contrary to the legislature's policy considerations embedded in the relevant statutory provisions.

By including economic impacts as one of the factors in the definition of BARCT, and by specifying the process for evaluating the cost-effectiveness of proposed BARCT standards, it is clear that one of the policies of the legislature was to balance the goal of achieving additional emission reductions from existing sources against the costs of achieving those reductions, and to impose limits on the costs that would be borne by existing sources to further control emissions.¹ The legislature determined that stationary sources should bear the cost of implementing cost-effective retrofits. If cost-effective retrofits are determined to be unavailable, then that is the end of the inquiry. There may be specific cases where the outcome results in foregone emission reductions, but it was the judgment of the legislature that this regulatory scheme struck the proper public policy balance between achieving air quality goals and imposing additional costs on regulated sources. It is not the place of the agency to substitute its own public policy considerations for those of the legislature when the language of the statute is clear, as it is here.

Furthermore, the fact that a replacement project may be cost-effective in a situation where available retrofits are not is irrelevant. Staff seems to suggest that if a replacement project would cost no more than a cost-effective retrofit project (if one existed), then the cost to the source is no greater than what the legislature intended, and, therefore, requiring replacement in such situations does not undercut any economic considerations that the legislature may have had in mind when adopting the statute. However, in situations where there are no available cost-effective retrofits, the legislature determined that the cost to the source for installing additional controls would be zero. Therefore, staff's determination that it can mandate replacement when there are no cost-effective retrofits, as long as the replacement is cost-effective, imposes costs on existing sources that go beyond what the legislature contemplated. The fact that the cost of a replacement may be less than, or more cost-effective than, available retrofits does not mean that the agency is entitled to mandate replacements.

Conclusion

SCAQMD staff is attempting to use policy rationale to read something into the statute that simply is not there. That approach is not only poor public policy, it is contrary to the law. Whether or not a particular course of action may be good public policy in the judgment of the agency does not mean it is within the authority of the agency to mandate it. Furthermore, in this case, that rationale elevates the judgment of the agency over that of the legislature with regards to the appropriate balance between furthering air quality objectives and maintaining a viable economy. There are limits on the rulemaking authority of the SCAQMD, and those limits may well preclude it from pursuing what it might otherwise view as good public policy in order to accomplish the broader policy objectives of the legislature.

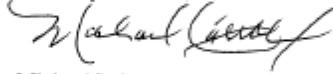
¹ Health & Safety Code Sections 40406 and 40920.6.

Bayron T. Gilchrist/Barbara Baird
November 1, 2018
Page 4

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Thank you for considering these comments. We look forward to continuing to work with you on these rulemakings which are critically important to stakeholders as well as the regional economy. If you have any questions, please contact me at (714) 755-8105 or by email at michael.carroll@lw.com.

Sincerely,



Michael J. Carroll
of LATHAM & WATKINS LLP

cc: Robert Wyman, Latham & Watkins LLP
John Heintz, Latham & Watkins LLP
RFG Members
Bridget McCann, WSPA

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Oyango A. Snell, Esq.
General Counsel

May 1, 2018

Dr. Philip Fine
Deputy Executive Officer, Planning and Rules
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765

Via e-mail at: pfine@aqmd.gov

Re: WSPA concerns with Proposed Amended Rules 1146, 1146.1 and 1146.2 and RECLAIM Landing Rules

Dear Dr. Fine:

Western States Petroleum Association (WSPA) appreciates the ability to participate in working groups related to the transition of the Regional Clean Air Incentives Market (RECLAIM) program and Proposed Amended Rules (PAR) 1146, 1146.1 and 1146.2 and the opportunity to make comments. WSPA is a non-profit trade association representing companies that explore for, produce, refine, transport and market petroleum, petroleum products, natural gas and other energy supplies in five western states including California. WSPA has been an active participant in air quality planning issues for over 30 years. WSPA-member companies operate petroleum refineries and other facilities in the South Coast Air Basin that are within the purview of the RECLAIM Program administered by the South Coast Air Quality Management District (AQMD or District).

PAR 1146, 1146.1 and 1146.2 represent essential "landing rules" which, if adopted, would apply to many WSPA member and non-member facilities which stand to be transitioned from RECLAIM's market-based structure into new command-and-control Best Available Retrofit Control Technology (BARCT) requirements. We have several comments and concerns with the District's current proposals for these PARs.

1. Staff has not conducted a BARCT assessment for the boilers, steam generators, or process heaters at facilities that would be transitioning from RECLAIM under PAR 1146, 1146.1 and 1146.2.

