



Air Pollution Control Board

San Diego County Air Pollution Control District

Governing Body

GREG COX
First District

DIANNE JACOB
Second District

PAM SLATER-PRICE
Third District

RON ROBERTS
Fourth District

BILL HORN
Fifth District

AGENDA ITEM

DATE: February 24, 2010

TO: San Diego County Air Pollution Control Board

SUBJECT: **NOTICED PUBLIC HEARING - ADOPTION OF AMENDED RULE 69.3.1 – STATIONARY GAS TURBINE ENGINES – BEST AVAILABLE RETROFIT CONTROL TECHNOLOGY** (District: All)

SUMMARY:

Overview

Adoption by the Air Pollution Control Board is requested for proposed amended Rule 69.3.1, regulating emissions of nitrogen oxides from new and existing gas turbine engines. Nitrogen oxides emitted to the atmosphere as a result of fuel combustion in this equipment play a role in ozone formation. San Diego County does not yet attain State and federal air quality standards for ozone, a major component of smog.

The rule is proposed for amendment to reduce high daily nitrogen oxide emissions from certain older existing turbines that provide electrical power during periods of peak electrical demand and to provide limited exemptions, when necessary, for startups of combined-cycle turbine power plants and other operations of modern turbines with low emitting combustion systems. These exemptions will remove potential economic and technological feasibility constraints on the operation of existing large combined-cycle turbine power plants and remove a potential barrier to construction of these highly efficient power plants in the future.

Upon full implementation, the rule will reduce emissions of nitrogen oxides from the peaking turbines by up to 1.65 tons per day. The limited exemptions for combined-cycle power plants do not cause a significant emission increase and, overall, will benefit air quality.

Adoption of the amended rule will help fulfill State requirements to implement every feasible control measure as identified in the Air Pollution Control District's 2009 Regional Air Quality Strategy to achieve the ambient air quality standards for ozone.

Recommendation(s)

AIR POLLUTION CONTROL OFFICER

SUBJECT: ADOPTION OF AMENDED RULE 69.3.1 – STATIONARY GAS TURBINE ENGINES – BEST AVAILABLE RETROFIT CONTROL TECHNOLOGY (District: All)

1. Find, on the basis of the whole record, that there is no substantial evidence that the project will have a significant effect on the environment. Consider the Initial Study and Negative Declaration together with comments received during public review, and adopt the resolution titled Resolution Adopting the Negative Declaration for Proposed Amendments to Rule 69.3.1 (Stationary Gas Turbine Engines).
2. Adopt the resolution entitled Resolution Adopting Amended Rule 69.3.1 – Stationary Gas Turbine Engines – Best Available Retrofit Control Technology of Regulation IV of the Rules and Regulations of the San Diego County Air Pollution Control District.

Fiscal Impact

Proposed amended Rule 69.3.1 will not have a significant fiscal impact on the Air Pollution Control District. The rule will be enforced with existing Air Pollution Control District staff.

Business Impact Statement

Adopting amended Rule 69.3.1 will not adversely impact the business community. New peaking turbines will not be affected. The cost is minimal for the older peaking turbines affected by the proposed amendments to the rule and their operations will not be significantly impacted. The proposed limited exemptions will enable existing and future new combined-cycle turbines to comply with the rule with certainty, because they are allowed longer startup times.

Advisory Board Statement

At its meeting on December 9, 2009, with a quorum present, the Air Pollution Control District Advisory Committee expressed support of the Air Pollution Control District's recommendations.

BACKGROUND:

San Diego County currently does not meet the National and State Ambient Air Quality Standards for ozone and is classified as an ozone nonattainment area. Both federal and State laws require the San Diego County Air Pollution Control District (District) to implement rules that regulate emissions of ozone precursors - volatile organic compounds and nitrogen oxides (NOx). Specifically, the District is required by State law to adopt every feasible measure to reduce ozone precursor emissions. In its triennial Regional Air Quality Strategy (RAQS), the District preliminarily determined that one such potential feasible measure was reducing NOx emissions from peaking power plants that use older gas turbines. Though these older peaking turbines do not operate during many days per year (peaking power plants typically operate on days of high electrical demand), their impact on air quality can be significant on the days they do operate.

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Proposed amended Rule 69.3.1 reduces NOx emissions from these gas turbine engines to implement the State's every feasible measure requirements.

Proposed amendments to Rule 69.3.1, if adopted, will limit daily NOx mass emissions from these older peaking turbines on days with forecasted high ozone levels. To ensure adequate electricity supplies, the proposed new limit does not apply when there might be an electrical power shortage. To provide flexibility to the owners, the proposed limit is aggregated over all the peaking turbines under common ownership.

When fully implemented, the new emission limits in Rule 69.3.1 will affect 14 gas turbines and reduce NOx emissions from those units up to 1.65 tons per day. The estimated cost-effectiveness is about \$5.50 per pound of NOx reduced on an annual basis (see Attachment E, Socioeconomic Impact Assessment). All the affected turbines are owned by two large power companies.

The proposed rule amendments would also extend the maximum allowable exemption from the NOx standards in the rule up to 360 minutes from the existing 120 minutes during cold startups for combined-cycle turbines. This would result in additional actual emissions of less than 0.25 tons per year from the two existing facilities during these infrequent events (about two times per year per facility) while encouraging use of these low-emitting combined-cycle power plants. Without the rule revision, combined-cycle power plants could not comply and utilities would be forced to use dirtier and less efficient simple cycle power plants. The rule amendments also allow limited operations at low load levels to address operational problems with some low-NOx combustion systems. No emission increases are anticipated from the limited low-load operations since potential turbine shutdowns are avoided.

To maintain separate State and federal requirements, amended Rule 69.3.1 will not be submitted to the federal Environmental Protection Agency (EPA) for approval into the State Implementation Plan (SIP) and will not be federally enforceable by EPA. This ensures that industry is not subjected to federal enforcement of State-only requirements.

On August 3, 2007, the District held a public workshop to discuss and receive comments on the proposed amended rule. The District addressed the significant issues raised to the satisfaction of the affected stakeholders.

Compliance with Board Policy on Adopting New Rules

On February 2, 1993 (APCB #2), the Board directed that, with the exception of a regulation requested by business or a regulation for which a socioeconomic impact assessment is not required, no new or revised regulation shall be implemented unless specifically required by federal or State law. Proposed amended Rule 69.3.1 is required by State law, which calls for adoption of every feasible control measure to accelerate progress toward achieving the ambient air quality standard for ozone. Therefore, implementation of the proposed rule is consistent with the Board directive.

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Environmental Statement

The District prepared an Initial Study pursuant to the California Environmental Quality Act to determine whether there is any evidence that adopting amendments to Rule 69.3.1 and previously proposed amendments to Rule 69.3 may have a significant environmental impact. The Initial Study revealed no substantial evidence that such actions may have a significant effect on the environment, and based on initial findings, a proposed Negative Declaration was prepared. The District published the Notice of Intent to adopt the Negative Declaration and solicited comments during a 30-day review period. No public comments were received.

Linkage to the County of San Diego Strategic Plan

The County's five-year strategic plan includes an Environment Initiative to ensure environmental preservation and enhance quality of life. Proposed amended Rule 69.3.1 will provide a significant reduction of emissions without negatively impacting the local business community. The rule balances air quality preservation, public health protection, and economic development needs.

Respectfully submitted,



CHANDRA L. WALLAR
Deputy Chief Administrative Officer



ROBERT KARD
Air Pollution Control Officer

ATTACHMENT(S)

- Attachment A – Negative Declaration
- Attachment B – Initial Study
- Attachment C – Resolution Adopting the Negative Declaration
- Attachment D – Resolution Adopting Amended Rule 69.3.1
- Attachment E – Socioeconomic Impact Assessment
- Attachment F – Comparative Analysis
- Attachment G – Incremental Cost effectiveness
- Attachment H – Change Copy
- Attachment I – Workshop Report

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AGENDA ITEM INFORMATION SHEET

CONCURRENCE(S)

COUNTY COUNSEL REVIEW	<input checked="" type="checkbox"/> Yes	
Written Disclosure per County Charter Section 1000.1 Required	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
GROUP/AGENCY FINANCE DIRECTOR	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> N/A
CHIEF FINANCIAL OFFICER	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> N/A
Requires Four Votes	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
GROUP/AGENCY INFORMATION TECHNOLOGY DIRECTOR	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> N/A
COUNTY TECHNOLOGY OFFICE	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> N/A
DEPARTMENT OF HUMAN RESOURCES	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> N/A

Other Concurrence(s): N/A

ORIGINATING DEPARTMENT: Air Pollution Control District, County of San Diego

CONTACT PERSON(S):

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E-mail

Name

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Fax

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E-mail

AUTHORIZED REPRESENTATIVE: _____

ROBERT J. KARD
Air Pollution Control Officer

SUBJECT: ADOPTION OF AMENDED RULE 69.3.1 – STATIONARY GAS TURBINE ENGINES – BEST AVAILABLE RETROFIT CONTROL TECHNOLOGY (District: All)

AGENDA ITEM INFORMATION SHEET
(continued)

PREVIOUS RELEVANT BOARD ACTIONS:

April 22, 2009 (APCB #1), Approved 2009 Triennial Regional Air Quality Strategy Revision; December 16, 1998 (APCB #4), Adoption of New Rule 69.3.1 (Stationary Gas Turbine Engines - Best Available Retrofit Control Technology) and Amendments to Rule 69.3 (Stationary Gas Turbine Engines); February 2, 1993 (APCB #2), Delayed implementation of new or revised regulations.

BOARD POLICIES APPLICABLE:

N/A

BOARD POLICY STATEMENTS:

February 2, 1993 (APCB #2)

ORACLE AWARD NUMBER(S) AND CONTRACT AND/OR REQUISITION NUMBER(S):

N/A



ATTACHMENT A

Air Pollution Control Board

Greg Cox	District 1
Dianne Jacob	District 2
Pam Slater-Price	District 3
Ron Roberts	District 4
Bill Horn	District 5

February 24, 2010

FINAL PROPOSED NEGATIVE DECLARATION

1. PROJECT TITLE:

Proposed Amendments to Rules 69.3.1 (Stationary Gas Turbine Engines)

2. PROJECT PROPONENT:

San Diego County Air Pollution Control District
10124 Old Grove Road
San Diego, California 92131

3. PROJECT LOCATION:

The project applies within the jurisdiction of the San Diego County Air Pollution Control District (APCD), covering all cities and unincorporated communities within San Diego County, the southwestern-most county in California (Figure 1). San Diego County encompasses 4,260 square miles and is bounded on the north by Orange and Riverside Counties, on the east by Imperial County, on the west by the Pacific Ocean, and on the south by the State of Baja California, Mexico.

4. PROJECT DESCRIPTION:

APCD proposes to adopt amendments to Rule 69.3.1 to extend the startup exemption from the oxides of nitrogen (NO_x) concentration standard to up to 360 minutes for combined-cycle gas turbines, but only under cold-start conditions when a 120-minute startup period might cause thermal stresses in the steam turbine that damage critical components. An extended cold start would normally be necessary three (or less) times per year, based on recent operational experience at the one combined-cycle gas turbine power plant operating in San Diego County. The more frequent regular startups—when the steam turbine is still hot or warm because it was only offline for a few hours or overnight, for example—would remain limited to 120 minutes or less.

In addition, Rule 69.3.1 amendments are proposed to exempt turbines equipped with dry low-NO_x combustors from the NO_x concentration standards during periods of low-load operation (during which the combustor is unable to operate in the low-NO_x mode). The frequency and duration of the exemption for low-load operation is proposed to be minimized, not exceeding 130 minutes per day and 780 minutes per year. Furthermore, only turbines equipped with a continuous emission monitoring system would be eligible for this proposed limited exemption.

NEGATIVE DECLARATION:

Proposed Amendments to Rules 69.3.1

Furthermore, Rule 69.3.1 amendments are proposed to cap the total daily NOx emissions from older peaking turbines that are subject under the existing rule to a less stringent NOx concentration standard than more recently constructed peaking turbines but must operate less than 877 hours per year. The amendments cap the combined total daily NOx emissions from these older peaking turbines on days for which APCD has predicted an exceedance in San Diego County of the federal eight-hour ozone standard. The NOx caps would be phased in, starting in 2012 with an intermediate cap and dropping to a more stringent cap effective in 2015 and thereafter. To ensure reliability of the power grid in San Diego County, the proposed NOx caps would not apply during an electrical emergency.

The project as originally proposed and analyzed would have also included amendments to Rule 69.3. However, the project was subsequently changed to remove the proposed amendments to Rule 69.3. The District reviewed the proposed changes to the project and determined that recirculation of the draft Negative Declaration was not required pursuant to California Environmental Quality Act Guidelines § 15073.5

5. FINDING:

APCD, acting as Lead Agency, has completed and considered an Initial Study (attached) for the project pursuant to the California Environmental Quality Act. Based on the entire record before APCD, including the Initial Study and any comments received, there is no substantial evidence that the project will have a significant adverse effect on the environment.

This Negative Declaration reflects the independent judgment and analysis of the decision-making authority.

6. LOCATION AND CUSTODIAN OF RECORD:

The documents and other materials on which the proposed decision to adopt the Negative Declaration is based are located at the San Diego County Air Pollution Control District, 10124 Old Grove Rd., San Diego, California 92131; the custodian is Robert C. Reider, Supervising Air Resources Specialist.

Note: This Negative Declaration becomes final upon approval by the Air Pollution Control District.

Attachment: Initial Study/Environmental Checklist.



ATTACHMENT B

Air Pollution Control Board

Greg Cox	District 1
Dianne Jacob	District 2
Pam Slater-Price	District 3
Ron Roberts	District 4
Bill Horn	District 5

October 30, 2009

CEQA Initial Study - Environmental Checklist Form (Based on the State CEQA Guidelines, Appendix G Rev. 10/04)

1. Project Title:

Proposed Amendments to Rules 69.3.1 and 69.3 (Stationary Gas Turbine Engines)

2. Lead Agency Name and Address:

San Diego County Air Pollution Control District
10124 Old Grove Road
San Diego, California 92131

3. Lead Agency Contact:

Robert Reider
Supervising Air Resources Specialist
(858) 586-2640
E-mail: Robert.Reider@sdcounty.ca.gov

4. Project Location:

The project applies within the jurisdiction of the San Diego County Air Pollution Control District (APCD), covering all cities and unincorporated communities within San Diego County, the southwestern-most county in California (Figure 1). San Diego County encompasses 4,260 square miles and is bounded on the north by Orange and Riverside Counties, on the east by Imperial County, on the west by the Pacific Ocean, and on the south by the State of Baja California, Mexico.

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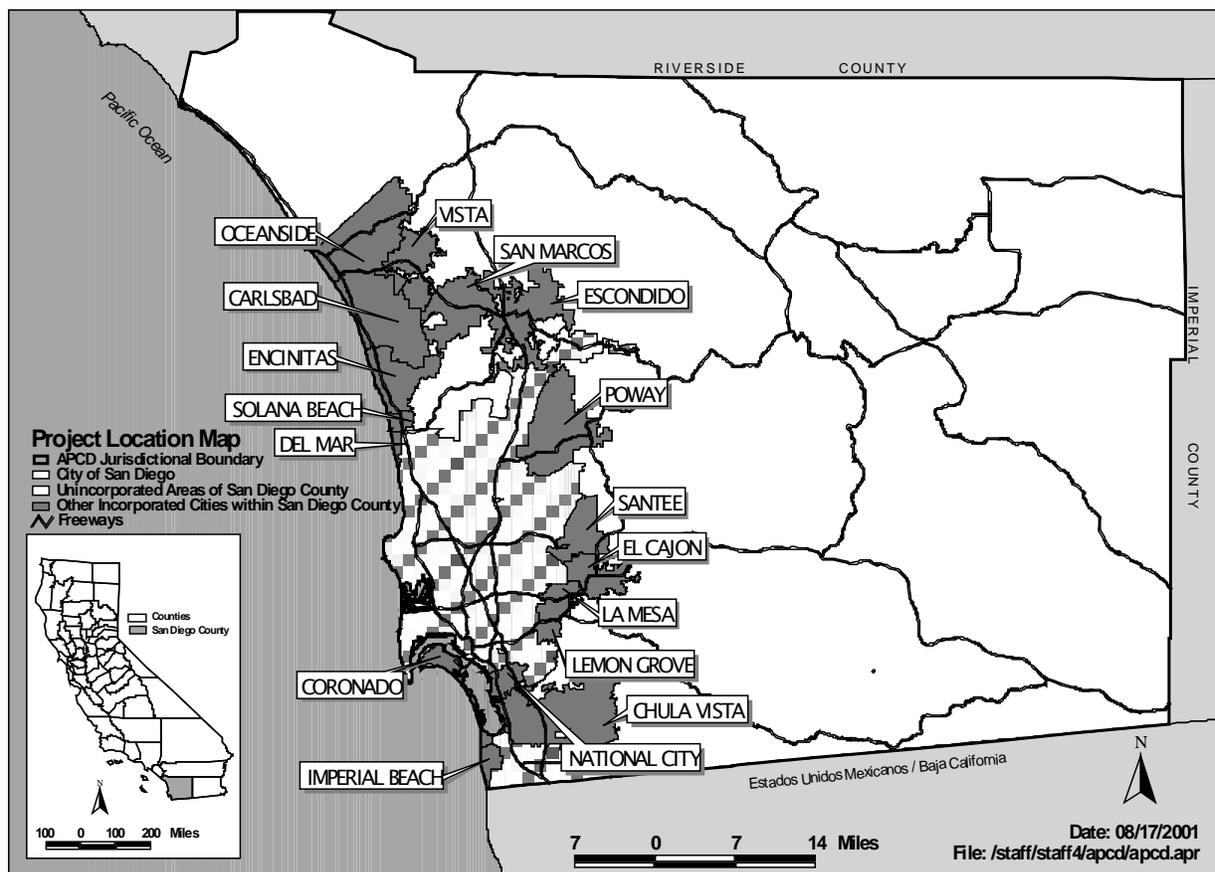


Figure 1. Project Location San Diego County

5. Project Sponsor's Name And Address:

San Diego County Air Pollution Control District
10124 Old Grove Road
San Diego, CA 92131

6. Project Description:

Overview

Rule 69.3.1 was adopted by the APCD in 1998 pursuant to State law requirements to limit oxides of nitrogen (NOx)¹ emissions from stationary gas turbines. Stationary gas turbines burn fuel (typically natural gas) to produce rotating shaft power that can be used in a variety of applications. For example, electric generating facilities (i.e.,

¹ The two primary constituents of NOx emitted from gas turbines are nitric oxide (NO) and, to a lesser degree, nitrogen dioxide (NO₂). NOx emissions contribute to photochemical reactions that create ozone, a pervasive air pollutant in San Diego County.

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power plants) are large users of gas turbines in San Diego County, applying the rotating shaft power to generators to produce electricity.

Over the past decade as new turbine technologies have been implemented and Rule 69.3.1 has been administered, circumstances have arisen that were not considered during initial rule development. Amendments to Rule 69.3.1 are now proposed to address previously unforeseen circumstances regarding modern "combined-cycle" gas turbine operation and emissions control, as discussed below. Additionally, the proposed amendments restrict operation of older, higher-emitting peaking turbines on days with predicted high ambient concentrations of ozone, a primary component of smog.

Lastly, amendments are proposed for separate Rule 69.3 addressing stationary gas turbines pursuant to federal law requirements. The U.S. Environmental Protection Agency (EPA), APCD's federal oversight agency, has identified rule amendments that are necessary to gain EPA approval of the rule. Such amendments are now proposed for adoption by APCD. The amendments do not address and will not affect turbine emission levels, as further discussed below.

Gas Turbine Operating Cycles

The basic operating cycles of stationary gas turbines are simple, cogeneration, and combined-cycles. A "simple-cycle" gas turbine is operated in a stand-alone mode to drive an electric generator to produce electricity, without recovery and use of the heat in the turbine exhaust gases. In "cogeneration" the gas turbine is similarly used to drive an electric generator, however, the heat in the turbine exhaust gases is then recovered and used for purposes such as space heating or water heating. A "combined-cycle" gas turbine also recovers and makes use of exhaust heat that would otherwise be vented to the atmosphere. In this case the heat is used to create steam that in turn drives a steam turbine to generate additional electrical energy.

A combined-cycle gas turbine is more efficient and emits less NO_x than a simple-cycle gas turbine or a gas-fired boiler/steam turbine unit producing the same amount of electrical energy.² Indeed, the one large combined-cycle power plant now operating in the region³ emits less than 40 percent of the NO_x (and 70 percent of the carbon dioxide, a greenhouse gas) to generate the same amount of electricity as the region's other large power plants.

² The thermal efficiency (a measure of fuel economy) of a combined-cycle gas turbine ranges from 38 to 60 percent, whereas that of a simple-cycle gas turbine (or, similarly, a gas-fired boiler/steam turbine unit) ranges from 15 to 42 percent. (Source: U.S. Environmental Protection Agency, Publication AP-42, *Compilation of Air Pollutant Emission Factors*, Volume 1: *Stationary Point and Area Sources*, Chapter 3.1: *Stationary Gas Turbines*.)

³ A 550 megawatt natural gas-fired combined-cycle power plant began commercial operation in 2006 and is located in Escondido (northern San Diego County). It is the first new large-scale power plant built in San Diego County in three decades.

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The reduced fuel requirements (and fuel costs) and lower emissions of combined-cycle gas turbines serve as an incentive for replacing or repowering older power plants in the region operating simple-cycle gas turbines and gas-fired boiler/steam turbine units. However, Rule 69.3.1 (as currently written) includes technologically infeasible requirements for combined-cycle gas turbines during certain infrequent but unavoidable transitory operating conditions, as described below. These conditions were not considered during initial rule development because no combined-cycle power plants existed or were planned in the region at that time. Concerns about violating these infeasible requirements currently serve as a regulatory disincentive for deployment of modern combined-cycle power plants and, conversely, an incentive for continued operation of older, less efficient, and higher NO_x emitting power plants. This results in a net loss in air quality for the County. Therefore, amendments to Rule 69.3.1 are now proposed to remedy this problem.

Cold Starts

Combined-cycle gas turbines require more time to startup and reach normal steady-state operation than simple-cycle gas turbines during infrequent cold-start conditions. If a combined-cycle turbine has not operated for a few days (such as during maintenance operations, for example) and the metal components of the steam turbine have reached ambient temperature, then during subsequent startup these components will heat up and expand. High thermal stresses caused by large temperature variations in the metal can cause cracks and other damage to critical components. To prevent or minimize such damage, the rate at which steam turbine components are heated during a cold start is limited to minimize temperature variations. This in turn requires the gas turbine to be operated at low-load levels for an extended startup period.⁴ During this period, the emission control systems on the gas turbine are not functioning at their peak efficiency and, consequently, NO_x emissions are higher than during normal steady-state operation. (See "Turbine Emission Control Technologies" below for additional information.)

Automatic Low-Load Operation

An additional infrequent occurrence of combined-cycle gas turbines is unplanned, rapid load reduction. This occurs when the turbine's control system detects a possible malfunction or parameters that would normally lead to a turbine "trip" (an automatic protective shutdown). The turbine load is automatically cut to prevent equipment damage and to reduce the probability of tripping while the problem is being diagnosed. The problem is often resolved during reduced-load operation, thereby avoiding the time, cost, and emissions of a full shutdown and restart. Nevertheless, NO_x emissions are higher during the reduced-load period than during

⁴ Under cold start conditions, the time necessary to heat a steam turbine and reach normal steady-state operation (and low-NO_x conditions) will vary with system design but is normally three to six hours at the existing combined-cycle facility in the region. This exceeds the two-hour startup limit in existing Rule 69.3.1—during which the NO_x concentration standards do not apply—by one to four hours. The existing facility is operating under a variance (temporary relief) from the two-hour exemption period under infrequent cold start conditions, allowing up to six hours for startup under specified conditions.

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normal steady-state operation because, again, the gas turbine and emission control systems are not at optimal operating conditions (as further discussed below).

Turbine Emission Control Technologies

Current technologies to control NO_x emissions from stationary gas turbines include pollution-prevention controls such as "dry low-NO_x combustors" and post-combustion add-on controls such as "selective catalytic reduction" (SCR) systems. Dry low-NO_x combustors premix air and fuel prior to combustion to minimize fuel-rich pockets that would otherwise produce elevated combustion temperatures and higher NO_x emissions. However, premixing is not feasible at startup and low-load operations, during which fuel requirements are reduced and premixing with air would yield air/fuel mixtures that are too lean (too much air), possibly causing flame failure and turbine shutdown. Consequently, turbines equipped with dry low-NO_x combustors have higher NO_x emissions during startup and low-load operations than during normal steady-state operation.

An SCR system is a post-combustion add-on technology that converts NO_x in the turbine exhaust to nitrogen and water. Relatively high exhaust gas temperatures are required by the SCR system to complete the NO_x conversion process. Consequently, an SCR system is not effective during turbine startup when the exhaust gases are relatively cool. Hence, turbines equipped with an SCR system have higher NO_x emissions during startup than during normal steady-state operation.

An oxidation catalyst is another post-combustion add-on technology, in this case reducing emissions of carbon monoxide (CO) and volatile organic compounds (including toxic air contaminants). Unlike the SCR system for reducing NO_x emissions, an oxidation catalyst does not require any additional chemicals to operate effectively. However, similar to an SCR system, relatively high exhaust gas temperatures are required. Consequently, an oxidation catalyst is generally less effective during turbine startup when the exhaust gases are relatively cool.

Proposed Amendments to Rule 69.3.1

Given that turbine emission control technologies are designed for normal steady-state operation and are not effective during transitory startup and/or ramp up periods, the first 120 minutes of turbine startup operations are currently exempt from the NO_x concentration standards of existing Rule 69.3.1. (For similar reasons, a 120-minute exemption is also provided during turbine shutdown.) When the rule was adopted, the 120-minute startup period was sufficient for all gas turbines operating in the region (which are mostly simple-cycle turbines) to reach normal steady-state operation and achieve the NO_x limits. However, 120 minutes is insufficient for a combined-cycle gas turbine power plant to startup and achieve the NO_x limits when its components (primarily the steam turbine) have cooled down following the previous shutdown, as discussed above.

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Therefore, APCD proposes to adopt amendments to Rule 69.3.1 to extend the startup exemption from NO_x concentration standards to up to 360 minutes for combined-cycle gas turbines, but only under limited conditions when a 120-minute startup period might cause thermal stresses in the steam turbine that damage critical components. An extended cold start would normally be necessary three (or less) times per year, based on recent operational experience at the one combined-cycle gas turbine power plant operating in San Diego County. The more frequent regular startups—when the steam turbine is still hot or warm because it was only offline for a few hours or overnight, for example—would remain limited to 120 minutes or less.

It is important to note that amending Rule 69.3.1 to extend the allowable startup period under cold start conditions would not prevent APCD in the future from requiring a shorter startup period, if feasible, for new or modified combined-cycle facilities. Specifically, APCD's New Source Review Rules 20.1–20.4 require new or modified facilities that increase emissions to use Best Available Control Technology (BACT) to reduce emissions to the maximum extent possible considering technological and economic feasibility. As technology evolves, if a shorter startup period is feasible for a proposed new or modified combined-cycle facility under cold start conditions, then pursuant to BACT requirements APCD will require a shorter startup period as an enforceable permit condition, notwithstanding Rule 69.3.1 provisions.

In addition, Rule 69.3.1 amendments are proposed to exempt turbines equipped with dry low-NO_x combustors from the NO_x concentration standards during periods of low-load operation⁵ (when the combustor can not operate in the low-NO_x mode, as described above). The frequency and duration of the exemption for low-load operation is proposed to be minimized, not exceeding 130 minutes per day and 780 minutes per year. Furthermore, only turbines equipped with a continuous emission monitoring system would be eligible for this proposed limited exemption.

Lastly, Rule 69.3.1 amendments are proposed to cap the total daily NO_x emissions from older peaking turbines that are subject under the existing rule to a less stringent NO_x concentration standard than more recently constructed peaking turbines but must operate less than 877 hours per year.^{6,7} Though these older turbines do not operate for most of the year, their impact on air quality can be significant on the days they do operate, such as hot summer days that are conducive to ozone formation and build-up. Therefore, Rule 69.3.1 amendments are proposed to cap the combined total daily NO_x emissions from these older peaking turbines on days for which APCD has predicted an exceedance in San Diego County of the federal eight-hour ozone standard. The NO_x caps would be phased in, starting in 2012 with an

⁵ "Low load" is specifically defined in the proposed amendments to Rule 69.3.1 and is based on several factors, but is typically characterized as less than 60 percent of maximum load.

⁶ "Peaking turbines" are operated intermittently to generate electric power during periods of high energy demand.

⁷ The NO_x caps apply to 14 peaking turbines that began operating before adoption of Rule 69.3.1 on 12/16/1998.

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intermediate cap and dropping to a more stringent cap effective in 2015 and thereafter. To ensure reliability of the power grid in San Diego County, the proposed NOx caps would not apply during an electrical emergency.

Proposed Amendments to Rule 69.3

Whereas Rule 69.3.1 was adopted pursuant to State law, a similar but separate Rule 69.3 was adopted in 1994 pursuant federal law. When Rule 69.3 was amended in 1998 for consistency with Rule 69.3.1 (where appropriate) and submitted to EPA for approval, EPA responded that specific additional amendments to Rule 69.3 are required in order to gain EPA approval. Accordingly, amendments to Rule 69.3 are now proposed to lower the applicability threshold, address the frequency of emissions source testing, and provide minor clarifications and updates. The amendments do not address and will not impact turbine emission levels. APCD review and evaluation of the proposed amendments indicate there is no potential to cause an emissions increase or significant adverse impacts to human health or the environment, and therefore the proposed amendments to Rule 69.3 are not further addressed herein.

7. Environmental and Regulatory Issues:

Removing Barrier in Rule 69.3.1 to More Efficient Technology

As discussed above in Section 6 (Project Description), a combined-cycle gas turbine burns less fuel and has lower emissions (per unit of output) than a simple-cycle gas turbine or gas-fired boiler/steam turbine unit, which are the predominant technologies at existing power plants in San Diego County. The eventual replacement or repowering of outdated power plants with modern combined-cycle power plants would provide air quality benefits to the region over the long-term. However, Rule 69.3.1 currently contains requirements that are technologically infeasible for combined-cycle gas turbines to achieve during infrequent but unavoidable cold starts and low-load operations. Although steady-state operation is the norm for combined-cycle gas turbines,⁸ an infrequent, extended cold start and some low-load operation is unavoidable despite best efforts regarding planning, design, and operating procedures.

The proposed amendments to Rule 69.3.1, if adopted, will extend the allowable cold start (and NOx exemption) period for a combined-cycle turbine power plant, from 120 minutes to up to 360 minutes under limited conditions. As discussed above, this will eliminate an unintended regulatory barrier for deployment of combined-cycle technologies and eventual displacement of older, less efficient, and higher NOx emitting power plants, resulting overall in a cumulative net benefit to air quality over the long term. Nevertheless, increasing the cold start exemption period would allow additional time before emission control systems are operating optimally, leading to additional emissions during these infrequent transitory periods (the primary subject of the evaluation herein).

⁸ Continued steady-state operation allows for optimum productivity (and return on investment) and avoids detrimental thermal stresses on equipment created during startups, for example.

INITIAL STUDY:

Proposed Amendments to Rules 69.3.1 and 69.3

Additionally, the proposed rule amendments would provide an exemption from the NO_x concentration standards during limited periods of low-load operation—not exceeding 130 minutes per day and 780 minutes per year—for all turbines that use dry low-NO_x combustors. This exemption is designed to allow for diagnosis and repair of a detected turbine problem without shutting down the turbine. No emission increase is anticipated from this proposed exemption. That is, if the proposed low-load exemption is not adopted and a problem with a turbine is detected, then it will be fully shutdown for diagnosis and repair and then restarted when appropriate, providing two exemption periods of up to 120 minutes each (240 minutes total) as allowed under the existing rule. The proposed single 130-minute exemption during low-load operation would more likely provide an emissions benefit relative to existing requirements.

