

**SAN DIEGO COUNTY
AIR POLLUTION CONTROL DISTRICT**

**DRAFT PROPOSED AMENDMENTS TO RULE 69.3.1 – STATIONARY
GAS TURBINE ENGINES - BEST AVAILABLE RETROFIT CONTROL
TECHNOLOGY, AND THE PROPOSED REPEAL OF EXISTING RULE 69.3 –
STATIONARY GAS TURBINE ENGINES - REASONABLY
AVAILABLE CONTROL TECHNOLOGY**

WORKSHOP REPORT

The San Diego County Air Pollution Control District (District) held a public webinar on February 2, 2021, to discuss and receive input on the draft proposed amendments to Rule 69.3.1 – Stationary Gas Turbine Engines-Best Available Retrofit Control Technology. A meeting notice was posted on the District’s website, distributed to interested parties via the District’s electronic mail listserv, and mailed to affected permit holders, local chambers of commerce, the U.S. Environmental Protection Agency (EPA) and the California Air Resources Board (CARB).

The webinar was attended by 29 people. A summary of the comments and District responses are provided below:

1. WORKSHOP COMMENT

Solar Turbines Incorporated (Solar) recommends that Subsection (b)(1)(i) be revised to remove the term “exclusively” from the existing exemption for gas turbine engine test cells. First, the scope of Reasonable Available Control Technology and Best Available Retrofit Control Technology requirements for stationary gas turbines does not include gas turbine test cells/stands/pads as an affected source category. Therefore, when Rule 69.3.1 was first adopted in 1998, the generation and use of electricity when incidental to operations conducted in a test cell would not preclude the applicability of the exemption. Second, the proposed revision aligns with the CARB guidance and similar exemptions in other California air districts’ turbine rules. Third, the proposed revision is consistent with the exemption for combustion turbine test cells/stands provided in the federal Standards of Performance for Stationary Combustion Turbines, Subpart KKKK. Finally, stationary gas turbine rules generally do not apply to gas turbine test cells/stands/pads due to the significant technical and operational differences between turbines that are used for power or heat generation and those that are attached to a test bed for development and product testing. For example, the varying load cycles required during turbine testing, plus the different turbine models or components tested in each test cell, make it technologically infeasible to meet the narrow operational parameters required by most add-on emission control systems.

DISTRICT RESPONSE

The recommendation to remove the term “exclusively” from the exemption in existing Subsection (b)(1)(i) is not necessary. The District agrees that gas turbine engines are exempt from the provisions of Rule 69.3.1 when operated exclusively for the research, development or testing of gas turbine engines or their components, consistent with CARB guidance, federal Subpart KKKK, and other air districts’ turbine engine rules. However, the exemption does not apply if the

electricity generated from the operation of turbine engines in a test cell, stand or pad is supplied to the electrical grid for commercial profit. Such operation would not comply with the requirement that the turbine engine be used exclusively for the research, development or testing of gas turbine engines or their components.

2. WORKSHOP COMMENT

Solar is a prominent, reputable, and environmentally conscientious business in San Diego County, contributing both to the regional economy and environmental stewardship. Ensuring that Solar can continue its compliant operations in San Diego County is not only critical to Solar, but also reassures other existing industries and companies that contemplate starting or expanding in San Diego that it is possible to both protect the environment and promote the manufacturing industry and jobs in the community. The Industrial Environmental Association strongly urges the District to consider and incorporate Solar's recommendation to revise Subsection (b)(1)(i) to remove the term "exclusively" from the exemption for gas turbine test cells.

DISTRICT RESPONSE

Please see District Response to Comment No. 1 above.

3. WORKSHOP COMMENT

Proposed amended Subsection (c)(4), definition of "Extended Startup", includes more operational parameters than what is specified in existing facility Permits to Operate. Will the District consequently revise the existing permits to include the proposed rule language?

DISTRICT RESPONSE

No. The rule proposal does not require a change to the conditions in a facility's existing Permit to Operate. The steam turbine reheat bowl temperature of less than or equal to 750°F in Subsection (c)(4) is proposed to align with a requested permit modification that is currently under District review. The steam turbine inner casing temperature of less than or equal to 500°F is proposed to align with, and not replace, the conditions currently specified in existing Permits to Operate. A third operational parameter of zero fuel flow for a period of 24 hours or more is proposed as an alternative option to define an extended startup.