State law defines BARCT as "an emission limitation that is based on the maximum degree of reduction achievable, taking into account environmental, energy, and economic impacts by each class or category of source." (Health & Saf. Code § 40406). Under the current proposal, District Staff has not conducted a BARCT assessment for boilers, steam generators, or process heaters located at facilities transitioning from RECLAIM to command and control. Rather, the current Staff proposal would simply extend the requirements of existing Rules 1146, 1146.1 and 1146.2 to this large number of facilities. These RECLAIM facilities were not part of the universe of facilities or equipment considered when the District adopted the BARCT requirements currently found in Rules 1146, 1146.1, or 1146.2. Therefore, the District has not analyzed the environmental, energy, and economic impacts for the entire class or category of source. The District cannot simply extend existing requirements to a new universe of facilities and equipment without first conducting new (or supplementary)

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Dr. Philip Fine
 May 1, 2018
 Page 2

BARCT determinations to demonstrate that proposed emission limitations and/or other requirements are both technically feasible and cost effective. Such a demonstration is required under California Health & Safety Code Section 40406.

RECLAIM facilities have been subject to market-based emissions control requirements since 1994. For this reason, the boilers, steam generators, and process heaters at these facilities will widely vary in terms of their physical configurations (e.g., basic equipment, emissions controls) and their emissions performance. Furthermore, many of the compliance requirements (e.g., averaging periods) in these rules differ from RECLAIM and cannot readily be applied to RECLAIM equipment and facilities. It is inappropriate to assume that the BARCT requirements, and supporting technical feasibility and cost effectiveness analyses, can apply equally and equitably to facility equipment that was not part of the original BARCT analysis. The District needs to demonstrate that those requirements or alternative BARCT requirements are both technically feasible and cost effective for this new group of facilities being transitioned from RECLAIM where they have operated for two plus decades.

2. The environmental and socioeconomic impacts for PAR 1146, 1146.1 and 1146.2 should be considered in CEQA and Socioeconomic Assessments for the entire RECLAIM Transition Project.

Under the California Environmental Quality Act (CEQA), CEQA Guidelines and SCAQMD Rule 110, the SCAQMD Governing Board (as the lead agency under its certified regulatory program) is required to identify and evaluate environmental impacts of its rulemaking activities, as well as feasible means and alternatives to reduce, avoid or eliminate significant impacts. More specifically, "an accurate, stable and finite project description is the sine qua non of an informative and legally sufficient EIR." (*County of Inyo v. City of Los Angeles* (1977) 71 Cal.App.3d 185, 193.) The entire project being proposed must be described in the EIR, and the project description must not minimize project impacts. (*City of Santee v. County of San Diego* (1989) 214 Cal.App.3d 1438, 1450.) Furthermore, CEQA forbids piecemealing¹ and the Court has explicitly found that it is inappropriate to divide a project into small segments in order to avoid preparing an EIR. (*Bozung v. Local Agency Formation Com.* (1975) 13 Cal.3d 263, 283-284.)

The California Supreme Court has also held that EIRs may need to address future environmental effects of a proposed project. In *Laurel Heights I*, the court set forth the standards for determining whether reasonably foreseeable future activities must be included in an EIR project description and for determining whether the impacts of those activities must be analyzed in the EIR:

"We hold that an EIR must include an analysis of the environmental effects of future expansion or other action if: (1) it is a reasonably foreseeable consequence of the initial project; and (2) the future expansion or action will be significant in that it will likely change the scope or nature of the initial project or its environmental effects." (*Laurel Heights Improvement Assn. v. Regents of the University of California ("Laurel Heights I")* (1988) 47 Cal.3d 376, 396.)

¹ "Piecemealing" or "segmenting" means dividing a project into two or more pieces and evaluating each piece in a separate environmental document. The rule of forbidding piecemealing arises from the definition of "project" under CEQA, where "project" is defined as "the whole of an action." (14 Cal. Code Regs. § 15378(a).)

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Dr. Philip Fine
May 1, 2018
Page 3

As previously noted, PAR 1146, 1146.1 and 1146.2 are part of the District's larger effort to transition RECLAIM program facilities from RECLAIM's market-based design to a command-and-control design. This has been described to the Working Group, and documented in the District's staff report:

"The proposed amendments in Rules 1146, 1146.1 and 1146.2 initiate the transition of the NOx RECLAIM program to a command-and-control regulatory structure."²

This transition is also noted in the District's preliminary environmental assessment, which was drafted for compliance with the California Environmental Quality Act (CEQA):

"As a result of control measure CMB-05 from the 2016 AQMP and ABs 617 and 398, SCAQMD staff has been directed by the Governing Board to begin the process of transitioning equipment at NOx RECLAIM facilities from a facility permit structure to an equipment-based command-and-control regulatory structure per SCAQMD Regulation XI – Source Specific Standards. SCAQMD has begun this transition process by proposing amendments to Rule 1146 – Emissions of Oxides of Nitrogen from Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters; Rule 1146.1 – Emissions of Oxides of Nitrogen from Small Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters; and Rule 1146.2 – Emissions of Oxides of Nitrogen from Large Water Heaters and Small Boilers and Process Heaters. Proposed Amended Rules (PAR) 1146, 1146.1, and 1146.2 (collectively referred to herein as the PAR 1146 series) will be the first set of rules to be amended to initiate the transition of equipment from the NOx RECLAIM program to a command-and-control regulatory structure while achieving BARCT."³

