

Proposed Amended Rule 1135 Emissions of Oxides of Nitrogen from Electricity Generating Facilities

and

Proposed Rule 429.2 Startup and Shutdown Exemption Provisions for Oxides of Nitrogen from Electricity Generating Facilities

Working Group Meeting #2
September 15, 2021



Join Zoom Webinar Meeting:

<https://scaqmd.zoom.us/j/94648515982>

Webinar ID: 946 4851 5982

Teleconference Dial-In: 1-669-900-6833

Agenda



Previous Working Group Meeting

Proposed Amended Rule 1135 (PAR 1135)

Proposed Rule 429.2 (PR 429.2)

Next Steps

Summary of Previous Working Group Meeting

Presented the following PAR 1135 amendments

Remove ammonia limits for SCR and SNCR systems installed on electricity generating units – Addressed in permitting

Align CEMS requirements with Rules 218.2 and 218.3 for non-RECLAIM and former RECLAIM facilities

Move startup, shutdown, and tuning provisions to PR 429.2

Presented the following PR 429.2 concepts

Startup, shutdown, and tuning definitions

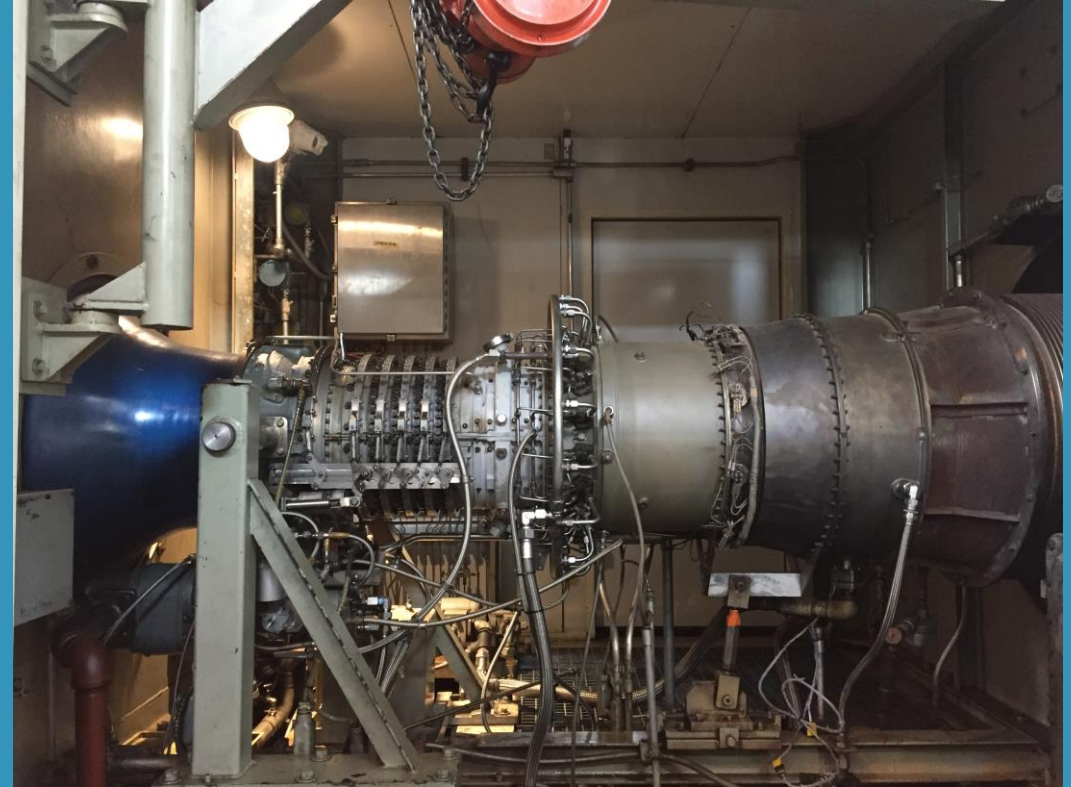
Limits to startup, shutdown, and tuning periods