4. WORKSHOP COMMENT

An application for a permit modification has been submitted and is currently under District review to allow an extended startup to occur when the steam turbine reheat bowl temperature is less than or equal to 750°F when the startup period begins. Will the proposed rule requirements for an

extended startup in proposed amended Subsection (c)(4) be incorporated into the Permit to Operate?

DISTRICT RESPONSE

Proposed amended Subsection (c)(4), definition of “Extended Startup”, includes the operational parameter of the steam turbine reheat bowl temperature of less than or equal to 750°F. While this proposal aligns with the aforementioned application for permit modification of the steam turbine reheat bowl temperature to less than or equal to 750°F, the application is currently being evaluated by the District. Ultimately, the steam turbine reheat bowl temperature condition to be specified on the Permit to Operate will be determined once the evaluation by the District has been completed. Please also see District Response to Comment No. 3 above.

5. WORKSHOP COMMENT

Lean premix combustion occurs during steady state operation of a gas turbine engine, and accordingly, all manufacturers exclude startup, shutdown, and transient load events from operation in lean premix mode. Also excluded are turbine operation during extreme ambient temperatures and operating loads outside of the warranted lean premix operating mode, e.g., low load conditions. For consistency with the conditions whereby a gas turbine engine typically operates in non-lean-premix mode, Solar recommends that the definition for “Lean Premix Combustor” in proposed amended Subsection (c)(9) retain the terms “extreme ambient temperature” and “transient load.”

DISTRICT RESPONSE

The District disagrees. The suggested revision to retain the terms “extreme ambient temperature” and “transient load” is not necessary because the list of operating conditions in proposed amended Subsection (c)(9) of when a lean premix combustor may operate in non-lean-premix mode is not an all-inclusive list, and thus does not preclude other operating conditions not explicitly listed. For clarification, proposed amended Subsection (c)(9) has been revised to add “including, but not limited to.” Please also see District Response to EPA Comment No. 12 below.

6. CARB COMMENT

CARB has no official comments at this time.

7. EPA COMMENT

Rule 69.3.1 applies to all existing turbine engines with a power rating of 1.0 megawatt (MW) or greater, and all new units rated at 0.3 MW or greater. Rule 69.3, which was approved into the State Implementation Plan (SIP), applies to any unit rated at 0.3 MW or greater. The District should consider combining the two rules into a single regulation to simplify the SIP.

DISTRICT RESPONSE

The District agrees. Proposed amended Rule 69.3.1 has been revised to apply to any stationary gas turbine engine with a power rating of 0.3 MW or greater. In addition, proposed amended Rule 69.3.1 includes requirements similar to or more stringent than the requirements in Rule 69.3. Upon adoption of proposed amended Rule 69.3.1, Rule 69.3 will be repealed and Rule 69.3.1 will be submitted, through CARB, for inclusion into the SIP to replace Rule 69.3.

8. EPA COMMENT

The definition for “Emergency Situation” in existing Subsection (c)(3) allows for Air Pollution Control Officer discretion in determining when a power failure is beyond the reasonable control of the owner or operator. This is a rule approvability issue, and therefore Air Pollution Control Officer discretion should be removed. Also, the term “life-threatening situation” is too ambiguous and should be more clearly defined.

DISTRICT RESPONSE

Proposed amended Subsection (c)(2), definition of “Emergency Situation”, formerly Subsection (c)(3), has been revised to remove Air Pollution Control Officer discretion as suggested. In addition, for clarification, the definition of “life threatening situation” has been revised to “an unforeseen event that requires the use of gas turbine engines to help alleviate the threat to public health and safety.”

9. EPA COMMENT

The definition for “Emergency Unit” in existing Subsection (c)(4) is unenforceable due to the deficiency in Subsection (c)(2), and is a rule approvability issue.

DISTRICT RESPONSE

Proposed amended Subsection (c)(3), definition of “Emergency Unit”, formerly Subsection (c)(4), has been revised to mean “a stationary gas turbine engine used exclusively in emergency situations, or for testing or maintenance purposes only.” Please also see District Response to EPA Comment No. 8 above.

