

# Source Specific State Implementation Plan Revision

**ATHENS GENERATING PLANT  
PERMIT ID: 4-1922-00055/00005**

**FEBRUARY 2024**

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## Acronyms and Abbreviations

CAA	Federal Clean Air Act
DAR	DEC Division of Air Resources
DEC	New York State Department of Environmental Conservation
EPA	United State Environmental Protection Agency
NAAQS	National Ambient Air Quality Standards
NO <sub>x</sub>	Oxides of Nitrogen
NYCRR	New York Codes, Rules, and Regulations
RACT	Reasonably Available Control Technology
SIP	State Implementation Plan
SSSR	Source Specific SIP Revision
VOCs	Volatile Organic Compounds

## Introduction

The United States Environmental Protection Agency (EPA) defines Reasonably Available Control Technology (RACT) as the lowest emission limitation that a particular source is capable of meeting by the application of control technology that is reasonably available considering technological and economic feasibility.

Title 6 of the New York Codes, Rules, and Regulations (NYCRR) contains several regulations that define Reasonably Available Control Technology (RACT) for certain categories of stationary sources in New York. These regulations seek emissions reductions of nitrogen oxides (NO<sub>x</sub>) and/or volatile organic compounds (VOCs) to help attain and/or maintain the 8-hour ozone National Ambient Air Quality Standards (NAAQS).

Depending upon the relevant RACT regulation, a source that is required to implement RACT must meet a presumptive RACT limit, meet an alternate limit determined from an approved technical analysis if reaching a presumptive RACT limit is technically or economically infeasible, or meet an approved case-by-case RACT limit for sources which do not have a presumptive RACT limit established in regulation. Individual source specific RACT determinations that are included in a facility's operating permit must be submitted to EPA as a revision to the New York State Implementation Plan (SIP) to satisfy the NO<sub>x</sub> and/or VOC RACT requirements under sections 182 and 184 of the Clean Air Act (CAA).

The New York State Department of Environmental Conservation's (DEC's) DAR-20 guidance, titled "Economic and Technical Analysis for Reasonably Available Control Technology (RACT)," provides procedures for the economic and technical feasibility analysis that needs to be used to evaluate source-specific RACT determinations and to determine appropriate RACT emission limits. This analysis must also be completed at each renewal of the emission source owner's permit. The re-evaluation must contain the latest control technologies and strategies available for review and allow for an inflation-adjusted economic threshold.

## Source-specific RACT Determination and RACT Analysis

The Air Title V Facility Permit for Athens Generating Plant issued on July 1, 2022 contains conditions to regulate the emission of oxides of nitrogen (NO<sub>x</sub>). The facility consists of three, combined-cycle, Westinghouse 501G combustion turbines (Emission Units U-00001 through U-00003) with associated heat recovery steam generators (HRSGs). The combustion turbines are permitted to fire natural gas and No. 2 distillate fuel oil. Fuel oil operations are limited to 1,080 hours per year per turbine.

Each combustion turbine uses dry low-NO<sub>x</sub> (DLN) combustion and water injection systems for control of NO<sub>x</sub> emissions when firing natural gas and distillate oil, respectively. The HRSGs are equipped with selective catalytic reduction (SCR) systems to further control NO<sub>x</sub> emissions. The combustion turbine exhaust stacks are equipped with Continuous Emissions Monitoring Systems (CEMS) that monitor NO<sub>x</sub>, CO, NH<sub>3</sub> emissions and Oxygen (diluent) concentrations. It is the belief of NYSDEC and the facility operators that these control technologies constitute the best available control technologies (BACT) and therefore also satisfy RACT.

The technical analyses used by DEC to justify the case-by-case RACT limits is included in this Source Specific SIP Revision (SSSR) as Appendix A.

## **Air Title V Facility Permit and Permit Review Report**

The RACT case-by-case permit conditions are included in Appendix B. The complete Air Title V Permit issued on April 28, 2022, for the Athens Generating Plant is available at:

[PERMIT](#)

The Permit Review Report for this facility is available at:

[PRR](#)

# Appendix A: Technical Analyses



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# Title V Operating Permit Application for Renewal

October 2020

New Athens Generating Company, LLC  
9300 U.S. Route 9W, P.O. Box 349  
Athens, NY 12015

NYSDEC Facility ID No. 4-1922-00055

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## PART 1 - INTRODUCTION

New Athens Generating Company, LLC (NAGC) owns the 1,080 MW, combined-cycle, Athens Generating Plant located in Athens, NY. The current Air Title V Facility Permit for the facility (Permit ID 4-1922-0055/00005) was issued in July 2016 and expires on June 30, 2021. This renewal application is submitted in accordance with 6 NYCRR 201-6.2(a)(4) and 201-6.6(a). The application also includes several proposed changes to incorporate changes to applicable regulatory requirements since the current permit was issued and facility-requested changes to improve operational flexibility and address minor errors and omissions noted in the current permit.