- Maximum duration
- Number of scheduled startup events

Best Management Practices

Recordkeeping

Proposed Amended Rule 1135



Stakeholder Question

Stakeholder Question	Staff Response
<p>Will current ammonia limits in existing permits be retained after the rule amendment or will Engineering reassess ammonia limits?</p>	<ul style="list-style-type: none">• Operators can retain existing ammonia limits on permits• Ammonia limits for existing equipment will not be re-asses• Ammonia emission limits for new and modified pollution controls will be evaluated during permitting process
<p>How does the Rule 1135 July 1, 2022 permit application submittal requirement relate to the permit applications to be submitted as part of the RECLAIM transition?</p>	<ul style="list-style-type: none">• The July 1, 2022 permit application submittal requirement is to reconcile permits with Rule 1135 provisions<ul style="list-style-type: none">• Existing permits with conditions that already meet Rule 1135 requirements are not required to submit applications for July 1, 2022 deadline• Permit applications for RECLAIM transition will be a separate submittal

Proposed Rule Language

Definitions

Subdivision (c)

Adding

- Combined Cycle/Cogeneration Gas Turbine
- NOx Peaking Unit

Modifying

- Electricity Generating Unit
- Emissions Cap
- Emissions Rate

Updating

- Former RECLAIM NOx Source
- Non-RECLAIM NOx Source
- RECLAIM NOx Source
- Electricity Generating Facility
- Shutdown
- Startup

Removing

- Cogeneration Turbine
- Combined Cycle Gas Turbine
- Landfill
- Petroleum Refinery
- Publicly Owned Treatment Works
- SCAQMD-Wide Daily Limits

NOx Peaking Unit Paragraph (c)(16)

- Staff is proposing to allow RECLAIM NOx process units to continue operating without CEMS after the RECLAIM transition
- NOx Process Unit is a RECLAIM term, needed to define in PAR 1135
 - PAR 1135 definition is based on RECLAIM definition

NO_x PEAKING UNIT for the purposes of this rule means any NO_x emitting turbine used intermittently to produce energy on a demand basis, does not operate more than 1,300 hours per year, and not subject to 40 CFR Part 72.

Cycle/Cogeneration Gas Turbine Paragraph (c)(3)

Cogeneration Turbine and Combined Cycle Gas Turbine Former Paragraphs (c)(3) and (c)(4)

Merged definitions of Cogeneration and Combined Cycle Gas Turbine

- Term will now be Combined
Cycle/Cogeneration Gas Turbine
- Will not change Rule 1135 applicability

COMBINED CYCLE/COGENERATION GAS TURBINE means any a gas turbine that recovers heat from the gas turbine exhaust gases ~~for use in a heat recovery steam generator to generate additional electricity.~~

Electricity Generating Unit Paragraph (c)(6)

- To align with new definition for
Combined Cycle/Cogeneration Gas
Turbine, removed reference to
cogeneration turbines

ELECTRICITY GENERATING UNIT means a boiler that generates electric power, gas turbine that generates electric power ~~with the exception of cogeneration turbines,~~ or diesel internal combustion engine that generates electric power and is located on Santa Catalina Island with the exception of emergency internal combustion engines.

SCAQMD-Wide Daily Limits Former Paragraph (c)(20)

SCAQMD-Wide Daily Limits Former Paragraph (c)(20)

- Removed definition to streamline rule language where emissions caps or emissions rates are required
 - SCAQMD-Wide Daily Limits are only applicable to City of Glendale

~~SCAQMD-WIDE DAILY LIMITS means the daily emissions limits applicable to any electricity generating facility consisting of an emissions cap and/or an emissions rate.~~

- (A) ~~EMISSIONS CAP is expressed in pounds of NO_x and calculated as the total daily NO_x emissions in pounds from all boilers at an electricity generating facility.~~
- (B) ~~EMISSIONS RATE is expressed in pounds of NO_x per Megawatt-Hour and calculated as the total daily NO_x emissions in pounds from all boilers at an electricity generating facility, divided by the total daily net electric power generated and/or obtained in Megawatt-Hours from all boilers at an electricity generating facility. NO_x emissions during start-ups and shutdowns, up to a maximum of 12 hours for each event, shall not be included in the determination of the emissions rate for an electricity generating facility if five or fewer boilers are in operation during this period.~~

Emissions Cap and Emissions Rate Paragraphs (c)(8) and (c)(9)

- Due to removal of SCAQMD-Wide Daily Limits, Emissions Cap and Emissions Rate were made their own definitions
- For Emissions Rate, moved provision regarding startup and shutdown emissions into subdivision (d)

EMISSIONS CAP is calculated as the total daily NO_x emissions in pounds from all boilers at an electricity generating facility, expressed in pounds of NO_x.

EMISSIONS RATE is calculated as the total daily NO_x emissions in pounds from all boilers at an electricity generating facility, divided by the total daily net electric power generated and/or obtained in Megawatt-Hours from all boilers at an electricity generating facility, expressed in pounds of NO_x per Megawatt-Hour.