10. EPA COMMENT

The definition for “Extended Startup” in existing Subsection (c)(6) allows for Air Pollution Control Officer discretion in determining the key parameters that shall be met to demonstrate an extended startup has occurred. This is a rule approvability issue, therefore Air Pollution Control Officer discretion should be removed, and specific and technically justified operational parameters for an extended startup should be included.

DISTRICT RESPONSE

Proposed amended Subsection (c)(4), definition of “Extended Startup”, formerly Subsection (c)(6), has been revised to remove Air Pollution Control Officer discretion, and to include specific operational parameters such as steam turbine reheat bowl temperature, steam turbine inner casing temperature, and period of zero fuel flow, as suggested.

11. EPA COMMENT

The definition for “Force Majeure Natural Gas Curtailment,” in existing Subsection (c)(7) allows for California Public Utility Commission determinations that are not SIP enforceable, and are not based upon must-run emergencies for units facing natural gas curtailment. There are also no time limitations on such operations specified in the rule. This is a rule approvability issue, therefore the definition should be revised for consistency with other air districts’ definitions for natural gas curtailment situations.

DISTRICT RESPONSE

The definition for “Force Majeure Natural Gas Curtailment” is proposed to be deleted because the term only applied to peaking turbines that were installed and operated before December 16, 1998. These peaking units have since been retired and are no longer in operation.

12. EPA COMMENT

The definition for “Lean Premix Combustor” in existing Subsection (c)(11) allows for Air Pollution Control Officer discretion in determining “normal operating conditions.” The terms “extreme ambient temperature” and “transient load” are also not defined. This is a rule approvability issue, therefore the discretion should be removed, and specific and technically justified definitions for these terms should be included, or the definition for “Lean Premix Combustor” should be revised to not rely on the undefined terms. In addition, the term “lean mixture” should be clearly defined in the rule.

DISTRICT RESPONSE

Proposed amended Subsection (c)(9), definition of “Lean Premix Combustor”, formerly Subsection (c)(11), has been revised to remove Air Pollution Control Officer discretion and the terms “extreme ambient temperature” and “transient load” as suggested. In addition, the definition for “lean mixture” has been added in new proposed Subsection (c)(8) as suggested.

13. EPA COMMENT

The definition for “Peaking Unit” in existing Subsection (c)(17) is imprecise and unenforceable. This is a rule approvability issue, therefore the definition should be revised to clearly specify the criteria for a turbine engine to be considered a peaking unit.

DISTRICT RESPONSE

Proposed amended Subsection (c)(14), definition of “Peaking Unit”, formerly Subsection (c)(17), has been revised to mean “a stationary gas turbine engine that is only operated for generation of electric power during periods of high energy demand as directed by the California Independent System Operator (CAISO), or for testing or maintenance purposes only.”

14. EPA COMMENT

The definition for “Period of Operation at Low Load” in existing Subsection (c)(18) allows for Air Pollution Control Officer discretion in determining the “critical level.” This is a rule approvability issue, therefore the definition should be revised to include specific and technically justified criteria.

DISTRICT RESPONSE

Proposed amended Subsection (c)(15), definition of “Period of Operation at Low Load”, formerly Subsection (c)(18), has been revised to remove Air Pollution Control Officer discretion and the term “critical level,” and to mean “a period of time that begins when the gas turbine power level is reduced from a higher level to a lower level such that the gas turbine is unable to comply with the standards of Section (d) Standards, and ends 10 minutes after the turbine power level next exceeds the level where the gas turbine is capable of complying with the standards of Section (d) Standards.”

15. EPA COMMENT

The definition for “Testing or Maintenance” in proposed amended Subsection (c)(24)(v) allows for the operation of an emergency unit to provide electric power for a facility during an electrical upgrade. How frequently do these electrical upgrades occur, and what are the duration hours of emergency unit operation for such an event?

DISTRICT RESPONSE

Electrical upgrades are performed infrequently, and therefore the District anticipates few, if any, such events to occur within a given year. Subsection (b)(2) has been revised to clarify that the total hours of operation of an emergency unit for testing or maintenance purposes, which include electrical upgrades as specified in proposed amended Subsection (c)(24)(v), shall not exceed 80 hours per calendar year.

16. EPA COMMENT

The provisions in existing Subsections (d)(3) and (d)(4) allow for meteorologically based emission requirements for peaking units on certain days that violate Clean Air Act Section 123(a)(2) and (b). The various provisions for peaking units in the rule are therefore inappropriate for inclusion into the SIP, and are rule approvability issues.