Reducing Emissions from Older Peaking Turbines

As discussed above in Section 6 (Project Description), peaking turbines installed before December 16, 1998 (i.e., prior to adoption of Rule 69.3.1) are subject to a less stringent NO_x concentration standard than more recently constructed peaking turbines. Proposed amendments to Rule 69.3.1 will limit operation of these older peaking turbines on days with forecasted high ozone levels, serving to improve air quality. The proposed limitation applies only on days for which there is not a declared electrical emergency—i.e., on days for which the electricity supply exceeds the demand. Consequently, the resulting reduction in electricity generation from older peaking turbines can be compensated by increased electricity generation by other, lower NO_x emitting power plants in the region (subject to applicable air quality permits and permit conditions), ensuring an overall net benefit to air quality in the region.

Greenhouse Gases

It is widely accepted that the accumulation of increasing amounts of greenhouse gases (GHG) in the Earth's atmosphere is a cause of global warming and may result in global climate change. Carbon dioxide is a prevalent greenhouse gas that is a combustion product of any fuel containing carbon, including natural gas. Therefore, attempts to reduce GHG emissions from combustion sources focus on increasing energy efficiency—consuming less fuel to provide the same useful energy output.

As discussed above, adoption of the proposed project will eliminate an unintended regulatory barrier for deployment of combined-cycle gas turbine technologies. These technologies are more fuel-efficient than the simple-cycle gas turbines and gas-fired boiler/steam turbine units currently used at power plants in San Diego County. Furthermore, additional amendments are proposed to reduce the operation of older, less-efficient, higher-polluting peaking turbines on days with predicted high ambient concentrations of ozone. Therefore, it is anticipated that adoption of the proposed amendments will lead to a net reduction in GHG emissions, to the extent that operation of older peaking turbines in the region is restricted on certain days and older baseload (non-peaker) power plants are eventually replaced by modern combined-cycle power plants.

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8. Environmental Setting:

Topography

San Diego County is divided by the Laguna Mountain Range, which runs approximately parallel to the coast about 45 miles inland and separates the coastal area from the desert portion of the County. The Laguna Mountains reach peaks of over 6,000 feet with Hot Springs Mountain peak rising to 6,533 feet, the highest point in the County. The coastal region is made up of coastal terraces that rise from the ocean into wide mesas that then, moving farther east, transition into the Laguna Foothills. Farther east, the topography gradually rises to the rugged mountains. On the east side, the mountains drop off rapidly to the Anza-Borrego Desert, which is characterized by several broken mountain ranges with desert valleys in between. To the north of San Diego County are the Santa Ana Mountains, which run along the Coast of Orange County, turning east to join with the Laguna Mountains near the San Diego-Orange County border.

Climatology

The climate of San Diego County, as with all of Southern California, is largely dominated by the strength and position of a semi-permanent, high-pressure system over the Pacific Ocean (known as the Pacific High). This high-pressure ridge over the West Coast often creates a pattern of late-night and early-morning low clouds, afternoon sunshine, daytime onshore breezes, and little temperature variation year-round. The climatic classification for the San Diego region is a Mediterranean climate, with warm, dry summers and mild, wet winters. Average annual precipitation ranges from approximately 10 inches on the coast to over 30 inches in the mountains to the east. The desert regions of San Diego County generally receive between 4 and 6 inches per year.

The favorable climate of San Diego County works to create air pollution problems. Sinking or subsiding air from the Pacific High creates a temperature inversion (known as a subsidence inversion), which acts as a lid to vertical dispersion of pollutants. Weak summertime pressure gradients further limit horizontal dispersion of pollutants in the mixed layer below the subsidence inversion. Poorly dispersed anthropogenic (man made) emissions, combined with strong sunshine, lead to photochemical reactions that create ozone in this surface layer.

Daytime onshore flow (i.e., sea breeze) and nighttime offshore flow (i.e., land breeze) are quite common in Southern California. The sea breeze helps to moderate daytime temperatures in the western portion of San Diego County, which greatly adds to the climatic draw of the region. This also leads to emissions being blown out to sea at night and returning to land the following day. Under certain conditions, this atmospheric oscillation results in the offshore transport of air from the Los Angeles region to San Diego County, which can result in high ozone concentrations being measured at San Diego County air pollution monitoring

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stations. Transport of air pollutants from Los Angeles to San Diego has also been shown to occur aloft within the stable layer of the elevated subsidence inversion. In this layer, removed from fresh emissions of NO_x (which would scavenge and reduce ozone concentrations), high levels of ozone are transported into San Diego County.

Ambient Air Quality Standards

Ambient air quality standards define "clean air" and are established to protect even the most sensitive individuals in our communities. An ambient air quality standard defines the maximum amount of a pollutant that can be present in outdoor air.

Both the U.S. EPA and the California Air Resources Board are authorized to establish ambient air quality standards. Federal and State ambient air quality standards have been established for nitrogen dioxide, ozone, inhalable particulate matter, carbon monoxide, lead, and sulfur dioxide. Additional State standards have been established for sulfates and hydrogen sulfide.

Ambient air quality standards are required to include a reasonable margin of safety to protect against potential hazards that research may not have yet identified. The levels of the federal and State standards may differ where the State standards provide a wider margin of safety.

Air Quality Improvement Trend

APCD operates an extensive ambient air monitoring network, continuously monitoring air pollution levels at numerous sites throughout San Diego County in compliance with federal and State requirements. Data generated at these monitors are used to define the nature and severity of air pollution in San Diego County and to determine the region's attainment status with respect to federal and State ambient air quality standards.

San Diego County has experienced substantial improvement in ambient air quality over the past two decades as a result of emission control efforts. Notwithstanding this improvement, ozone and inhalable particulate matter still occur in concentrations sufficient to violate either federal or State standards in San Diego County. All other ambient air quality standards, including nitrogen dioxide standards, have been attained throughout the region.

Toxic Air Contaminants

Toxic air contaminants are air pollutants that are known or suspected to cause cancer or other serious health effects, such as reproductive effects or birth defects, or adverse environmental effects. Since the mid-1980s, APCD has operated toxic air contaminant sampling sites in El Cajon and Chula Vista. These two sites were chosen because they are located nearby and downwind of transportation, industrial, and other air pollutant sources. Since 1989, a 73 percent reduction in the ambient incremental cancer risk from measured air toxics has been measured in Chula Vista and a 69 percent reduction has been measured in El Cajon.

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9. OTHER PUBLIC AGENCY INVOLVEMENT:

Identify public agencies whose approvals are, or may be, required (e.g., permits, financing approval, or participation agreement):

<u>Agency</u>	<u>Action</u>
APCD	Rule Approval

10. Environmental Factors Potentially Affected:

The environmental factors checked below would be potentially affected by this project and involve at least one impact that is a "Potentially Significant Impact" or a "Less Than Significant With Mitigation Incorporated," as indicated by the checklist on the following pages.

- | | | |
|--|---|---|
| <input type="checkbox"/> Aesthetics | <input type="checkbox"/> Agriculture Resources | <input type="checkbox"/> Air Quality |
| <input type="checkbox"/> Biological Resources | <input type="checkbox"/> Cultural Resources | <input type="checkbox"/> Geology / Soils |
| <input type="checkbox"/> Hazards / Haz. Materials | <input type="checkbox"/> Hydrology/Water Quality | <input type="checkbox"/> Land Use / Planning |
| <input type="checkbox"/> Mineral Resources | <input type="checkbox"/> Noise | <input type="checkbox"/> Population / Housing |
| <input type="checkbox"/> Public Services | <input type="checkbox"/> Recreation | <input type="checkbox"/> Transportation/Traffic |
| <input type="checkbox"/> Utilities / Service Systems | <input type="checkbox"/> Mandatory Findings of Significance | |

Determination: (To be completed by the Lead Agency)

On the basis of this Initial Study:

- The Air Pollution Control District finds that the proposed project COULD NOT have a significant effect on the environment, and that a NEGATIVE DECLARATION will be prepared.
- The Air Pollution Control District finds that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
- The Air Pollution Control District finds that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

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Signature

Robert C. Reider

Printed Name

Date

Supervising Air Resources Specialist

Title

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11. Evaluation of Environmental Impacts:

INSTRUCTIONS ON EVALUATION OF ENVIRONMENTAL IMPACTS

1. A brief explanation is required for all answers except “No Impact” answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A “No Impact” answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A “No Impact” answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).
2. All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.
3. Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, Less Than Significant With Mitigation Incorporated, or less than significant. “Potentially Significant Impact” is appropriate if there is substantial evidence that an effect may be significant. If there are one or more “Potentially Significant Impact” entries when the determination is made, an Environmental Impact Report (EIR) is required.
4. “Less Than Significant With Mitigation Incorporated” applies where the incorporation of mitigation measures has reduced an effect from “Potentially Significant Impact” to a “Less Than Significant Impact.” The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level.
5. Earlier analyses may be used where, pursuant to the tiering, program EIR, or other California Environmental Quality Act (CEQA) process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:
 - a) Earlier Analysis Used. Identify and state where they are available for review.
 - b) Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.
 - c) Mitigation Measures. For effects that are “Less Than Significant With Mitigation Incorporated,” describe the mitigation measures that were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.
6. Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.
7. The explanation of each issue should identify:

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- a) The significance criteria or threshold, if any, used to evaluate each question; and
- b) The mitigation measure identified, if any, to reduce the impact to less than significance.

Environmental Checklist

	Potentially Significant Impact	Less Than Significant Impact	No Impact
I. AESTHETICS. Would the project:			
a) Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

(a) through (d): The proposed project consists of: (1) amendments to APCD Rule 69.3 to correct EPA-identified deficiencies and gain EPA approval; and (2) amendments to APCD Rule 69.3.1 to address technological limitations of combined-cycle stationary gas turbines and emission control technologies during infrequent but unavoidable cold starts and low-load operations and to limit operation of older, higher-polluting peaking turbines on days with predicted high ambient concentrations of ozone. The amendments, if adopted, will reduce peaker plant NOx emissions on forecasted high ozone days and will eliminate infeasible requirements and remove an unintended regulatory barrier for deployment of modern combined-cycle turbine technologies and eventual displacement of older, less efficient, and higher NOx emitting power plants, resulting overall in a cumulative net benefit to air quality over the long term. Short-term emission increases from infrequent cold starts at existing and planned combined-cycle facilities will pose no air quality or health impacts, as discussed in Section III (Air Quality). Visible water vapor plumes from any cooling towers operating at a combined-cycle power plant could be reduced during infrequent extended startups and unplanned low-load operations due to reduced cooling tower operation compared to normal steady-state operation. Evaluation of aesthetic impacts of possible future proposed combined-cycle turbine projects would be speculative at this time. Aesthetic impacts of any future proposed project will be subject to evaluation and mitigation, if necessary, as required by CEQA prior to any future non-exempt project approval by a Lead Agency.

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Therefore, based on information presented above in Section 6 (Project Description) and Section 7 (Environmental and Regulatory Issues), implementation of proposed amendments to Rules 69.3.1 and 69.3 would not have a substantial adverse effect on a scenic vista; would not substantially damage scenic resources; would not substantially degrade the existing visual character or quality of the surroundings; and would not create a new source of light or glare adversely affecting day or nighttime views.

Based on the above discussion, project implementation would not have a significant adverse impact on aesthetics.

	Potentially Significant Impact	Less Than Significant Impact	No Impact
II. AGRICULTURAL RESOURCES. Would the project:			
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide or Local Importance (Important Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, or other agricultural resources, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Important Farmland or other agricultural resources, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

(a) through (c): The proposed project consists of: (1) amendments to APCD Rule 69.3 to correct EPA-identified deficiencies and gain EPA approval; and (2) amendments to APCD Rule 69.3.1 to address technological limitations of combined-cycle stationary gas turbines and emission control technologies during infrequent but unavoidable cold starts and low-load operations and to limit operation of older, higher-polluting peaking turbines on days with predicted high ambient concentrations of ozone. The amendments, if adopted, will reduce peaker plant NOx emissions on forecasted high ozone days and will eliminate infeasible requirements and remove an unintended regulatory barrier for

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deployment of modern combined-cycle turbine technologies and eventual displacement of older, less efficient, and higher NOx emitting power plants, resulting overall in a cumulative net benefit to air quality over the long term. Short-term emission increases from infrequent cold starts at existing and planned combined-cycle facilities will pose no air quality or health impacts, as discussed in Section III (Air Quality). Evaluation of agricultural resource impacts of possible future proposed combined-cycle turbine projects would be speculative at this time. Agricultural resource impacts of any future proposed project will be subject to evaluation and mitigation, if necessary, as required by CEQA prior to any future non-exempt project approval by a Lead Agency.

Therefore, based on information presented above in Section 6 (Project Description) and Section 7 (Environmental and Regulatory Issues), implementation of proposed amendments to Rules 69.3.1 and 69.3 would not convert prime or unique farmland or farmland of Statewide importance to non-agricultural use; would not conflict with existing zoning for agricultural use, or a Williamson contract; and would not involve other changes that might ultimately result in the conversion of farmland to non-agricultural use.

Based on the above discussion, project implementation would not have a significant adverse impact on agricultural resources.

	Potentially Significant Impact	Less Than Significant Impact	No Impact
III. AIR QUALITY. Would the project:			
a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Violate any air quality standard or contribute to an existing or projected air quality violation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or State ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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- (a) : The proposed project consists of: (1) amendments to APCD Rule 69.3 to correct EPA-identified deficiencies and gain EPA approval; and (2) amendments to APCD Rule 69.3.1 to address technological limitations of combined-cycle stationary gas turbines and emission control technologies during infrequent but unavoidable cold starts and low-load operations and to limit operation of older, higher-polluting peaking turbines on days with predicted high ambient concentrations of ozone. The amendments, if adopted, will reduce peaker plant NO_x emissions on forecasted high ozone days and will eliminate infeasible requirements and remove an unintended regulatory barrier for deployment of modern combined-cycle turbine technologies and eventual displacement of older, less efficient, and higher NO_x emitting power plants. This results in an overall net benefit to air quality, which is consistent with the goals of the applicable air quality plan.
- (b) through (d): APCD conducted a source test of emissions during a cold start of the one large combined-cycle gas turbine power plant now commercially operating in the region. Based on the source test data, APCD calculated that a worst-case 360-minute startup period⁹ would result in estimated excess NO_x emissions of 235 pounds per startup event, relative to NO_x emissions during the existing allowable 120-minute startup period. To put 235 pounds of NO_x emissions into perspective, this equates to less than one-tenth of one percent of total daily NO_x emissions in the region (estimated to be 160 tons or 320,000 pounds of NO_x emissions per day in San Diego County).

Additional source test emissions data were collected for sulfur dioxide (SO₂) and particulate matter less than or equal to 10 microns in size (PM₁₀). Source test emissions data were also collected for potentially more harmful "toxic" air contaminants.

APCD then performed an air dispersion modeling analysis to evaluate the potential air quality impacts of an extended 360-minute startup at the existing facility. The maximum predicted concentrations occurring during the extended startup were added to worst-case background concentrations for comparison to federal and California Ambient Air Quality Standards. The results indicate that adoption of the proposed amendments to Rule 69.3.1 will not cause or contribute to exceedances of federal or California Ambient Air Quality Standards for NO₂, SO₂,¹⁰ PM₁₀, or PM_{2.5} (assuming, worst-case, that all PM₁₀ is PM_{2.5}).

⁹ The actual time needed to startup and reach steady-state operation (and low-NO_x conditions) under cold start conditions normally ranges from 180 to 360 minutes at the existing combined-cycle facility in the region and will vary with system design, ambient temperature, and temperature of the steam equipment at startup. To maximize productivity and return on investment, it is likely that a plant operator will not extend the startup period beyond the minimum time necessary to prevent undue thermal stresses on the steam equipment. For these reasons, a full 360-minute startup period can be considered a worst-case scenario.

¹⁰ SO₂ emission impacts were not modeled because SO₂ emissions (and any associated impacts) are lower during turbine startup compared to normal steady-state operation. This is because SO₂ emissions are solely due to sulfur in the fuel. Less fuel is combusted, and less SO₂ is emitted, during the startup period.

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Similarly, APCD conducted a Health Risk Assessment to evaluate the potential health risks of toxic air contaminants emitted during an extended 360-minute startup period. The risk assessment process addresses cancer risk, acute (short-term) health effects, and chronic (long-term) non-cancer effects. The results indicate that no significant adverse cancer or short- or long-term non-cancer health effects are anticipated to result. That is, the increased carcinogenic risk during an extended 360-minute startup period is less than 1.0 in one million. Similarly, the chronic hazard index attributed to the emissions of non-carcinogenic air contaminants during an extended 360-minute startup period is less than 1.0.

It is worth noting that construction of another large combined-cycle gas turbine power plant in the region was recently completed, although commercial operation of that plant has not commenced.¹¹ The turbine and emissions control equipment are very similar to that used at the existing combined-cycle power plant, which is the source of the emissions analyses herein. Consequently, similar results would be expected regarding potential air quality and health impacts during an extended startup period at this new combined-cycle facility.

Regarding possible future combined-cycle turbines, evaluation of air quality impacts during an extended startup period would be speculative at this time. Air quality impacts of any future proposed project will be subject to evaluation and mitigation, if necessary, as required by CEQA prior to project approval by the Lead Agency. Furthermore, facility construction and operation may only occur following APCD evaluation of the project for compliance with applicable APCD rules and issuance of air quality permits, including enforceable permit conditions limiting or requiring specific actions to ensure no significant air quality impacts. It is also worth noting that, as discussed above in Section 6 (Project Description); future combined-cycle turbine projects may be restricted to shorter cold startup periods if feasible, pursuant to BACT of APCD New Source Review rules.

Lastly, as discussed above in Section 7 (Environmental and Regulatory Issues), no increase in GHG is anticipated to result from adoption of the proposed amendments to Rule 69.3.1. Rather, it is more likely that a net reduction in GHG emissions would follow from rule adoption based on removing a regulatory barrier for fuel-efficient combined-cycle power plant technologies to displace existing, less fuel-efficient power plants.

Therefore, based on information presented above, implementation of proposed amendments to Rules 69.3.1 and 69.3 would not conflict with or obstruct implementation of the air quality plan; would not violate any air quality standard or contribute to an existing or projected air quality violation; would not result in a cumulatively considerable net increase of any criteria pollutant for which San Diego

¹¹ Construction was recently completed on a new 510-megawatt natural gas-fired combined-cycle power plant in Otay Mesa (in south San Diego County).

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County is non-attainment under an applicable federal or State ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors); and would not expose sensitive receptors to substantial pollutant concentrations.

(e): Any odors associated with combined-cycle turbine operation are typically related to the turbine's SCR system (for NOx emission control), which uses ammonia as a reagent. APCD experience indicates that extending the allowable cold start period for combined-cycle gas turbines would not create objectionable odors affecting a substantial number of people, provided that the SCR is properly maintained and operated in accordance with the air quality permit, manufacturer's recommendations, and industry standards. In the event the SCR equipment is not properly maintained and operated, any resulting violation of permit requirements can be corrected through APCD enforcement action. Consequently, potential odor impacts are anticipated to be less than significant.

Based on the above discussion, project implementation would not have a significant adverse impact on air quality.

	Potentially Significant Impact	Less Than Significant Impact	No Impact
IV. BIOLOGICAL RESOURCES. Would the project:			
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Have a substantial adverse effect on federally protected wetlands as defined by §404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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	removal, filling, hydrological interruption, or other means?			
d)	Interfere substantially with movement of any native resident or migratory fish or wildlife species or with native resident or migratory wildlife corridors, or impede use of native wildlife nursery sites?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e)	Conflict with the provisions of an adopted Habitat Conservation plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

(a) through (e): The proposed project consists of: (1) amendments to APCD Rule 69.3 to correct EPA-identified deficiencies and gain EPA approval; and (2) amendments to APCD Rule 69.3.1 to address technological limitations of combined-cycle stationary gas turbines and emission control technologies during infrequent but unavoidable cold starts and low-load operations and to limit operation of older, higher-polluting peaking turbines on days with predicted high ambient concentrations of ozone. The amendments, if adopted, will reduce peaker plant NOx emissions on forecasted high ozone days and will eliminate infeasible requirements and remove an unintended regulatory barrier for deployment of modern combined-cycle turbine technologies and eventual displacement of older, less efficient, and higher NOx emitting power plants, resulting overall in a cumulative net benefit to air quality over the long term. Short-term emission increases during infrequent cold starts at existing and planned combined-cycle facilities will pose no air quality or health impacts, as discussed in Section III (Air Quality). Evaluation of biological resource impacts of possible future proposed combined-cycle turbine projects would be speculative at this time. Biological resource impacts of any future proposed project will be subject to evaluation and mitigation, if necessary, as required by CEQA prior to any future non-exempt project approval by a Lead Agency.

Therefore, based on information presented above in Section 6 (Project Description) and Section 7 (Environmental and Regulatory Issues), implementation of proposed amendments to Rules 69.3.1 and 69.3 would not have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service; would not have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service; would not have a substantial adverse effect on federally protected wetlands as defined by §404 of the Clean Water Act through direct removal, filling, hydrological interruption, or other means; would not interfere substantially with the movement of any native resident or migratory fish or wildlife species or with

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established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites; and would not conflict with the provisions of an adopted Habitat Conservation plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan.

Based on the above discussion, project implementation would not have a significant adverse impact on biological resources.

	Potentially Significant Impact	Less Than Significant Impact	No Impact
V. CULTURAL RESOURCES. Would the project:			
a) Cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines Section 15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resource as defined in CEQA Guidelines Section 15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Disturb any human remains, including those interred outside of formal cemeteries?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

(a) through (d): The proposed project consists of: (1) amendments to APCD Rule 69.3 to correct EPA-identified deficiencies and gain EPA approval; and (2) amendments to APCD Rule 69.3.1 to address technological limitations of combined-cycle stationary gas turbines and emission control technologies during infrequent but unavoidable cold starts and low-load operations and to limit operation of older, higher-polluting peaking turbines on days with predicted high ambient concentrations of ozone. The amendments, if adopted, will reduce peaker plant NOx emissions on forecasted high ozone days and will eliminate infeasible requirements and remove an unintended regulatory barrier for deployment of modern combined-cycle turbine technologies and eventual displacement of older, less efficient, and higher NOx emitting power plants, resulting overall in a cumulative net benefit to air quality over the long term. Short-term emission increases during infrequent cold starts at existing and planned combined-cycle facilities will pose no air quality or health impacts, as discussed in Section III (Air Quality). Evaluation of cultural resource impacts of possible future proposed combined-cycle turbine projects would be

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speculative at this time. Cultural resource impacts of any future proposed project will be subject to evaluation and mitigation, if necessary, as required by CEQA prior to any future non-exempt project approval by a Lead Agency.

Therefore, based on information presented above in Section 6 (Project Description) and Section 7 (Environmental and Regulatory Issues), implementation of proposed amendments to Rules 69.3.1 and 69.3 would not cause a substantial adverse change in the significance of a historical or archaeological resource as defined in CEQA Guidelines Section 15064.5; would not directly or indirectly destroy a unique paleontological resource or site or unique geologic feature; and would not disturb any human remains, including those interred outside of formal cemeteries.

Based on the above discussion, project implementation would not have a significant adverse impact on cultural resources.

	Potentially Significant Impact	Less Than Significant Impact	No Impact
VI. GEOLOGY AND SOILS. Would the project:			
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<ul style="list-style-type: none"> Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42. 	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<ul style="list-style-type: none"> Strong seismic ground shaking? 	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<ul style="list-style-type: none"> Seismic-related ground failure, including liquefaction? 	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<ul style="list-style-type: none"> Landslides? 	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Will the project produce unstable geological conditions that will result in adverse impacts resulting from landslides, lateral spreading, subsidence, liquefaction or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

(a) through (e): The proposed project consists of: (1) amendments to APCD Rule 69.3 to correct EPA-identified deficiencies and gain EPA approval; and (2) amendments to APCD Rule 69.3.1 to address technological limitations of combined-cycle stationary gas turbines and emission control technologies during infrequent but unavoidable cold starts and low-load operations and to limit operation of older, higher-polluting peaking turbines on days with predicted high ambient concentrations of ozone. The amendments, if adopted, will reduce peaker plant NOx emissions on forecasted high ozone days and will eliminate infeasible requirements and remove an unintended regulatory barrier for deployment of modern combined-cycle turbine technologies and eventual displacement of older, less efficient, and higher NOx emitting power plants, resulting overall in a cumulative net benefit to air quality over the long term. Short-term emission increases during infrequent cold starts at existing and planned combined-cycle facilities will pose no air quality or health impacts, as discussed in Section III (Air Quality). Evaluation of geology and soil impacts of possible future proposed combined-cycle turbine projects would be speculative at this time. Geology and soil impacts of any future proposed project will be subject to evaluation and mitigation, if necessary, as required by CEQA prior to any future non-exempt project approval by a Lead Agency.

Therefore, based on information presented above in Section 6 (Project Description) and Section 7 (Environmental and Regulatory Issues), implementation of proposed amendments to Rules 69.3.1 and 69.3 would not require any activities which would expose people to the risk of loss, injury, or death associated with earthquakes, seismic ground shaking, seismic-related ground failure or landslides; would not require any construction activities that would create soil erosion or loss of topsoil; would not require the construction of any building or structure, thereby producing unstable geologic conditions or be located on expansive soil; and would not require the installation of septic tanks or wastewater systems.

Based on the above discussion, project implementation would not have a significant adverse impact on geology/soils.

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	Potentially Significant Impact	Less Than Significant Impact	No Impact
VII. HAZARDS AND HAZARDOUS MATERIALS. Would the project:			
a) Create a significant hazard to the public or the environment through the routine transport, use, and disposal of hazardous materials or wastes?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving release of hazardous materials into the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Emit hazardous emissions, or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code §65962.5 and, as a result, would create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) For a project located within an airport land use plan or, where a plan has not been adopted, within two miles of a public or public use airport, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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i) Propose a use, or place residents adjacent to an existing or reasonably foreseeable use that would substantially increase current or future resident's exposure to vectors, including mosquitoes, rats or flies, which are capable of transmitting significant public health diseases or nuisances?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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(a) through (i): The proposed project consists of: (1) amendments to APCD Rule 69.3 to correct EPA-identified deficiencies and gain EPA approval; and (2) amendments to APCD Rule 69.3.1 to address technological limitations of combined-cycle stationary gas turbines and emission control technologies during infrequent but unavoidable cold starts and low-load operations and to limit operation of older, higher-polluting peaking turbines on days with predicted high ambient concentrations of ozone. The amendments, if adopted, will reduce peaker plant NOx emissions on forecasted high ozone days and will eliminate infeasible requirements and remove an unintended regulatory barrier for deployment of modern combined-cycle turbine technologies and eventual displacement of older, less efficient, and higher NOx emitting power plants, resulting overall in a cumulative net benefit to air quality over the long term. Short-term emission increases during infrequent cold starts at existing and planned combined-cycle facilities will pose no air quality or health impacts, as discussed in Section III (Air Quality). Aqueous ammonia (used in SCR emission control systems) and natural gas are hazardous materials used at combined-cycle turbine facilities, but the proposed rule amendments, if adopted, will not result in any changes to hazardous materials management. Evaluation of hazards and hazardous materials associated with possible future proposed projects would be speculative at this time. Hazards and hazardous material impacts of any future proposed project will be subject to evaluation and mitigation, if necessary, as required by CEQA prior to any future non-exempt project approval by a Lead Agency.

Therefore, based on information presented above in Section 6 (Project Description) and Section 7 (Environmental and Regulatory Issues), implementation of proposed amendments to Rules 69.3.1 and 69.3 would not create a significant hazard to the public, or emit hazardous emissions/handle hazardous materials within one-quarter mile of an existing or proposed school; would not require the construction of any building, structure or facility which could potentially be located on a site pursuant to Government Code §65962.5, or located within an airport land use plan, within two miles of a public airport or within the vicinity of a private airstrip; would not interfere with an adopted emergency response or evacuation plan; would not expose people or structures to wildland fires; and would not increase current or future resident's exposure to vectors.

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Based on the above discussion, project implementation would not have a significant adverse impact with respect to hazards/hazardous materials.

	Potentially Significant Impact	Less Than Significant Impact	No Impact
VIII. HYDROLOGY AND WATER QUALITY. Would the project:			
a) Violate any waste discharge requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Is the project tributary to an already impaired water body, as listed on the Clean Water Act Section 303(d) list? If so, could the project result in an increase in any pollutant for which the water body is already impaired?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Could the proposed project cause or contribute to an exceedance of applicable surface or groundwater receiving water quality objectives or degradation of beneficial uses?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on-	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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	or off-site?			
g)	Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h)	Provide substantial additional sources of polluted runoff?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
i)	Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map, including County Floodplain Maps?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
j)	Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
k)	Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
l)	Inundation by seiche, tsunami, or mudflow?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

(a) through (l): The proposed project consists of: (1) amendments to APCD Rule 69.3 to correct EPA-identified deficiencies and gain EPA approval; and (2) amendments to APCD Rule 69.3.1 to address technological limitations of combined-cycle stationary gas turbines and emission control technologies during infrequent but unavoidable cold starts and low-load operations and to limit operation of older, higher-polluting peaking turbines on days with predicted high ambient concentrations of ozone. The amendments, if adopted, will reduce peaker plant NOx emissions on forecasted high ozone days and will eliminate infeasible requirements and remove an unintended regulatory barrier for deployment of modern combined-cycle turbine technologies and eventual displacement of older, less efficient, and higher NOx emitting power plants, resulting overall in a cumulative net benefit to air quality over the long term. Short-term emission increases during infrequent cold starts at existing and planned combined-cycle facilities will pose no air quality or health impacts, as discussed in Section III (Air Quality). Accordingly, no impacts to water quality from deposition of air pollutants will occur as a result of this project. Evaluation of hydrology and water quality impacts of possible future proposed combined-cycle turbine projects would be speculative at this time. Hydrology and water quality impacts of any future proposed project will be subject to evaluation and mitigation, if necessary, as required by CEQA prior to any future non-exempt project approval by a Lead Agency.

Therefore, based on information presented above in Section 6 (Project Description) and Section 7 (Environmental and Regulatory Issues), implementation of proposed

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amendments to Rules 69.3.1 and 69.3 would not violate any waste discharge requirements; is not tributary to an already impaired water body; would not cause or contribute to an exceedances of applicable surface or groundwater receiving water quality objectives or degradation of beneficial uses; would not substantially deplete groundwater supplies or interfere substantially with groundwater recharge; would not require construction or other activities which could substantially alter the existing drainage pattern of a site or area in a manner resulting in substantial erosion or siltation or flooding on- or off-site; would not create or contribute runoff water; would not provide substantial additional sources of polluted runoff; would not require placing housing or structures within a 100-year flood hazard area; and would not result in exposing people or structures to a significant risk of loss, injury, or death involving flooding or inundation by seiche, tsunami, or mudflow.

Based on the above discussion, project implementation would not have a significant adverse impact on hydrology/water quality.

	Potentially Significant Impact	Less Than Significant Impact	No Impact
IX. LAND USE PLANNING. Would the project:			
a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

(a) through (b): The proposed project consists of: (1) amendments to APCD Rule 69.3 to correct EPA-identified deficiencies and gain EPA approval; and (2) amendments to APCD Rule 69.3.1 to address technological limitations of combined-cycle stationary gas turbines and emission control technologies during infrequent but unavoidable cold starts and low-load operations and to limit operation of older, higher-polluting peaking turbines on days with predicted high ambient concentrations of ozone. The amendments, if adopted, will reduce peaker plant NOx emissions on forecasted high ozone days and will eliminate infeasible requirements and remove an unintended regulatory barrier for deployment of modern combined-cycle turbine technologies and eventual displacement of older, less efficient, and higher NOx emitting power plants, resulting overall in a cumulative net benefit to air quality over

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the long term. Short-term emission increases during infrequent cold starts at existing and planned combined-cycle facilities will pose no air quality or health impacts, as discussed in Section III (Air Quality). Evaluation of land use planning impacts of possible future proposed combined-cycle turbine projects would be speculative at this time. Land use planning impacts of any future proposed project will be subject to evaluation and mitigation, if necessary, as required by CEQA prior to any future non-exempt project approval by a Lead Agency.

Therefore, based on information presented above in Section 6 (Project Description) and Section 7 (Environmental and Regulatory Issues), implementation of proposed amendments to Rules 69.3.1 and 69.3 would not physically divide an established community; and would not conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.

Based on the above discussion, project implementation would not have a significant adverse impact on land use planning.