Part 1 of the application contains a description of the facility emission sources and applicable requirements and a summary of the proposed changes to the Permit.

Part 2 of the application contains pages from the *Air Permit Application* for renewal generated by the NYSDEC Air Facility System (AFS) on February 12, 2020. Per discussions with Mr. Edward Pellegrini of NYSDEC Region 4, the AFS application printout pages have been marked up to indicate proposed changes to the existing Permit or information in the AFS Application.

“Continuation pages” from the NYSDEC Air Permit application forms package have been inserted where needed to reflect new or revised applicable requirements. A summary Table at the beginning of Part 2 lists the proposed changes to the Permit.

Part 3 of the application contains Supporting Documentation listed in the checklist at the end of Part 2. These include the following:

- An updated *List of Exempt Activities* form
- A *Methods of Compliance* form - per past discussions with NYSDEC Region 4, the most recent Annual Compliance Certification Report, which includes the method of compliance for each Permit Condition, is enclosed in lieu of the completed *Methods of Compliance* form.
- *Calculations* of potential emissions from each Emission Unit included in the permit application and the total, facility-wide emissions.
- A completed Title IV *Acid Rain Permit* renewal application.
- The *NOx RACT Analysis* required by 6 NYCRR 227-2.4(e)(2) for the combined-cycle combustion turbines
- A report of the results of NO<sub>2</sub> dispersion modeling conducted for the combustion turbines.

### A. Facility Description

The Athens Generating Plant generates electricity for sale into the NY ISO system. The facility consists of three, combined-cycle, Westinghouse 501G combustion turbines (Emission Units U-00001 through U-00003) with associated heat recovery steam generators (HRSGs). The combustion turbines are permitted to fire natural gas and No. 2 distillate fuel oil. Fuel oil operations are limited to 1,080 hours per year per turbine.

Each combustion turbine uses dry low-NO<sub>x</sub> (DLN) combustion and water injection systems for control of NO<sub>x</sub> emissions when firing natural gas and distillate oil, respectively. The HRSGs are equipped with selective catalytic reduction (SCR) systems to further control NO<sub>x</sub> emissions. The combustion turbine exhaust stacks are equipped with Continuous Emissions Monitoring Systems (CEMS) that monitor NO<sub>x</sub>, CO, NH<sub>3</sub> emissions and Oxygen (diluent) concentrations.

Three, 20,000-gallon aqueous ammonia tanks (U-00004) store 19% ammonium hydroxide solution for the SCR systems. The tanks are equipped with pressure and vacuum vent valves that prevent ammonia emissions due to vapor expansion during normal operations. To prevent emissions during filling, the tank vapor space is connected back to the delivery vehicle via hoses.

The Athens Generating facility also includes a 1500 KW Emergency Diesel Generator (U-00005) and a 265 HP Diesel Fire Pump (U-00006) and several exempt and trivial activities as defined in 6 NYCRR 201-3.2 and 3.3. The emergency diesel engines are limited to 500 hours of operation per year. The exempt activities are identified in the *List of Exempt Activities* form included in Part 3 of this application.

## **B. Regulatory Applicability and Updates**

### **1. National Ambient Air Quality Standards (NAAQS)**

As part of the Title V Permit renewal application, NYSDEC requested that NAGC provide a demonstration that operations of the facility combustion turbines will not result in an exceedance of the 1-hour NO<sub>2</sub> NAAQS. The facility conducted dispersion modeling, using a NYSDEC-approved modeling protocol, to determine the NO<sub>2</sub> ambient impacts for various combustion turbine operating conditions including startup and shutdown.

The modeling was conducted using maximum NO<sub>x</sub> emission rates allowed by the facility's Title V Operating Permit and exhaust gas parameters derived from emissions test results for the combustion turbines while firing natural gas. Modeling for distillate oil operations of the combustion turbines was not conducted since the turbines have not operated on distillate fuel oil and the current Permit does not contain NO<sub>x</sub> emission limits for startup and shutdown on fuel oil. Instead, NAGC proposes to conduct the NO<sub>2</sub> dispersion modeling for fuel oil operations after the combustion turbines operate on fuel oil, in conjunction with the current permit requirement<sup>1</sup> to collect NO<sub>x</sub> and CO emissions data.

Preliminary modeling results suggested a possible worst case NO<sub>2</sub> impact in excess of the 1-hour NO<sub>2</sub> NAAQS if all three combustion turbines were in startup at the same time; but NAGC does not normally start all three combustion turbines simultaneously. Consequently, NAGC is proposing in this application to limit startup operations of the combustion turbines to no more than two in startup mode at a time.

A report of the dispersion modeling results is included as supporting documentation in Part 3 of this application. The results demonstrate that facility operations are in compliance with the 1-hour NO<sub>2</sub> NAAQS while firing natural gas, including the simultaneous startup of two combustion turbines.