We believe the District needs to prepare an environmental assessment that considers the entire RECLAIM Transition Project, its rulemakings and its other associated components, across impacted facilities and equipment. While the District prepared a Final Program Environmental Impact Report (Final Program EIR) regarding the 2016 AQMP (certified in March 2017), the analysis focused solely on the implementation of CMB-05. CMB-05 was a general directive from the 2016 AQMP, requiring an assessment of further NOx reductions from the RECLAIM program. (Final Program EIR for the 2016 Air Quality Management Plan (January 2017) p. 2-17.) More specifically, the Final Program EIR describes CMB-05 as "identif[ying] a series of approaches, assessments, and analyses *that can be explored* to make the program more effective..." (Emphasis added. Final Program EIR at p. 2-17.) The Final Program EIR lists the control methodology of CMB-05 as "re-examination of the RECLAIM program, including voluntary opt-out and the additional control equipment and SCR/SNCR equipment." (Final Program EIR at p. 4.1-2.) Additionally, the Final Program EIR also sets forth the air quality impact, as it relates to CMB-05, as "potential emissions as a result of construction to install new equipment, generation of ammonia emissions from the operations of SCR/SNCR equipment, and potential air quality and GHG emissions from electricity to operate equipment." (Final Program EIR at p. 4.1-2.) The Final Program EIR never addresses the concept of, much less the impacts related to, sunsetting the RECLAIM program.

As shown above, CMB-05 lacks the specifications set forth in the RECLAIM Transition Project and its rulemakings. More importantly, the RECLAIM Transition Project had not yet even been created when CMB-05 was conceived or evaluated under the Final Program EIR. In fact, the RECLAIM Transition Project is still

² SCAQMD Preliminary Draft Staff Report for Proposed Amended Rule (PAR) 1146, PAR 1146.1, PAR 1146.2 and Proposed Rule 1100, January 2018, see page 3.

³ SCAQMD Draft Subsequent Environmental Assessment for PAR 1146 – Emissions of Oxides of Nitrogen from Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters; 1146.1 – Emissions of Oxides of Nitrogen from Small Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters; 1146.2 - Emissions of Oxides of Nitrogen from Large Water Heaters and Small Boilers and Process Heaters; and PR 1100 – Implementation Schedule for NOx Facilities, March 2018, page 1-2.

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Dr. Philip Fine
 May 1, 2018
 Page 4

currently under development on an ongoing basis, as District Staff continues to determine how to approach the applicability of several landing rules and whether some rules will even be included in the Project. Given the Final Program EIR's reliance on general directives like CMB-05 and the RECLAIM Transition Project not yet existing at the time of assessment, the Final Program EIR fails to properly evaluate the potential environmental impacts specifically related to the RECLAIM Transition Project and its rulemakings.

As prior amendments to the Regulation XX program were considered under CEQA, we believe the overall group of RECLAIM Transition rulemakings⁴ needs to be collectively considered under CEQA, as well. Rules to advance the RECLAIM Transition Project, including these proposed amendments to the 1146 series rules, should not be adopted and facilities should not be removed from RECLAIM until the District has completed and certified a CEQA assessment that evaluates the entire Project. Undertaking these RECLAIM Transition Project rulemakings in a fragmented manner constitutes a piecemealing of the project, which is explicitly forbidden by CEQA as described above. Given that the 1146 series rules are clearly part of the larger RECLAIM Transition Project, we believe the District's current draft CEQA document is improperly scoped.

Additionally, Health & Safety Code Section 40440.8 requires that "[w]henver the south coast district intends to propose the adoption, amendment, or repeal of a rule or regulation that will significantly affect air quality or emissions limitations, the district . . . shall perform an assessment of the socioeconomic impacts of the adoption, amendment, or repeal of the rule or regulation." (Health & Saf. Code § 40440.8(a)). One of the specific factors that the Board is to take into consideration is the "availability and cost-effectiveness of alternatives to the rule or regulation . . ." (Health & Saf. Code § 40440.8(b)(4)). Health & Safety Code Section 40728.5 sets forth substantively identical requirements for all air districts. Similarly, Health & Safety Code Section 40440.5(c)(3) requires that if an environmental assessment is prepared in connection with a proposal to adopt, amend or repeal any rule or regulation, "the staff report shall also include social, economic, and public health analyses." Stakeholders have not yet seen the District's draft socioeconomic assessment for these proposed rules, but we similarly recommend that the District conduct a program-level socioeconomic assessment that considers the socioeconomic effects of the overall RECLAIM Transition Project, including all associated Regulation XI rulemakings, and the 1146 series rules. This should be completed to support related Governing Board rule adoptions prior to the District transitioning individual RECLAIM facilities out of the program.