	Potentially Significant Impact	Less Than Significant Impact	No Impact
X. MINERAL RESOURCES. Would the project:			
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the State?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

(a) and (b): The proposed project consists of: (1) amendments to APCD Rule 69.3 to correct EPA-identified deficiencies and gain EPA approval; and (2) amendments to APCD Rule 69.3.1 to address technological limitations of combined-cycle stationary gas turbines and emission control technologies during infrequent but unavoidable cold starts and low-load operations and to limit operation of older, higher-polluting peaking turbines on days with predicted high ambient concentrations of ozone. The amendments, if adopted, will reduce peaker plant NOx emissions on forecasted high ozone days and will eliminate infeasible requirements and remove an unintended regulatory barrier for deployment of modern combined-cycle turbine technologies and eventual displacement of older, less efficient, and higher NOx emitting power plants, resulting overall in a cumulative net benefit to air quality over the long term.

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Short-term emission increases during infrequent cold starts at existing and planned combined-cycle facilities will pose no air quality or health impacts, as discussed in Section III (Air Quality). Evaluation of mineral resource impacts of possible future proposed combined-cycle turbine projects would be speculative at this time. Mineral resource impacts of any future proposed project will be subject to evaluation and mitigation, if necessary, as required by CEQA prior to any future non-exempt project approval by a Lead Agency.

Therefore, based on information presented above in Section 6 (Project Description) and Section 7 (Environmental and Regulatory Issues), implementation of proposed amendments to Rules 69.3.1 and 69.3 would not result in the loss of availability of known mineral resources or the loss of availability of a locally important mineral resource recovery site.

Based on the above discussion, project implementation would not have a significant adverse impact on mineral resources.

	Potentially Significant Impact	Less Than Significant Impact	No Impact
XI. NOISE. Would the project result in:			
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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(a) through (f): The proposed project consists of: (1) amendments to APCD Rule 69.3 to correct EPA-identified deficiencies and gain EPA approval; and (2) amendments to APCD Rule 69.3.1 to address technological limitations of combined-cycle stationary gas turbines and emission control technologies during infrequent but unavoidable cold starts and low-load operations and to limit operation of older, higher-polluting peaking turbines on days with predicted high ambient concentrations of ozone. The amendments, if adopted, will reduce peaker plant NOx emissions on forecasted high ozone days and will eliminate infeasible requirements and remove an unintended regulatory barrier for deployment of modern combined-cycle turbine technologies and eventual displacement of older, less efficient, and higher NOx emitting power plants, resulting overall in a cumulative net benefit to air quality over the long term. Short-term emission increases during infrequent cold starts at existing and planned combined-cycle facilities will pose no air quality or health impacts, as discussed in Section III (Air Quality). Furthermore, APCD experience indicates that no increases in noise levels are anticipated during infrequent extended cold starts and unplanned low-load operations compared to normal steady-state operation of a combined-cycle facility and associated components (including cooling towers). Evaluation of noise impacts of possible future proposed combined-cycle turbine projects would be speculative at this time. Noise impacts of any future proposed project will be subject to evaluation and mitigation, if necessary, as required by CEQA prior to any future non-exempt project approval by a Lead Agency.

Therefore, based on information presented above in Section 6 (Project Description) and Section 7 (Environmental and Regulatory Issues), implementation of proposed amendments to Rules 69.3.1 and 69.3 would not expose persons to noise levels in excess of applicable standards; would not expose people to excessive groundborne vibration or noise; would not result in a substantial permanent, temporary, or periodic increase in ambient noise levels; and would not affect any airport land use plan or private airstrip.

Based on the above discussion, project implementation would not have a significant adverse noise impact.

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	Potentially Significant Impact	Less Than Significant Impact	No Impact
XII. POPULATION AND HOUSING. Would the project:			
a) Induce substantial growth in an area either directly (for example, by proposing new homes and businesses) or indirectly (e.g. through extension of roads or other infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

(a) through (c): The proposed project consists of: (1) amendments to APCD Rule 69.3 to correct EPA-identified deficiencies and gain EPA approval; and (2) amendments to APCD Rule 69.3.1 to address technological limitations of combined-cycle stationary gas turbines and emission control technologies during infrequent but unavoidable cold starts and low-load operations and to limit operation of older, higher-polluting peaking turbines on days with predicted high ambient concentrations of ozone. The amendments, if adopted, will reduce peaker plant NOx emissions on forecasted high ozone days and will eliminate infeasible requirements and remove an unintended regulatory barrier for deployment of modern combined-cycle turbine technologies and eventual displacement of older, less efficient, and higher NOx emitting power plants, resulting overall in a cumulative net benefit to air quality over the long term. Short-term emission increases during infrequent cold starts at existing and planned combined-cycle facilities will pose no air quality or health impacts, as discussed in Section III (Air Quality). Evaluation of population and housing impacts of possible future proposed combined-cycle turbine projects would be speculative at this time. Population and housing impacts of any future proposed project will be subject to evaluation and mitigation, if necessary, as required by CEQA prior to any future non-exempt project approval by a Lead Agency.

Therefore, based on information presented above in Section 6 (Project Description) and Section 7 (Environmental and Regulatory Issues), implementation of proposed amendments to Rules 69.3.1 and 69.3 would not induce substantial growth, or displace housing or people, requiring the construction of replacement housing.

Based on the above discussion, project implementation would not have a significant adverse impact on population/housing.

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	Potentially Significant Impact	Less Than Significant Impact	No Impact
XIII. PUBLIC SERVICES. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered government facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the following public services:			
a) Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

(a) through (e): The proposed project consists of: (1) amendments to APCD Rule 69.3 to correct EPA-identified deficiencies and gain EPA approval; and (2) amendments to APCD Rule 69.3.1 to address technological limitations of combined-cycle stationary gas turbines and emission control technologies during infrequent but unavoidable cold starts and low-load operations and to limit operation of older, higher-polluting peaking turbines on days with predicted high ambient concentrations of ozone. The amendments, if adopted, will reduce peaker plant NOx emissions on forecasted high ozone days and will eliminate infeasible requirements and remove an unintended regulatory barrier for deployment of modern combined-cycle turbine technologies and eventual displacement of older, less efficient, and higher NOx emitting power plants, resulting overall in a cumulative net benefit to air quality over the long term. Short-term emission increases during infrequent cold starts at existing and planned combined-cycle facilities will pose no air quality or health impacts, as discussed in Section III (Air Quality). No additional public services will be required for existing or planned combined-cycle facilities that will be impacted by this proposed rule change. Evaluation of public services impacts of possible future proposed combined-cycle turbine projects would be speculative at this time. Public services impacts of any future proposed project will be subject to evaluation and mitigation, if necessary, as required by CEQA prior to any future non-exempt project approval by a Lead Agency.

Therefore, based on information presented above in Section 6 (Project Description) and Section 7 (Environmental and Regulatory Issues), implementation of proposed

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amendments to Rules 69.3.1 and 69.3 would not result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities; would not result in the need for new or physically altered government facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives as they relate to fire protection, police protection, schools, parks, or other public services or facilities.

Based on the above discussion, project implementation would not have a significant adverse impact on public services.

	Potentially Significant Impact	Less Than Significant Impact	No Impact
XIV. RECREATION.			
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

(a) and (b): The proposed project consists of: (1) amendments to APCD Rule 69.3 to correct EPA-identified deficiencies and gain EPA approval; and (2) amendments to APCD Rule 69.3.1 to address technological limitations of combined-cycle stationary gas turbines and emission control technologies during infrequent but unavoidable cold starts and low-load operations and to limit operation of older, higher-polluting peaking turbines on days with predicted high ambient concentrations of ozone. The amendments, if adopted, will reduce peaker plant NOx emissions on forecasted high ozone days and will eliminate infeasible requirements and remove an unintended regulatory barrier for deployment of modern combined-cycle turbine technologies and eventual displacement of older, less efficient, and higher NOx emitting power plants, resulting overall in a cumulative net benefit to air quality over the long term. Short-term emission increases during infrequent cold starts at existing and planned combined-cycle facilities will pose no air quality or health impacts, as discussed in Section III (Air Quality). Evaluation of recreation impacts of possible future proposed combined-cycle turbine projects would be speculative at this time. Recreation impacts of any future proposed project will be subject to evaluation and mitigation, if

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necessary, as required by CEQA prior to any future non-exempt project approval by a Lead Agency.

Therefore, based on information presented above in Section 6 (Project Description) and Section 7 (Environmental and Regulatory Issues), implementation of proposed amendments to Rules 69.3.1 and 69.3 would not increase the need for additional parks or other recreational facilities or cause the deterioration of existing facilities; and would not require the development of new recreational facilities or require the construction or expansion of recreational facilities that might have an adverse effect on the environment.

Based on the above discussion, project implementation would not have a significant adverse impact on recreation.

	Potentially Significant Impact	Less Than Significant Impact	No Impact
XV. TRANSPORTATION AND TRAFFIC. Would the project:			
a) Cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Substantially increase hazards due to a design feature (e.g. sharp curves or dangerous intersections) or incompatible uses (e.g. farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Result in inadequate parking capacity?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Conflict with adopted policies, plans, or programs supporting alternative	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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transportation (e.g. bus turnouts, bicycle racks)?			
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(a) through (g): The proposed project consists of: (1) amendments to APCD Rule 69.3 to correct EPA-identified deficiencies and gain EPA approval; and (2) amendments to APCD Rule 69.3.1 to address technological limitations of combined-cycle stationary gas turbines and emission control technologies during infrequent but unavoidable cold starts and low-load operations and to limit operation of older, higher-polluting peaking turbines on days with predicted high ambient concentrations of ozone. The amendments, if adopted, will reduce peaker plant NOx emissions on forecasted high ozone days and will eliminate infeasible requirements and remove an unintended regulatory barrier for deployment of modern combined-cycle turbine technologies and eventual displacement of older, less efficient, and higher NOx emitting power plants, resulting overall in a cumulative net benefit to air quality over the long term. Short-term emission increases during infrequent cold starts at existing and planned combined-cycle facilities will pose no air quality or health impacts, as discussed in Section III (Air Quality). Evaluation of transportation and traffic impacts of possible future proposed combined-cycle turbine projects would be speculative at this time. Transportation and traffic impacts of any future proposed project will be subject to evaluation and mitigation, if necessary, as required by CEQA prior to any future non-exempt project approval by a Lead Agency.

Therefore, based on information presented above in Section 6 (Project Description) and Section 7 (Environmental and Regulatory Issues), implementation of proposed amendments to Rules 69.3.1 and 69.3 would not cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system; would not exceed, either individually or cumulatively, a level of standard established by the regional congestion management agency for any road or highway; would not result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks; would not substantially increase hazards due to a design feature or incompatible uses; would not result in inadequate emergency access or parking capacity; and would not conflict with adopted policies, plans, or programs supporting alternative transportation.

Based on the above discussion, project implementation would not have a significant adverse impact on transportation/traffic.

	Potentially Significant Impact	Less Than Significant Impact	No Impact
XVI. UTILITIES AND SERVICE SYSTEMS. Would the project:			
a) Exceed wastewater treatment	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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	requirements of the applicable Regional Water Quality Control Board?			
b)	Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c)	Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d)	Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e)	Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f)	Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g)	Comply with federal, State, and local statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

(a) through (g): The proposed project consists of: (1) amendments to APCD Rule 69.3 to correct EPA-identified deficiencies and gain EPA approval; and (2) amendments to APCD Rule 69.3.1 to address technological limitations of combined-cycle stationary gas turbines and emission control technologies during infrequent but unavoidable cold starts and low-load operations and to limit operation of older, higher-polluting peaking turbines on days with predicted high ambient concentrations of ozone. The amendments, if adopted, will reduce peaker plant NOx emissions on forecasted high ozone days and will eliminate infeasible requirements and remove an unintended regulatory barrier for deployment of modern combined-cycle turbine technologies and eventual displacement of older, less efficient, and higher NOx emitting power plants, resulting overall in a cumulative net benefit to air quality over the long term. Short-term emission increases during infrequent cold starts at existing and planned combined-cycle facilities will pose no air quality or health impacts, as discussed in Section III (Air Quality). The proposed amendments to Rule 69.3.1 will not result in any changes to the industrial wastewater discharges from combined-cycle facilities. Evaluation of utilities and service system impacts of

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possible future proposed combined-cycle turbine projects would be speculative at this time. Utilities and service system impacts of any future proposed project will be subject to evaluation and mitigation, if necessary, as required by CEQA prior to any future non-exempt project approval by a Lead Agency.

Therefore, based on information presented above in Section 6 (Project Description) and Section 7 (Environmental and Regulatory Issues), implementation of proposed amendments to Rules 69.3.1 and 69.3 would not exceed wastewater treatment requirements of the regional water quality control board; would not require or result in the construction of new water, wastewater treatment, or storm water drainage facilities, or expansion of existing facilities; would not require water supplies in excess of existing entitlements and resources or require new or expanded entitlements; would not require additional wastewater treatment capacity or landfill capacity; and would comply with federal, State, and local statutes and regulations related to solid waste.

Based on the above discussion, project implementation would not have a significant adverse impact on utilities/service systems.

	Potentially Significant Impact	Less Than Significant Impact	No Impact
XVII. MANDATORY FINDINGS OF SIGNIFICANCE.			
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Does the project have impacts that are individually limited, but cumulatively considerable? (“Cumulatively considerable” means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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	other current projects, and the effects of probable future projects)?			
c)	Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

(a) through (c): The proposed project consists of: (1) amendments to APCD Rule 69.3 to correct EPA-identified deficiencies and gain EPA approval; and (2) amendments to APCD Rule 69.3.1 to address technological limitations of combined-cycle stationary gas turbines and emission control technologies during infrequent but unavoidable cold starts and low-load operations and to limit operation of older, higher-polluting peaking turbines on days with predicted high ambient concentrations of ozone. The amendments, if adopted, will reduce peaker plant NOx emissions on forecasted high ozone days and will eliminate infeasible requirements and remove an unintended regulatory barrier for deployment of modern combined-cycle turbine technologies and eventual displacement of older, less efficient, and higher NOx emitting power plants, resulting overall in a cumulative net benefit to air quality over the long term. Short-term emission increases during infrequent cold starts at existing and planned combined-cycle facilities will pose no air quality or health impacts, as discussed in Section III (Air Quality). Evaluation of the environmental impacts of possible future proposed combined-cycle turbine projects would be speculative at this time. Environmental impacts of any future proposed project will be subject to evaluation and mitigation, if necessary, as required by CEQA prior to any future non-exempt project approval by a Lead Agency.

Therefore, based on information presented above in Section 6 (Project Description) and Section 7 (Environmental and Regulatory Issues), as well information presented above in the Environmental Checklist regarding potential air quality impacts, implementation of proposed amendments to Rules 69.3.1 and 69.3 would not: (1) have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory; (2) would not have impacts that are individually limited, but cumulatively considerable; and (3) would not have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly.

Based on the above discussion, project implementation would not have a significant adverse impact with respect to the mandatory findings of significance.

ATTACHMENT C

Resolution of the San Diego County
Air Pollution Control Board
Resolution No. 10-030
Meeting Date: 02/24/2010 (AP2)

RESOLUTION ADOPTING THE NEGATIVE DECLARATION FOR PROPOSED AMENDMENTS TO RULE 69.3.1 (STATIONARY GAS TURBINE ENGINES)

On motion of Member Cox, seconded by Member Roberts, the following Resolution is adopted:

WHEREAS, pursuant to the California Environmental Quality Act, adoption of proposed amendments to Rule 69.3.1 is a project requiring environmental review; and

WHEREAS, the San Diego County Air Pollution Control District has the principal responsibility for adopting proposed amendments to Rule 69.3.1 and, therefore, pursuant to the California Environmental Quality Act, is the lead agency for the requisite environmental review; and

WHEREAS, pursuant to the California Environmental Quality Act, an Initial Study was prepared evaluating potential environmental consequences resulting from proposed adoption of amendments to Rule 69.3.1 and Rule 69.3; and

WHEREAS, the Initial Study revealed no substantial evidence that adoption of the proposed amendments to Rule 69.3.1 and Rule 69.3 may have a significant adverse environmental effect; and

WHEREAS, based on the Initial Study findings, a draft Negative Declaration was prepared pursuant to the California Environmental Quality Act; and

WHEREAS, the draft Negative Declaration was circulated for a 30-day public comment period and no comments were received; and

WHEREAS, the project was subsequently changed to remove the proposed amendments to Rule 69.3; and

WHEREAS, the District reviewed the proposed changes to the project and determined that recirculation of the draft Negative Declaration was not required pursuant to California Environmental Quality Act Guidelines §15073.5; and

WHEREAS, the final Negative Declaration concludes there is no substantial evidence indicating the adoption of proposed amendments to Rule 69.3.1 will have a significant adverse impact on the environment; and

WHEREAS, the San Diego County Air Pollution Control Board reviewed and considered the information contained in the Initial Study and final Negative Declaration; and

WHEREAS, the documents and other materials on which the decision to adopt the Negative Declaration is based are located at the San Diego County Air Pollution Control District, 10124 Old Grove Road, San Diego, California 92131; the custodian is Robert Kard, Director.

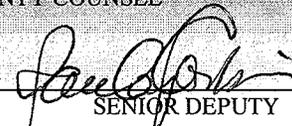
NOW, THEREFORE, IT IS RESOLVED AND ORDERED by the San Diego County Air Pollution Control Board that the Initial Study and Negative Declaration reflect the Board's independent judgment and analysis of potential environmental consequences resulting from the proposed adoption of amendments to Rule 69.3.1; and

IT IS FURTHER RESOLVED AND ORDERED that, considering the entire record before the Board, there is no substantial evidence that adoption of the proposed amendments to Rule 69.3.1 will have a significant adverse effect upon the environment; and

IT IS FURTHER RESOLVED AND ORDERED that the Negative Declaration is hereby adopted as a true and complete statement of potential environmental consequences resulting from adoption of amendments to Rule 69.3.1.

PASSED AND ADOPTED by the Air Pollution Control Board of the San Diego County Air Pollution Control District, State of California, this 24 day of Feb., 2010, by the following votes:

AYES: Cox, Jacob, Slater-Price, Roberts, Horn

APPROVED AS TO FORM AND LEGALITY
COUNTY COUNSEL
BY: 
SENIOR DEPUTY

STATE OF CALIFORNIA)
County of San Diego)^{SS}

I hereby certify that the foregoing is a full, true and correct copy of the Original Resolution entered in the Minutes of the Board of Supervisors.

THOMAS J. PASTUSZKA
Clerk of the Air Pollution Control Board

By: Nancy Vizcarra
Nancy Vizcarra, Deputy



No. 10-030

02-24-2010 (APCB 2)

ATTACHMENT D

Resolution of the San Diego County
Air Pollution Control Board
Resolution No. **10-031**
Meeting Date: **02/24/2010 (AP2)**

**RESOLUTION ADOPTING AMENDED RULE 69.3.1 – STATIONARY GAS TURBINE
ENGINES – BEST AVAILABLE RETROFIT CONTROL TECHNOLOGY
OF REGULATION IV OF THE RULES AND REGULATIONS OF THE
SAN DIEGO COUNTY AIR POLLUTION CONTROL DISTRICT**

On motion of Member **Cox** , seconded by Member **Roberts** , the following resolution is adopted:

WHEREAS, the San Diego County Air Pollution Control Board, pursuant to Section 40702 of the Health and Safety Code, adopted Rules and Regulations of the Air Pollution Control District of San Diego County; and

WHEREAS, said Board now desires to amend said Rules and Regulations; and

WHEREAS, notice has been given and a public hearing has been held relating to the amendment of said Rules and Regulations pursuant to Section 40725 of the Health and Safety Code; and

WHEREAS, pursuant to section 40727 of the Health and Safety Code, the San Diego County Air Pollution Control Board makes the following findings:

- (1) (Necessity) The adoption of proposed amended Rule 69.3.1 is necessary in order to implement all feasible measures to achieve the ambient air quality standards for ozone by further reducing emissions of Nitrogen Oxides in the County of San Diego;
- (2) (Authority) The adoption of proposed amended Rule 69.3.1 is authorized by Health and Safety Code section 40702;
- (3) (Clarity) The proposed amended Rule 69.3.1 can be easily understood by persons directly affected by it;
- (4) (Consistency) The adoption of proposed amended Rule 69.3.1 is in harmony with, and not in conflict with or contrary to, existing statutes, court decisions, and State and federal regulations;
- (5) (Non-duplication) The adoption of proposed amended Rule 69.3.1 will not duplicate existing District or federal requirements;

- (6) (Reference) The adoption of proposed amended Rule 69.3.1 is necessary to comply with the State law, California Health and Safety Code Section 40914(b)(2), that requires adoption of every feasible control measure to reduce ozone precursor emissions;

WHEREAS, the Air Pollution Control Board further finds pursuant to Health and Safety Code section 40001 that proposed amended Rule 69.3.1 will facilitate the attainment of ambient air quality standards; and

WHEREAS, the Air Pollution Control Board further finds that an assessment of socioeconomic impacts of the proposed amended Rule 69.3.1, as required by Section 40728.5 of the State Health and Safety Code, has been prepared and has been made available for public review and comment, and that the socioeconomic impacts of the proposed amended rule have been actively considered and the proposed amended rule will not have adverse socioeconomic impacts; and

WHEREAS, the Air Pollution Control Board further finds that an analysis comparing proposed amended Rule 69.3.1 with applicable requirements of federal and local regulations has been prepared pursuant to the State Health and Safety Code Section 40727.2; and

WHEREAS, the Air Pollution Control Board further finds that an incremental cost-effectiveness analysis pursuant to the State Health and Safety Code Section 40920.6(a) has been prepared for proposed amended Rule 69.3.1 and has been made available for public review and comment, and has been actively considered.

WHEREAS, pursuant to the California Environmental Quality Act, the District prepared an Initial Study, which found no substantial evidence that the proposed amendments to Rule 69.3.1 may have a significant adverse impact on the environment and, consequently, a Negative Declaration was prepared and certified.

NOW THEREFORE IT IS RESOLVED AND ORDERED by the San Diego County Air Pollution Control Board that the Rules and Regulations of the Air Pollution Control District of San Diego County be and hereby are amended as follows:

1. Proposed amended Rule 69.3.1 is to read as follows:

RULE 69.3.1. STATIONARY GAS TURBINE ENGINES - BEST AVAILABLE RETROFIT CONTROL TECHNOLOGY
(Adopted and Effective 12/16/98; Rev. Effective *(date of adoption)*)

(a) APPLICABILITY

Except as provided in Subsection (b)(1), this rule shall apply to any existing stationary gas turbine engine with a power rating of 1.0 megawatt (MW) or greater, or to any new

stationary gas turbine engine with a power rating of 0.3 MW or greater. Any unit subject to Section (d) of this rule shall not be subject to Rule 68.

(b) EXEMPTIONS

(1) The provisions of this rule shall not apply to the following:

(i) Any gas turbine engine when operated exclusively for the research, development or testing of gas turbine engines or their components.

(ii) Any portable gas turbine engine. It is the responsibility of any person claiming this exemption to maintain records indicating the dates that such gas turbine engine was located at each stationary source. These records shall be maintained for a minimum of two calendar years by the owner or operator of such gas turbine engine and made available to the District upon request.

(iii) Any stationary gas turbine engine with a power rating less than or equal to 0.4 MW used in conjunction with military tactical support equipment operated at military sites, provided that operations do not exceed 1,000 hours per calendar year. It is the responsibility of any person claiming this exemption to maintain records indicating the hours that such gas turbine engine was operated. These records shall be maintained for a minimum of two calendar years by the owner or operator of such gas turbine engine and made available to the District upon request.

(2) The provisions of Section (d) shall not apply to any emergency unit provided that operation for non-emergency purposes to ensure operability in the event of an emergency situation does not exceed 80 hours per calendar year. It is the responsibility of any person claiming this exemption to maintain records in accordance with Subsections (e)(5) and (e)(8) of this rule.

(3) The provisions of Subsections (d)(1) and (d)(2) shall not apply to the following:

(i) Any unit during startup, shutdown or a fuel change for a period not to exceed 120 consecutive minutes except as provided for in Subsection (b)(4). Nothing in this rule shall be construed to limit the actual time needed to conduct a startup, shutdown or fuel change.

(ii) For turbines equipped with lean premix combustors, periods of operation at low load provided that:

(A) The aggregate time of such periods does not exceed 130 minutes in any calendar day,

(B) The aggregate of all such periods does not exceed 780 minutes in any calendar year, and

(C) The turbine is equipped with a continuous emission monitoring system (CEMS) or other monitoring system that monitors and records turbine fuel flow and gross electrical output in increments of one minute or less.

(4) The provisions of Subsections (d)(1) and (d)(2) shall not apply to any combined-cycle gas turbine engine during an extended startup for a period not to exceed 360 consecutive minutes.

(5) The provisions of Subsection (d)(3) shall not apply on any calendar day for which the California Independent System Operator (CAISO), or its successor has declared a System Emergency or on any calendar day during which the local serving utility's transmission operations department is unable to contact the CAISO and has declared the need for operation of one or more emission units to protect transmission system reliability.

(6) The provisions of Subsection (d)(3)(i) and (d)(3)(ii) shall not apply when burning liquid fuel is required due to a force majeure natural gas curtailment.

(c) DEFINITIONS

For the purposes of this rule, the following definitions shall apply:

(1) **"Best Available Retrofit Control Technology (BARCT)"** 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.

(2) **"Combined-Cycle Gas Turbine Engine"** means any stationary gas turbine engine which recovers heat from the gas turbine exhaust gases to generate steam that is used to create additional power output in a steam turbine.

(3) **"Emergency Situation"** means any one of the following:

(i) An electrical power failure of the serving utility or of onsite electrical transmission equipment that is demonstrated by the owner or operator to the Air Pollution Control Officer's satisfaction to have been beyond the reasonable control of the owner or operator; or

(ii) An unforeseen flood or fire; or

(iii) A life-threatening situation.

Emergency situation shall not include operation of any unit for training purposes or other foreseeable events, or operation of any peaking unit for the purpose of supplying power for distribution to an electrical grid.

(4) **"Emergency Unit"** means a stationary gas turbine engine used only in the event of an emergency situation. A peaking unit shall not be considered an emergency unit.

(5) **"Existing" or "Existing Unit"** means any stationary gas turbine engine which was installed and operating in San Diego County on or before December 16, 1998.

(6) **"Extended startup"** means the startup of a combined-cycle gas turbine engine when, as determined by the Air Pollution Control Officer, key operational parameters, such as the steam turbine reheat bowl temperature, indicate that more than 120 consecutive minutes are needed to meet the emission limits of Section (d).

(7) **"Force Majeure Natural Gas Curtailment"** means an interruption in natural gas service such that the daily fuel needs of a gas turbine engine subject to this rule cannot be met with the natural gas available due to:

(i) Unforeseeable natural disaster or other cause resulting in the failure or malfunction of natural gas supply, delivery or storage system facilities, not resulting from an intentional or negligent act or omission on the part of an owner or operator of a unit, or

(ii) A supply restriction resulting from a California Public Utilities Commission priority allocation ruling, or

(iii) Delivery restrictions due to pipeline capacity limitations of the natural gas supplier or upstream transports or within a gas utility's delivery system.

(8) **"Fuel Change"** means the transitory operating period when a switch occurs between liquid or gaseous fuels, or any combination thereof.

(9) **"Gaseous Fuel"** means natural gas, digester gas, landfill gas, methane, ethane, propane, butane, or any gas stored as a liquid at high pressure such as liquefied petroleum gas.

(10) **"Higher Heating Value (HHV)"** means the total heat liberated, including the heat of condensation of water, per mass of fuel burned (Btu per pound) when fuel and dry air at standard conditions undergo complete combustion and all resultant products are brought to standard conditions.

(11) **"Lean Premix Combustor"** means any turbine combustor design where the air and majority of the fuel are thoroughly mixed to form a lean mixture before combustion under normal operational conditions, as determined by the Air Pollution Control Officer. Mixing may occur before or in the combustion chamber. A lean premix combustor may operate in a non-lean-premix mode (diffusion flame mode) during operating conditions such as startup and shutdown, extreme ambient temperature, or low or transient load.

(12) **"Liquid Fuel"** means any fuel which is a liquid at standard conditions including but not limited to distillate oils, kerosene and jet fuel. Liquefied gaseous fuels are not liquid fuels.

(13) **"Lower Heating Value (LHV)"** means the total heat liberated, excluding the heat of condensation of water, per mass of fuel burned (Btu per pound) when fuel and dry air at standard conditions undergo complete combustion and all resultant products are brought to standard conditions.

(14) **"Manufacturer's Rated Thermal Efficiency (MRTE)"** means the manufacturer's continuous rated percent thermal efficiency of the gas turbine engine, including the effect of any air pollution control equipment if such equipment is installed, at peak load, after correction to lower heating value.

(15) **"Military Tactical Support Equipment"** means any equipment owned by the U.S. Department of Defense or the National Guard and used in combat, combat support, combat service support, tactical or relief operations, or training for such operations.

(16) **"New" or "New Unit"** means a stationary gas turbine engine installed in San Diego County after December 16, 1998.

(17) **"Peaking Unit"** means a stationary gas turbine engine that is operated intermittently for generation of electric power during periods of high energy demand.

(18) **"Period of Operation at Low Load"** means a period of time that begins when the gas turbine power level is reduced from a higher level to below a critical level, as determined by the Air Pollution Control Officer, such that the gas turbine is unable to comply with the standards of Section (d), and ends 10 minutes after the turbine power level next exceeds the critical level provided that fuel is continuously combusted during the entire period. No period of operation at low load shall begin during a period when the provisions of Section (d) do not apply pursuant to Subsection (b)(3)(i), or Subsection (b)(4).

(19) **"Portable Gas Turbine Engine"** means a gas turbine engine which meets the definition of a portable emission unit in Rule 20.1.

(20) **"Power Augmentation"** means an increase in the gas turbine engine shaft output, or a decrease in turbine fuel consumption, by the addition of energy recovered from exhaust heat.

(21) **"Power Rating"** means the maximum, continuous, gross power output of a unit, in megawatts (MW) or equivalent at ISO standard day conditions, as certified by the manufacturer unless limited by a condition in a District Authority to Construct or a Permit to Operate. Power augmentation shall not be included in power rating.

(22) **"Selective Catalytic Reduction (SCR)"** means a post-combustion control technology that utilizes a reducing agent, such as ammonia, injected into the exhaust gas stream where it converts NOx to molecular nitrogen in the presence of a catalyst.

(23) **"Shutdown"** means an action necessary to cease operation of a unit and includes the amount of time needed to safely do so. For gas turbines equipped with a continuous emission monitoring system (CEMS) or other continuous monitoring system that monitors and records fuel flow in increments of one minute or less, a shutdown period ends five minutes after fuel flow to the unit ceases.

(24) **"Stationary Gas Turbine Engine"** means any gas turbine engine system, with or without power augmentation, which is permanently attached to a foundation, or is not a portable gas turbine. Two or more gas turbines powering a common shaft shall be treated as one gas turbine.

(25) **"Stationary Source"** means the same as defined in Rule 2.

(26) **"Startup"** means an action necessary to begin operation of a unit and includes the amount of time needed for a unit and ancillary equipment to achieve stable operation. For gas turbines equipped with a CEMS or other continuous monitoring system that monitors and records fuel flow in increments of one minute or less, a startup period begins when fuel starts flowing to the gas turbine engine.

(27) **"System Emergency"** means that the condition of the electrical grid as determined by the California Independent System Operator (CAISO) or its successor agency is, or will be, such that the reliability of the electrical grid is threatened. System emergencies include, but are not limited to, Stage 1, Stage 2, or Stage 3 Emergencies or Transmission Emergency Notices issued by the CAISO that are applicable to a portion of the CAISO controlled grid that includes all or part of San Diego County or the CAISO controlled grid as a whole. System Emergency also includes the unscheduled loss of generation or transmission resources such that the reliability of the electrical grid is threatened. Restricted maintenance operation notices to facilities, power watches urging consumers to conserve electricity, alerts advising of marginal conditions the next day, and warnings advising of marginal conditions the next hour issued by the CAISO are not by themselves considered electrical emergencies.

(28) **"Under the Same Common Ownership"** means units in San Diego County that are owned or operated by the same person including all units that are owned or operated by another entity in which the person has a controlling interest.