Electricity Generating Facility Paragraphs (c)(7)

Electricity Generating Facility Paragraphs (c)(7)

- Updated definition to reference applicable South Coast AQMD rules for refineries, landfills, and publicly owned treatment works that are not electricity generating facilities

~~ELECTRICITY GENERATING FACILITY~~ means a facility that is owned or operated by an investor-owned electric utility; is owned or operated by a publicly owned electric utility; or has electricity generating units with a combined generation capacity of 50 megawatts or more of electrical power for distribution in the state or local electrical grid system. Electricity generating facility does not include ~~landfills, petroleum refineries, or publicly owned treatment works facilities~~ subject to South Coast AQMD Rule 1109.1 – Emissions of Oxides of Nitrogen from Petroleum Refineries and Related Operations, South Coast AQMD Rule 1150.3 – Emissions of Oxides of Nitrogen from Combustion Equipment at Landfills, or South Coast AQMD Rule 1179.1 – Emissions Reductions from Combustion Equipment at Publicly Owned Treatment Works Facilities.

Petroleum Refinery, Landfill, and Publicly Owned Treatment Works Former Paragraphs (c)(16), (c)(13), & (c)(18)

- Obsolete definitions removed to be consistent with updated definition for Electricity Generating Facility

~~PETROLEUM REFINERY~~ means a facility identified by the North American Industry Classification System Code 324110, Petroleum Refineries.

~~LANDFILL~~ means an entire disposal facility in a contiguous geographical space where solid waste is placed in or on land.

~~PUBLICLY OWNED TREATMENT WORKS~~ means wastewater treatment or reclamation plants owned and operated by a public entity, including all operations within the boundaries of the wastewater and sludge treatment plant.

Former RECLAIM, Non-RECLAIM, and RECLAIM NO_x Sources Paragraphs (c)(12), (c)(15), and (c)(19)

- Aligned with definitions to be consistent with Rule 1100 for consistency
- Changed “Source” to Facility to be more accurate

FORMER RECLAIM NO_x ~~SOURCE FACILITY for the purpose of this rule~~ means a ~~n electric generating unit located at an electricity generating~~ facility or any of its successors that was in the NO_x Regional Clean Air Incentives Market (RECLAIM) as of January 5, 2018, as established in Regulation XX – Regional Clean Air Incentives Market (RECLAIM), that has received a final determination notification ~~from the Executive Officer or the owner or operator opts-out of RECLAIM~~, and is no longer in the NO_x RECLAIM program.

NON-RECLAIM NO_x ~~SOURCE FACILITY for the purpose of this rule~~ means a ~~n electric generating unit located at an electricity generating~~ facility or any of its successors that was not in the NO_x RECLAIM as of January 5, 2018, as established in Regulation XX.

RECLAIM NO_x ~~SOURCE FACILITY for the purpose of this rule~~ means a ~~n electric generating unit located at an electricity generating~~ facility or any of its successors that is in the NO_x RECLAIM as of January 5, 2018, as established in Regulation XX and is still in RECLAIM on the relevant date.

Shutdown and Startup Paragraphs (c)(20) and (c)(22)

- Revised Shutdown and Startup to reference Proposed Rule 429.2

~~SHUTDOWN~~ means the time period during which an electric generating unit begins reducing load and ending in a period of zero fuel flow or as otherwise defined in the ~~SCAQMD permit~~ is as defined in South Coast AQMD Rule 429.2 – Startup and Shutdown Exemption Provisions for Oxides of Nitrogen from Electricity Generating Facilities.

~~START-UP~~ STARTUP means the time period that begins when an electric generating unit begins combusting fuel after a period of zero fuel flow and ends when the electric generating unit generates electricity for sale over the grid for power distribution, or as otherwise defined in the ~~SCAQMD permit~~ is as defined in South Coast AQMD Rule 429.2.