WSPA continues to be concerned that the RECLAIM transition could cause significant negative impacts to Southern California businesses, air quality and the regional economy. Similar to the Final Program EIR described above, the Final Socioeconomic Report for the 2016 AQMP analyzed the socioeconomic impacts for the 2016 AQMP, which focused solely on CMB-05. As discussed above, CMB-05 did not include a transition of the RECLAIM program to a command-and-control scheme like that described in the RECLAIM Transition Project or in the Project's associated rulemakings. Given that fact, the RECLAIM Transition rulemaking proposals cannot rely on the 2016 AQMP's Socioeconomic Assessment to cover the RECLAIM Transition Project.

3. The District needs to resolve critical questions about New Source Review (NSR) requirements and Federal NSR equivalency before transitioning individual RECLAIM facilities out of the program.

Under PAR 1146, 1146.1 and 1146.2, Staff has proposed that RECLAIM facilities covered by these rules would begin to be transitioned out of the RECLAIM program after the rules' adoption. This raises a number of serious concerns due to the lack of transition framework, particularly on the topic of NSR. There remain a number of complex questions (legal and otherwise) over how the District will satisfy EPA requirements to demonstrate equivalency with the Federal NSR program. Since a transition model has not been agreed upon between EPA and

⁴ At this time, RECLAIM Transition project includes proposed amendments to Regulation XX rules, as well as PAR 301, PAR 1109 and/or PR 1109.1, PAR 1110.2, PAR 1118.1, PAR 1134, PAR 1135, PAR 1146, 1146.1, and 1146.2, and PAR 1147, 1147.1, and 1147.2.

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Dr. Philip Fine
May 1, 2018
Page 5

the District, facilities are left with uncertainty regarding their permit transition requirements and how future permit changes will impact their operations. RECLAIM facilities should not be transitioned from the program until SCAQMD has resolved these key NSR issues with EPA.

In light of these important issues, PAR 1146, 1146.1 and 1146.2 are not ready for the Governing Board's consideration. Any scheduled or proposed hearing should be delayed until these issues have been adequately addressed.

Thank you for considering these comments. We look forward to continuing to work with you and your Staff on this rulemaking which is critically important to stakeholders, as well as the regional air quality and economy.

If you have any questions, please contact me at (916) 325-3115, or by email at osnell@wspa.org.

Sincerely,



cc: Cathy Reheis-Boyd, WSPA
Patty Senecal, WSPA
Bridget McCann, WSPA
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Clerk of the Board, SCAQMD

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LATHAM & WATKINS LLP

September 7, 2018

VIA EMAIL

Dr. Philip Fine
Deputy Executive Officer
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765

Re: Proposed Amended Rules 2001 and 2002

Dear Dr. Fine:

We are submitting these comments on behalf of our client Western States Petroleum Association (“WSPA”) on the most recent round of proposed amendments to South Coast Air Quality Management District (“SCAQMD”) Rules 2001 and 2002. The amendments are being proposed in connection with the transition of the Regional Clean Air Incentives Market (“RECLAIM”) program to a command-and-control regulatory structure. WSPA is a non-profit trade association representing companies that explore for, produce, refine, transport and market petroleum, petroleum products, natural gas and other energy supplies in five western states including California. WSPA has been an active participant in air quality planning issues for over 30 years. WSPA-member companies operate petroleum refineries and other facilities in the South Coast Air Basin that will be impacted by the transition out of the RECLAIM program.

General Comments

The proposed amendments to Rules 2001 and 2002 are primarily interim measures intended to establish new eligibility criteria for exiting RECLAIM, provide opt-out procedures, and address, on a temporary basis, unresolved issues surrounding compliance of new source review (“NSR”) for former RECLAIM facilities once they have transitioned out of the RECLAIM program. As WSPA and others have expressed in numerous meetings, workshops and hearings conducted in connection with the RECLAIM transition, we have serious concerns about the lack of clarity surrounding NSR in a post-RECLAIM regime.

We believe current SCAQMD staff’s (“staff”) proposed approach is premature, as staff has not addressed all of the underlying issues surrounding a RECLAIM sunset. RECLAIM is a comprehensive, complex program that was adopted as a whole. In the development of RECLAIM, staff not only determined current and future effective best available retrofit control

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Dr. Philip Fine
September 7, 2018
Page 2

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technology (“BARCT”), but also examined and addressed NSR, reviewed socioeconomic impacts, mitigated implications of emissions trading, resolved enforcement and monitoring issues, and understood a host of other consequences of adopting such a program. This comprehensive approach ensured the overwhelming success of the RECLAIM program as it was designed. In contrast for this rulemaking, staff is dismantling the RECLAIM program without analyzing any of the consequences of the proposed approach. Most importantly, staff has not addressed NSR, nor the environmental and socioeconomic impacts of a RECLAIM sunset.