(29) **"Unit"** means any stationary gas turbine engine.

(30) **"Unit Thermal Efficiency (E)"** means the percent thermal efficiency of the gas turbine engine and is calculated as follows:

$$E = \frac{(MRTE) (LHV)}{(HHV)}$$

A gas turbine engine with an efficiency lower than 25 percent shall be assigned a unit efficiency of 25 percent.

(d) STANDARDS

(1) Except as provided for in Section (b) and Subsection (d)(2), the emissions concentration in parts per million by volume (ppmv) of NOx from any unit subject to this rule, calculated as nitrogen dioxide at 15% oxygen on a dry basis, shall not exceed the following:

<u>Power Rating (Gross Megawatts)</u>	<u>NOx Emissions Concentration</u> <u>(ppmv @ 15% O₂)</u>	
	<u>Gaseous Fuel</u>	<u>Liquid Fuel</u>
≥0.3 and <2.9 (new units)	42	65
≥1.0 and <2.9 (existing units)	42	65
≥2.9 and <10.0	25 x E/25	65
≥10.0 without installed post-combustion air pollution control equipment	15 x E/25	42 x E/25
≥10.0 with installed post-combustion air pollution control equipment	9 x E/25	25 x E/25

(2) The emissions concentration in parts per million by volume (ppmv) of NOx from any unit subject to this rule and described below, calculated as nitrogen dioxide at 15% oxygen on a dry basis, shall not exceed the following:

<u>Unit Description</u>	<u>NOx Emissions Concentration</u> <u>(ppmv @ 15% O₂)</u>	
	<u>Gaseous Fuel</u>	<u>Liquid Fuel</u>
Peaking units ≥4 MW and operating less than 877 hours per calendar year and installed on or before December 16, 1998.	42	65
Units <4 MW and operating less than 877 hours per calendar year	42	65

(3) Notwithstanding Subsection (d)(2), on or after January 1, 2012, a person shall not operate a peaking unit with a power rating greater than or equal to 4 megawatts that was installed on or before December 16, 1998, and that does not comply with the emissions concentration limits specified in Subsection (d)(1), as determined by the most recent source test pursuant to Subsection (g) as approved by the Air Pollution Control Officer, on any calendar day that the Air Pollution Control Officer has predicted an exceedance of the federal eight-hour ambient air quality standard for ozone, unless the following standards are complied with:

(i) For each peaking unit permitted to operate on natural gas and liquid fuel before December 16, 1998, and not complying with Subsection (d)(1), the gas turbine engine shall operate on natural gas only.

(ii) For each peaking unit permitted to operate on natural gas and liquid fuel before December 16, 1998, and not complying with Subsection (d)(1), the aggregate emissions of NOx per calendar day, as expressed as nitrogen dioxide, from all such units combined that are under the same common ownership shall not exceed the following aggregate calendar-day NOx emission limits expressed in pounds, as applicable:

(A) From January 1, 2012 through December 31, 2014, the limit, expressed in pounds, shall be equal to 1.2652 multiplied by the sum of the rated heat inputs, expressed in MMBtu per hour, of all such turbines under the same common ownership.

(B) On and after January 1, 2015, the limit, expressed in pounds, shall be equal to 0.8594 multiplied by the sum of the rated hourly heat inputs, expressed in MMBtu per hour, of all such turbines under the same common ownership.

In calculating the aggregate calendar-day emission limit, the rated heat input for each unit shall be the unit's heat input as described on the applicable District Permit to Operate as it exists on *(date of adoption)*.

(iii) For the gas turbine engine permitted to operate on liquid fuel only before December 16, 1998, and not complying with Subsection (d)(1), the aggregate emissions of NOx, as expressed as nitrogen dioxide, from all such units combined that are under the same common ownership shall not exceed the following aggregate calendar-day NOx emission limits, as applicable:

(A) From January 1, 2012, through December 31, 2014, 550 pounds during each calendar day.

(B) On and after January 1, 2015, 430 pounds during each calendar day.

(4) For purposes of Subsection (d)(3), an exceedance of the federal 8-hour ozone standard on a calendar day shall be considered to have been predicted if the Air Pollution Control Officer makes such a prediction that is applicable to any location at any time in the San Diego air basin and makes the prediction publicly available no earlier than three calendar days before the day for which the prediction is made and no later than 5:30 PM of the day immediately preceding the day for which the prediction is made.

(e) MONITORING AND RECORDKEEPING REQUIREMENTS

(1) An owner or operator of a unit which is subject to the requirements of Section (d) shall install, calibrate and maintain continuous monitors in accordance with the manufacturer's recommended procedures to monitor and record the operational characteristics of the unit and of any NOx emissions reduction system, as applicable, to demonstrate continuous compliance, such as:

- (i) fuel flow rate;
- (ii) exhaust gas temperature;
- (iii) ammonia injection rate;
- (iv) water injection rate;
- (v) stack-gas oxygen content;
- (vi) inlet or outlet SCR catalyst temperature; and
- (vii) operational parameters defining an extended startup.

The Air Pollution Control Officer may require recording of one or more of the above parameters, or other parameters, as necessary to ensure compliance.

(2) An owner or operator of any unit with a power rating of 10 MW or more that operates more than 4,000 hours per calendar year shall install and operate a CEMS to measure and record NO_x emissions. The CEMS shall be certified, calibrated and maintained in accordance with all applicable federal regulations including, but not limited to, the requirements of Sections 60.7(c), 60.7(d), and 60.13 of Title 40, Code of Federal Regulations, Part 60 (40 CFR Part 60), performance specifications of Appendix B of 40 CFR Part 60, quality assurance procedures of Appendix F of 40 CFR Part 60, Sections 75.10 and 75.12 of 40 CFR Part 75, the specifications and test procedures of Appendix A of 40 CFR Part 75, the quality assurance and quality control procedures of Appendix B of 40 CFR Part 75, and a protocol approved in writing by the Air Pollution Control Officer.

(3) An owner or operator of any unit with a CEMS which has been installed to monitor and record NO_x emissions pursuant to any federal regulation shall certify, calibrate and maintain the CEMS in accordance with applicable federal regulations including the requirements of Sections 60.7(c), 60.7(d), and 60.13 of Title 40, Code of Federal Regulations Part 60 (40 CFR Part 60), performance specifications of Appendix B of 40 CFR Part 60, quality assurance procedures of Appendix F of 40 CFR Part 60, and a protocol approved in writing by the Air Pollution Control Officer.

(4) An owner or operator of any unit subject to this rule shall maintain, as applicable for the type of unit, records of dates and times of operation, times of all startups, shutdowns, periods of operation at low load, fuel changes and records of the type and quantity of each fuel used during each calendar day and calendar year.

(5) An owner or operator of an emergency unit shall maintain records of dates and times of operation, including operating hours for non-emergency purposes and during each emergency situation. At a minimum, these records shall include the dates and times of all

startups and shutdowns, total cumulative hours of operation for non-emergency purposes during each calendar year, and a description of each emergency situation.

(6) An owner or operator of a peaking unit shall maintain records of dates and times of operation, the hours of operation each calendar day, and the total cumulative hours of operation during each calendar year.

(7) An owner or operator of any unit operating less than 877 hours per calendar year and subject to Subsection (d)(2) shall maintain records of the total cumulative hours of operation during each calendar year.

(8) An owner or operator of any unit subject to this rule shall maintain all records required by Section (e) and records of all source tests required by Subsection (g)(2) or Subsection (g)(3) for a minimum of two calendar years. These records shall be maintained on the premises and made available to the District upon request. Records for facilities that are unmanned may be kept at an alternative location approved in writing by the Air Pollution Control Officer.

(9) An owner or operator of any peaking unit subject to Subsection (d)(2) or emergency unit subject to Subsection (b)(2) shall install and maintain a non-resettable meter that measures elapsed operating time if deemed necessary by the Air Pollution Control Officer.

(10) The owner or operator of any unit or units subject to Subsection (d)(3) shall maintain following records:

(i) Records of calendar-day aggregate NO_x mass emissions for all such units combined under the same common ownership;

(ii) For each unit, calendar-day records of the applicable operational parameter(s) that are used to calculate the aggregate NO_x mass emissions for that unit.

The recorded calendar-day NO_x mass emissions shall be based on each individual unit's most recent source test results and a suitable operational parameter(s) and calculated in accordance with a protocol approved in writing by the Air Pollution Control Officer. Any such protocol shall rely on existing recordkeeping and monitoring to the extent feasible and may provide for calculation of NO_x mass emissions for a group of emission units based on an average emission factor for the group units and an operational parameter(s) applicable to the group as a whole in order to minimize additional monitoring or recordkeeping.

In lieu of calculating and recording aggregate NO_x mass emissions for each calendar day pursuant to Subsection (e)(10)(i), the owner or operator may, with the advanced written approval of the Air Pollution Control Officer, maintain records of a suitable surrogate parameter for aggregate NO_x mass emissions on some or all calendar days provided that the Air Pollution Control Officer determines that the surrogate parameter is adequate to

determine compliance with Subsection (d)(3). In this event, the final determination of compliance for a calendar day shall be based on mass emissions calculated pursuant to the approved protocol and the records maintained pursuant to Subsection (e)(10)(ii).

(11) For peaking units subject to Subsection (d)(3), the owner or operator shall maintain records that indicate if a day on which the peaking unit operates is a day that the Air Pollution Control Officer had predicted an exceedance of the federal eight-hour ozone standard and, if an exceedance of the federal eight-hour ozone standard was predicted, if a System Emergency as specified in Subsection (b)(5) was declared.

(12) An owner or operator of any unit subject to Subsection (d)(3)(i) shall maintain records of dates and times liquid fuel is used as a result of a force majeure natural gas curtailment.

(f) TEST METHODS

(1) To determine compliance with Section (d), measurement of NO_x and stack-gas oxygen content shall be conducted in accordance with the U.S. Environmental Protection Agency (EPA) Method 7E and 3A, or District Source Test Method 100 as approved by the EPA.

(2) The higher heating value and lower heating value of a fuel shall be determined by the following methods or their most current versions and can be provided by a fuel supplier:

(i) ASTM Test Method D240-09 or D809-09 for liquid fuels, and

(ii) ASTM Test Method D1826-94(2003), or D1945-03, in conjunction with ASTM Test Method D3588-98(2003) for gaseous fuels.

(g) SOURCE TEST REQUIREMENTS AND COMPLIANCE DETERMINATION

(1) Any required source testing shall be performed at no less than 80% of the power rating. If an owner or operator of a gas turbine engine demonstrates to the satisfaction of the Air Pollution Control Officer that the turbine cannot operate at these conditions, then emissions source testing shall be performed at the highest achievable continuous power rating.

(2) Except as specified in Subsection (g)(3), a unit subject to the requirements of Section (d) shall be tested for compliance at least once annually in the twelve-calendar-month period ending on the last day of the Permit to Operate expiration month, unless more frequent testing is specified in writing by the Air Pollution Control Officer.

(3) Unless more frequent testing is specified in writing by the Air Pollution Control Officer, a unit equipped with a continuous emission monitoring system (CEMS), subject to the requirements of Section (d), and subject to the provisions of the federal Acid Rain

Program pursuant to Section 72.6 of 40 CFR Part 72, shall be tested for compliance at a frequency in accordance with 40 CFR Part 75 Appendix B Section 2.3.1 and Section 2.3.3.

(4) All testing shall be conducted in accordance with the requirements of Section (f) and a source test protocol approved in writing by the Air Pollution Control Officer.

(5) Test reports shall include the operational characteristics, as described in Subsection (e)(1), of the unit and of all add-on NOx control systems.

(6) For the purposes of a compliance determination based on source testing, the NOx emissions concentration shall be calculated as an average of three substests.

(7) For the purposes of a compliance determination based on CEMS data, the averaging period to calculate NOx emissions concentration shall be one clock hour. For the purposes of compliance determination, the clock hour average NOx emissions concentration shall not include the data during periods of startup, shutdown, fuel change, and operation at low load.

(8) Notwithstanding provisions of this Section (g), the Air Pollution Control Officer may require source testing to determine compliance with these Rules and Regulations or to determine emissions at any time.

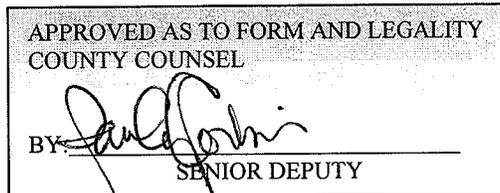
(h) COMPLIANCE SCHEDULE

An owner or operator of a new or replacement unit shall comply with all applicable provisions of this rule upon initial installation and commencement of operation.

IT IS FURTHER RESOLVED AND ORDERED that Rule 69.3.1 of Regulation IV shall take effect immediately upon adoption.

PASSED AND ADOPTED by the Air Pollution Control Board of the San Diego County Air Pollution Control District, State of California, this 24 day of Feb., 2010, by the following votes:

AYES: Cox, Jacob, Slater-Price, Roberts, Horn



STATE OF CALIFORNIA)
County of San Diego)^{SS}

I hereby certify that the foregoing is a full, true and correct copy of the Original Resolution entered in the Minutes of the Board of Supervisors.

THOMAS J. PASTUSZKA
Clerk of the Air Pollution Control Board

By: *Nancy Vizcarra*
Nancy Vizcarra, Deputy



No. 10-031

02-24-2010 (APCB 2)

SOCIOECONOMIC IMPACT ASSESSMENT

**PROPOSED AMENDED RULE 69.3.1
STATIONARY GAS TURBINE ENGINES
BEST AVAILABLE RETROFIT CONTROL TECHNOLOGY**

December 2009

Prepared by

**San Diego County Air Pollution Control District
10124 Old Grove Road
San Diego, CA 92131**

EXECUTIVE SUMMARY

This report presents the socioeconomic impact assessment (SIA) for proposed amended Rule 69.3.1, Stationary Gas Turbine Engines—Best Available Retrofit Control Technology (BARCT), of the San Diego County Air Pollution Control District (District). Rule 69.3.1 regulates emissions of oxides of nitrogen (NO_x) from gas turbines with a power rating greater than 0.3 megawatts (MW), for new turbines, or 1.0 MW for existing turbines.

Proposed amendments to Rule 69.3.1, if adopted, will limit daily NO_x mass emissions from older peaking turbines (legacy peaking units) on days with forecasted high ozone levels, serving to improve air quality. Peaking turbines installed before December 16, 1998 (i.e., prior to the initial adoption of Rule 69.3.1) are subject to a less stringent NO_x concentration standard than more recently constructed peaking turbines. The proposed new limitation applies only on days for which there is an adequate supply of electrical power—i.e., on days for which the electricity supply exceeds the demand. Consequently, the resulting reduction in electricity generation from older peaking turbines can be compensated by increased electricity generation by other, lower NO_x emitting power plants in the region (subject to applicable air quality permits and permit conditions), ensuring an overall net benefit to air quality in the region.

The proposed rule amendments would also extend the maximum allowable exemption from the NO_x standards in the rule during startups for combined-cycle turbine power plant from 120 minutes to up to 360 minutes (extended startup) in certain circumstances (a cold start). This addresses technical feasibility issues of the existing 120-minute exemption for existing large combined-cycle power plants and will eliminate an unintended potential regulatory barrier for deployment of combined-cycle technologies and eventual displacement of older, less efficient, and higher NO_x emitting power plants, resulting overall in a cumulative net benefit to air quality over the long term. Increasing the startup exemption period for cold starts would allow additional emissions during these infrequent, transitory periods. However, the District has concluded that the emission increase is not significant and likely offset by reductions in emissions from other power plants, especially over the long-term.

Finally, the proposed rule amendments would provide an exemption from the NO_x concentration standards during limited periods of low-load operation—not exceeding 130 minutes per day and 780 minutes per year—for all turbines that use lean premix NO_x combustors. This exemption is designed to allow for diagnosis and repair of a detected turbine problem without shutting down the turbine. No emission increase is anticipated from this proposed exemption. The proposed limited exemption for low-load operation would more likely provide an emissions benefit relative to existing requirements.

INTRODUCTION

This report addresses socioeconomic impacts of the District's proposed amended rule 69.3.1, Stationary Gas Turbine Engines—BARCT. California law requires that air pollution control districts (excluding those with populations of less than 500,000 people) perform a SIA, to the extent information is available when adopting, amending, or repealing rules and regulations that will significantly affect air quality or emission limitations. This requirement does not apply to the adoption, amendment, or repeal of any rule or regulation that results in any less restrictive emissions limit if the action does not interfere with the District's adopted plan to attain ambient air quality standards or does not result in any significant increase in emissions.

The Health and Safety Code Section 40728.5 specifies the following elements to be included in the SIA:

1. The necessity of adopting, amending, or repealing the rule or regulation in order to attain State and federal ambient air quality standards.
2. The type of business, including small business, affected by the rule or regulation.
3. The range of probable costs, including costs to industry or business, including small business, of the rule or regulation.
4. The emission reduction potential of the rule or regulation.
5. The impact of the rule or regulation on employment and the economy of the region affected by the adoption of the rule or regulation.
6. The availability and cost-effectiveness of alternatives to the rule or regulation.

BACKGROUND

A. GENERAL

Rule 69.3.1 was adopted by the District in 1998 pursuant to state law requirements to limit oxides of nitrogen (NO_x) emissions, an ozone precursor, from stationary gas turbines by adopting regulations implementing BARCT for this source category. Electric generating facilities (i.e., power plants) are the only users of gas turbines subject to the rule in San Diego County.

The District is also required by State law to adopt all feasible measures to reduce ozone precursor emissions. As one such potential feasible measure, the District preliminarily determined it was feasible to reduce NO_x emissions from peaking power plants using older gas turbines (also referred to as combustion turbines) in its triennial Regional Air Quality Strategy. These plants normally tend to operate during the hottest summer days, which are often days of peak ozone concentration. Peaking turbines are used to ensure reliability of the electrical grid

and typically operate only on days of high electrical demand. Recently constructed peaking turbines have controlled emissions far below the current rule standards. However, under existing Rule 69.3.1, older peaking turbines which operate less than 877 hours per year are currently subject to a less stringent emission standard. Though these older peaking turbines do not operate for the majority of the year, the impact on air quality can be significant on the days they do operate. The proposed amendments restrict NOx emissions from older, higher-emitting peaking turbines (legacy peaking units) on days with predicted high ambient concentrations of ozone.

Additionally, over the past decade as new turbine technologies, for example, large combined-cycle turbines, have been implemented and Rule 69.3.1 has been administered, circumstances have arisen that were not considered during initial rule development. The reduced fuel requirements (and fuel costs) and lower emissions of combined-cycle gas turbines serve as an incentive for replacing or repowering older power plants in San Diego. However, Rule 69.3.1 (as currently written) includes potentially technologically infeasible or cost prohibitive requirements for combined-cycle gas turbines during certain infrequent but unavoidable transitory operating conditions such as a cold start and low-load operation (described below). These conditions were not considered during the 1998 rule development because no combined-cycle power plants existed or were planned in the region at that time. Concerns about violating these requirements currently serve as a regulatory disincentive for deployment of modern combined-cycle power plants and a disincentive for continued operation of existing combined-cycle power plants. This impedes the replacement of older, less efficient, and higher NOx emitting power plants. This results in a net loss in air quality for the County.

Amendments to Rule 69.3.1 are now proposed to address previously unforeseen circumstances regarding modern combined-cycle gas turbine operations and emissions controls, as discussed below.

B. TECHNICAL BACKGROUND

Gas Turbine Operating Cycles

Simple-Cycle Turbines. Simple-cycle gas turbines operate without the ability to recover heat from the turbine exhaust gases. Because there is no heat recovery equipment, simple-cycle turbines can start very rapidly and are often used as peaking turbines. The electrical power rating of existing peaking turbines in San Diego are rated at 50 MW or less.

Combined-Cycle Turbines. Combined-cycle gas turbines recover and make use of exhaust heat that would otherwise be vented to the atmosphere. Heat is captured with a heat recovery steam generator (HRSG). The HRSG creates steam that in turn drives a steam turbine to generate additional electrical energy. Because of the heat recovery, a combined-cycle gas turbine is more efficient and emits less NO_x than a simple-cycle gas turbine or a boiler/steam turbine unit (utility boiler) producing the same amount of electrical energy. Because of their efficiency, combined cycle plants are usually expected to operate nearly all the time with very infrequent (once or twice per year) shutdowns for necessary maintenance. A cogeneration gas turbine is a variant of the combined-cycle gas turbine where the recovered heat is used to provide process heat or steam for space heating or water heating.

Large combined-cycle power plants in San Diego County have an overall power rating of about 550 MW with two gas turbines rated at about 170 MW each (the remainder of the power plant's power is produced by the steam turbine system). These large combined-cycle power plants emit less than 40% of the NO_x and use about 70% of the fuel (and emit 70% of the carbon dioxide, a greenhouse gas) to generate the same amount of electricity as the region's other large power plants (utility boilers).

Turbine Emission Control Technologies

Lean Premix Combustion. One common technology used to control NO_x emissions from stationary gas turbines is lean premix combustion. Lean premix combustors operate with a large excess of air to reduce combustion temperatures and NO_x formation (the premixing is to achieve a uniform mixture of the fuel and air). If the combustion mixture is too lean (too much excess air), combustion instability or loss of combustion can occur. In addition, there are large increases in emissions of carbon monoxide (CO) and volatile organic compounds (VOCs) if the mixture is too lean. Large, modern combined cycle turbines operate near the lean limit even in normal operations to reduce NO_x as much as possible—exhaust concentrations of 9 ppmv are routinely achieved without add-on emission control systems as compared to 15 parts per million by volume (ppmv) for smaller turbines with lean premix combustion. As a result, they are more susceptible to combustion instabilities from variations in operating conditions than other turbines with lean premix combustors.

Lean premix combustion is not feasible during low-load operations such as startups, during which fuel requirements are reduced and premixing with air would yield air/fuel mixtures that are too lean, possibly causing loss of combustion and a turbine shutdown. To overcome this, turbines use some version of diffusion flame combustion to stabilize combustion at low loads. In diffusion flames, the fuel and air mix at the point of combustion resulting in near stoichiometric combustion and much higher temperatures. Consequently, turbines equipped with lean premix combustors have higher NO_x emissions during periods when the turbine operates at low loads (less than about 50% of the rated load) such as during a startup. As an example, large combined-cycle turbines, which can achieve 9 ppmv NO_x when operating above the low-load regime, have NO_x concentrations of 40 ppmv or more even with add-on postcombustion emission control systems.

Selective Catalytic Reduction. Selective catalytic reduction (SCR) is a postcombustion add-on emission control technology that further controls NO_x emissions from gas turbines by catalytically reacting NO_x in the turbine exhaust with a reducing agent, such as ammonia, to produce nitrogen and water. SCR operation may also be affected by low-load operations when turbine exhaust temperatures are reduced making the SCR catalyst less effective.

Water Injection. Water injection is a NO_x reduction technology where water or steam is injected into the gas turbine combustion zone to reduce the combustion temperature and, hence, NO_x. It is often used to reduce NO_x emissions from turbines with diffusion flame combustors. The amount of water injection and, hence, NO_x reduction is limited by the same factors that limit premix combustion—combustion instability and large increases in CO and volatile organic compounds (VOCs).

Cold Starts of Combined-Cycle Turbines

Combined-cycle gas turbines require more time to startup and reach normal steady-state operation than simple-cycle gas turbines especially during infrequent cold starts. A cold start occurs when a combined-cycle turbine has not operated for a few days (during maintenance operations, for example) and the components of the HRSG, steam turbine, and other steam system components have reached ambient temperature. During a subsequent startup, these components will heat up and expand. If they are heated too rapidly, high thermal stresses caused by large temperature variations can cause cracks and other damage to critical components—the steam turbine is particularly sensitive to rapid heating and the resulting thermal stresses. The thermal stresses increase rapidly with the size of the component so larger combined-cycle power plants require a lower heating rate than smaller plants.

To prevent or minimize such damage, the rate at which the steam system is heated during a cold start is limited to minimize temperature variations. This in turn requires the gas turbine be operated at low-load levels for an extended period of time to reduce the amount and temperature of the steam produced in the HRSG. During this period, NO_x emissions from the turbine are much higher than during normal steady-state operations because lean premix combustion is not feasible and add-on emission control systems (SCR) are not functioning at their peak efficiency.

To address this technical issue and the similar issue of low-operational periods (see below), two other large California air districts have revised their prohibitory rules for gas turbine engines to allow longer exemption periods for startups and exemptions for low-load operational periods in general (see Table 1). It should be noted that two other large California districts have not increased their startup exemption. However, in those districts their rules are constructed such that permit conditions are either used exclusively to establish startup exemptions or can override startup exemptions specified in the rule.

Table 1. Startup And Shutdown Exemption Periods in Stationary Gas Turbine Engine Rules

District	Applicable Prohibitory Rule	Startup Exemption Period	Shutdown Exemption Period	Other Exemption Periods	Date of Last Amendment	Latest EPA SIP Action Date	Remarks
Bay Area AQMD	Reg. IX, Rule 9	6 hours—cold ST ^a 4 hours—all others	2 hours		12-6-06	12-15-97 Approval	Startup exemption increased from 3 hours in 2006
Sacramento APCD	413	4 hrs—cold ST 3 hrs—warm ST 1 hr—all others	1 hour	6 hour averaging time for transitory events	3-24-05	1-10-08 Approval	Startup exemption increased from 1 hour in 2005 and transitory event exemption added
San Joaquin Valley UAPCD	4703	Unless a longer period is approved by permit, 2 hours	Unless a longer period is approved by permit, 2 hours	Unless a longer period approved by permit, 1-2 hours for transitory events	9-20-07	10-21-09 Proposed Approval	Transitory event exemption added in 2007
South Coast AQMD	N/A ^b	Addressed by permit conditions for units installed after 1989 ^b .	Addressed by permit conditions for units installed after 1989 ^b .	Addressed by permit conditions for units installed after 1989 ^b	N/A	N/A	South Coast AQMD's prohibitory rule for stationary gas turbines is only applicable to turbines existing before 8-4-89. Limits for turbines after that date are established by new source review requirements (BACT).

^aSteam turbine.

^bFor units installed prior to August 4, 1989, if not addressed by permit conditions, 15 minutes for simple-cycle units, and two hours for combined- cycle units (Rules 429 and 1134).

The period of low-load operation is much reduced during warm startups when the steam system is significantly closer to its final operating temperature. Large combined-cycle power plants in San Diego County have demonstrated the ability to achieve the NO_x standards of Rule 69.3.1 within the 120 minutes currently allowed in the rule during warm startups. It should be noted that both of the existing large combined-cycle turbine facilities in San Diego have permit conditions prohibiting having more than one of the two combined-cycle turbines at each facility in a startup mode. This reduces emissions, because the second turbine to startup in a cold start for the facility is undergoing a warm start with respect to all the steam system components, except for the second turbine's HRSG, which have been brought to operating temperature by the first turbine to startup. This allows the second turbine to achieve the rule NO_x standards within the existing 120 minutes exemption period in the rule.

Low-Load Operation

An additional infrequent occurrence of combined-cycle gas turbine operation is an unplanned, rapid load reduction. This occurs when the turbine's combustion monitoring and control system detects a possible malfunction or combustion instability that would normally lead to a turbine "trip" (an automatic protective shutdown). The turbine load is automatically reduced to prevent equipment damage and to reduce the probability of tripping while the problem is being diagnosed. The problem is often resolved during the period of reduced-load operation, thereby avoiding the time, cost, and emissions of a full shutdown and restart. Nevertheless, NO_x emissions are higher during the reduced-load period than during normal steady-state operation because, again, the gas turbine and emission control systems are not under optimal operating conditions. Although such an event is possible for any lean premix turbine, it is much more likely for a large combined-cycle turbine since they operate much closer to the lean limit of combustion and have more sophisticated control systems to detect potential problems.

Legacy Peaking Units

There are 14 legacy peaking units in San Diego County rated at 15–18 MW. Because they are peaking turbines with hours of operation limited to 877 per year or less they are subject, under the existing rule in Subsection (d)(2), to a less stringent NO_x concentration standard than other turbines rated at more than 10 MW and of comparable efficiency that are subject to Subsection (d)(1). For gas-fueled legacy peaking units the Subsection (d)(2) limit is 42 parts per million by volume (ppmv) at 15% oxygen compared to 15 ppmv if Subsection (d)(1) was applicable. Moreover, new peaking units are subject to best available control technology (BACT) requirements under new source review (NSR). BACT is currently a concentration limit of 2.5 ppmv for NO_x for a new peaking turbine (typically rated at 40 - 50 MW).

The total power output of these legacy peaking units in the County is about 220 MW. Although they are limited to less than 877 hours per year of operation by the rule and typically operate less than 200 hours per year, their impact on air quality can be significant on the days they do operate, such as hot summer days that are conducive to ozone formation and build-up. These legacy peaking turbines do not have lean premix combustion systems and are controlled solely

with water injection. The gas-fueled units achieve a NO_x exhaust concentration of about 30 ppmv on average, which is near the typical limit of 25 ppmv for water injection for newer turbines. The one turbine that only uses liquid fuel achieves an average NO_x exhaust concentration of about 40 ppmv, which is less than the Subsection (d)(1) standard of 42 ppmv (the Subsection (d)(2) standard is 65 ppmv).

Because of their age, the legacy peaking units are also inefficient using about 70% more fuel to produce the same amount of power as a new peaking turbine. As a result, even though they are relatively well controlled for units using only water injection, the gas-fueled units emit approximately 2.0 pounds of NO_x per megawatt-hour (MW-hr) of electrical energy generated. In comparison, the newest gas-fueled peaking plants emit about 0.1 pound per MW-hr, and large combined-cycle plants emit about 0.05 pound per MW-hr during normal operations.

SUMMARY OF PROPOSED AMENDMENTS TO RULE 69.3.1

To address the issues regarding potential high daily emissions from legacy peaking units, extended startup for combined-cycle turbines, operation at low-load for turbines with lean-premix combustors, and other minor issues with the rule, the following amendments to existing Rule 69.3.1 are proposed:

1. For peaking units with a power rating greater than four MW and installed prior to 1998, a specified calendar-day aggregate NO_x mass emission limit for all units under common ownership on days that an exceedance of the federal 8-hour ambient air quality standard for ozone is forecast. The daily mass emission limit begins at an intermediate level in 2012 and declines to its final level in 2015. This is in addition to the requirement in the existing rule to meet NO_x concentration limits of Subsection (d)(2), excluding periods of startup, shutdown, and fuel change. Legacy peaking units that can comply with the same standards as other units of similar power rating and efficiency that are subject to Subsection (d)(1) of the existing rule are not subject to the daily mass emission limit.
2. An exemption to the proposed new daily mass emission limit for legacy peaking units in cases when the units operation is essential to maintaining reliability of the electrical grid.
3. An amendment to Subsection (d)(2) that restricts its applicability to peaking turbines to turbines installed prior to 1998.
4. For dual-fueled legacy peaking units, a requirement that they use natural gas on days that an exceedance of the federal 8-hour ambient air quality standard for ozone is forecast. The units are exempt from this requirement if there is force majeure gas curtailment and are also exempt from the proposed new daily mass emission limit.
5. An exemption from the rule NO_x standards during extended startups of up to 360 minutes for combined-cycle turbines when conditions indicate an extended startup is necessary, as determined by the Air Pollution Control Officer. The existing rule only allows 120 minutes for a startup in all situations.

6. An exemption for periods of low-load operation for turbines using lean premix combustors and equipped with a continuous emission monitoring systems (CEMS) that records data on a minute-by-minute basis. The exemption period is limited to 130 minutes per day or 780 minutes per year. The existing rule does not contain this exemption.
7. For units subject to the rule's standards, at a minimum, annual source testing or, for units subject to the federal acid rain program, testing at a frequency consistent with that program. The existing rule requires annual source testing for all units, but allows District discretion to allow less frequent source testing.
8. New monitoring and recordkeeping requirements necessary to support the proposed daily mass emission limit and new startup and low-load operation provisions and simplifications and clarifications of other monitoring and recordkeeping provisions.
9. New definitions for major terms to support proposed new provisions and clarifications of existing definitions.
10. Updates to the test methods for determining compliance.
11. Removal of moot compliance schedule provisions.