Ammonia Emission Limits Subdivision (d)

- Removed provisions related to ammonia emission limits in subdivision (d), including Tables 1 and 2
- Ammonia limits will be addressed during permitting

Table 1: Emissions Limits for Boilers and Gas Turbines

Equipment Type	NO _x (ppmv) ¹	Ammonia (ppmv)	Oxygen Correction (%, dry)
Boiler	5	5	3
Combined Cycle/ <u>Cogeneration</u> Gas Turbine and Associated Duct Burner	2	5	15
Simple Cycle Gas Turbine	2.5	5	15

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

Table 2: Emissions Limits for Diesel Internal Combustion Engines

NO _x (ppmv) ^{1,4}	Ammonia (ppmv) ¹	Carbon Monoxide (ppmv) ^{2,4}	Volatile Organic Compounds (ppmv) ^{3,4}	Particulate Matter (lbs/mmBtu)
45	5	250	30	0.0076

¹ – Corrected to 15% oxygen on a dry basis and averaged over a 60 minute rolling average

² – Corrected to 15% oxygen on a dry basis and averaged over 15 minutes

³ – Measured as carbon, corrected to 15% oxygen on a dry basis, and averaged over sampling time required by the test method

⁴ – The NO_x, carbon monoxide, and volatile organic compounds emissions limits in Table 2 shall not apply during ~~start-up~~ startup and shutdown.

Startup, Shutdown, and Tuning Requirements Former Paragraph (d)(3)

- Removed startup, shutdown, and tuning requirements from Rule 1135
- Will incorporate into PR 429.2

~~Start-up, Shutdown, and Tuning Requirements~~

~~The owner or operator of an electricity generating facility shall meet start-up, shutdown, and tuning requirements in the SCAQMD permit for each electric generating unit. On and after January 1, 2024, the SCAQMD permit shall include limitations for duration, mass emissions, and number of start-ups, shutdowns, and, if applicable, tunings.~~

CEMS for Former RECLAIM and Non-RECLAIM NO_x Facilities

Paragraph (e)(2) and Former Paragraph (e)(3)

(2) Former RECLAIM NO_x ~~Source and Non-RECLAIM NO_x Facilities~~

The owner or operator of each former RECLAIM NO_x ~~source facility and non-RECLAIM NO_x facility~~ subject to Rule 1135 shall comply with ~~South Coast AQMD Rule 2012—Requirements for Monitoring, Reporting, and Recordkeeping for Oxides of Nitrogen (NO_x) Emissions—Rule 218 – Continuous Emission Monitoring, South Coast AQMD Rule 218.1 – Continuous Emission Monitoring Performance Specifications, South Coast AQMD Rule 218.2 – Continuous Emission Monitoring System: General Provisions, South Coast AQMD Rule 218.3 – Continuous Emission Monitoring System: Performance Specifications, and 40 CFR Part 75~~ to demonstrate compliance with the NO_x emissions limits of this rule, excluding the following:

- (A) ~~Paragraphs (c)(3) through (c)(8), reporting and Super Compliant facilities;~~
- (B) ~~Subparagraphs (d)(2)(B) through (d)(2)(E), reporting and emission factors;~~
- (C) ~~Subdivision (e), NO_x Process Units;~~
- (D) ~~Paragraphs (g)(5) through (g)(8), reporting;~~
- (E) ~~Paragraphs (h)(1), (h)(2), and (h)(4) through (h)(6), reporting and mass emissions;~~
- (F) ~~Subdivisions (i), (k), and (l), Recordkeeping, Exemptions, and Appeals; and~~
- (G) ~~Reported Data and Transmitting/Reporting Frequency requirements from Appendix A—“Protocol for Monitoring, Reporting and Recordkeeping for Oxides of Nitrogen (NO_x) Emissions.”~~

(3) Non-RECLAIM NO_x Source

The owner or operator of a non-RECLAIM NO_x source subject to Rule 1135 shall comply with the following provisions to demonstrate compliance with the NO_x emissions limits of this rule:

- (A) ~~40 CFR Part 75 and calculating NO_x in ppmv pursuant to SCAQMD Rule 218—Continuous Emission Monitoring; or~~
- (B) ~~SCAQMD Rule 218—Continuous Emission Monitoring.~~

- In March 2021, Rule 218-series rules were amended and adopted to align CEMS requirements for RECLAIM and non-RECLAIM facilities
- As facilities exit RECLAIM, facilities will be transitioned from Rule 2012 to Rule 218.2 and 218.3
- Non-RECLAIM facilities will be transitioned from Rule 218 and 218.1 to Rules 218.2 and 218.3

Monitoring for RECLAIM NO_x Process Units

Paragraph (e)(3)

- RECLAIM NO_x peaking units are considered NO_x process units and are not required to install CEMS per Rule 2012
- Currently, Rule 1135 requires CEMS for all electricity generating units at former RECLAIM and non-RECLAIM NO_x facilities
 - Once a facility exits RECLAIM, units that were RECLAIM NO_x process units will be required to install CEMS
- PAR 1135 will require former RECLAIM NO_x facilities to follow Rule 218-series rules and operate CEMS
- To allow sufficient time for RECLAIM facilities with NO_x process units to implement Rule 218-series rules, PAR 1135 will allow annual source testing until January 2027 in lieu of operating CEMS
 - Facilities must submit permit applications to limit operating hours to 1,300 hr/year for each NO_x peaking unit to qualify for source testing option