Our strong preference is that staff prioritizes resolution of the NSR issues and conduct an analysis of the entire RECLAIM transition project comparable with the same full analysis that was done during the implementation of RECLAIM before initiating rulemaking. There is no evidence that this has been done to date. We believe that addressing fundamental programmatic issues that will affect all former RECLAIM facilities, such as NSR, early in the transition process, and then moving on to the more narrowly applicable landing rules, would result in a more orderly and efficient transition in the following ways:

- It would provide facilities with an understanding of the NSR requirements and procedures that will apply to modifications required to comply with updated BARCT rules. It is not possible to develop a final and comprehensive plan for implementing new BARCT requirements without knowing the NSR requirements and procedures and how those will impact post-RECLAIM operating permits.
- It would result in a more efficient use of staff resources. For example, the proposed amendments to Rules 2001 and 2002 are essentially “stop-gap” measures that are necessary because the NSR and other programmatic issues remain unresolved. If the NSR and other programmatic issues were addressed, it would not be necessary to develop and implement such measures.
- It would avoid the current ad hoc, piecemeal approach to the RECLAIM Transition Project which results in additional confusion and uncertainty. This is illustrated by the fact that staff’s positions with respect to certain issues related to the proposed amendments to Rules 2001 and 2002 are quite different than positions taken when these two rules were amended in January of this year in what we view as a rush to get the RECLAIM transition process underway.
- It would avoid legal vulnerabilities that we believe are inherent in the current ad hoc, piecemeal approach because the environmental and socioeconomic assessments of incremental rulemaking are disjointed and incomplete.

Should the District continue with this piecemeal approach, we offer the comments set forth below on the proposed amendments:

US-DOCS\103004188.2

Dr. Philip Fine
September 7, 2018
Page 3

LATHAM & WATKINS LLP

Specific Comments on Proposed Amended Rule 2002(f)(11) – “Stay-In” Provision

The proposed amendments to Rule 2002 would allow facilities to remain in the RECLAIM program, and thereby avail themselves of the RECLAIM NSR program set forth in SCAQMD Rule 2005 for some period of time. Our understanding, which was confirmed by staff during the RECLAIM Working Group meeting on August 9, 2018, is that the decision of whether or not to remain in the RECLAIM program is completely within the discretion of the facility (assuming the facility meets the specified criteria). Some of the language in the proposed amendments could be read to grant the Executive Officer discretion (beyond merely confirming that the facility meets the specified criteria) to decide whether or not the facility may remain in the program. The following proposed changes are intended to better reflect staff’s intent.

- (11) An owner ~~of or~~ operator of a RECLAIM facility that receives an initial determination notification may elect ~~that~~ **for the facility to remain in RECLAIM by submitting** ~~if a request to the Executive Officer to remain in RECLAIM is submitted, together with including~~ any equipment information required pursuant to paragraph (f)(6).
- (A) Upon ~~receiving a request to remain in RECLAIM and any equipment information required pursuant to paragraph (f)(6), written approval by the Executive Officer shall notify the owner or operator in writing~~ that the facility shall remain in RECLAIM **subject to the following:**
- (i) The facility shall remain in RECLAIM until a subsequent notification is issued to the facility that it must exit by a date no later than December 31, 2023.
 - (ii) The facility is required to submit any updated information within 30 days of the date of the subsequent notification.
 - (iii) The facility shall comply with all requirements of any non-RECLAIM rule that does not exempt NOx emissions from RECLAIM facilities.

Specific Comments on Proposed Amended Rule 2002(f)(10) – “Opt-Out” Provision

Proposed Amended Rule 2002 includes an “opt-out” provision for those facilities that may be ready to voluntarily exit RECLAIM prior to the time that they might otherwise be transitioned out. The current staff proposal differs from previous proposals in that it places

US-DOCS\103004188.2

September 7, 2018
Page 4

LATHAM & WATKINS LLP

certain restrictions on facilities after they have exited the program that we believe are unfair and unwarranted. Specifically, proposed paragraph (f)(10)(B) would prohibit such facilities from taking advantage of otherwise available offset exemptions in SCAQMD Rule 1304. In the event that an NSR event requiring offsets were to occur after the facility exited the RECLAIM program, it would be required to obtain emission reduction credits on the open market, which the staff acknowledges are “scarce.” (July 20 Preliminary Draft Staff Report, p. 8).¹ We believe that it is unnecessary, unfair, and possibly contrary to state law, to deny former RECLAIM facilities advantages that they would otherwise be entitled to and that are available to all other non-RECLAIM facilities.

The Preliminary Draft Staff Report expresses concern that the potential impacts associated with emission increases from facilities that might exit the RECLAIM program, even if limited to the 37 facilities the staff initially identified as eligible to exit, could impose a demand on Rule 1304 offset exemptions that could approach or surpass the cumulative emissions increase thresholds of SCAQMD Rule 1315. (Preliminary Draft Staff Report, p. 8). In other words, staff is concerned that if former RECLAIM facilities were permitted to utilize Rule 1304 offset exemptions, the demand on the SCAQMD’s internal emission offset bank, which supports the offset exemptions, might exceed previously analyzed levels. This concern seems inconsistent with positions taken by staff in connection with the January 2018 amendments to these two rules, and with more recent statements by staff suggesting that it believes the internal emission offset bank is the most viable source of emission offsets for former RECLAIM facilities on a long-term basis.