NECESSITY OF AMENDING EXISTING RULE 69.3.1

San Diego County does not meet the National and State Ambient Air Quality Standards for ozone and is classified as an ozone nonattainment area. Since the District is in nonattainment of the State Ambient Air Quality Standards, State laws require the District to implement rules that regulate emissions of ozone precursors – VOCs and NOx. Existing Rule 69.3.1, which was initially adopted in 1998, regulates NOx emissions from stationary combustion turbine engines and fulfills the District's requirements under the State Health & Safety Code to implement BARCT.

As discussed below, the proposed amendments to the rule will help the District attain the ambient air quality standards. The amended rule will also help the District fulfill its commitment in the San Diego County Regional Air Quality Strategy to implement all feasible emission control measures as required by State law.

A. AMENDMENTS NOT REQUIRING AN SIA

Extended Startup and Low-Load Operation

The proposed amendments to Rule 69.3.1 allowing extended startups during an expected one or two cold starts per year and low-load operation are necessary because the current rule contains provisions that are technologically infeasible or prohibitively expensive for existing large

combined-cycle turbines. They also present a potential barrier to new combined cycle turbines of the highest efficiency being constructed in the region.

The eventual replacement or repowering of outdated power plants with modern combined-cycle power plants would provide air quality benefits to the region over the long-term because of the high efficiency and low emissions of combined-cycle power plants. However, existing Rule 69.3.1 currently contains requirements that are technologically infeasible or prohibitively expensive for existing, and perhaps new, combined-cycle gas turbines to achieve during infrequent but unavoidable cold starts and present potential compliance issues for both new and existing units during low-load operations. Although steady-state operation is the norm for combined-cycle gas turbines, an infrequent, extended cold start and some low-load operation is unavoidable despite best efforts regarding planning, design, and operating procedures. The necessity for these amendments and their potential impact are further discussed below.

Extended Startup for Combined-Cycle Turbines. The District examined the startup requirements for thirteen existing combined-cycle plants in California. Four of these combined-cycle plants have permit conditions allowing a duration of four hours or less for an extended startup. In some of these cases, the ability to comply with NO_x standards during a startup may rely on longer averaging times than that allowed in Rule 69.3.1 (one clock hour). The other nine plants have periods of six hours for extended startups, which is consistent with the maximum duration being proposed for Rule 69.3.1 for an extended startup.

There are two existing large combined-cycle power plants in San Diego County. One of those plants requires about five hours to achieve the rule NO_x standards for a cold start—if there are no problems. Starting in a shorter period puts unacceptable and potentially damaging thermal stresses on the steam system components. The other turbine did achieve the rule NO_x standards during its first and only commercial cold start. However, this startup placed higher than normal thermal stress on the steam system components that, while not immediately damaging, would significantly shorten the lifetime of those components if repeated during future cold starts. In addition, this turbine would not have been able to achieve the rule NO_x standards within the 120 minutes had there been any problems. In this case, the turbine would have likely shutdown before the 120 minutes had elapsed and then been restarted, with an associated increase in emissions.

The potential increased emissions from this amendment is limited by the emission standards of District Rule 69.3, Stationary Gas Turbine Engines—Reasonably Available Control Technology. These standards are less stringent (42 ppmv for gas-fueled units) than those in Rule 69.3.1 for turbines for which the proposed extended startup would be applicable (about 12 ppmv). However, the exemption from NO_x standards for all startups is limited to 120 minutes in Rule 69.3, and the District is not proposing any changes to this provision. Therefore, emissions during the proposed potential additional 240 minutes beyond the existing startup exemption period in Rule 69.3.1 are limited by the standards of Rule 69.3.

Based on an analysis of a cold start at an existing large combine-cycle facility, the District estimates that a worst-case 360-minute startup period would result in excess NO_x emissions of about 235 pounds per startup event relative to NO_x emissions allowed by the existing rule, with

a 120-minute startup exemption period. The actual excess NOx emissions during this startup were about 100 pounds.

To put 235 pounds of NOx emissions into perspective, this equates to less than one-tenth of one percent of total daily NOx emissions in the region (estimated to be 160 tons or 320,000 pounds of NOx emissions per day in San Diego County). The District conservatively estimates that there will be an average of two cold starts per year for each existing facility, which will result in a total potential annual emission increase of about 940 pounds of NOx per year and an actual increase of 400 pounds of NOx per year. This emission increase is offset by emission reductions from allowing the more efficient combined-cycle turbine to operate in place of less efficient power plants, such as utility boilers, that produce more NOx per MW-hr generated. This emission increase would be offset if the combined-cycle plants' operations reduced operations of the other large power plants in the County by less than eight hours, which is very likely. Furthermore, the District evaluated the impact of excess NOx emitted during a cold start with respect to the ambient air quality standards for nitrogen dioxide (NO₂) in the area surrounding the power plant most impacted by the proposed change. The District found that the impact of the NOx emissions from extended startups when added to the monitored background levels of NO₂ did not cause any exceedance of the State and federal 1-hour or annual ambient air quality standards for NO₂.

Since the criteria for the amount of additional time beyond the existing 120 minute startup exemption necessary to achieve compliance with the rule NOx standards varies from turbine to turbine, the District would decide the amount of additional time allowed, if any, on a case-by-case basis. Smaller combined-cycle turbines, which are somewhat less efficient than large combined-cycle turbines, may be able to meet the rule NOx standards within the existing 120 minutes of the rule. For example, combined-cycle power plants rated at less than 50 MW in San Diego County already have permit conditions limiting their startup exemption to 120 minutes or less. As technology evolves, it is likely shorter startup times will also be achievable by large combined-cycle turbines. Furthermore, if a shorter startup period is feasible for a proposed new or modified combined-cycle facility under cold start conditions then the District would require a shorter startup period as an enforceable permit condition under new source review rules, notwithstanding Rule 69.3.1 provisions.

The District also finds that it is not cost-effective to retrofit the existing large combined-cycle turbines to achieve the rule's NOx emission limits. Based on estimated actual emissions, capital costs for any new equipment would have to be less than \$17,000 to be cost-effective even at the District BACT cost-effectiveness threshold of \$9 per pound of NOx reduced. Based on cost information reviewed by the District, capital costs for modifications necessary to shorten the startup time would be several hundred thousand dollars or more.

With these considerations, the District has concluded that the proposed exemption for up to 360 minutes from the rule's NOx standards during a cold start is necessary because it is not feasible for existing large combined-cycle turbines to achieve the NOx standards within the existing 120 minute exemption. The District has also concluded that the additional emissions associated with the proposed exemption from the rule standards for combined-cycle turbines during a cold start are not significant and, furthermore, will not hinder, but in fact promote, the District's attainment

of ambient air quality standards since it will allow large, lower-emitting existing combined-cycle turbines to operate in San Diego County and not impede the construction of other large combined-cycle turbine facilities. Therefore, since this exemption relaxes an emission standard and does not significantly affect air quality, the District concludes that no SIA is required in accordance with State law.

Low Load Operation Exemption. Although this exemption is potentially applicable to any turbine equipped with a CEMS and a lean premix combustion system, the District expects that only large combined-cycle turbines will need to use the exemption, and then infrequently. Increased emissions from this exemption are also limited by Rule 69.3, which contains no such exemption. Based on an analysis of two large combined-cycle turbines' operations, the District estimates that there might be an average of about four periods of low-load operation per year that potentially would cause a turbine to exceed the NO_x concentration standards in the rule. The proposed exemption is limited to 130 minutes per day and 780 minutes per year for each turbine based on this analysis, which indicates that periods of load operation are very unlikely to exceed these levels.

For the proposed limited exemption for low-load operation, the District estimates that the worst case emission increase relative to the rule standards is about 100 pounds per event for a large combined-cycle turbine. However, the District has concluded that there likely will be no emissions increase from these events because, without the exemption, a unit would shutdown in the situations that the exemption addresses. In this case, there would be additional emissions associated with the shutdown and subsequent startup, which would likely outweigh the additional emissions from the low-load operational period. This is more likely because the periods of low-load operations examined by the District did not result in noncompliance with the rule, which indicates actual emission increases from these events will be very small.

For other turbines, which do not operate as close to the lean combustion limit as large-combined cycle turbines and do not have as sophisticated combustion monitoring systems, the District estimates that there will likely be very few, if any, low-load events. The District is only aware of one such event on other turbines, which was caused by external factors and did not result in noncompliance with the Rule 69.3.1 standards. However, the District has extended the exemption to all turbines with lean premix combustion systems and a CEMS with minute-by-minute sampling to address this rare contingency.

With these considerations, the District has concluded the limited low-load operation exemption is necessary to address technical feasibility of complying with the rule's NO_x standards for turbines with lean premix combustors because some periods of low load are unavoidable while attempting to achieve the greatest reduction in NO_x emissions. The District has also concluded that the additional emissions associated with the proposed exemption from the rule standards for turbines with lean premix combustors during limited periods of low-load operation are not significant and, furthermore, will not hinder, but in fact promote, the District's attainment of ambient air quality standards since it will eliminate a barrier to large combined-cycle turbines operations by providing compliance assurance for these turbines. Therefore, since this exemption relaxes an emission standard and does not significantly affect air quality, the District concludes that no SIA is required in accordance with State law.

Other Amendments

Legacy Peaking Unit Use of Natural Gas. A companion amendment to the new proposed daily NOx mass emission limit requires that legacy peaking units that are permitted to use natural gas or liquid fuel only use natural gas on forecasted ozone exceedance days to ensure that maximum emission reductions occur. However, the District expects no cost to industry since these units currently only use natural gas because of the expense of liquid fuels and this is not expected to change in the foreseeable future. There are no electrical reliability issues since the units are exempted if there is a force majeure gas curtailment (a curtailment beyond their control) and natural gas is not available. The units are also exempted from the proposed daily NOx mass emission limit in this case to allow adequate operating time. Since this is not a significant change in emission limitations relative to current practice and does not have a significant impact on air quality, the District concludes no further SIA is required in accordance with State law.

Restricting Applicability of Subsection (d)(2). A second companion amendment to the new proposed daily NOx mass emission limit restricts the applicability of Subsection (d)(2) for peaking turbines to turbines installed before 1998. This ensures no future peaking turbine will seek to use the less stringent limit of Subsection (d)(2) by limiting their operating hours to less than 877 hours. This is not a significant change in emission limitations since the legacy peaking units are not affected and no peaking turbine permitted since 1998 makes use of this provision. In addition, turbines with lean premix combustion systems are now readily available that comply with the more stringent NOx standards of Subsection (d)(1). Since this is not a significant change in emission limitations relative to current practice and does not have a significant impact on air quality, the District concludes no further SIA is required in accordance with state law.

Source Testing Frequency. The Environmental Protection Agency (EPA) is requiring Rule 69.3 be amended to remove District discretion for less frequent source tests than annually. The District is proposing the same amendment for Rule 69.3.1 for consistency. The District is also proposing amendments that allow units equipped with CEMS that are subject to the federal acid rain program be tested at the same frequency as required by the acid rain program. These amendments are not a change to an emission limitation and do not affect air quality, so no SIA is required.

There will only be a beneficial effect for industry as a result of these amendments since all units are now tested annually and the units subject to the acid rain program that do not operate more than 168 hours in a calendar quarter would be tested less frequently than annually. This satisfies EPA objections since there is a specified source test frequency that the District can not relax. Reducing the source test frequency for units subject to the federal acid rain program does not prevent effective determinations of compliance because all these units are equipped with a certified CEMS. The amendment also provides air quality benefits since it reduces unnecessary testing of these units and the associated emissions.

Additional Amendments. The other amendments to the rule are not significant in nature and no SIA is required.

B. AMENDMENTS REQUIRING AN SIA

Daily Mass Emission Limits for Legacy Peaking Units

The proposed mass emission limit is only applicable to turbines with a power rating more than four MW that were installed before 1998 (legacy peaking units) and, because their operations are limited to 877 hours per year or less, are subject to less stringent NO_x concentration standards in the rule than other turbines of similar size and efficiency. There are currently 14 such turbines in the County.

Although the emissions of these turbines are relatively small annually, an average of about 28 tons of NO_x per year for all of the turbines combined, emissions can be significant on some days. The peak one-day NO_x emissions for these legacy peaking units in the 2002–2007 time period was about 3.5 tons or about 2% of the total basin-wide NO_x from all sources. New peaking units would have emitted only 0.35 ton of NO_x to produce the same amount of electrical energy.

Because attainment of the ambient air quality standards is based on the number of days that the standard is exceeded, it is important to limit daily emissions of these legacy peaking units on days an ozone exceedance might occur. Therefore, it is necessary to adopt this amendment to expedite the District's attainment of State and federal ambient air quality standards for ozone. In addition, adoption of this amendment partially satisfies the requirement under State law that the District adopts all feasible measures.

The full socioeconomic impact of this proposed amendment and its associated monitoring and recordkeeping is discussed in detail below.

TYPE OF INDUSTRIES AFFECTED

Rule 69.3.1 is applicable to stationary gas turbine engines, which in San Diego County are all used to generate electrical power. The District has 49 turbines that are subject to the rule. However, the amendment limiting daily NO_x mass emissions from legacy peaking units only applies to 14 turbines. Of these, 13 are permitted to burn either natural gas or liquid fuel and are owned by a single owner (Owner A). The remaining turbine (owned by Owner B) only burns liquid fuel. All these turbines were installed in the 1960s and 1970s. The turbine owners are both wholly owned subsidiaries of large power companies that operate large power plants in San Diego County and are not considered small businesses.

EMISSION REDUCTION POTENTIAL

Based on the source test history and extensive analysis of the operations of Owner A's thirteen turbines and the source test history of Owner B's turbine, the District estimates that the daily NO_x mass emission limit will result in an average annual emission reduction of about 0.9 ton per year when it is fully implemented in 2015. However, emission reductions on a single day could

be as high as about 1.65 tons per day, or about 1% of total daily NOx emissions from all sources in the County. The total annual NOx emissions from the legacy peaking turbines is about 28 tons per year. The District estimates the cost-effectiveness of the rule to be about \$5.50 a pound based on the estimated average annual emission reductions and the probable costs to industry discussed below.

RANGE OF PROBABLE COSTS TO INDUSTRY INCLUDING SMALL BUSINESS

The District estimates the annualized probable cost for Owner A to be about \$9,500 per year. Of this, about \$8,200 is foregone profits from electrical energy generation when the turbine operations are limited by the daily NOx mass emission limit. The remainder is costs associated with establishing, and maintaining, monitoring, and recordkeeping to comply with the daily limit.

The costs for Owner B are estimated to be about \$430 per year. The costs for Owner B are low because it is expected that this turbine can comply, or nearly comply, with the emission standards in Subsection (d)(1) of the existing rule. Hence, the turbine will either not be subject to the daily emission cap or, if it is subject, will not have its operations limited significantly. It is also likely that Owner B's turbine will be decommissioned before the daily mass emission limit goes into effect in 2012.

IMPACT ON EMPLOYMENT AND THE REGIONAL ECONOMY

The proposed daily NOx mass emission limit for legacy peaking units will have no significant impact on the employment and economy of the region. The costs for the affected facilities are relatively small. In addition, the imposition of the daily NOx mass emission limit on the legacy peaking units will not affect the availability of electrical power in the region. The proposed amended rule contains provisions that exempt the legacy peaking units from the daily emission limit on days there is a potential shortage in available electrical power.

The daily emission limit is not applicable if a Stage 1, Stage 2, or State 3 electrical emergency or a transmission emergency is declared by the California Independent System Operator (CAISO) or, in some cases, if San Diego Gas & Electric finds that more power is needed locally and CAISO can not, or would not be expected to, act in a timely manner. A Stage 1 electrical emergency is usually declared by CAISO prior to Stage 2 or Stage 3 emergencies. A Stage 1 emergency is declared when CAISO's operating reserve level falls below approximately seven percent. Under a Stage 1 Emergency, CAISO continues to call for conservation, and will call for voluntary load reductions but does not activate mandatory load reductions. Stage 2 and Stage 3 electrical emergencies are declared when the operating reserve level falls below 5% and 1.5%, respectively. The exemption from the mass emission limit on these days allows the legacy peaking units to operate as much as necessary to provide power to the electrical grid and, thus, protect the electrical supply.

AVAILABILITY AND COST-EFFECTIVENESS OF ALTERNATIVES

There are no reasonably available alternatives for the proposed daily NO_x mass emission limit. Because of the low annual emissions from the legacy peaking units, retrofitting add-on emission control systems (such as SCR) or installation of low NO_x combustors are not cost-effective. The District estimates the cost-effectiveness of retrofitting these turbines with the next most cost-effective control option (SCR) is about \$120 per pound of NO_x reduced.

COMPARATIVE ANALYSIS

**RULE 69.3.1 (STATIONARY GAS TURBINE ENGINES -
BEST AVAILABLE RETROFIT CONTROL TECHNOLOGY)**

STATUTORY REQUIREMENTS

Prior to adopting, amending, or repealing a rule or regulation, California Health and Safety Code Section 40727 requires findings of necessity, authority, clarity, consistency, non-duplication, and reference. As part of the consistency finding to ensure proposed rule requirements do not conflict with or contradict other Air Pollution Control District (District) or federal regulations, Health and Safety Code Section 40727.2(a) requires the District to perform a written analysis identifying and comparing the air pollution control standards and other provisions of proposed amended Rule 69.3.1 with existing or proposed District rules and guidelines and existing federal rules, requirements, and guidelines applying to the same source category.

ANALYSIS

Currently, stationary turbine engines are regulated by existing District Rule 69.3.1 reflecting State Best Available Retrofit Control Technology (BARCT) requirements and existing District Rule 69.3 reflecting federal Reasonably Available Control Technology (RACT) requirements. Proposed amended Rule 69.3.1 satisfies BARCT requirements of the Health and Safety Code and also implements every feasible measure for peaking turbines installed before 1998 and rated at more than four megawatts (MW).

CONCLUSION

A comparative analysis between proposed amended Rule 69.3.1 and existing Rule 69.3 - Stationary Gas Turbine Engines, federal New Source Performance Standards (NSPS) Subpart GG - Stationary Gas Turbines, federal NSPS Subpart KKKK, and the District's most recent Best Available Control Technology (BACT) determinations for stationary gas turbines was conducted regarding applicability, exemptions, emission limits, monitoring, and recordkeeping requirements. The analysis shows amended Rule 69.3.1 and existing Rule 69.3 have many similarities including format, turbine size applicability, several exemptions, and monitoring and record keeping requirements (Table 1). Rule 69.3.1 has more stringent emission limitations than Amended Rule 69.3 and, because it is more stringent, has some special exemptions. Amended Rule 69.3.1 is more stringent than NSPS Subpart GG in all areas except test methods where the requirements are the same (Table 2). Amended Rule 69.3.1 is more stringent than NSPS Subpart KKKK in all areas except test methods where the requirements are the same (Table 3). Amended Rule 69.3.1 is less stringent than BACT for gas turbines in all areas except test methods where the requirements are the same (Tables 4 and 5). There are no conflicting requirements between new Rule 69.3.1 and amended Rule 69.3, NSPS Subpart GG, NSPS Subpart KKKK, or BACT for gas turbine engines.

**TABLE 1: PROPOSED AMENDED RULE 69.3.1 COMPARISON TO
RULE 69.3 - STATIONARY GAS TURBINE ENGINES
REASONABLY AVAILABLE CONTROL TECHNOLOGY**

ELEMENTS	PROPOSED AMENDED RULE 69.3.1	EXISTING RULE 69.3	
APPLICABILITY	Existing units rated ≥ 1.0 MW and new units rated ≥ 0.3 MW.	Units ≥ 0.3 MW except units ≥ 1 MW installed before September 27, 1994.	
EXEMPTIONS FROM RULE	Units operated for research and development.	Same as proposed amended Rule 69.3.1.	
	Portable units located at a stationary source for ≤ 12 consecutive months.	Same as proposed amended Rule 69.3.1.	
	New units rated ≤ 0.4 MW and used in conjunction with military equipment, and operated at military sites, provided operation is for < 1000 hours/year.	Same as proposed amended Rule 69.3.1.	
EXEMPTIONS FROM EMISSION STANDARDS	Emergency units operating < 80 hours/year for non-emergency purposes.	Same as proposed amended Rule 69.3.1.	
	Except for combined cycle turbines during extended startups, any unit for a period ≤ 120 minutes during startup, shutdown, or fuel change.	Any unit for a period ≤ 120 minutes during startup, shutdown, or fuel change.	
	For combined-cycle turbines a period ≤ 360 minutes during extended startups if determined necessary by the District based on key operational parameters.	N/A	
	For turbines with lean premix combustors, periods of low-load operation ≤ 130 minutes a day and ≤ 780 minutes per year.	N/A	
	Peaking units subject to daily mass emission limit are exempt on days with potential electrical power shortages and also on days with natural gas fuel curtailments	N/A	
STANDARDS	NOx Emission Concentration Limits (Corrected to 15% O ₂):	NOx Emission Concentration Limits (Corrected to 15% O ₂):	
	<u>Power Output Rating</u> (MW)	<u>Gaseous Fuel</u> (ppmv) <u>Liquid Fuel</u> (ppmv)	<u>Power Output Rating</u> (MW) <u>Gaseous Fuel</u> (ppmv) <u>Liquid Fuel</u> (ppmv)
	≥ 0.3 and < 2.9 (new units)	42 65	≥ 0.3 and < 2.9 (new units) 42 65
	≥ 1.0 and < 2.9 (existing units)	42 65	≥ 1.0 and < 2.9 (existing units) 42 65
	≥ 2.9 and < 10.0	25 [†] 65	≥ 2.9 and < 10.0 42 65
	≥ 10.0 without post - combustion NOx control	15 [†] 42 [†]	≥ 10.0 without post - combustion NOx control 42 65
	≥ 10.0 with post - combustion NOx control	9 [†] 25 [†]	≥ 10.0 with post - combustion NOx control 42 65
	EXCEPT AS FOLLOWS:		
	≥ 4 MW peaking units < 877 hour/year	42 65	≥ 4 MW peaking units < 877 hour/year 42 65
	< 4 MW and operating < 877 hour/year	42 65	< 4 MW and operating < 877 hour/year 42 65
≥ 4 MW peaking units < 877 hour/year	Comply with daily NOx mass emission limit on days with forecast high ozone levels and use only natural gas on those days.	N/A	

**TABLE 1 CONTINUED: PROPOSED AMENDED RULE 69.3.1 COMPARISON TO
RULE 69.3 - STATIONARY GAS TURBINE ENGINES
REASONABLY AVAILABLE CONTROL TECHNOLOGY**

MONITORING AND RECORDKEEPING REQUIREMENTS	Units shall have continuous monitors to demonstrate continuous compliance of applicable operational characteristics.	Same as proposed amended Rule 69.3.1.
	All CEMS shall comply with applicable federal requirements.	Same as proposed amended Rule 69.3.1.
	CEMS is required for units rated ≥ 10 MW that operate for > 4000 hour/year.	N/A
	Records of operational parameters necessary to demonstrate compliance.	Same as proposed amended Rule 69.3.1
	If applicable, dates and times of operation and times of all startups, shutdowns, low-load operations, and fuel changes.	Dates and times of operation and times and durations of all startups, shutdowns, and fuel changes.
	For emergency units, hours of operation for nonemergency purposes.	Same as proposed amended Rule 69.3.1 except for minor clarifications.
	Records of all source tests.	N/A
	Records to be maintained on premises except for unmanned sites may be maintained at an alternative location if approved by the District.	Records to be maintained on premises.
	For peaking units, annual hours of operation.	N/A
	If applicable, records of type and quantity fuel used each day and each calendar year.	Records of type and quantity fuel used.
	For peaking units subject to daily mass emission cap, records of daily NO _x mass emissions or an alternative operating parameter as approved by the District.	N/A
	Required records shall be maintained for at least 2 years.	Same as proposed amended Rule 69.3.1.
TEST METHODS	District Source Test Method 100 as approved by the EPA and EPA Method 7E if subject to federal acid rain program.	District Source Test Method 100 as approved by the EPA.
SOURCE TEST REQUIREMENTS AND COMPLIANCE DETERMINATION	The averaging period to calculate NO _x emissions concentration shall be 1-clock hour for CEMS and 3 subtests for source tests.	Same as proposed amended Rule 69.3.1.
	Source testing shall be performed at no less than 80% of the power rating, unless otherwise approved by the District.	Same as proposed amended Rule 69.3.1.
	Annual source testing is required except units subject to federal acid rain program tested in accordance with that program.	Annual source testing is required unless otherwise directed by the District.
	Test reports shall include appropriate operational characteristics of the unit and of all add-on NO _x control systems.	Same as proposed amended Rule 69.3.1.
COMPLIANCE SCHEDULE	New units shall comply with the applicable provisions of this rule upon initial installation and operation.	Same as proposed amended Rule 69.3.1.
	Intermediate Daily emission limit is applicable January 1, 2012. Final limit is applicable January 1, 2014.	N/A

† The NO_x concentration limit shall not be lower than the value reported in this table. However, depending upon the rated turbine thermal efficiency of a particular gas turbine, the actual NO_x limit may be as much as 30% higher than the value reported in this table

**TABLE 2: PROPOSED AMENDED RULE 69.3.1 COMPARISON TO
NSPS SUBPART GG - STANDARDS OF PERFORMANCE
FOR STATIONARY GAS TURBINE ENGINES**

ELEMENTS	PROPOSED AMENDED RULE 69.3.1	Subpart GG
APPLICABILITY	Existing units rated ≥ 1.0 MW and new units rated ≥ 0.3 MW.	Units with peak heat input load ≥ 10 million Btu/hour (approximately equivalent to a turbine output rating ≥ 1.0 MW [‡]).
EXEMPTIONS FROM RULE	Units operated for research and development.	Same as proposed amended Rule 69.3.1, except for minor differences for clarity.
	Portable units located at a stationary source for ≤ 12 consecutive months.	Same as proposed amended Rule 69.3.1, except for minor differences for clarity.
	New units rated ≤ 0.4 MW and used in conjunction with military equipment, and operated at military sites, provided operation is for < 1000 hours/year.	Same as proposed amended Rule 69.3.1 except for minor differences for clarity, and excluding the provision that the unit operate at military sites and operate < 1000 hours/year.
EXEMPTIONS FROM EMISSION STANDARDS	Emergency units operating < 80 hours/year for non-emergency purposes.	Same as proposed amended Rule 69.3.1, excluding the provision that the unit operate for < 80 hour/year for non-emergency purposes, and except for minor differences for clarity.
	Except for combined cycle turbines during extended startups, any unit for a period ≤ 120 minutes during startup, shutdown, or fuel change.	NSPS general provisions require operators to minimize emissions during these periods. Subpart GG requires reporting of excess emissions during these periods.
	For combined-cycle turbines a period ≤ 360 minutes during extended startups if determined necessary by the District based on key operational parameters.	NSPS general provisions require operators to minimize emissions during these periods. Subpart GG requires reporting of excess emissions during these periods.
	For turbines with lean premix combustors, periods of low-load operation ≤ 130 minutes a day and ≤ 780 minutes per year.	NSPS general provisions require operators to minimize emissions during these periods. Subpart GG requires reporting of excess emissions during these periods.
	Peaking units subject to daily mass emission limit are exempt on days with potential electrical power shortages and also on days with natural gas fuel curtailments.	N/A
	N/A	Military gas turbines.
	N/A	Regenerative cycle gas turbines with a heat input of ≤ 100 million Btu/hour.
	N/A	Stationary gas turbines with a heat input rating ≥ 10 million Btu/hour when fired on gaseous fuel, when fired with an emergency fuel.
	N/A	Stationary gas turbines ≥ 10 million Btu/hour and ≤ 100 million Btu/hour with construction commenced prior to 10/3/82.
	N/A	Applicable stationary gas turbines ≥ 100 million Btu/hour that commenced construction, modification, or reconstruction between the dates of 10/3/77 and 1/27/82, except electric utility turbines.
	Other exemptions not generally applicable to San Diego County.	
STANDARDS	NOx Emission Concentration Limits (Corrected to 15% O ₂):	NOx Emission Concentration Limits (Corrected to 15% O ₂):
	<u>Power Output Rating</u> (MW) <u>Gaseous Fuel</u> (ppmv) <u>Liquid Fuel</u> (ppmv)	<u>Power Output Rating</u> [‡] (MW) <u>Gaseous Fuel</u> (ppmv) <u>Liquid Fuel</u> (ppmv)
	≥ 0.3 and < 2.9 (new units) 42 65	≥ 1.0 and < 10.0 75 (150) [§] 75 (150) [§]
	≥ 1.0 and < 2.9 (existing units) 42 65	
≥ 2.9 and < 10.0 25 [†] 65		

**TABLE 2: PROPOSED AMENDED RULE 69.3.1 COMPARISON TO
NSPS SUBPART GG - STANDARDS OF PERFORMANCE
FOR STATIONARY GAS TURBINE ENGINES**

	<table border="1"> <tr> <td>≥ 10.0 without post - combustion NOx control</td> <td>15[†]</td> <td>42[†]</td> <td rowspan="2">≥ 10.0</td> <td rowspan="2">75 (150)[§]</td> <td rowspan="2">75 (150)[§]</td> </tr> <tr> <td>≥ 10.0 with post - combustion NOx control</td> <td>9[†]</td> <td>25[†]</td> </tr> <tr> <td colspan="3">EXCEPT AS FOLLOWS:</td> <td colspan="3"></td> </tr> <tr> <td>≥ 4 MW peaking units < 877 hour/year</td> <td>42</td> <td>65</td> <td colspan="3">N/A</td> </tr> <tr> <td>< 4 MW and operating < 877 hour/year</td> <td>42</td> <td>65</td> <td colspan="3">N/A</td> </tr> <tr> <td>≥ 4 MW peaking units < 877 hour/year</td> <td colspan="2">Comply with daily NOx mass emission limit on days with forecast high ozone levels and use only natural gas on those days.</td> <td colspan="3">N/A</td> </tr> </table>	≥ 10.0 without post - combustion NOx control	15 [†]	42 [†]	≥ 10.0	75 (150) [§]	75 (150) [§]	≥ 10.0 with post - combustion NOx control	9 [†]	25 [†]	EXCEPT AS FOLLOWS:						≥ 4 MW peaking units < 877 hour/year	42	65	N/A			< 4 MW and operating < 877 hour/year	42	65	N/A			≥ 4 MW peaking units < 877 hour/year	Comply with daily NOx mass emission limit on days with forecast high ozone levels and use only natural gas on those days.		N/A							
≥ 10.0 without post - combustion NOx control	15 [†]	42 [†]	≥ 10.0	75 (150) [§]				75 (150) [§]																															
≥ 10.0 with post - combustion NOx control	9 [†]	25 [†]																																					
EXCEPT AS FOLLOWS:																																							
≥ 4 MW peaking units < 877 hour/year	42	65	N/A																																				
< 4 MW and operating < 877 hour/year	42	65	N/A																																				
≥ 4 MW peaking units < 877 hour/year	Comply with daily NOx mass emission limit on days with forecast high ozone levels and use only natural gas on those days.		N/A																																				
MONITORING AND RECORDKEEPING REQUIREMENTS	Units shall have continuous monitors to demonstrate continuous compliance of applicable operational characteristics.		Same as proposed amended Rule 69.3.1.																																				
	All CEMS shall comply with applicable federal requirements.		Same as proposed amended Rule 69.3.1.																																				
	CEMS is required for units rated ≥ 10 MW that operate for > 4000 hour/year.		N/A																																				
	Records of operational parameters necessary to demonstrate compliance.		Same as proposed amended Rule 69.3.1.																																				
	Other records.		N/A																																				
	Required records shall be maintained for at least 2 years.		Same as proposed amended Rule 69.3.1.																																				
TEST METHODS	District Source Test Method 100 as approved by the EPA and EPA Method 7E if subject to federal acid rain program.		District Source Test Method 100 as approved by the EPA.																																				
SOURCE TEST REQUIREMENTS AND COMPLIANCE DETERMINATION	The averaging period to calculate NOx emissions concentration shall be 1-clock hour for CEMS and 3 subtests for source tests.		Rolling 4-hour period for CEMS and 3 subtests for source tests.																																				
	Source testing shall be performed at no less than 80% of the power rating, unless otherwise approved by the District.		Source test must be performed within ±5 percent at 30, 50, 75, and 90–100 percent of peak load or at four evenly-spaced load points in the normal operating range of the gas turbine, including 90–100 percent of peak load, or at the highest achievable load if 90–100 percent of peak load cannot be physically achieved in practice.																																				
	Annual source testing is required except units subject to federal acid rain program tested in accordance with that program.		One-time initial source test required.																																				
	Test reports shall include appropriate operational characteristics of the unit and of all add-on NOx control systems.		Same as proposed amended Rule 69.3.1.																																				
COMPLIANCE SCHEDULE	New units shall comply with the applicable provisions of this rule upon initial installation and operation.		Same as proposed amended Rule 69.3.1.																																				
	Intermediate Daily emission limit is applicable January 1, 2012. Final limit is applicable January 1, 2014,		N/A																																				

† The NOx concentration limit shall not be lower than the value reported in this table. However, depending upon the rated turbine thermal efficiency of a particular gas turbine, the actual NOx limit may be as much as 30% higher than the value reported in this table.