NO_x Process Units

Until [FIVE YEARS AFTER DATE OF ADOPTION], in lieu of paragraph (e)(2), the owner or operator of a former RECLAIM NO_x facility with a NO_x peaking unit shall:

- (A) Conduct yearly source test to demonstrate compliance with the NO_x emission limits of this rule according to South Coast AQMD Method 100.1 – Instrumental Analyzer Procedures for Continuous Gaseous Emission Sampling, South Coast AQMD Method 7.1 – Determination of Nitrogen Oxide Emissions from Stationary Sources, U.S. EPA Method 20 – Nitrogen Oxides from Stationary Gas Turbines; or U.S. EPA Method 7E – Nitrogen Oxide - Instrumental Analyzer; and
- (B) By July 1, 2022, for each NO_x process unit, submit a permit application that limits total annual operation time to no more than 1,300 hours per calendar year.

Ammonia Emissions Testing or Monitoring Paragraph (e)(5)

- Current Rule 1135 only refers to ammonia testing or monitoring for catalytic control devices
- Added non-catalytic control devices with ammonia injection to ensure source testing or continuous monitoring of ammonia emissions requirements apply to units with SCR and SNCR

Catalytic and Non-Catalytic Control Devices with Ammonia Injection Emissions Limits

- (A) The owner or operator of each electricity generating unit with a catalytic or non-catalytic control devices with ammonia injection shall conduct quarterly source tests to demonstrate compliance with the ammonia emission limit specified in the South Coast AQMD permit according to South Coast AQMD Method 207.1 – Determination of Ammonia Emissions from Stationary Sources during the first ~~twelve~~ 12 months of operation of the electricity generating unit with a catalytic or non-catalytic control device with ammonia injection and annually thereafter when four consecutive quarterly source tests demonstrate compliance with the ammonia emission limit specified in the South Coast AQMD permit. If an annual test is failed, the owner or operator shall conduct four consecutive quarterly source tests must-to demonstrate compliance with the ammonia emissions limits specified in the South Coast AQMD permit to operate prior to resuming annual source tests.
- (B) In lieu of complying with subparagraph (e)(6)(A), the owner or operator of each electricity generating unit with a catalytic or non-catalytic control device with ammonia injection may utilize ammonia CEMS certified under an approved South Coast AQMD protocol to demonstrate compliance with the ammonia emission limit specified in the South Coast AQMD permit to operate.

Additional Considerations

Emissions Limits for Diesel Internal Combustion Engines

Paragraph (d)(2)

- Current Rule 1135 requires diesel engines meet NO_x emission limit of 45 ppmv (at 15% O₂) by January 1, 2024 with an option of a 3-year extension
 - NO_x limit derived from U.S. EPA Tier 4 Final emission standard (0.67 g/kWh or 0.50 g/bhp-hr for a generator set) with an assumed engine efficiency at 40%
- Santa Catalina Island Engine Replacement Project
 - Based on discussions with Southern California Edison (SCE), all six diesel internal combustion engines on Santa Catalina Island will be replaced with U.S. EPA Tier 4 Final-certified diesel engines to meet Rule 1135 emission limits
 - SCE has submitted permit applications for the first two replacement engines
 - Engineering is determining if replacement engines meet BACT
 - Proposed replacement engines are new equipment, thus subject to BACT
 - Replacement of all six engines expected to be completed by January 1, 2027

Status of Santa Catalina Island Engine Replacement Project

- Initial review of submitted permit applications show new engines cannot:
 - Meet Rule 1135 NOx limit at all operating loads
- Engine manufacturer cannot guarantee proposed new engines will meet the 45 ppmv NOx limit on a 60-minute rolling average at all operating loads
 - Tier 4 Final certification tests are conducted at multiple loads and results averaged
 - Tier 4 Final certification testing conditions are not representative of actual field conditions