The January 2018 amendments established the criteria and procedures pursuant to which eligible facilities would be identified and exited from RECLAIM. According to the Final Staff Report, “. . . the proposed amendments would remove approximately 38 facilities from NOx RECLAIM.” (January 5 Final Staff Report, p. 2).² Staff determined that the impact of exiting the initial round of facilities, including impacts associated with reduced demand for RTCs, would be minimal:

Given the analysis above and the fact that the 38 facilities—which are potentially ready to exit out of the NOx RECLAIM program into command-and-control—account for about one percent of NOx emissions and NOx RTC holdings in the NOx RECLAIM universe, staff concludes that the potential impact of PAR 2002 on the demand and supply of NOx RTC market is expected to be

¹ References herein to “July 20 Preliminary Draft Staff Report” refer to the Preliminary Draft Staff Report, Proposed Amendments to Regulation XX- Regional Clean Air Incentives Market (RECLAIM), Proposed Amended Rules 2001 – Applicability and 2002 – Allocations for Oxides of Nitrogen (NOx) and Oxides of Sulfur (SOx), dated July 20, 2018.

² References herein to “January 5 Final Staff Report” refer to the Final Staff Report Proposed Amendments to Regulation XX – Regional Clean Air Incentives Market (RECLAIM) Proposed Amended Rules 2001 – Applicability and 2002 – Allocations for Oxides of Nitrogen (NOx) and Oxides of Sulfur (SOx), dated January 5, 2018.

18-DCS103004188.2

Dr. Philip Fine
September 7, 2018
Page 5

LATHAM & WATKINS LLP

minimal and large price fluctuations in the NOx RTC market are unlikely to result directly from the potential exit of the 38 directly affected facilities out of the NOx RECLAIM program. Therefore, PAR 2002 would have minimal impacts on the existing facilities that are not yet ready to exit the NOx RECLAIM program. (January 5 Final Staff Report, p. 12.)

To support its conclusion that exiting the initial round of facilities from the program would have minimal impacts as a result of foregone market demand for RTCs, staff analyzed three scenarios in which NOx emissions from the subject facilities were: i) 5% below 2015 NOx emissions; ii) the same as 2015 NOx emissions; and iii) 5% above 2015 NOx emissions. (January 5 Final Staff Report, p. 11). Staff determined that foregone market demand for RTCs associated with exiting the initial group of facilities under each of the three scenarios would be 0.073 tons per day (TPD), 0.080 TPD, and 0.086 TPD, respectively. Based on this analysis, staff concluded that the anticipated future demand for NOx RTCs associated with the exiting facilities was minimal, and that eliminating that demand would not materially impact the remaining market. In other words, staff concluded that the exiting facilities would have a negligible demand for RTCs in the future, including RTCs required to satisfy NSR requirements. As stated in the Summary of the Proposal:

Considering the past market behavior by these facilities, staff concludes that the potential impact of PAR 2002 on the demand and supply of NOx RTC market is expected to be minimal and large price fluctuations in the NOx RTC market are unlikely to result directly from the potential exit of these facilities out of the NOx RECLAIM program. (Summary of Proposal, Agenda Item No. 18, January 5, 2018, p. 3.)

Notably, staff did not even address the impact that the January 2018 amendments might have on the internal bank even though those amendments were intended to result in precisely the situation about which staff is now expressing concern – the removal of 38 facilities from the RECLAIM program that would then be eligible to take advantage of offset exemptions in Rule 1304 like any other RECLAIM facility.

In contrast with the January 2018 Final Staff Report, the July 2018 Preliminary Draft Staff Report expresses serious concerns about the potential for increased NOx emissions from facilities exiting the program, stating that “[e]ven among the first 37 facilities identified that may be eligible to exit, any impacts from potential emissions increases are unknown and if significant enough, can approach or surpass the cumulative emissions increase thresholds of Rule 1315.” (July 2018 Preliminary Draft Staff Report, p. 8).

Clearly, the conclusions reached by staff in the January 2018 Final Staff Report, upon which the Governing Board relied when it adopted the current versions of Rules 2001 and 2002, are inconsistent with the concerns being raised by staff in the current proposal. Either staff erred in January by underestimating the impacts on the RECLAIM market and failing to even analyze

US-DOCS\103004188.2

Dr. Philip Fine
September 7, 2018
Page 7

LATHAM & WATKINS LLP

the 2016 AQMP and the potential environmental impacts associated with the 2016 AQMP, including CMB-05, were analyzed in the Final Program EIR certified in March 2017. This Draft SEA relies on the analysis in the March 2017 Final Program EIR for the 2016 AQMP.” (Draft SEA, p. 2-5).