* The NOx concentration limit shall not be lower than the value reported in this table. However, depending upon the rated heat rate of a particular gas turbine and the percentage of fuel-bound nitrogen in the fuel, the actual NOx limit may be as much as 30% higher than the value reported in this table.

‡ The MW values listed in the table are based on 10,000 Btu/kW-hr, Subpart GG categorizes units by heat input (in terms of MMBtu/hr), so the applicability of the standards in terms of MW depends on the efficiency of the turbine.

§ The value in parentheses reflects the limits for nonelectric utility turbines or that some turbines in this MW size range might have this less stringent standard.

**TABLE 3: PROPOSED AMENDED RULE 69.3.1 COMPARISON TO
NSPS SUBPART KKKK - STANDARDS OF PERFORMANCE
FOR STATIONARY GAS TURBINE ENGINES**

ELEMENTS	PROPOSED AMENDED RULE 69.3.1	SUBPART KKKK				
APPLICABILITY	Existing units rated ≥ 1.0 MW and new units rated ≥ 0.3 MW.	Units with peak heat input load ≥ 1.0 million Btu/hour (approximately equivalent to a turbine output rating ≥ 1.0 MW) which commenced construction, modification, or reconstruction after Feb. 18, 2005.				
EXEMPTIONS FROM RULE	Units operated for research and development.	N/A				
	Portable units located at a stationary source for ≤ 12 consecutive months.	N/A				
	New units rated ≤ 0.4 MW and used in conjunction with military equipment, and operated at military sites, provided operation is for < 1000 hours/year.	N/A				
	N/A	Units at integrated gasification combined cycle electricity utility steam generating units that are subject to Subpart Da.				
	N/A	Combustion turbine test cells/stands				
EXEMPTIONS FROM EMISSION STANDARDS	Emergency units operating < 80 hours/year for non-emergency purposes.	Same as proposed amended Rule 69.3.1, excluding the provision that the unit operate for < 80 hour/year for non-emergency purposes, and except for minor differences for clarity.				
	Except for combined cycle turbines during extended startups, any unit for a period ≤ 120 minutes during startup, shutdown, or fuel change.	Less stringent emission standard during operations at $< 75\%$ load, typical of startups.				
	For combined-cycle turbines a period ≤ 360 minutes during extended startups if determined necessary by the District based on key operational parameters.	Less stringent emission standard during operations at $< 75\%$ load, typical of startups.				
	For turbines with lean premix combustors, periods of low-load operation ≤ 130 minutes a day and ≤ 780 minutes per year.	Less stringent emission standard during operations at $< 75\%$ load.				
	Peaking units subject to daily mass emission limit are exempt on days with potential electrical power shortages and also on days with natural gas fuel curtailments.	N/A				
	N/A	Units operated for research and development on a case-by-case basis.				
STANDARDS	NO _x Emission Concentration Limits (Corrected to 15% O ₂):	NO _x Emission Concentration Limits [#] (Corrected to 15% O ₂):				
	<u>Power Output Rating</u> (MW)	<u>Gaseous Fuel</u> (ppmv)	<u>Liquid Fuel</u> (ppmv)	<u>Power Output Rating</u> [*] (MW)	<u>Natural Gas Fuel</u> (ppmv) [‡]	<u>Other Fuel</u> (ppmv) [‡]
	≥ 0.3 and < 2.9 (new units)	42	65	≤ 5 (150) [§]	42 (100) [§]	96
	≥ 2.9 and < 10.0	25 [†]	65	> 5 and ≤ 85	25	74
	≥ 10.0 without post - combustion NO _x control	15 [†]	42 [†]	> 85	15	42
	≥ 10.0 with post - combustion NO _x control	9 [†]	25 [†]			
	N/A			$< 75\%$ peak load	96	96
N/A			All sizes (heat recovery units)	54	54	

**TABLE 3: PROPOSED AMENDED RULE 69.3.1 COMPARISON TO
NSPS SUBPART KKKK - STANDARDS OF PERFORMANCE
FOR STATIONARY GAS TURBINE ENGINES**

	EXCEPT AS FOLLOWS: <table border="0" style="width: 100%;"> <tr> <td style="width: 40%;">\geq 4 MW peaking units < 877 hour/year</td> <td style="width: 10%; text-align: center;">42</td> <td style="width: 10%; text-align: center;">65</td> <td style="width: 30%;"></td> </tr> <tr> <td>< 4 MW and operating < 877 hour/year</td> <td style="text-align: center;">42</td> <td style="text-align: center;">65</td> <td>N/A</td> </tr> <tr> <td>\geq 4 MW peaking units < 877 hour/year</td> <td colspan="2">Comply with daily NO_x mass emission limit on days with forecast high ozone levels and use only natural gas on those days.</td> <td>N/A</td> </tr> </table>	\geq 4 MW peaking units < 877 hour/year	42	65		< 4 MW and operating < 877 hour/year	42	65	N/A	\geq 4 MW peaking units < 877 hour/year	Comply with daily NO _x mass emission limit on days with forecast high ozone levels and use only natural gas on those days.		N/A	N/A
\geq 4 MW peaking units < 877 hour/year	42	65												
< 4 MW and operating < 877 hour/year	42	65	N/A											
\geq 4 MW peaking units < 877 hour/year	Comply with daily NO _x mass emission limit on days with forecast high ozone levels and use only natural gas on those days.		N/A											
MONITORING AND RECORDKEEPING REQUIREMENTS	Units shall have continuous monitors to demonstrate continuous compliance of applicable operational characteristics.	For units using water or steam injection, same as proposed amended Rule 69.3.1.												
	All CEMS shall comply with applicable federal requirements.	Same as proposed amended Rule 69.3.1.												
	CEMS is required for units rated \geq 10 MW that operate for > 4000 hour/year.	N/A												
	Records of operational parameters necessary to demonstrate compliance.	Same as proposed amended Rule 69.3.1.												
	Other records.	Submit reports of excess emissions and monitor downtime. Excess emissions must be reported for all periods of unit operation, including start-up, shutdown and malfunction.												
	Required records shall be maintained for at least 2 years.	N/A												
	N/A	Excess emissions during startups, shutdowns, and malfunctions must be reported.												
TEST METHODS	District Source Test Method 100 as approved by the EPA and EPA Method 7E if subject to federal acid rain program.	EPA Method 7E or EPA Method 20												
SOURCE TEST REQUIREMENTS AND COMPLIANCE DETERMINATION	The averaging period to calculate NO _x emissions concentration shall be 1-clock hour for CEMS and 3 subtests for source tests.	4-hour rolling average (simple cycle) and 30-day rolling average (combined cycle) for CEMS, and 3 subtests for source tests												
	Source testing shall be performed at no less than 80% of the power rating, unless otherwise approved by the District.	Source test must be performed within \pm 25 percent of 100 percent of peak load, or at the highest achievable load if at least 75 percent of peak load cannot be physically achieved in practice.												
	Annual source testing is required except units subject to federal acid rain program tested in accordance with that program.	One-time initial source test required. Annual source testing is required for units that don't use water or steam injection.												
	Test reports shall include appropriate operational characteristics of the unit and of all add-on NO _x control systems.	Submit written report of results of source test before the close of business on the 60 th day following the source test.												
COMPLIANCE SCHEDULE	New units shall comply with the applicable provisions of this rule upon initial installation and operation.	Same as proposed amended Rule 69.3.1.												
	Intermediate Daily emission limit is applicable January 1, 2012. Final limit is applicable January 1, 2014,	N/A												

† The NO_x concentration limit shall not be lower than the value reported in this table. However, depending upon the rated turbine thermal efficiency of a particular gas turbine, the actual NO_x limit may be as much as 30% higher than the value reported in this table.

* The MW values listed in the table are based on 10,000 Btu/kW-hr; Subpart KKKK categorizes units by heat input (in terms of MMBtu) so the applicability of the standards in terms of MW depends on the efficiency of the turbine.

‡ Subpart KKKK allows compliance with alternate limits in terms of lb/MMBtu as well as compliance with the concentration standard. These limits are approximately equivalent to the concentration limits for new turbines during normal operations.

§ The value in parentheses reflects the value for nonelectric utility turbines. Modified turbines less than 85 MW also have these less stringent standards.

For turbines with multiple applicable standards (for example operating at less than 75% load) the standard in any averaging period is a weighted standard based on the amount of time each standard is applicable.

TABLE 4: PROPOSED AMENDED RULE 69.3.1 COMPARISON TO A RECENT BEST AVAILABLE CONTROL TECHNOLOGY (BACT) DETERMINATION FOR A SIMPLE-CYCLE TURBINE

ELEMENTS	PROPOSED AMENDED RULE 69.3.1	RECENT BACT DETERMINATION							
APPLICABILITY	Existing units rated ≥ 1.0 MW and new units rated ≥ 0.3 MW.	One natural-gas-fired GE LM 6000PC gas turbine engine rated at 49.9 MW (368 MM Btu/hour) with water injection, selective catalytic reduction (SCR) and with a continuous emissions monitoring system (CEMS).							
EXEMPTIONS FROM EMISSION STANDARDS	Any unit for a period ≤ 120 minutes during startup, shutdown, or fuel change except for combined-cycle turbine startups.	Startup ≤ 30 minutes, or for a period ≤ 15 minutes prior to a shut down.							
	For lean premix combustion ≤ 130 minutes per day and ≤ 780 minutes per year for low-load operation.	No exemption for low-load operation							
STANDARDS	NOx Emission Concentration Limits (Corrected to 15% O ₂):	NOx Emission Concentration Limits (Corrected to 15% O ₂):							
	<table border="0" style="width:100%; border-collapse: collapse;"> <tr> <td style="text-align: center;"><u>Power Output Rating</u> (MW)</td> <td style="text-align: center;"><u>Gaseous</u> (ppmv)</td> <td style="text-align: center;"><u>Power Output Rating</u> (MW)</td> <td style="text-align: center;"><u>Gaseous Fuel</u> (ppmv)</td> </tr> <tr> <td style="text-align: center;">≥ 10.0 with post-combustion NOx control</td> <td style="text-align: center;">9[†]</td> <td style="text-align: center;">49.9</td> <td style="text-align: center;">2.5</td> </tr> </table>	<u>Power Output Rating</u> (MW)	<u>Gaseous</u> (ppmv)	<u>Power Output Rating</u> (MW)	<u>Gaseous Fuel</u> (ppmv)	≥ 10.0 with post-combustion NOx control	9 [†]	49.9	2.5
<u>Power Output Rating</u> (MW)	<u>Gaseous</u> (ppmv)	<u>Power Output Rating</u> (MW)	<u>Gaseous Fuel</u> (ppmv)						
≥ 10.0 with post-combustion NOx control	9 [†]	49.9	2.5						
MONITORING AND RECORDKEEPING REQUIREMENTS	Units shall have continuous monitors to demonstrate continuous compliance of applicable operational characteristics.	Same as proposed amended Rule 69.3.1.							
	All CEMS shall comply with applicable federal requirements including applicable sections of 40 CFR 60. CEMS is required for units rated ≥ 10 MW that operate for > 4000 hour/year.	Same as proposed amended Rule 69.3.1., except for minor differences for clarity. <i>(This unit is rated ≥ 10 MW and is permitted to operate > 4000 hour/year.)</i>							
	Annual source testing is required or testing in accordance with federal acid rain program frequency (40 CFR Part 75) for units subject to federal acid rain program.	Same as proposed amended Rule 69.3.1. This unit is subject to 40 CFR Part 75.							
	Required records shall be maintained for at least 2 years.	Required records shall be maintained for at least 5 yrs.							
TEST METHODS	District Source Test Method 100 as approved by the EPA and EPA Method 7E if subject to federal acid rain program.	Same as proposed amended Rule 69.3.1.							

† The NOx concentration limit shall not be lower than the value reported in this table. However, depending upon the rated turbine thermal efficiency of a particular gas turbine, the actual NOx limit may be as much as 30% higher than the value reported in this table.

TABLE 5: PROPOSED AMENDED RULE 69.3.1 COMPARISON TO A RECENT BEST AVAILABLE CONTROL TECHNOLOGY (BACT) DETERMINATION FOR A COMBINED CYCLE TURBINE

ELEMENTS	PROPOSED AMENDED RULE 69.3.1	RECENT BACT DETERMINATION							
APPLICABILITY	Existing units rated ≥ 1.0 MW and new units rated ≥ 0.3 MW.	One nominal 165 MW natural-gas fired combined-cycle GE Frame 7FA gas turbine generator with lean premix combustors, a heat recovery steam generator, a 195 MMBtu/hr (HHV) auxiliary duct burner, a selective catalytic reduction unit (SCR), an oxidation catalyst, and a steam turbine generator shared with a second 165 MW combined-cycle turbine.							
EXEMPTIONS FROM EMISSION STANDARDS	Startup period ≤ 120 minutes during except for combined-cycle turbine extended (cold) startup.	Startup ≤ 120 minutes if steam reheat bowl temperature is < 500 °F.							
	Shutdown or fuel change ≤ 120 minutes.	Shutdown ≤ 65 minutes.							
	For combined-cycle startup, ≤ 360 minutes where key parameters indicate more time is necessary.	Startup ≤ 360 minutes if steam reheat bowl temperature is ≤ 500 °F.							
	For lean premix combustion, ≤ 130 minutes per day and ≤ 780 minutes per year for low-load operation.	Same as proposed amended Rule 69.3.1.							
	N/A	Comply with Rule 69.3.1 during tuning and load ramp rate > 50 MW per minute.							
STANDARDS	NOx Emission Concentration Limits (Corrected to 15% O ₂):	NOx Emission Concentration Limits (Corrected to 15% O ₂):							
	<table border="0" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;"><u>Power Output Rating</u> (MW)</td> <td style="text-align: center;"><u>Gaseous</u> (ppmv)</td> <td style="text-align: center;"><u>Power Output Rating</u> (MW)</td> <td style="text-align: center;"><u>Gaseous Fuel</u> (ppmv)</td> </tr> <tr> <td style="text-align: center;">≥ 10.0 with post - combustion NOx control</td> <td style="text-align: center;">9^\dagger</td> <td style="text-align: center;">165</td> <td style="text-align: center;">2.0</td> </tr> </table>	<u>Power Output Rating</u> (MW)	<u>Gaseous</u> (ppmv)	<u>Power Output Rating</u> (MW)	<u>Gaseous Fuel</u> (ppmv)	≥ 10.0 with post - combustion NOx control	9^\dagger	165	2.0
<u>Power Output Rating</u> (MW)	<u>Gaseous</u> (ppmv)	<u>Power Output Rating</u> (MW)	<u>Gaseous Fuel</u> (ppmv)						
≥ 10.0 with post - combustion NOx control	9^\dagger	165	2.0						
MONITORING AND RECORDKEEPING REQUIREMENT	Units shall have continuous monitors to demonstrate continuous compliance of applicable operational characteristics.	Same as proposed amended Rule 69.3.1.							
	All CEMS shall comply with applicable federal requirements including applicable sections of 40 CFR 60. CEMS is required for units rated ≥ 10 MW that operate for > 4000 hour/year.	Same as proposed amended Rule 69.3.1, except for minor differences for clarity. <i>(This unit is rated ≥ 10 MW and is permitted to operate > 4000 hour/year.)</i>							
	Annual source testing is required or testing in accordance with federal acid rain program frequency (40 CFR Part 75) for units subject to federal acid rain program.	Same as proposed amended Rule 69.3.1. This unit is subject to 40 CFR Part 75.							
	Required records shall be maintained for at least 2 years.	Required records shall be maintained for at least 5 yrs.							
TEST METHODS	District Source Test Method 100 as approved by the EPA and EPA Method 7E if subject to federal acid rain program.	Same as proposed amended Rule 69.3.1.							

† The NOx concentration limit shall not be lower than the value reported in this table. However, depending upon the rated turbine thermal efficiency of a particular gas turbine, the actual NOx limit may be as much as 30% higher than the value reported in this table.

INCREMENTAL COST-EFFECTIVENESS ESTIMATES

**PROPOSED AMENDED RULE 69.3.1 - STATIONARY GAS TURBINE ENGINES -
BEST AVAILABLE RETROFIT CONTROL TECHNOLOGY**

STATUTORY REQUIREMENTS

In order to ensure alternative methods of complying with emission control, record keeping, and reporting requirements of a proposed rule are considered, California Health and Safety Code Section 40920.6 requires the Air Pollution Control District (District) to perform an incremental cost-effectiveness analysis prior to adopting rules to meet best available retrofit control technology requirements or every feasible measure pursuant to California Health and Safety Code Section 40914. To perform this analysis, the District must identify one or more control options achieving the emission reduction objectives for the rule, determine the absolute cost-effectiveness for each option, and calculate the incremental cost-effectiveness between options. To determine incremental cost-effectiveness, the District must calculate the difference in 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 option.

INCREMENTAL COST-EFFECTIVENESS DETERMINATION

Proposed amended Rule 69.3.1 implements every feasible measure requirements. The proposed amendments include a daily NO_x mass emission limit for 14 peaking turbines installed prior to 1998 on days with forecasted high ozone levels. Alternatively, the peaking turbines could comply with the more stringent NO_x concentration limits applicable to nonpeaking turbines. There are no other proposed new emission limitations. Thirteen of the 14 turbines are owned by a single owner and are unlikely to be able to comply with the alternative limits without modifications or add-on emission control systems. The other turbine can likely comply with the alternative limits without modification and is not further considered. The District has identified the following control options to comply with the rule for the 13 turbines:

1. Proposed daily NO_x mass emission limit.
2. Post combustion emission controls. It is assumed the post combustion control device is selective catalytic reduction and could reduce the NO_x exhaust concentration to 5 Parts per Million, Volumetric Dry (ppmvd).
3. Retrofitting lean-premix combustors that could reduce the NO_x exhaust concentration to 25 ppmvd.

Table 1 shows estimates of emission reductions, annual capital and operational costs, cost-effectiveness, and incremental cost-effectiveness for each of these control options.

Incremental Cost-Effectiveness Estimates
 Rule 69.3.1

The results indicate Option 1 above is most cost-effective and can be used to comply with the proposed rule. Options 2 and 3 are not cost-effective.

TABLE 1. SUMMARY OF THE CONTROL OPTIONS FOR TURBINES SUBJECT TO AMENDED RULE 69.3.1 DAILY EMISSION LIMITATION

Turbine Description	Compliance Option	NOx emission reductions, tons/year	Total Annualized Costs	Absolute cost-effectiveness, \$ per pound of NOx reduced	Incremental cost-effectiveness, \$/lb NOx reduced
13 Peaking turbines	Comply with daily mass emission limit	0.9	\$9,900	5.5	5.5
13 Peaking turbines	Retrofit lean-premix combustors	5.0	\$5,632,000	563	686
13 Peaking turbines	SCR (selective catalytic combustion add-on (post-combustion) control device)	23.1	\$5,701,080	123	1.91

CHANGE COPY

1. Amendments to Rule 69.3.1 are to read as follows:

RULE 69.3.1. STATIONARY GAS TURBINE ENGINES - BEST AVAILABLE RETROFIT CONTROL TECHNOLOGY

(Adopted and Effective 12/16/98; Rev. Effective *(date of adoption)*)

(a) APPLICABILITY

Except as provided in Subsection (b)(1), This rule shall apply to any existing stationary gas turbine engine with a power rating of 1.0 megawatt (MW) or greater, or to any new stationary gas turbine engine with a power rating of 0.3 MW or greater. Any unit subject to Section (d) of this rule shall not be subject to Rule 68.

(b) EXEMPTIONS

(1) The provisions of this rule shall not apply to the following:

(i) Any gas turbine engine when operated exclusively for the research, development or testing of gas turbine engines or their components.

(ii) Any portable gas turbine engine. It is the responsibility of any person claiming this exemption to maintain records indicating the dates that such gas turbine engine was located at each stationary source. These records shall be maintained for a minimum of two calendar years by the owner or operator of such gas turbine engine and made available to the District upon request.

(iii) Any stationary gas turbine engine with a power rating less than or equal to 0.4 MW used in conjunction with military tactical support equipment operated at military sites, provided that operations do not exceed 1,000 hours per calendar year. It is the responsibility of any person claiming this exemption to maintain records indicating the hours that such gas turbine engine was operated. These records shall be maintained for a minimum of two calendar years by the owner or operator of such gas turbine engine and made available to the District upon request.

(2) The provisions of Section (d) shall not apply to ~~the following: (i) Any~~ emergency unit provided that operation for non-emergency purposes to ensure operability in the event of an emergency situation does not exceed 80 hours per calendar year. It is the responsibility of any person claiming this exemption to maintain records in accordance with Subsections (e)(5) and (e)(8) of this rule.

(3) The provisions of Subsections (d)(1) and (d)(2) shall not apply to the following:

(i) Any unit during startup, shutdown or a fuel change for a period not to exceed 120 ~~continuous~~ consecutive minutes except as provided for in Subsection (b) (34). ~~It is the responsibility of any person claiming this exemption to maintain records in accordance with Subsections (e)(4) and (e)(8) of this rule.~~ Nothing in this rule shall be construed to limit the actual time needed to conduct a startup, shutdown or fuel change.

(ii) For turbines equipped with ~~dry low oxides of nitrogen (NOx)~~ lean premix combustors, periods of operation at low load provided that:

(A) The aggregate time of such periods does not exceed 130 minutes in any calendar day,

(B) The aggregate of all such periods does not exceed 780 minutes in any calendar year, and

(C) The turbine is equipped with a continuous emission monitoring system (CEMS) or other monitoring system that monitors and records turbine fuel flow and gross electrical output in increments of one minute or less.

~~(3)(4)~~ The provisions of ~~Section~~ Subsections (d)(1) and (d)(2) shall not apply to any combined-cycle gas turbine engine during an extended startup for a period not to exceed 360 consecutive minutes.

(5) The provisions of Subsection (d)(3) shall not apply on any calendar day for which the California Independent System Operator (CAISO), or its successor has declared a System Emergency or on any calendar day during which the local serving utility's transmission operations department is unable to contact the CAISO and has declared the need for operation of one or more emission units to protect transmission system reliability.

(6) The provisions of Subsection (d)(3)(i) and (d)(3)(ii) shall not apply when burning liquid fuel is required due to a force majeure natural gas curtailment.

(c) DEFINITIONS

For the purposes of this rule, the following definitions shall apply:

(1) **"Best Available Retrofit Control Technology (BARCT)"** 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.

(2) **"Combined-Cycle Gas Turbine Engine"** means any stationary gas turbine engine which recovers heat from the gas turbine exhaust gases to generate steam that is used to create additional power output in a steam turbine.

~~(3) "Dry Low NOx Combustor" means any turbine combustor design which uses multiple staging, air/fuel premixing, or other modifications, in order to reduce NOx emissions to lower levels as compared to a conventional combustor.~~

~~(4) "Electrical Grid Emergency" means that the condition of the electrical grid as determined by the California Independent System Operator or a successor agency is, or will be, such that the reliability of the electrical grid is threatened. Electrical emergencies include, but are not limited to, Stage 1, Stage 2, or Stage 3 Emergency Notices; Transmission Emergency Notices; or System Emergencies declared by the California Independent System Operator that are applicable to San Diego County or the State as a whole. Restricted maintenance operation notices to facilities, power watches urging consumers to conserve electricity, alerts advising of marginal conditions the next day, and warnings advising of marginal conditions the next hour issued by the California Independent System Operator are not by themselves considered electrical emergencies.~~

~~(2)(5)(3)~~ **"Emergency Situation"** means any one of the following:

(i) aAn unforeseen electrical power failure of the serving utility or of onsite electrical transmission equipment that is demonstrated by the owner or operator to the Air Pollution Control Officer's satisfaction to have been beyond the reasonable control of the owner or operator; or

(ii) ~~a~~An unforeseen flood, or fire, or life-threatening situation.

(iii) A life-threatening situation.

Emergency situation shall not include operation of any unit for training purposes or other foreseeable event, or operation of any peaking unit for the purpose of supplying power for distribution to an electrical grid.

~~(3)(6)(4)~~ **"Emergency Unit"** means a stationary gas turbine engine used only in the event of an emergency situation. A peaking unit shall not be considered an emergency unit.

~~(4)(75)~~ **"Existing" or "Existing Unit"** means any stationary gas turbine engine which was installed and operating in San Diego County on or before December 16, 1998.

~~(86)~~ **"Extended startup"** means the startup of a combined-cycle gas turbine engine when, as determined by the Air Pollution Control Officer, key operational parameters, such as the steam turbine reheat bowl temperature, indicate that more than 120 consecutive minutes are needed to meet the emission limits of Section (d).

~~(7)~~ **"Force Majeure Natural Gas Curtailment"** means an interruption in natural gas service such that the daily fuel needs of a gas turbine engine subject to this rule cannot be met with the natural gas available due to:

(i) Unforeseeable natural disaster or other cause resulting in the failure or malfunction of natural gas supply, delivery or storage system facilities, not resulting from an intentional or negligent act or omission on the part of an owner or operator of a unit, or

(ii) A supply restriction resulting from a California Public Utilities Commission priority allocation ruling, or

(iii) Delivery restrictions due to pipeline capacity limitations of the natural gas supplier or upstream transports or within a gas utility's delivery system.

~~(5)(98)~~ **"Fuel Change"** means the transitory operating period when a switch occurs between liquid or gaseous fuels, or any combination thereof.

~~(6)~~~~(109)~~ **"Gaseous Fuel"** means natural gas, digester gas, landfill gas, methane, ethane, propane, butane, or any gas stored as a liquid at high pressure such as liquefied petroleum gas.

~~(7)~~~~(10)~~ **"Higher Heating Value (HHV)"** means the total heat liberated, including the heat of condensation of water, per mass of fuel burned (Btu per pound) when fuel and dry air at standard conditions undergo complete combustion and all resultant products are brought to standard conditions.

(11) **"Lean Premix Combustor"** means any turbine combustor design where the air and majority of the fuel are thoroughly mixed to form a lean mixture before combustion under normal operational conditions, as determined by the Air Pollution Control Officer. Mixing may occur before or in the combustion chamber. A lean premix combustor may operate in a non-lean-premix mode (diffusion flame mode) during operating conditions such as startup and shutdown, extreme ambient temperature, or low or transient load.

~~(8)~~~~(12)~~ **"Liquid Fuel"** means any fuel which is a liquid at standard conditions including but not limited to distillate oils, kerosene and jet fuel. Liquefied gaseous fuels are not liquid fuels.

~~(9)~~~~(13)~~ **"Lower Heating Value (LHV)"** means the total heat liberated, excluding the heat of condensation of water, per mass of fuel burned (Btu per pound) when fuel and dry air at standard conditions undergo complete combustion and all resultant products are brought to standard conditions.

~~(10)~~~~(14)~~ **"Manufacturer's Rated Thermal Efficiency (MRTE)"** means the manufacturer's continuous rated percent thermal efficiency of the gas turbine engine, including the effect of any equipment with air pollution control equipment if such equipment is installed, at peak load, after correction to lower heating value.

~~(11)~~~~(15)~~ **"Military Tactical Support Equipment"** means any equipment owned by the U.S. Department of Defense or the National Guard and used in combat, combat support, combat service support, tactical or relief operations, or training for such operations.

~~(12)~~~~(16)~~ **"New" or "New Unit"** means a stationary gas turbine engine installed in San Diego County after December 16, 1998.

~~(13)~~~~(17)~~ **"Peaking Unit"** means a stationary gas turbine engine that is operated intermittently for generation of electric power during periods of high energy demand.

(18) **“Period of Operation at Low Load”** means a period of time that begins when the gas turbine power level is reduced from a higher level to below a critical level, as determined by the Air Pollution Control Officer, such that the gas turbine is unable to comply with the standards of Section (d), and ends 10 minutes after the turbine power level next exceeds the critical level provided that fuel is continuously combusted during the entire period. No period of operation at low load shall begin during a period when the provisions of Section (d) do not apply pursuant to Subsection (b)(~~23~~)(i), or Subsection (b)(~~34~~).

~~(14)~~(19) **"Portable Gas Turbine Engine"** means a gas turbine engine which meets the definition of a portable emission unit in Rule 20.1.

~~(15)~~(20) **"Power Augmentation"** means an increase in the gas turbine engine shaft output, or a decrease in turbine fuel consumption, by the addition of energy recovered from exhaust heat.

~~(16)~~(21) **"Power Rating"** means the maximum, continuous, gross power output of a unit, in megawatts (MW) or equivalent at ISO standard day conditions, as certified by the manufacturer unless limited by a condition in a District Authority to Construct or a Permit to Operate. Power augmentation shall not be included in power rating.

~~(17)~~(22) **“Selective Catalytic Reduction (SCR)”** means a post-combustion control technology that utilizes a reducing agent, such as ammonia, injected into the exhaust gas stream where it converts ~~oxides of nitrogen (NOx)~~ to molecular nitrogen in the presence of a catalyst.

~~(18)~~(23) **"Shutdown"** means an action necessary to cease operation of a unit and includes the amount of time needed to safely do so. For gas turbines equipped with a continuous emission monitoring system (CEMS) or other continuous monitoring system that monitors and records fuel flow in increments of one minute or less, a shutdown period ends five minutes after fuel flow to the unit ceases.

~~(19)~~(24) **"Stationary Gas Turbine Engine"** means any gas turbine engine system, with or without power augmentation, which is permanently attached to a foundation, or is not a portable gas turbine. Two or more gas turbines powering a common shaft shall be treated as one gas turbine.

~~(20)~~(25) **"Stationary Source"** means the same as defined in Rule 2.

~~(24)~~(26) **"Startup"** means an action necessary to begin operation of a unit and includes the amount of time needed for a unit and ancillary equipment to achieve stable operation. For gas turbines equipped with a CEMS or other continuous monitoring system that monitors and records fuel flow in increments of one minute or less, a startup period begins when fuel starts flowing to the gas turbine engine.

(27) **"System Emergency"** means that the condition of the electrical grid as determined by the California Independent System Operator (CAISO) or its successor agency is, or will be, such that the reliability of the electrical grid is threatened. System emergencies include, but are not limited to, Stage 1, Stage 2, or Stage 3 Emergencies or Transmission Emergency Notices issued by the CAISO that are applicable to a portion of the CAISO controlled grid that includes all or part of San Diego County or the CAISO controlled grid as a whole. System Emergency also includes the unscheduled loss of generation or transmission resources such that the reliability of the electrical grid is threatened. Restricted maintenance operation notices to facilities, power watches urging consumers to conserve electricity, alerts advising of marginal conditions the next day, and warnings advising of marginal conditions the next hour issued by the CAISO are not by themselves considered electrical emergencies.

(28) **"Under the Same Common Ownership"** means units in San Diego County that are owned or operated by the same person including all units that are owned or operated by another entity in which the person has a controlling interest.

~~(22)~~(279) **"Unit"** means any stationary gas turbine engine.

~~(23)~~(30) **"Unit Thermal Efficiency (E)"** means the percent thermal efficiency of the gas turbine engine and is calculated as follows:

$$E = \frac{(\text{MRTE}) (\text{LHV})}{(\text{HHV})}$$

A gas turbine engine with an efficiency lower than 25 percent shall be assigned a unit efficiency of 25 percent.