Considerations for Santa Catalina Island Engine Replacement

- Staff proposes to amend NOx emission limit for diesel internal combustion engines based on engine size and operating load
 - Tier 4 certification test results show each new engine model can meet NOx concentrations <45 ppmv (current Rule 1135 limit) at certain load ranges
 - Any proposed NOx emission limit higher than 45 ppmv may require additional operating limits (i.e, maximum hours at specific loads or facility wide limit)
- Proposed emission limits and associated operating conditions will ensure that the same NOx emission reductions occur from Santa Catalina Island engines if engines meet current 45 ppmv NOx limit on and after January 1, 2024
- PAR 1135 will retain current Rule 1135 emission limits for CO, VOC, and PM
- Staff is continuing to work with SCE and an engine manufacturer

Engine Operating Load Paragraph (c)(10)

- Staff is proposing revised NOx emission limits for diesel internal combustion engines on Santa Catalina Island
- Definition needed as proposed NOx emission limits will be based on engine operating load

ENGINE OPERATING LOAD is calculated as the average gross electrical power output (in kilowatts) measured at the generator terminals divided by the rated gross generator output (in kilowatts) of the engine multiplied by the inverse of the generator efficiency, expressed as a percent.

Proposed Rule 429.2

**PROPOSED RULE 429.2 STARTUP AND SHUTDOWN EXEMPTION
PROVISIONS FOR OXIDES OF NITROGEN FROM
ELECTRICITY GENERATING FACILITIES**

(a) Purpose

The purpose of this rule is to limit emissions of oxides of nitrogen (NO_x) during periods of startup and shutdown from electricity generating units at electricity generating facilities.

(b) Applicability

This rule shall apply to electricity generating units at electricity generating facilities.

(c) Definitions

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

- (1) **BOILER COLD START** means the condition of a boiler startup occurring after a boiler has been shut down for 24 hours or more.
- (2) **BOILER NON-COLD START** means the condition of a boiler startup occurring after a boiler has been shut down for less than 24 hours or put in standby.
- (3) **ELECTRICITY GENERATING UNIT** is as defined in Rule 1135 – Emissions of Oxides of Nitrogen from Electricity Generating Facilities, which includes boilers, combined cycle/cogeneration gas turbines, duct burners, simple cycle gas turbines, and internal combustion engines, as defined in Rule 1135.
- (4) **ELECTRICITY GENERATING FACILITY** is as defined in Rule 1135.
- (5) **MINIMUM OPERATING TEMPERATURE** means the minimum operating temperature specified by the manufacturer, or as otherwise defined in the South Coast AQMD permit to operate.
- (6) **OXIDES OF NITROGEN (NO_x) EMISSIONS** is as defined in Rule 1135.
- (7) **SCHEDULED STARTUP** means a planned startup that is specified by January 1 of each year.
- (8) **SHUTDOWN** means the time period that begins when an electricity generating unit begins reducing load and flue gas temperatures fall below the minimum operating temperature of the NO_x post-combustion control equipment, and ends in a period of zero fuel flow.

Stakeholder Comments

Stakeholder Comment	Staff Response
<p>Explain the relationship between the startup and shutdown number and duration limits which are being proposed in PR 429.2 and which are already existing in the current permit (under RECLAIM)</p>	<ul style="list-style-type: none">• Number of Startups and Shutdowns<ul style="list-style-type: none">• PR 429.2 will only limit the number of scheduled startups• Scheduled startups will count toward the permitted number of total startups• Duration of Startups and Shutdowns<ul style="list-style-type: none">• PR 429.2 will establish the most inclusive duration limits for entire universe of Rule 1135 equipment for each equipment type based on current permit conditions and documented startup and shutdown events• Equipment that has more stringent startup and shutdown requirements in their permits will follow the permit conditions• Permits that have no startup or shutdown limits<ul style="list-style-type: none">• Will require permits to be updated with startup and shutdown conditions that do not exceed PR 429.2

Stakeholder Comments *(continued)*

Stakeholder Comment	Staff Response
Rule should allow flexibility for changes to submitted scheduled startup dates submitted	<ul style="list-style-type: none">• PR 429.2 will allow for this flexibility and include a provision for facilities to keep a record of all time and date changes to scheduled startups
Will PR 429.2 address aborted startups?	<ul style="list-style-type: none">• Conditions for aborted startups will be addressed in the permits

Proposed Rule Language

Purpose and Applicability

Subdivisions (a) and (b)

Purpose

The purpose of this rule is to limit emissions of oxides of nitrogen (NO_x) during periods of startup and shutdown from electricity generating units at electricity generating facilities.

Applicability

This rule shall apply to electricity generating units at electricity generating facilities.