The proposed amendments to Rules 2001 and 2002 implement that portion of control measure CMB-05, written after the Governing Board’s adoption of the 2016 AQMP that calls for the transition of the RECLAIM program to a command and control regulatory structure. As stated in the July 2018 Preliminary Draft Staff Report, “Proposed Amended Rules 2001 and 2002 will continue the efforts to transition RECLAIM facilities to a command-and-control regulatory structure . . .” (July 2018 Preliminary Draft Staff Report, p. 2). The problem with the proposal to tier the CEQA analysis for the currently proposed amendments to Rules 2001 and 2002 off from the March 2017 Final Program EIR for the 2016 AQMP is that control measure CMB-05 as proposed at the time the March 2017 Final Program EIR was prepared did not include a transition out of the RECLAIM program. That language was added well after the CEQA analysis was complete. Furthermore, no additional CEQA analysis was conducted to address the changes to CMB-05.

The Final Draft 2016 AQMP, which was ultimately presented to the SCAQMD Governing Board, was released in December 2016. Control measure CMB-05 called for an additional five tons per day of NOx reductions from sources covered by the RECLAIM program by the year 2031. CMB-05 also called for convening a Working Group to consider replacing the RECLAIM program with a more traditional command-and-control regulatory program, but did not include a mandate to undertake such a transition. SCAQMD Governing Board action on the Final Draft 2016 AQMP was noticed for February 3, 2017. When the 2016 AQMP item came up on the agenda, SCAQMD staff made a presentation, as is typical. No substantive questions were asked of the staff by Board Members, and no Board Members indicated an intention to offer amendments to the staff proposal. The public was then provided an opportunity to comment, and approximately five hours of public comment ensued.

Following the close of the public comment period, Board Member Mitchell stated her intention to introduce amendments to the staff proposal for control measure CMB-05 that would: i) accelerate the additional five TPD of reductions to 2025 from 2031; and ii) transition to a command-and-control program as soon as practicable. Board Member Mitchell did not provide any specific proposed language and did not make a formal motion to amend the staff proposal. For reasons that are not relevant here, action on the item was continued to the March 3, 2017 Governing Board hearing. The Governing Board stated its intention not to take additional public comment on the item at the March 3, 2017 hearing.

At the hearing on March 3, 2017, Board Member Mitchell introduced the following amendments to CMB-05 that included a direction to staff to develop a transition out of the RECLAIM program:

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BE IT FURTHER RESOLVED, that the SCAQMD Governing Board does hereby direct staff to modify the 2016 AQMP NOx RECLAIM measure (CMB-05) to achieve the five (5) tons per day NOx emission reduction commitment as soon as feasible, and no later than 2025, and to transition the RECLAIM program to a command and control regulatory structure requiring BARCT level controls as soon as practicable and to request staff to return in 60 days to report feasible target dates for sunseting the RECLAIM program.

There was no Board Member discussion of the proposed amendments, and they were approved on a vote of 7-6.

The CEQA analysis supporting the 2016 AQMP commenced with a Notice of Preparation of a Draft Environmental Impact Report ("EIR") released on July 5, 2016. The Draft EIR was released on September 16, 2016, with the comment period closing on November 15, 2016. In mid-November 2016, four public hearings related to the AQMP were held in each of the four counties within the SCAQMD territory, at which comments on the Draft EIR were taken. After incorporating comments and making minor textual changes, the Final EIR was released in January 2017. No material changes or additional analysis were undertaken subsequent to the release of the Final EIR, which was certified by the Governing Board on March 3, 2017 as the March 2017 Final Program Environmental Impact Report for the 2016 AQMP, upon which staff now seeks to rely.

Thus, the transition out of the RECLAIM program, which the currently proposed amendments to Rules 2001 and 2002 seek to implement, was not included in the version of CMB-05 presented to the Governing Board as part of the 2016 AQMP. The March 2017 Final Program EIR for the 2016 AQMP, which was completed in January 2018, did not analyze the transition of the RECLAIM program because that was not prescribed by the CMB-05 measure at that time. Therefore, tiering off of the March 2017 Final Program EIR for the 2016 AQMP to support rule amendments that seek to implement the transition is not possible since there is no analysis from which to tier off. In the absence of a program level CEQA analysis that includes the RECLAIM transition, staff's segmented analysis of each proposed rulemaking action in the transition process constitutes classic "piecemealing" contrary to the requirements of CEQA.

Staff's attempt to tier without having completed a programmatic analysis of the RECLAIM Transition Project ignores the fact that RECLAIM is a comprehensive program that includes an assessment of BARCT for all of the sources in the program. It was adopted as a whole, a single package, not as a series of individual rules and regulations. There are no separate BARCT regulations in the RECLAIM program. Because RECLAIM allows for BARCT to be implemented on an aggregate basis, all BARCT determinations had to be made together. Furthermore, all RECLAIM rules are dependent upon one another, and none of these can stand alone. By attempting to analyze the impact of a single RECLAIM rule, i.e., BARCT determination, staff is ignoring the interdependency of the program, and thus, improperly disregarding the impacts of the comprehensive program.