(d) **STANDARDS**

(1) Except as provided for in Section (b) and Subsection (d)(2), the emissions concentration in parts per million by volume (ppmv) of ~~nitrogen oxides (NOx)~~ from any unit subject to this rule, calculated as nitrogen dioxide at 15% oxygen on a dry basis, shall not exceed the following:

<u>Power Rating (Gross Megawatts)</u>	<u>NOx Emissions Concentration</u>	
	<u>(ppmv @ 15% O₂)</u>	
	<u>Gaseous Fuel</u>	<u>Liquid Fuel</u>
≥0.3 and <2.9 (new units)	42	65
≥1.0 and <2.9 (existing units)	42	65
≥2.9 and <10.0	25 x E/25	65
≥10.0 without <u>installed</u> post-combustion <u>air pollution control equipment</u>	15 x E/25	42 x E/25
≥10.0 with <u>installed</u> post-combustion <u>air pollution control equipment</u>	9 x E/25	25 x E/25

(2) The emissions concentration in parts per million by volume (ppmv) of ~~nitrogen oxides (NOx)~~ from any unit subject to this rule and described below, calculated as nitrogen dioxide at 15% oxygen on a dry basis, shall not exceed the following:

<u>Unit Description</u>	<u>NOx Emissions Concentration</u>	
	<u>(ppmv @ 15% O₂)</u>	
	<u>Gaseous Fuel</u>	<u>Liquid Fuel</u>
Peaking units ≥4 MW, and <u>and</u> operating less than 877 hours per calendar year <u>and installed on or before (date of adoption) December 16, 1998.</u>	42	65
Units <4 MW and operating less than 877 hours per calendar year	42	65

(3) Notwithstanding Subsection (d)(2), on or after January 1, 2012, ~~A~~ a person shall not operate a ~~gas turbine engine used to generate electricity~~ peaking unit with a power rating greater than or equal to 4 megawatts that was installed on or before December 16, 1998, and that does not comply with the emissions concentration limits specified in Subsection (d)(1), as determined by the most recent source test pursuant to Subsection (g).

as approved by the Air Pollution Control Officer, on or after July 1, 2010, on any calendar day that the Air Pollution Control Officer has predicted an exceedance of the federal eight-hour ambient air quality standard for ozone, unless the following standards are complied with:

(i) ~~The Air Pollution Control Officer has determined that an exceedance of the State one-hour ambient air quality standard for ozone is not predicted at any location in the air basin at any time during the calendar day on which the gas turbine operates;~~ or For each peaking unit permitted to operate on natural gas and liquid fuel before December 16, 1998, and not complying with Subsection (d)(1), the gas turbine engine shall operate on natural gas only.

(ii) ~~The California Independent System Operator or a successor agency has declared an electrical grid emergency during the calendar day on which the gas turbine operates.~~ For each peaking unit permitted to operate on natural gas and liquid fuel before December 16, 1998, and not complying with Subsection (d)(1), the aggregate emissions of NO_x per calendar day, as expressed as nitrogen dioxide, from all such units combined that are under the same common ownership shall not exceed the following aggregate calendar-day NO_x emission limits expressed in pounds, as applicable:

(A) From January 1, 2012 through December 31, 2014, the limit, expressed in pounds, shall be equal to 1.2652 multiplied by the sum of the rated heat inputs, expressed in MMBtu per hour, of all such turbines under the same common ownership.

(B) On and after January 1, 2015, the limit, expressed in pounds, shall be equal to 0.8594 multiplied by the sum of the rated hourly heat inputs, expressed in MMBtu per hour, of all such turbines under the same common ownership.

In calculating the aggregate calendar-day emission limit, the rated heat input for each unit shall be the unit's heat input as described on the applicable District Permit to Operate as it exists on (date of adoption).

(iii) For the gas turbine engine permitted to operate on liquid fuel only before December 16, 1998, and not complying with Subsection (d)(1), the aggregate emissions of NOx, as expressed as nitrogen dioxide, from all such units combined that are under the same common ownership shall not exceed the following aggregate calendar-day NOx emission limits, as applicable:

(A) From January 1, 2012, through December 31, 2014, 550 pounds during each calendar day.

(B) On and after January 1, 2015, 430 pounds during each calendar day.

(4) For purposes of Subsection (d)(3), an exceedance of the federal 8-hour ozone standard on a calendar day shall be considered to have been predicted if the Air Pollution Control Officer makes such a prediction that is applicable to any location at any time in the San Diego air basin and makes the prediction publicly available no earlier than three calendar days before the day for which the prediction is made and no later than 5:30 PM of the day immediately preceding the day for which the prediction is made.

(e) MONITORING AND RECORDKEEPING REQUIREMENTS

(1) An owner or operator of a unit which is subject to the requirements of Section (d) shall install, calibrate and maintain continuous monitors in accordance with the manufacturer's recommended procedures to monitor and record the operational characteristics of the unit and of any NOx emissions reduction system, as applicable, to demonstrate continuous compliance, such as:

- (i) ~~exhaust gas~~fuel flow rate;
- (ii) exhaust gas temperature;

- (iii) ammonia injection rate;
- (iv) water injection rate; ~~and~~
- (v) stack-gas oxygen content;
- (vi) inlet or outlet SCR catalyst temperature; and
- (vii) operational parameters defining an extended startup.

The Air Pollution Control Officer may require recording of one or more of the above parameters, or other parameters, as necessary to ensure compliance.

(2) An owner or operator of any unit with a power rating of 10 MW or more that operates more than 4,000 hours per calendar year shall install and operate a ~~continuous emission monitoring system (CEMS)~~ to measure and record NOx emissions. The CEMS shall be certified, calibrated and maintained in accordance with all applicable federal regulations including, but not limited to, the requirements of Sections 60.7(c), 60.7(d), and 60.13 of Title 40, Code of Federal Regulations, Part 60 (40 CFR Part 60), performance specifications of Appendix B of 40 CFR Part 60, quality assurance procedures of Appendix F of 40 CFR Part 60, Sections 75.10 and 75.12 of 40 CFR Part 75, the specifications and test procedures of Appendix A of 40 CFR Part 75, the quality assurance and quality control procedures of Appendix B of 40 CFR Part 75, and a protocol approved in writing by the Air Pollution Control Officer.

(3) An owner or operator of any unit with a ~~continuous emission monitoring system~~ CEMS which has been installed to ~~measure~~ monitor and record NOx emissions pursuant to any federal regulation shall certify, calibrate and maintain the CEMS in accordance with applicable federal regulations including the requirements of Sections 60.7(c), 60.7(d), and 60.13 of Title 40, Code of Federal Regulations Part 60 (40 CFR Part 60), performance specifications of Appendix B of 40 CFR Part 60, quality assurance procedures of Appendix F of 40 CFR Part 60, and a protocol approved in writing by the Air Pollution Control Officer.

(4) An owner or operator of any unit subject to this rule shall maintain, as applicable for the type of unit, an operating log and records of dates and times of operation, actual times and duration of all startups, shutdowns, periods of operation at low load, and fuel changes; and records of the type and quantity of each fuel used during each calendar day and calendar year.

(5) An owner or operator of an emergency unit shall maintain ~~an operating log and records of dates and times of operation, including the hours of operation~~ operating hours for non-emergency purposes and during each emergency situation. At a minimum, these records shall include the dates and ~~actual times and duration~~ of all startups and shutdowns, total cumulative ~~annual~~ hours of operation for non-emergency purposes during each calendar year, and a description of each emergency situation.

(6) An owner or operator of a peaking unit shall maintain ~~an operating log and records of dates and times of operation, the hours of operation~~ each calendar day ~~during periods of high energy demand~~, and the total cumulative hours of operation during each calendar year. ~~The records of dates of operation shall also indicate if the peaking unit operated during a non-exceedance day of the State one-hour ozone standard or day declared an electrical grid emergency pursuant to Subsection (d)(3)(i) or Subsection (d)(3)(ii).~~

(7) An owner or operator of any unit ~~with a power rating less than 4 MW and~~ operating less than 877 hours per calendar year and subject to Subsection (d)(2) shall ~~maintain an operating log and~~ records of the total cumulative hours of operation during each calendar year.

(8) An owner or operator of any unit subject to this rule shall maintain all records required by Section (e) and records of all source tests required by Subsection (g)(2) or Subsection (g)(3) for a minimum of two calendar years. These records shall be maintained on the premises and made available to the District upon request. Records for facilities that are unmanned may be kept at an alternative location approved in writing by the Air Pollution Control Officer.

(9) An owner or operator of any peaking unit subject to Subsection (d)(2) or emergency unit subject to Subsection (b)(2)(4) shall install and maintain a non-resettable meter that measures elapsed operating time if deemed necessary by the Air Pollution Control Officer.

(10) The owner or operator of any unit or units subject to Subsection (d)(3) shall maintain following records:

(i) Records of calendar-day aggregate NOx mass emissions for all such units combined under the same common ownership;

(ii) For each unit, calendar-day records of the applicable operational parameter(s) that are used to calculate the aggregate NOx mass emissions for that unit in accordance with the .

The recorded calendar-day NOx mass emissions shall be based on each individual unit's most recent source test results and a suitable operational parameter(s) and calculated in accordance with a protocol approved in writing by the Air Pollution Control Officer. Any such protocol shall rely on existing recordkeeping and monitoring to the extent feasible and may provide for calculation of NOx mass emissions for a group of emission units based on an average emission factor for the group units and an operational parameter(s) applicable to the group as a whole in order to minimize additional monitoring or recordkeeping.

In lieu of calculating and recording aggregate NOx mass emissions for each calendar day pursuant to Subsection (e)(10)(i), the owner or operator may, with the advanced written approval of the Air Pollution Control Officer, maintain records of a suitable surrogate parameter for aggregate NOx mass emissions on some or all calendar days provided that the Air Pollution Control Officer determines that the surrogate parameter is adequate to determine compliance with Subsection (d)(3). In this event, the final determination of compliance for a calendar day shall be based on mass emissions calculated pursuant to the approved protocol and the records maintained pursuant to Subsection (e)(10)(ii).

(11) For peaking units subject to Subsection (d)(3), the owner or operator shall maintain records that indicate if a day on which the peaking unit operates is a day that the Air Pollution Control Officer had predicted an exceedance of the federal eight-hour ozone standard and, if an exceedance of the federal eight-hour ozone standard was predicted, if a System Emergency as specified in Subsection (b)(5) was declared.

(12) An owner or operator of any unit subject to Subsection (d)(3)(i) shall maintain records of dates and times liquid fuel is used as a result of a force majeure natural gas curtailment.

(f) TEST METHODS

(1) To determine compliance with Section (d), measurement of ~~oxides of nitrogen~~ NO_x and stack-gas oxygen content shall be conducted in accordance with the U.S. Environmental Protection Agency (EPA) Method 7E and 3A, or District Source Test Method 100, or the Air Resources Board (ARB) Test Method 100 as approved by the EPA ~~U.S. Environmental Protection Agency (EPA).~~

(2) The higher heating value and lower heating value of a fuel shall be determined by the following methods or their most current versions and can be provided by a fuel supplier:

(i) ASTM Test Method ~~D240-920209~~ or ~~D2382-884809-0609~~ for liquid fuels, and

(ii) ASTM Test Method ~~D1826-94(2003)~~, or ~~D1945-9603~~, in conjunction with ASTM Test Method ~~D3588-948(2003)~~ for gaseous fuels.

(g) SOURCE TEST REQUIREMENTS AND COMPLIANCE DETERMINATION

(1) Any required source testing shall be performed at no less than 80% of the power rating. If an owner or operator of a gas turbine engine demonstrates to the satisfaction of the Air Pollution Control Officer that the turbine cannot operate at these conditions, then emissions source testing shall be performed at the highest achievable continuous power rating.

(2) Except as specified in Subsection (g)(3), a A-unit subject to the requirements of Section (d) shall be tested for compliance at least once annually in the ~~12~~ twelve-calendar-

month period before ending on the last day of the Permit to Operate-renewal expiration month-date, unless otherwise more frequent testing is specified in writing by the Air Pollution Control Officer. ~~Testing shall be conducted in accordance with Section (f) and a source test protocol approved in writing by the Air Pollution Control Officer.~~

(3) Unless more frequent testing is specified in writing by the Air Pollution Control Officer, a unit equipped with a continuous emission monitoring system (CEMS), subject to the requirements of Section (d), and subject to the provisions of the federal Acid Rain Program, Title 40, Code of Federal Regulations, pursuant to Section 72.6 of 40 CFR Part 72, shall be tested for compliance at a frequency in accordance with 40 CFR Part 75 Appendix B Section 2.3.1 and Section 2.3.3.

(4) All testing shall be conducted in accordance with the requirements of Section (f) and a source test protocol approved in writing by the Air Pollution Control Officer.

~~(3)~~(5) Test reports shall include the operational characteristics, as described in Subsection (e)(1), of the unit and of all add-on NOx control systems.

~~(4)~~(6) For the purposes of a compliance determination based on source testing, the NOx emissions concentration shall be calculated as an average of three subtests.

~~(5)~~(7) For the purposes of a compliance determination based on CEMS data, the averaging period to calculate NOx emissions concentration shall be one clock hour. For the purposes of compliance determination, the clock hour average NOx emissions concentration shall not include the data during periods of startup, shutdown, fuel change, and operation at low load.

(8) Notwithstanding provisions of this Section (g), the Air Pollution Control Officer may require source testing to determine compliance with these Rules and Regulations or to determine emissions at any time.

(h) COMPLIANCE SCHEDULE

~~(3)~~(1) An owner or operator of a new or replacement unit shall comply with all applicable provisions of this rule upon initial installation and commencement of operation.

~~(1) An owner or operator of an existing unit requiring modification, replacement or installation of air pollution control equipment pursuant to Section (d) requirements shall meet the following increments of progress:~~

~~(i) By December 16, 1999 submit an application to the Air Pollution Control Officer for an Authority to Construct and Permit to Operate the modified or replacement air pollution control equipment necessary to meet the emission standards of Section (d) of this rule.~~

~~(ii) By December 16, 2000 demonstrate compliance with the emission standards specified in Section (d) and all other applicable provisions of this rule.~~

~~(2) By June 16, 1999 an owner or operator of an existing unit not requiring modification, replacement or installation of additional air pollution control equipment pursuant to Section (d) shall submit an application to modify conditions on the Permit to Operate as necessary to comply with the applicable requirements of Sections (d) and (e).~~

**AIR POLLUTION CONTROL DISTRICT
COUNTY OF SAN DIEGO**

**AMENDED RULE 69.3.1 - STATIONARY GAS TURBINE ENGINES –
BEST AVAILABLE RETROFIT CONTROL TECHNOLOGY**

WORKSHOP REPORT

A workshop notice was mailed to owners and operators of stationary gas turbines in San Diego County. Notices were also mailed to all Economic Development Corporations and Chambers of Commerce in San Diego County, the U.S. Environmental Protection Agency (EPA), the California Air Resources Board, and other interested parties.

The workshop was held on August 3, 2007, and was attended by 21 people. Oral and written comments were also received before, during, and after the workshop. The workshop comments and Air Pollution Control District (District) responses are as follows:

1. WORKSHOP COMMENT

If a shutdown occurs during a startup, does it reset the clock for the startup?

DISTRICT RESPONSE

Yes. For purposes of this rule, upon completion of a shutdown, the subsequent startup will always have a new startup exemption period of 120 minutes. If the shutdown occurred during an extended startup for a combined-cycle turbine, the proposed rule would require that key operating parameters indicated an extended startup of up to 360 minutes was necessary for compliance with the rule oxides of nitrogen (NO_x) standards. Otherwise, only 120 minutes would be allowed to complete the startup. However, other requirements such as best available control technology (BACT) determinations under the District new source review (NSR) rules may place more stringent startup and shutdown requirements on individual units. These requirements would be reflected in a unit's permit condition.

2. WORKSHOP COMMENT

What brought about the need to include the proposed extended startup time of six hours for combined-cycle turbines?

DISTRICT RESPONSE

During startup, key components of the associated steam power system portion of the combined-cycle process undergo thermal stresses due to expansion of the metal components. These stresses are largest, and the potential for damage greatest, when the steam turbine has been allowed to cool for several days to near ambient temperature—often referred to as a “cold start.” Thus, the rate at which the steam system may be heated during a startup is limited to prevent damage to the equipment. The heating rate of the steam turbine depends on the size of the

turbine. In general, the larger the turbine the slower the allowable heating rate to prevent damage because the thickness of metal in the turbine components increases with steam turbine size, which increases the susceptibility to thermal stress. A traditional combined-cycle power plant achieves the necessary low heating rate by running the gas turbines at very low loads until the steam turbine is sufficiently heated to begin normal operation. This limits the steam temperature and amount of steam sent to the steam turbine but also generates higher NO_x emissions for a longer period during the startup since the gas turbine is unable to operate in its lowest NO_x emitting combustion mode and add-on control systems such as selective catalytic reduction (SCR) systems are not as efficient at lower temperature.

As a result of these and other technological constraints on the plant equipment, large combined-cycle power plants operating in California are generally allowed startup durations of more than 120 minutes to comply with NO_x limits established by best available control technology (BACT) or best available retrofit control technology (BARCT) requirements.

A typical large combine-cycle power plant would have an overall power rating of 550 megawatts (MW) with two gas turbines rated at 170 MW each. Although there are methods to allow the gas turbines to operate at a higher load during a startup and shorten the time necessary to comply with NO_x limits, retrofitting existing large combine-cycle power plants to use these methods would be prohibitively expensive.

Because of this technical issue, the District is proposing to amend Rule 69.3.1 to extend the time allowed to comply with the Rule 69.3.1 NO_x limits in Subsection (d)(1) for combined-cycle turbines (an extended startup). The extended startup time allowed could be up to an additional 240 minutes beyond the existing 120-minute startup time, for a total startup time of 360 minutes, but only under certain limited conditions (i.e., a cold start) where a 120-minute startup might damage critical equipment. The proposed rule change does not prevent the District from imposing startup times of less than 360 minutes if it is determined feasible. There are several smaller combined-cycle turbines (50 MW or less) operating in San Diego County that, because of their small size, can meet the existing 120-minute startup time, and this is reflected in their permit conditions.

District Rule 69.3, Stationary Gas Turbine Engines—Reasonably Available Control Technology, startup provisions are not being amended and are uniformly 120 minutes for all units. This rule is also applicable to the same turbines affected by the proposed extended startup time in Rule 69.3.1. Rule 69.3 limits NO_x exhaust concentration to 42 parts per million by volume (ppmv) for gas-fueled units (65 ppmv for liquid fueled-units) and thereby, indirectly, will limit emissions during all extended startups lasting more than 120 minutes. The NO_x limit in Rule 69.3.1 for periods excluding startups, shutdowns, and fuel changes is about 12 ppmv for large combined-cycle turbines.

Based on recent operational experience at a large combined-cycle facility in San Diego County, the District anticipates that the allowed longer startup time will only be required a few times (once or twice) a year for large combined-cycle facilities after they begin commercial operation. With the proposed amendments, the much more frequent regular startups will still be limited to 120 minutes or less as allowed by the current rule.

Please also see the response to Comment No. 19.

3. WORKSHOP COMMENT

Can a combined-cycle plant be configured to startup in less than six hours?

DISTRICT RESPONSE

With the installation of the proper equipment, large combined-cycle power plants can achieve NOx emission standards in less than six hours during a cold start. However, installation of this equipment at existing facilities is prohibitively expensive. Equipment that a combined-cycle plant could utilize to potentially reduce cold start times to less than six hours includes auxiliary boilers to provide warming steam for the steam turbine and/or heat recovery steam generator (HRSG), an air injection system to cool the gas turbine exhaust stream, equipment to allow up to 100% of the steam generated in the HRSG to bypass the steam turbine, and an enhanced and well controlled steam attemperation system to cool inlet steam to the steam turbine.

The District examined the startup requirements for 13 existing combined-cycle plants in California. Four of these combined-cycle plants have permit conditions allowing a duration of four hours or less for an extended startup. In some of these cases, the ability to comply with NOx standards during a startup may rely on longer averaging times than that allowed in Rule 69.3.1 (one clock hour). The other nine plants have periods of six hours for extended startups, which is consistent with the maximum duration being proposed for Rule 69.3.1 for an extended startup. Based on this information the District has determined that six hours is the appropriate maximum startup time period to allow for combined-cycle turbines to achieve the NOx standards of Rule 69.3.1.

4. WORKSHOP COMMENT

Does the definition of a “combined-cycle gas turbine engine” also include auxiliary equipment (e.g., steam turbine, generator and other connecting equipment)?

DISTRICT RESPONSE

A combined-cycle gas turbine engine refers only to the stationary gas turbine engine system. This does not include auxiliary equipment such as the steam turbine or electrical generator not relevant to the turbine’s emissions except in so far as monitoring of the output from such devices might be required to verify compliance with the rule. However, it would include emissions from additional combustion equipment using the turbine exhaust (duct burner), any add-on emission control equipment such as an SCR, and any other equipment that was necessary for the turbine to meet the requirements of Rule 69.3.1, except any equipment that the District would permit separately such as a gas- or liquid-fueled starter engine or auxiliary boiler.

5. WORKSHOP COMMENT

If auxiliary equipment malfunctioned and caused an increase in emissions to occur, would that be considered a breakdown?

DISTRICT RESPONSE

Yes, it would be considered a breakdown if a District evaluation concludes the malfunction fulfills the breakdown requirements of District Rule 98. District Rule 98 defines a breakdown condition to include an unforeseeable failure or malfunction of any air pollution control equipment or related operating equipment that causes a violation of any emission standard. In the event of a breakdown condition, the owner or operator must notify the District no later than two hours after detecting the breakdown condition and must comply with all other applicable requirements of Rule 98.

6. WORKSHOP COMMENT

Does the proposed revision to the definition of “shutdown” apply to units without an installed CEMS?

DISTRICT RESPONSE

No. The proposed additional language to the definitions of “shutdown” and “startup” are intended to clarify that a shutdown or startup occurs relative to when fuel flow begins or ceases, as applicable, only to gas turbine engines equipped with a continuous emission monitoring system (CEMS) or other continuous monitoring system that tracks fuel flow on a minute-by-minute basis. The proposed language does not redefine when shutdowns and startups occur for gas turbine engines without such a continuous monitoring system.

7. WORKSHOP COMMENT

Would the proposed emissions limit that was discussed during the workshop as an alternative to prohibition of operation on days with a forecast ozone exceedance for peaking units subject to Subsection (d)(2) be for a 1-hr or 24-hr period?

DISTRICT RESPONSE

As noted by the comment, at the workshop the District discussed a declining NO_x mass emission limit as an alternative to the proposed prohibition of operation on forecast ozone exceedance days at the workshop. Based on comments during the workshop and subsequent discussions with the affected facilities and other stakeholders, the District is now proposing a calendar-day NO_x mass emission limit for peaking units with a power rating greater than four MW installed prior to December 16, 1998, that are subject to the less stringent emission limits of Subsection (d)(2). The limit is only applied to those units installed before 1998 because any future units would be subject to emission limits established pursuant to BACT requirements (all units that

would be subject to the limit were actually installed prior to 1979 and were not subject to BACT).

To provide maximum flexibility of operation, the proposed limit is a limit on the aggregate NOx emissions from all the affected units that are under common ownership. In addition, the limit does not apply if an electrical emergency is declared by the California Independent System Operator (CAISO) or, in some cases the local serving utility, such that the operations of units subject to the limit are necessary to provide electrical grid reliability.

An intermediate daily NOx mass limit is applicable for 2012 - 2014. The limit declines to the final level beginning in 2015. For gas-fueled units, the final limit is set so that total emissions would not exceed emissions that would occur if the units operated at the maximum level in the recent past and were in compliance with Subsection (d)(1). For units that are gas-fueled, the District estimates that the initial limit allows a maximum of about twelve hours of operation in a calendar day and the final limit allows about eight hours of operation in a calendar day if all the turbines are operated. Because the limit is an aggregate limit over all the units under common ownership, some units could operate for longer periods than the maximums if other units are not operated. For the single solely liquid-fueled unit, the District estimates that the final limit allows about 10 hours per day of operation. However, it appears likely that the solely liquid-fueled unit can comply with Subsection (d)(1), in which case it would not be subject to the daily NOx mass emission limit.

Please also see the response to Comment Nos. 28 and 39.

8. WORKSHOP COMMENT

If a peaking turbine currently subject to Subsection (d)(2) operates on an ozone exceedance day, would that unit be subject to the more stringent standards in Subsection (d)(1)?

DISTRICT RESPONSE

No. On a forecasted ozone exceedance day, the aggregate NOx emissions from the unit and all other units under common ownership would be subject to the applicable calendar-day NOx mass emission limit in Subsection (d)(3). In addition, the units would be subject to the NOx concentration standards in Subsection (d)(2). If there were an electrical system emergency, then only the concentration standards of Subsection (d)(2) would apply.

A facility could elect to demonstrate compliance with the concentration standards of Subsection (d)(1) in lieu of compliance with Subsection (d)(3) on forecasted ozone exceedance days. Please also see the response to Comment Nos. 7 and 28.

9. WORKSHOP COMMENT

How will emissions be determined for peaking units subject to Subsection (d)(2) that do not have a CEMS installed?

DISTRICT RESPONSE

As specified in Subsection (e)(10) of the post-workshop proposed amended rule, a unit's emissions will be calculated by a protocol based on a relevant and easily and currently monitored operating parameter such as fuel use or electrical energy output and an appropriate emission factor determined from the most recent source test of the unit.

10. WORKSHOP COMMENT

Does the addition of "fuel flow rate" in the list of parameters to be monitored in Subsection (e)(1) require that a fuel meter be installed?

DISTRICT RESPONSE

No. Subsection (e)(1) only provides some examples of parameters that the District may require to be recorded in order to demonstrate compliance with the rule. A fuel flow meter would only be required if the District determined it was necessary to demonstrate compliance and an alternative was not feasible. Please also see the response to Comment Nos. 12, 23, and 34.

11. WORKSHOP COMMENT

Is the District going to propose a new emissions limit expressed as pounds of NO_x per million British thermal units (lb/MMBtu) that would require monitoring of fuel usage?

DISTRICT RESPONSE

No. The NO_x emission standards in Subsections (d)(1) and (d)(2), which are based on NO_x concentration in the turbine exhaust, are not being revised at this time.

12. WORKSHOP COMMENT

Would it be appropriate to have energy output megawatt-hours (MW-hr) as one of the parameters to monitor and record in Subsection (e)(1)?

DISTRICT RESPONSE

Subsection (e)(1) in the post-workshop rule proposal clarifies that other parameters not explicitly listed under (e)(1) may be required to be monitored and recorded as determined necessary by the District. For example, if compliance with the proposed calendar-day NO_x mass emission limit in Subsection (d)(3) was based on an emission factor expressed as pounds per MW-hr, then monitoring of a unit's calendar-day MW-hr output would be necessary. Please also see the response to Workshop Comment Nos. 10, 23, and 34.

13. WORKSHOP COMMENT

Can a commissioning grace period be included in Rule 69.3.1 that would allow a newly installed turbine a specific timeframe after initial startup to come into compliance with the emissions standards of the rule?

DISTRICT RESPONSE

During the commissioning process, it is sometimes necessary to operate fuel combustion equipment (e.g., turbines and engines) while the emissions control equipment is not fully operational. Since the control technology is not in operation during this time, a facility could potentially be in violation of District rules. The District has studied the feasibility of developing a new rule that would specifically address commissioning periods and provide adequate time for a facility to achieve compliance with District rules. This study indicated that commissioning periods vary significantly, depending upon factors such as the equipment configuration and operating parameters specific to each particular site. Thus, commissioning periods are best determined on a case-by-case basis.

A facility that either is, or will be, in violation of a District rule has the option of petitioning for a variance from the District Hearing Board. A variance is an administrative order granting temporary relief from a District rule for a specific period of time based on the particular circumstances of each case. If granted, a variance would allow a facility to operate while implementing the necessary measures to achieve compliance with the applicable rules.

14. WORKSHOP COMMENT

Does the rule go into effect on the date of adoption?

DISTRICT RESPONSE

Yes. The rule will go into effect on the date the rule is adopted. However, the provisions regarding the proposed daily NO_x mass emission limit for certain units are not applicable until 2012.

15. WORKSHOP COMMENT

How was the July 1, 2010, compliance date, specified in Subsection (d)(3), determined for units not in compliance with Subsection (d)(1)?

DISTRICT RESPONSE

The compliance date was selected to allow enough time for the affected facilities to install control equipment to comply with the NO_x exhaust concentration standards of Subsection (d)(1) rather than the daily mass emission limit of Subsection (d)(3) if they elected this method of

compliance or to establish a District approved emission calculation protocol and implement emission monitoring to ensure compliance with Subsection (d)(3). Because of the time elapsed since the workshop, the compliance date in Subsection (d)(3) has been revised to January 1, 2012, in order to provide affected facilities an adequate time period to comply.

16. WORKSHOP COMMENT

Is there a possibility that the July 1, 2010, compliance date could change to a later date?

DISTRICT RESPONSE

Please see the response to Comment No. 15.

17. WORKSHOP COMMENT

Can the NO_x emissions limit be modified for peaking units subject to Subsection (d)(2) so that they would be required to operate at a lower NO_x limit during ozone exceedance days?

DISTRICT RESPONSE

To provide operational flexibility for the affected units, the District is replacing the prohibition of operation proposed in the workshop draft with a calendar-day NO_x mass emission limit based on NO_x emissions aggregated over all units under common ownership. There is also the option of a unit demonstrating compliance with the exhaust concentration emission standards of Subsection (d)(1). In this case, the unit would not be subject to the daily NO_x mass emission limit. Please see also the response to Comment No. 7.

18. WORKSHOP COMMENT

Instead of a proposed emissions limit for peaking units subject to Subsection (d)(2), can a facility offset emissions from the unit with emissions reduced from other equipment operating at the same site?

DISTRICT RESPONSE

No. Rule 69.3.1 sets BARCT standards for NO_x emissions from stationary combustion turbines. For peaking units larger than four MW subject to Subsection (d)(2), the District has determined that the proposed daily NO_x emission limits of Subsection (d)(3) are feasible and cost-effective. Emissions reductions from other equipment do not address BARCT and, therefore, cannot be used as a substitute for the standards in the rule. In addition, even if such offsets were allowed, the District does not believe this is feasible since the proposed NO_x mass emission limit is on a calendar-day basis. It is not clear what baseline would be used to determine the daily emission reductions from other units on a given day.

19. WRITTEN COMMENT

What brought about the need to include the proposed exemption for turbines equipped with lean premix combustors [also known as dry low NO_x (DLN) combustors] during periods of operation at low load? Are there many units that need to operate at less than 50% load due to reduced power demand?

DISTRICT RESPONSE

Gas turbines do not typically operate at less than 50% load because turbine efficiency rapidly declines below 50% load and that was not the issue this provision was intended to address. On large combined-cycle turbines, the low-load situation (sometimes referred to as a "run-back") often arises when combustion turbine monitoring software detects a possible combustion problem with the turbine. Newer turbines, especially large combined-cycle turbines, achieving very low NO_x before any add-on controls typically run in an extremely lean (low fuel to air ratio) premixed mode. Because they are running extremely lean, any combustion instability could lead to a loss of combustion (flame-out), which would result in a restart of the turbine. To prevent this, if a combustion problem is detected, the turbine load is rapidly reduced until it enters the more stable—but higher emitting—diffusion flame mode. In most cases, the problem is solved (or determined not to be a problem) relatively quickly. The turbine can then be returned to normal operations at higher load without actually shutting down. However, since no shutdown has occurred, under the existing rule the turbine may potentially not comply with the NO_x exhaust concentration standards in Subsection (d)(1) as a result of the excess NO_x emissions during the period of operation at low load.

The turbine could be shutdown and then restarted and be in compliance with Rule 69.3.1 by utilizing the standard exemption periods for shutdowns and startups in the rule. However, this would potentially generate more emissions than simply returning to normal operations without shutting down the turbine since under the rule the unit would be exempt from the rule standards for two hours during the subsequent startup (and for two hours prior to the shutdown).

In addition, the District has encountered a situation where a facility was ordered by the CAISO to shutdown a simple-cycle peaking turbine—equipped with a lean premix combustor—and then subsequently ordered by CAISO to come back online before it had completed the shutdown. This facility received a notice of violation from the District when NO_x permit limits implementing BACT were exceeded as a result of the turbine being operated at low load for a short period. Again, if the turbine had continued to a complete shutdown, it would have been in compliance but also would not have been providing the needed power. BACT limits are more stringent than Rule 69.3.1 standards. However, there is a small possibility that a similar situation could result in the exceedance of the Rule 69.3.1 standards.