Definitions Subdivision (c)

Definitions from Rule 1135

- Electricity Generating Unit
- Electricity Generating Facility
- Oxides of Nitrogen (NO_x) Emissions

Definitions from Other Startup and Shutdown Rulemakings (PAR 429 and PR 429.1)

- Minimum Operating Temperature
- Scheduled Startup
- Stable Conditions

Definitions Specific to PR 429.2

- Boiler Cold Start
- Boiler Non-Cold Start
- Shutdown
- Startup

Definitions from PAR 429 and PR 429.1

Paragraph (c)(5)

MINIMUM OPERATING TEMPERATURE means the minimum operating temperature specified by the manufacturer, or as otherwise defined in the South Coast AQMD permit to operate.

Paragraph (c)(7)

SCHEDULED STARTUP means a planned startup that is specified by January 1 of each year.

Paragraph (c)(9)

STABLE CONDITIONS means that the fuel flow to an electricity generating unit is consistent and allows for normal operations.

New Definitions for Boiler Startup

Boiler Cold Start Paragraph (c)(1)

BOILER COLD START means the condition of a boiler startup occurring after a boiler has been shut down for 24 hours or more.

Boiler Non-Cold Start Paragraph (c)(2)

BOILER NON-COLD START means the condition of a boiler startup occurring after a boiler has been shut down for less than 24 hours or put in standby.

Startup and Shutdown

Startup

Paragraph (c)(10)

STARTUP means the time period that begins when an electricity generating unit begins combusting fuel after a period of zero fuel flow and ends when the electricity generating unit reaches the emission limit specified in the South Coast AQMD Rule 1135 or permit to operate, whichever is more stringent, or when the time limit specified in Table 1 is reached, whichever is soonest.

Shutdown

Paragraph (c)(8)

SHUTDOWN means the time period that begins when an electricity generating unit begins reducing load and flue gas temperatures fall below the minimum operating temperature of the NO_x post-combustion control equipment, and ends in a period of zero fuel flow.

Approach for Establishing Startup and Shutdown Duration Limits

- Review all existing applicable equipment permits
- Obtain facility documentation of startup and shutdown events

Compile startup and shutdown duration limits

Establish startup and shutdown duration limits based on the most inclusive value

If the equipment category has major variation or outliers, establish multiple duration limits for that equipment category

Exemption from Rule 1135 Emission Limits During Startup and Shutdown Paragraph (d)(1)

- Since add-on air pollution control equipment cannot be utilized until an electricity generating unit is at specific conditions and is stable, units are exempt from Rule 1135 NO_x emission limit provisions during startup and shutdown

An owner or operator an electricity generating unit is not subject to the NO_x emission limits and the applicable rolling average and oxygen correction provisions pursuant to Rule 1135 during startup and shutdown.

Startup and Shutdown Duration Limits

Paragraphs (d)(2) and (d)(3)

Paragraph (d)(2)

- Effective January 1, 2024, units will be subject to Table 1: Startup and Shutdown Duration Limits or follow permit conditions, whichever is more stringent
- Conditions for startups that are aborted due to an automatic equipment shutdown to prevent equipment damage or as a result of equipment malfunction, shall be addressed in the permits

Paragraph (d)(3)

- Effective January 1, 2024, startup time allowing units to exceed Rule 1135 NOx limits cannot last longer than the time needed to reach stable conditions or minimum operating temperature of the NOx post-combustion control

Table 1: Startup and Shutdown Duration Limits

Equipment Type	Time Allowance When Emissions Exceed Rule 1135 Emission Limits	
	Startup	Shutdown
Boiler	Boiler Cold Start: 24 hours	12 hours
	Boiler Non-Cold Start: 12 hours	
Combined Cycle/Cogeneration Gas Turbine and Associated Duct Burner	6 hours	2 hours
Simple Cycle Gas Turbine	1 hour	45 minutes
Diesel Internal Combustion Engines	1 hour	30 minutes

Limit to Number of Scheduled Startups

Paragraph (d)(4)

- Effective January 1, 2024, limit the number of scheduled startups to 10 events per year
- Scheduled startups will count toward the number of total startups if specified in a permit condition
- A scheduled startup includes:
 - Turnaround (catalyst changeout)
 - Planned maintenance
- A scheduled startup does not include:
 - Response to demand
 - Unscheduled maintenance
 - Equipment failure
 - Breakdowns or malfunctions
 - Any other startup that is not known by January 1

Additional Requirements

Paragraphs (d)(5) through (d)(7)

Paragraph (d)(5)