DISTRICT RESPONSE

Existing Subsections (d)(3) and (d)(4) are proposed for removal, along with other provisions in the rule that only applied to peaking turbines that were installed and operated before December 16, 1998. These peaking units have since been retired and are no longer in operation.

17. EPA COMMENT

Peaking units are treated similarly to emergency units for testing and maintenance requirements. Are there emission limits or operating requirements specific to peaking units only that would differentiate them from other types of turbine engines?

DISTRICT RESPONSE

The existing emission standards specified in Subsection (d)(1) apply to all turbine engines, including peaking units. The requirements applicable to peaking units only are specified in existing Subsection (e)(6), which include the maintenance of 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.

AMF:RC:jlm
06/16/21

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

(Adopted and Effective 12/16/98; Rev. Effective 2/24/10 Rev. Adopted and 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 megawatt (MW) or greater.~~ Any unit subject to Section (d) Standards of this rule shall not be subject to Rule 68 - Fuel-Burning Equipment-Oxides of Nitrogen.

(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) Standards shall not apply to any emergency unit provided that operation for ~~non-emergency testing or maintenance 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; and

(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 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) An unforeseen flood or fire; or~~

(iii) ~~A life-threatening situation. An unforeseen event that requires the use of gas turbine engines to help alleviate the threat to public health and safety.~~

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.

(43) **"Emergency Unit"** means a stationary gas turbine engine used ~~only exclusively~~ in ~~the event of an emergency situations, or for testing or maintenance purposes only.~~ 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.

(64) **"Extended s-Startup"** means the startup of a combined-cycle gas turbine engine when, ~~as determined by the Air Pollution Control Officer, any of the following 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)-Standards:~~

(i) The steam turbine reheat bowl temperature is less than or equal to 750°F when the startup period begins; or

(ii) The steam turbine inner casing temperature is less than or equal to 500°F when the startup period begins; or

(iii) The unit has experienced zero fuel flow for a period of 24 hours or more.

(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.~~

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

(96) **"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.

(107) **"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.

(8) **"Lean Mixture"** means a mixture of air and fuel such that the operating air-to-fuel ratio is more than 1.1 times the stoichiometric air-to-fuel ratio.

(119) **"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 including, but not limited to, startup and shutdown, extreme ambient temperature, or low or transient load period of operation at low load.~~

(1210) **"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.

(1311) **"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.

(1412) **"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.

(1513) **"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.

(1714) **"Peaking Unit"** means a stationary gas turbine engine that is only operated ~~intermittently~~ for generation of electric power during periods of high energy demand as

directed by the California Independent System Operator (CAISO), or for testing or maintenance purposes only.

~~(1815)~~ **"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 lower level, as determined by the Air Pollution Control Officer,~~ such that the gas turbine is unable to comply with the standards of Section (d) Standards, and ends 10 minutes after the turbine power level next exceeds the ~~critical level~~ where the gas turbine is capable of complying with the standards of Section (d) Standards, 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) Standards do not apply pursuant to Subsection (b)(3)(i), or Subsection (b)(4).

~~(1916)~~ **"Portable Gas Turbine Engine"** means a gas turbine engine which meets the definition of a portable emission unit in Rule 20.1 – New Source Review (NSR)-General Provisions.

~~(2017)~~ **"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.

~~(2118)~~ **"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.

~~(2219)~~ **"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.

~~(2320)~~ **"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.

~~(2421)~~ **"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 engine. Two or more gas turbines powering a common shaft shall be treated as one gas turbine.

~~(2522)~~ **"Stationary Source"** means the same as defined in Rule 2 – Definitions.