To address these and similar situations, the District has proposed the limited low-load exemption in Rule 69.3.1. The proposed exemption would address the above situations and other situations that might arise that require turbines with lean premix combustors to temporarily reduce power to a low load level where the lean premix combustion system is ineffective or inoperative. The District believes this type of problem is temporary and relatively infrequent based on a review of

CEMS data from a large combined-cycle power plant. Therefore, the low-load exemption is limited in duration on a daily and annual basis.

20. WRITTEN COMMENT

Did the District consider a maximum NOx limit for units operating at low load?

DISTRICT RESPONSE

District Rule 69.3, Stationary Gas Turbine Engines—Reasonably Available Control Technology, is also applicable to turbines subject to Rule 69.3.1. The District is not proposing to include the low-load exemption in Rule 69.3. Therefore, this effectively limits the allowed NOx emissions to 42 ppmv for gas-fueled units and 65 ppmv for liquid-fueled units during low-load operational periods for gas- and liquid-fueled units, respectively.

21. WRITTEN COMMENT

Fourteen peaking units operating in San Diego County and potentially subject to Subsection (d)(3) limits are relied upon for contingency purposes. In addition to being able to respond to the California Independent System Operator declared Stage 1, 2, or 3 emergencies, these units provide local reliability in certain situations. These include contingency coverage for potential transmission or generation failures, coverage for underestimated or extreme electrical load conditions, responding to local reliability problems in the event of transmission line outages, and availability to provide back-feed power to restart other units in the event of a system failure.

In order to account for emergency and non-emergency events that may threaten transmission system reliability, the definition of “Electrical Grid Emergency” should be revised to “Electrical Grid Reliability Event” and defined as:

the condition of the electrical grid as determined by the California Independent System Operator or a successor agency, or San Diego Gas & Electric’s transmission operations department is, or will be, such that the reliability of the electrical grid is threatened. Electrical grid reliability events include, but are not limited to, Stage 1, Stage 2, or Stage 3 Emergency Notices; Transmission Emergency Notices; or System Emergencies declared by the California Independent System Operator that are applicable to San Diego County or the State as a whole, transmission or generation contingencies, unanticipated or extreme electrical demand, or prevention of transmission equipment damage. Restricted maintenance operation notices to facilities, power watches urging consumers to conserve electricity, alerts advising of marginal conditions the next day, and warnings advising of marginal conditions the next hour issued by the California Independent System Operator are not by themselves considered electrical emergencies.

DISTRICT RESPONSE

The District agrees. The term “Electrical Grid Emergency” has been changed to “System Emergency” and the definition revised to address this issue.

22. WRITTEN COMMENT

For consistency, Subsection (d)(3)(ii) should be revised to:

An Electric Grid Reliability Event has occurred, as defined in Subsection (c)(4), during the calendar day on which the gas turbine operates.

DISTRICT RESPONSE

To clarify exemptions during electrical system emergencies to the proposed calendar-day NOx mass emission limit in Subsection (d)(3), Subsection (b)(5) has been added, which exempts a unit from the provisions of Subsection (d)(3) on a calendar day when a system emergency has been declared or if operation of one or more emission units are necessary to protect transmission system reliability.

23. WRITTEN COMMENT

One of the parameters that is monitored and recorded at a particular facility operating a peaking turbine is SCR average temperature. Thus, Subsection (e)(1)(vi) should be revised to include this parameter.

DISTRICT RESPONSE

The suggested revision is not necessary because Subsection (e)(1) is not an all inclusive list of parameters that must be monitored and recorded, and thus does not preclude any parameters not explicitly listed. Please also see the response to Comment Nos. 10, 12, and 34.

24. WRITTEN COMMENT

The recordkeeping requirements proposed in Subsection (e)(6) pertaining to non-exceedance days and electrical emergencies apply only to peaking units subject to Subsection (d)(2). For clarification, Subsection (e)(6) should be revised to reference Subsection (d)(2).

DISTRICT RESPONSE

Subsections (e)(10) and (e)(11) have been added to clarify the records required for units subject to Subsection (d)(2) and Subsection (d)(3).

25. WRITTEN COMMENT

Some peaking turbines may operate on natural gas only or be installed without a dry low NOx combustor. Therefore, parameters like fuel change and operation at low load may not apply. For clarification, Subsection (g)(7) should be revised to:

For the purposes of compliance determination, the clock hour average NOx emissions concentration shall not include the data during periods of startup, shutdown, fuel change and operation at low load, as applicable for the type of unit.

DISTRICT RESPONSE

The District agrees. Proposed Subsection (g)(7) has been revised as suggested.

26. WRITTEN COMMENT

An existing peaking turbine is currently permitted to operate no more than 876 hours per year. At the facility, one natural gas fired steam boiler must be in operation to provide steam to the peaking turbine for steam injection NOx control. If no steam boilers are operating at the time a compliance test is performed on the peaking unit, a steam boiler must be started several hours in advance of the test and continue operating until the test is completed. Operation of the gas fired steam boiler would result in significant emissions.

The proposed revisions to Rule 69.3.1 may require the operator to run the combustion turbine for the sole purpose of completing an annual source test. In 2006, the aforementioned peaking turbine was operated 33.7 hours on oil fuel, of which about three hours were used to conduct an annual compliance test.

Therefore, it is requested that, as applicable to peaking turbines that operate less than 877 hours per year, the District amend Rule 69.3.1 to allow a longer interval between compliance tests than the 12-month period proposed in the rule. An interval of 25 months between compliance tests, similar to the period provided in Bay Area AQMD's Regulation 9, Rule 9, would be a more reasonable requirement.

DISTRICT RESPONSE

The District disagrees. Because of the high potential emissions from this unit, the District believes the annual compliance tests are appropriate. The District will make every effort to schedule the annual source test when steam is available to the unit.

27. POST-WORKSHOP WRITTEN COMMENT

Please confirm by response that a CAM plan will be used to determine compliance with the NOx concentration limits in (d)(1) and (d)(2) since some subject units are not required to be equipped with a CEMS.

DISTRICT RESPONSE

In general, compliance assurance monitoring (CAM) can be used to determine compliance with the NO_x emission standards of Subsection (d)(1) and (d)(2). However, this does not preclude source test results and any other credible evidence being used to determine compliance. A source test would most likely take precedence over CAM because it is a direct measure of emissions.

28. POST-WORKSHOP WRITTEN COMMENT

Please confirm by response that a peaking unit is exempted from NO_x mass emission limits in (d)(3)(ii) or (d)(3)(iii) if the last annual source test resulted in a NO_x concentration that is less than or equal to the NO_x concentration limits identified in (d)(1) until the results of the next annual source test is published. For example, if the last source test resulted in a NO_x concentration of 40 ppm @15% O₂ for a liquid-fueled unit, the unit would be exempted from NO_x mass emission limits in (d)(3)(iii).

DISTRICT RESPONSE

A unit potentially subject to Subsection (d)(3) operating in compliance with the NO_x standards of Subsection (d)(1) of the proposed amended rule is not subject to the proposed calendar-day NO_x mass emission limits as specified in Subsection (d)(3). The compliance determination would be based on the most recent source test as approved by the District. Thus, if a liquid-fueled unit with a unit thermal efficiency less than 25% operates at 42 parts per million by volume, dry, NO_x at 15% O₂ or less, i.e., in compliance with Subsection (d)(1), as determined by the most recent approved source test, Subsection (d)(3) would not be applicable to that unit. If a subsequent source test or other credible evidence showed the unit was not in compliance with Subsection (d)(1), it would then become subject to Subsection (d)(3).

29. POST-WORKSHOP WRITTEN COMMENT

Please remove or define the word "reconstructed" in (d)(4). If not removed, please confirm by response that a gas turbine may be rebuilt using like-kind (or OEM parts supplied by manufacturer or third-party manufacturer) parts to maintain the GT in good operating condition without triggering lower NO_x emission limits. This would also include temporary replacement of the GT if the existing GT is removed for maintenance purposes or permanent replacement of the GT with like-kind GT should the existing GT become un-repairable.

DISTRICT RESPONSE

The District has deleted the language concerning "reconstruction" as suggested and also the language regarding turbine replacement from proposed Subsection (d)(4). Reconstruction or replacement of a unit is addressed under District NSR rules and does not need to be included in Rule 69.3.1.

30. POST-WORKSHOP WRITTEN COMMENT

What documentation will be required to confirm the occurrence of a "System Emergency" (c)(27) as determined by the CAISO or SDG&E?

DISTRICT RESPONSE

Written documentation in the form of an e-mail, letter, or fax directly from CAISO or SDG&E, or printout of a notification via their respective websites would suffice to confirm a system emergency had occurred on a given day.

31. POST-WORKSHOP WRITTEN COMMENT

Please add the word "mass" at (e)(10,) between the words which occur three times as "NOx emissions". "NOx emissions" becomes "NOx mass emissions" in all three occurrences in (e)(10) in the post-workshop draft of the rule.

DISTRICT RESPONSE

The District agrees. Subsection (e)(10) has been revised as suggested.

32. POST-WORKSHOP WRITTEN COMMENT

Rule 69.3.1(d)(3):

“Notwithstanding Subsection (d)(2), on or after January 1, 2011, a person shall not operate a peaking unit with a power rating greater than or equal to 4 megawatts that was installed on or before December 16, 1998, and that does not comply with the emissions concentration limits specified in Subsection (d)(1), unless the Air Pollution Control Officer has determined that an exceedance of the federal eight-hour ambient air quality standard for ozone is not predicted at any location in the air basin at any time during the calendar day on which the gas turbine operates, or the following standards are complied with...”

We request confirmation that on forecasted federal 8-hour standard exceedance days, that meeting the aggregate NOx emission limit proposed in the post-workshop draft is adequate for complying with the rule. As the rule is currently written, it is not sufficiently clear which emission limit applies on forecast exceedance days to facilities not meeting the NOx ppm limits in Subsection (d)(1).

DISTRICT RESPONSE

On forecasted ozone exceedance days, peaking units subject to (d)(2) and (d)(3) must comply with both the concentration limits specified in Subsection (d)(2) and the calendar-day NO_x mass emission limit specified in Subsection (d)(3) to comply with the rule as proposed. On days when an ozone exceedance is not forecasted, such units must comply with Subsection (d)(2), but not Subsection (d)(3). The units must also only comply with Subsection (d)(2) on days when an ozone exceedance is not forecasted but an exceedance actually occurs. Please also see the responses to Comment Nos. 22 and 28.

33. POST-WORKSHOP WRITTEN COMMENT

We request that the effective date in Rule 69.3.1 (d)(3) be changed, from January 1, 2011, to January 1, 2012, giving our facilities two years to implement required infrastructure, monitoring, and recordkeeping changes required by the rule, rather than only 17 months, assuming an early August 2009 adoption date of the proposed amended rule. The additional time is consistent with the initial draft of the proposed amended rule dated August 3, 2007, which gave facilities until July 1, 2010, or nearly three years from the draft date, to comply with the changes.

“Notwithstanding Subsection (d)(2), on or after January 1, 2012, a person shall not operate ...”

For consistency with the requested change in the effective date of Rule 69.3.1, Subsection (d)(3), we also request that the effective dates in Subsections (d)(3)(ii)(A), (d)(3)(ii)(B), and (d)(3)(iii)(B) be correspondingly advanced.

DISTRICT RESPONSE

The District agrees. The effective dates in Subsections (d)(3), (d)(3)(ii)(A), (d)(3)(ii)(B), and (d)(3)(iii)(B) have been revised accordingly.

34. POST-WORKSHOP WRITTEN COMMENT

Rule 69.3.1(e)(1):

“An owner or operator of a unit which is subject to the requirements of Section (d) shall install, calibrate and maintain continuous monitors in accordance with the manufacturer's recommended procedures to monitor and record the operational characteristics of the unit and of any NO_x emissions reduction system, as applicable, to demonstrate continuous compliance, such as:

(i) fuel flow rate;

(ii) exhaust gas temperature;

(iii) ammonia injection rate;...

Our company operates 13 peaker units in the San Diego Air Basin that will be subject to this rule. Each facility will be required to install a monitoring system for each system to track the operational parameters listed in the rule and signal when operations must be ceased on days when the aggregate NOx emission limit in Subsection (d)(3)(ii) is close to being exceeded. Currently, we do not have this level of instrumentation. To guarantee that the daily aggregate NOx emission limit will not be exceeded on any day of the year, regardless of when an exceedance of the federal 8-hour ozone standard is predicted because of item #1 above, we estimate a cost of at least \$25,000 to possibly \$100,000+ per unit, depending on the complexity and redundancy necessary to prevent an emission violation.

DISTRICT RESPONSE

The District disagrees. Subsection (e)(1) only provides some examples of parameters that the District may require to be recorded in order to demonstrate compliance with the rule. These examples are not all inclusive nor does it imply that all of the examples listed must be monitored. Only those parameters that the District determines necessary to monitor to determine compliance for a specific unit need to be monitored. In determining which parameters need to be monitored to verify compliance, the District endeavors to minimize monitoring and recordkeeping burdens while requiring sufficient monitoring to verify compliance with the rule.

In the case of units subject to Subsection (3), the District anticipates that monitoring calendar-day energy output in MW-hr combined with an emission factor(s) expressed in pounds per MW-hr would be sufficient to determine compliance with the calendar-day aggregate NOx mass emission limit of Subsection (d)(3). The District notes that these units' energy output is already closely monitored and recorded for business purposes.

However, in response to concerns regarding the monitoring and recordkeeping burden of the proposed calendar-day NOx mass emission limit of Subsection (d)(3), language has been added to (e)(10) to allow a surrogate to actual emissions (for example, MW-hr or hours of operation) to be monitored and recorded as an indicator of compliance in lieu of calculating mass emissions each day. In this case, emissions only need be calculated by the owner or operator if the surrogate indicates potential noncompliance with the calendar-day mass emission limit.

Please also see the response to Comment Nos. 10, 12, and 37.

35. POST-WORKSHOP WRITTEN COMMENT

As the rule stands now, our company's turbines will only be allowed to operate a maximum of about 11-12 hours on any day of the year, which seems insufficient to meet electricity demands on peak use days. In the event that we are limited in our operation and must shutdown to avoid violating the aggregate emission limits, local businesses may elect to operate their emergency generators, resulting in higher NOx emissions than our peaking turbines. As a result, the overall benefits to the air quality expected through the implementation of the revised rule will potentially not be achieved.

We request that the District double the emission limit for units operated under the same common ownership from a factor of 1.2652 times the sum of the rated heat inputs of all units to a factor of 2.5304.

DISTRICT RESPONSE

The District disagrees. The District understands the concerns regarding grid reliability on days with high electrical demand. However, the proposed rule contains ample provisions in Subsection (b)(5) to allow these units to operate if their operation is necessary to support the electrical grid during periods of high electricity demand.

Please also see the response to Comment No. 39.

36. POST-WORKSHOP WRITTEN COMMENT

We request clarification in Subsection (d)(3)(ii) that any units subject to this rule would be excluded from the aggregate NOx mass emission limit, on a year-by-year basis, if the NOx concentration from any unit's most recent annual source test is less than or equal to the applicable NOx concentration limits identified in Subsections (d)(1) or (d)(2).

DISTRICT RESPONSE

Please see the response to Comment No. 28.

37. POST-WORKSHOP WRITTEN COMMENT

Rule 69.3.1(e)(4):

“An owner or operator of any unit subject to this rule shall maintain, as applicable for the type of unit, records of dates and times of operation, times of all startups, shutdowns, periods of operation at low load, fuel changes and records of the type and quantity of each fuel used during each calendar day and calendar year.”

Several of our facilities have a single natural gas utility meter serving two or four combustion turbines and the facilities do not have direct control over the calibration of the gas meters, nor are the meters capable of measuring fuel consumption by each turbine.

We request that language be added to Subsection (e)(4) to allow the option of combined fuel use records for any facility using a single fuel meter for multiple units.

DISTRICT RESPONSE

The District agrees. The District has added a provision in Subsection (e)(10) that explicitly allows the monitoring of a group operating parameter and use of a group average emission factor to determine compliance with Subsection (d)(3) for groups of emission units for which only an operating parameter for the group as a whole is monitored. By using a group average, no new monitoring is required for individual units in the group.

38. POST-WORKSHOP WRITTEN COMMENT

Rule 69.3.1(d)(4):

“If a existing gas turbine engine subject to Subsection (d)(3) is replaced or reconstructed, the replacement unit or reconstructed existing unit shall not be subject to an aggregate NOx emission limit pursuant to this rule, but shall be subject to the emission limits specified in Subsection (d)(1) on and after (date of adoption).”

We request that the word “reconstructed” be completely removed from this subsection and a statement be added allowing normal maintenance of a turbine using specific parts without triggering the lower NOx emission limits.

DISTRICT RESPONSE

Please see the response to Comment No. 29.

39. POST-WORKSHOP WRITTEN COMMENT

Rule 69.3.1(c)(27):

““System Emergency” means that the condition... of the electrical grid is threatened. System Emergency also includes the unscheduled loss of generation or transmission resources such that the reliability of the electrical grid is threatened....”

We request the following change to clarify the source(s) of the second part of the definition:

*““System Emergency” means that the condition... of the electrical grid is threatened. System Emergency, **as defined by San Diego Gas & Electric or the CAISO**, also includes the unscheduled loss of generation or transmission resources such that the reliability of the electrical grid is threatened...”*

DISTRICT RESPONSE

Subsection (b)(5) contains a provision that allows the local serving utility (i.e., San Diego Gas & Electric) to, in effect, declare a system emergency in the event any of the units affected by Subsection (d)(3) are needed to maintain grid reliability if the utility is unable to contact CAISO.

The District would deem being “unable to contact” to include situations where the utility was physically able to contact CAISO but needed to respond before a reply from CAISO could reasonably be expected to be received. The District notes that, because the daily NOx mass emission limit is an aggregate limit over all units under common ownership, it is likely nearly all localized problems on the San Diego Gas & Electric grid can be dealt with within the aggregate NOx mass emission limit.

40. POST-WORKSHOP WRITTEN COMMENT

Rule 69.3.1(e)(10):

“The owner or operator of any unit or units subject to Subsection (d)(3) shall maintain records of NOx emissions that occur during that calendar day for each such unit and aggregate NOx emissions for all such units combined under the same common ownership. The NOx emissions shall be based on each unit's most recent source test results and calculated in accordance with a protocol approved in writing by the Air Pollution Control Officer.”

We request the following changes to clarify which NOx emissions shall be maintained in records at the facility to comply with this requirement:

“The owner or operator of any unit or units subject to Subsection (d)(3) shall maintain records of NOx mass emissions that occur during that calendar day for each such unit and aggregate NOx mass emissions for all such units combined under the same common ownership. The NOx mass emissions shall be based on each unit's most recent source test results and calculated in accordance with a protocol approved in writing by the Air Pollution Control Officer.”

DISTRICT RESPONSE

Please see the response to Comment No. 31.

41. POST-WORKSHOP WRITTEN COMMENT

Rule 69.3.1(d)(3) and (e)(11):

“Notwithstanding Subsection (d)(2), on or after January 1, 2011, a person shall not operate a peaking unit with a power rating greater than or equal to 4 megawatts that was installed on or before December 16, 1998, and that does not comply with the emissions concentration limits specified in Subsection (d)(1), unless the Air Pollution Control Officer has determined that an exceedance of the federal eight-hour ambient air quality standard for ozone is not predicted at any location in the air basin at any time during the calendar day on which the gas turbine operates, or...”

And

“For peaking units subject to Subsection (d)(3), the owner or operator shall maintain records that indicate if a day on which the peaking unit operates is a day that the Air Pollution Control Officer had predicted an exceedance of the federal eight-hour ozone standard and, if an exceedance of the federal eight-hour ozone standard was predicted, if a System Emergency as specified in Subsection (b)(5) was declared.”

Both subsections, (d)(3) and (e)(11), contain requirements that are contingent upon forecasts relative to the federal 8-hour ozone standard issued by the APCO. However, in the pre-workshop draft of Rule 69.3.1 dated 8/3/07, it references forecasts relative to the state 1-hour ozone standard. Annual counts of the number of days each standard was exceeded during the past 10 years were obtained from the California Air Resources Board web site. On average, ambient air monitoring sites within the San Diego Air Basin exceeded the state 1-hr standard (0.09 ppm) on 20.9 days per year and the federal 8-hour standard (lowered in 2008 from the original level of 0.084 ppm to the new level of 0.075 ppm) on 34.9 days per day. The change in the ozone standard incorporated into Rule 69.3.1 from the state 1-hour standard to the federal 8-hour standard nearly doubles the number of days on which facilities may not be allowed to operate. Interestingly, the SDAPCD web site has federal 8-hour exceedance counts for the past five years based on the original standard threshold of 0.084 ppm and they average only 9 days per year. It is our impression that the District wrote the rule with the 9 days in mind, but without considering how many exceedance days will likely occur under the new 8-hour standard threshold.

We understand that the APCO only issues forecasts based on the federal 8-hour ozone standard, making the use of any other ozone standard in this rule difficult. We also understand that the APCO may not forecast ozone exceedances on every day when they are observed and that exceedances may occur on days when they are not forecast, but assuming perfect forecast accuracy by the APCO, facilities may not be able to operate for as many as 30 – 40 days during the peak electricity demand season, based on use of the new, lower federal 8-hour standard.

DISTRICT RESPONSE

The District’s intent in proposing the daily NO_x mass emission limit is to limit emissions on days when the District may experience high ozone levels. The District considers the 8-hour federal standard an appropriate metric to trigger the cap because the District is close to attainment and small emissions decreases may have a large effect on the District’s attainment status. The District also views attainment of this standard as very important not only for air quality but because failure to attain will impose additional regulatory burdens on local industry. In addition, this is the current ozone ambient air quality standard for which the District forecasts exceedances. Therefore, the District chose this as the reference standard for the daily mass emission limit in Subsection (d)(3).

The District thoroughly analyzed the impact using the new federal 8-hour standard of 0.075 ppm on the operations of the affected facilities. Since the rule does not prohibit operation on days when an ozone exceedance is forecast, there are no days on which the affected facilities can not operate. For the 13 primarily gas-fueled units subject to Subsection (d)(3), the District estimates that about 12 hours of operation per turbine are possible under the intermediate limit and about

eight hours per turbine under the more stringent final limit. This assumes all the turbines are operating. If fewer turbines are operating, more operational time would be available because the limit is based on the aggregate emissions from all units under common ownership and all the primarily gas-fueled turbines are under common ownership.

Based on operating records, the District found that one or more of the 13 primarily gas-fueled units subject to Subsection (d)(3) operated an average of 84 days per year on average in the 2002 - 2007 time period. Each turbine operated an average of about 3.5 hours on those days that it operated. During that period, the average number of days of operation on ozone exceedance days was seven. This indicates the proposed NOx emission limit would only have a potential impact on operations less than 10% of the time and potentially impact operations on only seven days per year on average during the summertime high electrical demand period.

The District further analyzed the potential impacts on those days when the daily NOx emission limit would have applied and, hence, possibly curtailed (but not completely prevented) operations. Based on the operating records, the District estimates curtailment days will average about two per year for the 13 gas-fueled units with the average curtailment time being about two hours per turbine per event under the final limit. The District also estimates that the potential emission reductions resulting from the curtailments average about 1,100 pounds per day with a maximum reduction of about 3,300 pounds per day.

It is likely that the operations of the one turbine that is liquid-fueled and potentially subject to Subsection (d)(3) will be minimally impacted by the proposed rule amendments, if it is impacted at all. Source test records indicate it can likely comply with the standards of Subsection (d)(1). Therefore, it likely would not be subject to Subsection (d)(3).

Please also see the response to Comment Nos. 7 and 28.

42. POST-WORKSHOP WRITTEN COMMENT

Other issues related to the forecasts are their release time and the hours of the day for which the forecasts apply. According to the SDAPCD web site, forecasts for the next day are issued at 4:30 p.m., except on weekends, when the forecasts for Saturday, Sunday, and Monday are all issued on the preceding Friday afternoon. It is also our understanding that the forecasts apply to full, 24-hour days, despite ozone concentrations only being high in the afternoon/evenings. This means that facilities which must shutdown on forecasted high ozone days would need to shut down for the entire day, from 12:00 a.m. through 11:59 p.m. For Sunday and Monday, the facilities will likely have sufficient lead-time to accommodate the possibility of having to shut down. However, during the week, the facilities will only have about 7 hours to adjust operations to a midnight shutdown.

Additionally, we request that the ozone forecasts be released earlier in the day or that the SDAPCD issue the forecasts more than one day in advance to allow the facilities sufficient time to adjust to exceedance forecasts. Air quality forecasts for most major metropolitan areas in California are issued between 11:00 a.m. and 1:00 p.m., and many agencies issue multi-day forecasts, updated each day, to allow people adequate time to plan for high pollution days. The

APCO should have access to the same meteorological and air quality information used by the other agencies to issue forecasts, allowing the APCO to move the forecast time up by several hours and extend the forecasts out multiple days.

DISTRICT RESPONSE

The District disagrees. Because units subject to Subsection (d)(3) are now proposed to be subject to an aggregate NOx mass emission limit rather than a prohibition of operation, operators of the units would not have to contemplate a midnight shutdown if an ozone exceedance were forecasted at 5:00 P.M. on the day before. At worst, the units would not have to be shutdown until about 8:00 A.M. the next morning based on an estimated operating time of eight hours under the final limit. This is only in the unlikely event the units are actually operating in the evening or overnight. Units subject to Subsection (d)(3) are peaking units that operate during periods of high electrical demand for a few hours per day. High electrical demand typically does not occur in the late evening or during the night. The units typically do not begin operating before 7:00 A.M. and cease operating by 10 P.M. If all the gas-fueled units that are subject to Subsection (d)(3) began operating at 7:00 A.M., they could continue to operate until at least 3:00 P.M. under the NOx mass emission limit if an ozone exceedance had been forecasted for that day. If operations were to occur overnight, it would likely be in a situation that the operation was required by CAISO because of an electrical emergency and the Subsection (d)(3) mass emission limit would not apply.

The District issues its next day ozone forecast between 4:00 and 5:00 P.M. on weekdays in order to base the forecast on the timeliest meteorological data possible to ensure the most accurate forecast possible. As discussed above, the District finds this provides enough notice for the affected facilities.

Please also see the response to Comment Nos. 7 and 41.

43. POST-WORKSHOP WRITTEN COMMENT

Please do not allow Palomar Energy to push through a rule change that would allow them to have permission to pollute more than was planned. This is not fair to the citizens who breathe the air in Escondido.

DISTRICT RESPONSE

As the commenter notes, one of the facilities affected by the proposed increase in the time allowed for a startup for combined-cycle turbines under certain circumstances (cold start) and limited exemptions for low-load operations is the Palomar Energy Center with two large gas turbines and an associated steam turbine. The District acknowledges that a direct affect of the proposed rule revisions is to allow a small increase in NOx emissions from the Palomar Energy Center during the 1 - 3 times per year that a cold start occurs. However, because the annual NOx emissions from this facility are limited by permit conditions, which are not being changed, there will be no change in potential annual emissions upon which the permit evaluation for this facility was based.

Because it was a facility that was known to be affected by the proposed rule change, the District conducted a comprehensive and thorough evaluation of the potential impacts from the proposed rule changes, including the increased time for cold starts, for that facility.

Additionally, to reduce these emissions, the District worked with this facility to reduce the emission impacts from an extended startup as much as feasible. This resulted in new requirements the facility agreed to comply with, which are now conditions of its permit to operate, and new operational controls installed by the facility. These new requirements and operational controls are:

- Prohibition of both turbines being in startup mode at the same time, except during emergency situations, to reduce the maximum hourly emission impacts. This requirement allows the second turbine to startup in a cold start to comply with the rule NOx standards within the 120 minutes currently allowed by the rule. This effectively reduces excess NOx emissions by a factor of two.
- A requirement that the selective catalytic reduction system become fully operational earlier in the startup.
- Installation and use of new turbine operational control software that uses sophisticated combustor tuning to reduce emissions during low-load operations such as a startup.

After implementation of these items, based on facility CEMS data during a cold start, the District estimates that a worst-case 360-minute startup period would result in estimated potential excess NOx emissions of 235 pounds per startup event over the existing rule. Based on the same CEMS data, actual excess emissions are estimated to be about 100 pounds per event. To put 235 pounds of NOx emissions into perspective, this equates to less than one-tenth of one percent of total daily NOx emissions in the region (estimated to be 160 tons or 320,000 pounds of NOx emissions per day in San Diego County). The District also notes that cold starts tend to happen outside the May – November ozone season.

Furthermore, the District evaluated the impact of excess NOx emitted during a cold start with respect to the ambient air quality standards for nitrogen dioxide (NO₂) in the area surrounding the power plant using the most recent EPA recommended pollutant dispersion model and updated meteorological data. The District found that the impact of the NOx emissions from extended startups when added to the monitored background levels of NO₂ in Escondido did not cause any exceedance of the 1-hour or annual ambient air quality standards for NO₂. The ambient air quality standards are established to be health protective with an adequate margin of safety both for the general population and groups of sensitive individuals (for example, children and asthmatics).

Although the proposed rule change only explicitly allows additional NOx emissions during an extended startup, the District also evaluated the potential impacts of the other criteria pollutants (criteria pollutants have an associated ambient air quality standard) carbon monoxide (CO), oxides of sulfur (SOx), particulate matter less than or equal to 10 microns in diameter (PM₁₀),

particulate matter less than or equal to 2.5 microns in diameter (PM_{2.5}) and toxic air contaminants. The District performed this evaluation because emissions of some pollutants, CO and some toxic air contaminants, are elevated during startup and the exhaust velocity of the stack and exhaust temperature are less favorable for the dispersion of pollutants than during normal operations. As part of this evaluation, the District conducted a source test of the Palomar Energy Center during the first hour of a cold start to quantify emissions of toxic air contaminants and other pollutants under cold start conditions. To the District's knowledge, no other such source test had been conducted on a large combined-cycle turbine up to that time.

As with NO_x, for the other criteria pollutants, the District did not find any significant impacts on the applicable ambient air quality standards when the impacts were added to the background pollutant levels for Escondido.

In addition, the impacts of toxic air contaminants were below District standards for significance as specified in Rule 1200, Toxic Air Contaminants—New Source Review. Specifically, the incremental lifetime cancer risk from the extended startup was less than one in a million, well below the standard of ten in a million that would be applicable to the Palomar Energy Center. For non-cancer acute (one hour), chronic (annual), or 8-hour impacts from toxic air contaminants, the health hazard indexes were also all well below the less than Rule 1200 standard of one.

To further assure that the rule change would not allow operation of a facility that would jeopardize public health. The District conducted the same type of evaluation as was done for the excess emissions allowed by the rule changes including all the facility's potential emissions from the gas turbines not just the excess emissions from the rule change. Compared to the original permit evaluation, this allowed the use of the most recent EPA recommended pollutant dispersion model, updated meteorological data, and the information on pollutant emissions during startups at the facility that the District had collected since the permit evaluation. This evaluation also showed no significant impacts relative to applicable ambient air quality standards for criteria pollutants when the impacts were added to the background pollutant levels for Escondido, nor did it show any significant health impacts based on the criteria of Rule 1200.

Therefore, the District concluded that there are no significant health impacts from the excess criteria or toxic air contaminant emissions allowed by the proposed rule change.

44. POST-WORKSHOP WRITTEN COMMENT

Please define the term "low load." The term "low load" is used at (b)(3)(iii) and (e)(4).

DISTRICT RESPONSE

The term "period of operation at low load" is defined at Subsection (c)(18).

45. POST-WORKSHOP WRITTEN COMMENT

On days when the APCO does NOT make an ozone prediction available by 5:30 P.M. for the next day, may the source assume that the limits imposed in (d)(1) do not apply for that source for the next day

DISTRICT RESPONSE

The District assumes the commenter is referring the daily aggregate NOx mass emission limits in Subsection (d)(3). In accordance with revised Subsection (d)(4), a forecasted ozone exceedance for the next day is considered not to have been made if the District does not make the forecast publicly available by 5:30 P.M. In this case, the daily NOx emission limits of Subsection (d)(3) do not apply because no forecast ozone exceedance has been made for purposes of the rule. However, the NOx exhaust concentration emission standards of Subsection (d)(2) would still apply to all peaking turbines that would have been subject to Subsection (d)(3) had a forecast been made in a timely manner.

SBM:jlm
12/24/09