- Effective January 1, 2024, all reasonable and prudent steps must be taken to minimize emissions during startup and shutdown
 - Ensures best management practices
 - Includes maintenance, equipment repairs, and adjusting temperature of post-combustion controls

Paragraph (d)(6)

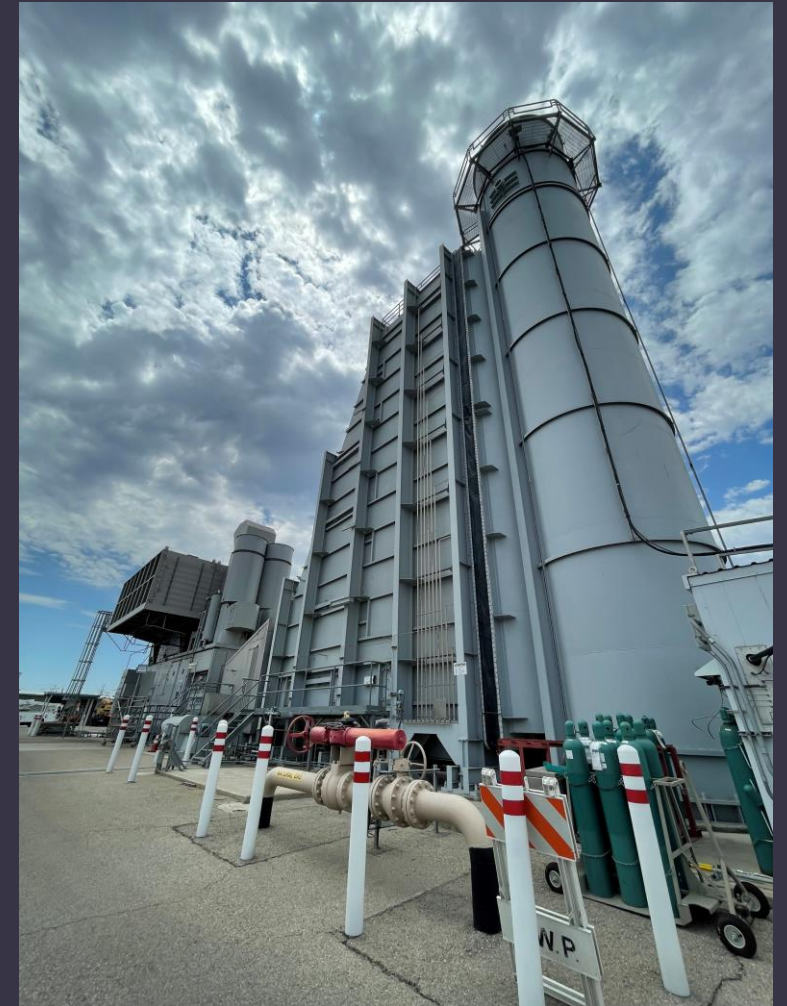
- Effective January 1, 2024, a calibrated temperature measurement device will be installed on all units equipped with a NO_x post-combustion control
 - Allows determination of gas stream temperature entering the NO_x post-combustion control equipment and when the catalyst will effectively control NO_x

Paragraph (d)(7)

- Effective January 1, 2024, the post-combustion control must be operated, including injection of any associated chemical reagent to control NO_x in exhaust stream, when the temperature of the inlet gas of the post-combustion control is greater than or equal to the minimum recommended operating temperature
 - Minimum recommended operating temperature specified in permit or manufacturer instructions

Permit Requirements Paragraph (d)(8)

- On and after January 1, 2024, permits shall include startup and shutdown duration limits, mass emission limits, and limits to number of startups and shutdowns
- Ensures that units without limits will be evaluated by engineering and incorporated into the permit



Notification Subdivision (e)

- In order for South Coast AQMD to monitor startups and respond to any community inquiries, prior notification of scheduled startups is needed
- Operator is required to notify the South Coast AQMD 24 hours prior to the scheduled startup
- Must call 1-800-CUT-SMOG with date and time the scheduled startup will begin

Recordkeeping Subdivision (f)

- Following records are required to be maintained:
 - Operating log for startup and shutdown events, including date, time, duration, and reason for the event
 - List of scheduled startups, including dating and time
 - Any date and time changes to the scheduled startup
 - NOx CEMS emissions data during each startup and shutdown
- Maintain records for five years on-site, and make available to South Coast AQMD upon request
- Maintain documentation of manufacturer's minimum operating temperature for units with NOx post-combustion control

Next Steps



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For more information:
[PAR 1135 and PR 429.2
Proposed Rules Web Page](#)

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