~~(2623)~~ **"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.~~

(24) "Testing or Maintenance" means operating an emergency unit, or a peaking unit as otherwise indicated, to:

(i) Evaluate the ability of the unit or its supported equipment to perform during an emergency. "Supported Equipment" includes, but is not limited to, generators, pumps, transformers, switchgear, uninterruptible power supply, and breakers; or

(ii) Facilitate the training of personnel on emergency activities; or

(iii) Provide electric power for the facility when the utility distribution company takes its power distribution equipment offline to service that equipment for any reason that does not qualify as an emergency situation; or

(iv) Provide additional hours of operation to perform testing on an emergency unit that has experienced a breakdown or failure during maintenance. Upon approval by the Air Pollution Control Officer, these additional hours of operation will not be counted in the maximum allowable annual hours of operation for the emergency unit that provided the electrical power. Operation for testing or maintenance purposes as described in this Subsection may be allowed for not more than 10 hours per year, with prior written authorization from the Air Pollution Control Officer, provided that an owner or operator demonstrates to the satisfaction of the Air Pollution Control Officer that such additional operation is necessary; or

(v) Provide electric power from the emergency unit for the facility during an electrical upgrade, such as the replacement or addition of electrical equipment and systems resulting in increased generation, transmission and/or distribution capacity; or

(vi) Provide electric power from the emergency unit for the facility during the repair of supported equipment as defined in Subsection (c)(24)(i); or

(vii) Evaluate the ability of the peaking unit or its supported equipment, as defined in Subsection (c)(24)(i), to operate as directed by the CAISO.

(2925) "Unit" means any stationary gas turbine engine.

(3026) "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 thermal efficiency of 25 percent.

(d) **STANDARDS**

(1) Except as provided for in Section (b) Exemptions 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 (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
<u><4.0 and operating less than 877 hours per calendar year</u>	<u>42</u>	<u>65</u>
≥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) Except as provided for in Section (b) Exemptions, and notwithstanding Subsection (d)(1), 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 \geq 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
<u>Combined-cycle units, following the first 120 consecutive minutes of an extended startup</u>	<u>42</u>	<u>65</u>

(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 February 24, 2010.

~~(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 RECORD KEEPING REQUIREMENTS

(1) An owner or operator of a unit which is subject to the requirements of Section (d) Standards 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 including, but not limited to:

- (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 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 San Diego County Air Pollution Control Officer.

(3) An owner or operator of any unit with a CEMS which has been installed to 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 San Diego County 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 testing or maintenance~~ 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 testing or maintenance~~ 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)(~~2-1~~) 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 this Section (e) Monitoring and Record Keeping Requirements 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 San Diego County 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 San Diego County 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.~~

~~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

When more than one test method or set of test methods are specified in this section, a violation of any requirement of this rule established by any one of the specified test methods or set of test methods shall constitute a violation of the rule.

(1) To determine compliance with Section (d) Standards, measurement of NOx and stack-gas oxygen content shall be conducted in accordance with the U.S. Environmental Protection Agency (EPA) Method 7E (Determination of Nitrogen Oxides Emissions from Stationary Sources (Instrumental Analyzer Procedure)), May 2018, and Method 3A

(Determination of Oxygen and Carbon Dioxide Concentrations in Emissions from Stationary Sources (Instrumental Analyzer Procedure)), August 2017; or District Source Test Method 100 (Test Procedures for the Determination of Nitrogen Oxides, Carbon Monoxide and Diluent Gases by Continuous Emission Monitoring), May 1995, 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 D240-09-19, “Standard Test Method for Heat of Combustion of Liquid Hydrocarbon Fuels by Bomb Calorimeter”, or D4809-09-18, “Standard Test Method for Heat of Combustion of Liquid Hydrocarbon Fuels by Bomb Calorimeter (Precision Method)” for liquid fuels, or their most current versions, and

(ii) ASTM Test Method D1826-94(2003-2017), Standard Test Method for Calorific (Heating) Value of Gases in Natural Gas Range by Continuous Recording Calorimeter”, or D1945-03-14(2019), “Standard Test Method for Analysis of Natural Gas by Gas Chromatography”, in conjunction with ASTM Test Method D3588-98(2003)-2017)e1, “Standard Practice for Calculating Heat Value, Compressibility Factor, and Relative Density of Gaseous Fuels” for gaseous fuels, or their most current versions.

(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 San Diego County 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) Standards 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 San Diego County Air Pollution Control Officer.

(3) Unless more frequent testing is specified in writing by the San Diego County Air Pollution Control Officer, a unit equipped with a continuous emission monitoring system (CEMS), subject to the requirements of Section (d) Standards, 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) Test Methods and a source test protocol approved in writing by the San Diego County 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 subtests.

(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.

(8) Notwithstanding provisions of this Section (g) Source Test Requirements and Compliance Determination, the San Diego County 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.