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In the draft SEA, staff claims that it is speculative to determine what BARCT may be for all the various sources under the RECLAIM program. This underscores the fact that a comprehensive program transitioning RECLAIM sources to command and control rules was never developed or analyzed. Rather, staff is piecemealing the analysis of the RECLAIM transition. Such an approach has been rejected by the courts: “Instead of itself providing an analytically complete and coherent explanation, the FEIR notes that a full analysis of the planned conjunctive use program must await environmental review of the Water Agency’s zone 40 master plan update, which was pending at the time the FEIR was released. The Board’s findings repeat this explanation. To the extent the FEIR attempted, in effect, to tier from a *future* environmental document, we reject its approach as legally improper under CEQA.” *Vineyard Area Citizens for Responsible Growth, Inc. v. City of Rancho Cordova* (2007) 40 Cal.4th 412, 440 [emphasis in original].

Furthermore, RECLAIM is an emissions trading program. It allows facilities to choose to implement specific controls or to purchase emissions credits. Staff’s piecemealing of the analysis does not account for those facilities that have implemented other means to comply with the program and the additional impacts the transition to individual command and control rules may have on these facilities. Additionally, these impacts cannot be captured in a single rule analysis. Rather, staff’s piecemealing further ignores the impacts on facilities that are subject to multiple BARCT determinations.

Health & Safety Code Section 39616

The current staff proposal for amending Rule 2002 to prevent former RECLAIM facilities from accessing offset exemptions in Rule 1304 would place former RECLAIM facilities at a significant disadvantage relative to other non-RECLAIM facilities. California Health & Safety Code Section 39616(c)(7) prohibits imposing disproportionate impacts, measured on an aggregate basis, on those stationary sources included in the RECLAIM program compared to other permitted stationary sources. Creating a new category of sources without access to either RTCs or Rule 1304 offset exemptions to satisfy NSR requirements runs afoul of this prohibition.

Statement Pertaining to SCAQMD Rule 1306

The July 2018 Preliminary Draft Staff Report contains the following statement: “Moreover, Rule 1306 – Emission Calculations would calculate emission increases of exiting RECLAIM facilities based on actual to potential emissions, thereby further exacerbating the need for offsets.” (Preliminary Draft Staff Report, p. 8). It is not clear why this would be the case. Furthermore, it is premature to make such assertions outside the context of an overall analysis of what the NSR requirements for former RECLAIM facilities might be. This is a critical issue that must be addressed in the overall development of the NSR program for former RECLAIM facilities.

Dr. Philip Fine
September 7, 2018
Page 10

LATHAM & WATKINS LLP

Conclusion

Thank you for considering these comments. We look forward to continuing to work with you on these rulemakings which are critically important to stakeholders as well as the regional economy. If you have any questions, please contact me at (714) 401-8105 or by email at michael.carroll@lw.com or Bridget McCann of WSPA at (310) 808-2146 or by email at bmccann@wspa.org.

Sincerely,


Michael J. Carroll *fine*
of LATHAM & WATKINS LLP

cc: Cathy Reheis-Boyd, WSPA
Patty Senecal, WSPA
Bridget McCann, WSPA
Wayne Nastri, SCAQMD
Barbara Baird, SCAQMD
Michael Krause, SCAQMD

US-DOCS\103004188.2

Response to Comment 3-1

Detailed technical and economic information and analyses upon which the technical feasibility and cost-effectiveness are provided in chapters 2 and 4 of the staff report. Incremental cost-effectiveness between control options is included in chapter 4 of the staff report. This information is presented in this report which is released at least 30 days before any hearing. Cost-effectiveness and technical feasibility information has been presented during working group meetings and the Public Workshop during rule development as well.

Response to Comment 3-2

A detailed response to this comment is included in chapter 2 of the staff report.

Response to Comment 3-3

SCAQMD staff responded to a similar comment in the staff report for PARs 2001 and 2002, which were adopted by the Governing Board at the October 5, 2018 Governing Board Meeting.

Response to Comment 3-4

Monitoring and reporting requirements are contained in subdivision (e) of the proposed rule, and recordkeeping requirements are contained in subdivision (g). RECLAIM facilities will be required to continue monitoring, reporting, and recordkeeping practices under the provisions of Rule 2012 until they exit RECLAIM. Upon exit from RECLAIM the facility will be required to meet the monitoring and reporting requirements contained in paragraph (e)(4). The proposed rule does not specifically reference Proposed Rule 113 because it has not yet been adopted. The concern raised in this comment regarding complying with MRR requirements in Rule 113 is premature as that Rule is not being considered at this time.

Response to Comment 3-5

SCAQMD staff responded to a similar comment in the staff report for PARs 2001 and 2002, which were adopted by the Governing Board at the October 5, 2018 Governing Board Meeting.