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<sup>1</sup> Condition 56 in the current Title V Permit; pages 16 and 16a in the *Air Permit Application* forms in Part 2 of this application.

2. New Source Performance Standards (NSPS)

Emission Units U-00001 through U-00003 are subject to the New Source Performance Standards in 40 CFR 60, Subpart GG. The applicable NSPS requirements are incorporated in the current Permit.

3. National Emission Standards for Hazardous Air Pollutants (NESHAPS)

The Athens Generating Plant is an “Area Source” of Hazardous Air Pollutants (HAPS) as defined in 40 CFR 63.2. The Emergency Diesel Generator (U-00005) and Diesel Fire Pump (U-00006) are subject to NESHAPS requirements for Stationary Reciprocating Internal Combustion Engines (RICE) in 40 CFR 63, Subpart ZZZZ as existing, emergency stationary RICE located at an area source. The applicable NESHAPS requirements are incorporated by reference in the current Title V Permit.

4. Acid Rain Program (ARP)

Emission Units U-00001 through U-00003 are “affected units”, as defined in 40 CFR 72.2, and are subject to Acid Rain Program requirements in 40 CFR 72, 73, 75 & 77. The applicable requirements are specified in the Acid Rain Program (Title IV) Permit for the facility. An application for renewal of the Acid Rain Program Permit is included as *Supporting Documentation* in Part 3 of this application.

5. Cross State Air Pollution Rule (CSAPR)

Emission Units U-00001 through U-00003 are subject to the CSAPR NO<sub>x</sub> Annual, CSAPR SO<sub>2</sub> Group 1 and CSAPR NO<sub>x</sub> Ozone Season Group 2 Trading Program requirements in 40 CFR 97, Subparts AAAAA, CCCCC and EEEEE, respectively. The 40 CFR 97, Subpart AAAAA and CCCCC requirements are included in the current Permit. The applicable CSAPR NO<sub>x</sub> Ozone Season Group 2 Trading Program requirements have been added to the *Facility Applicable Federal Requirements* table in Section III of the *Air Permit Application* in Part 2.

6. NYSDEC Air Permit Requirements – 6 NYCRR 201

The NAGC facility is a “major facility” and the combustion turbines (Emission Units U-00001 through U-00003) are “affected sources”, as defined in 6 NYCRR 201-2. Per 6 NYCRR 201-6.1(a), therefore, a Title V Permit is required for the facility. This renewal application is submitted in accordance with 6 NYCRR 201-6.2(a)(4) and 201-6.6(a).

7. Process Operations – 6 NYCRR 212

The NYSDEC regulation for Process Operations was revised in April 2015 and applies to emissions from a process operation “upon issuance of a renewal for an existing permit or registration”. Process operations include<sup>2</sup> non-mobile storage systems equipped with a vent that emit air contaminants. The 20,000-gallon ammonium hydroxide storage tanks (U-00004) are equipped with pressure and vacuum vent valves that open if the tank pressure is more than 15 psi above or 0.14 psi (3.9 in. H<sub>2</sub>O) below atmospheric pressure. These set points should prevent the release of ammonia vapors (e.g. due to thermal expansion) during

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<sup>2</sup> Per 6 NYCRR 212-1.2(b)(18)

normal operations. Consequently, the aqueous ammonia storage tanks are not subject to 6 NYCRR 212<sup>3</sup>.

8. Fuel Sulfur Limitations - 6 NYCRR 225-1

The sulfur in fuel limitations in 6 NYCRR 225-1 apply to the #2 fuel oil purchased and used at the Athens Generating facility. These requirements limit the sulfur content of the distillate oil fired on or after 7/1/16 to  $\leq 0.0015\%$  by weight. The current Permit limits the sulfur content of the fuel oil burned in the combustion turbines to  $\leq 0.05\%$  by weight. The proposed changes to the Permit to reflect the 6 NYCRR 225-1 requirements are indicated on page 44a of the *Air Permit Application* forms in Part 2 of this application.

9. Reasonably Available Control Technology (RACT) for NO<sub>x</sub> – 6 NYCRR 227-2

Athens Generating is a major facility for NO<sub>x</sub> as defined in 6 NYCRR 201-2.1. Consequently, Emission Units U-00001 through U-00003<sup>4</sup> are subject to the NO<sub>x</sub> RACT requirements in 6 NYCRR 227-2. The current Title V Permit includes presumptive NO<sub>x</sub> RACT limits from a previous revision of 6 NYCRR 227-2. Section 227-2.4(e)(2) of the current rule requires that owners or operators of combined-cycle combustion turbines submit a case-by-case RACT analysis with the Title V Permit renewal application.

A search of the U.S. EPA RACT/BACT/LAER Clearinghouse for large, combined-cycle combustion turbines permitted during the past ten years shows that a Dry Low NO<sub>x</sub> (DLN) combustion system, when firing natural gas, and water or steam injection, when firing distillate fuel oil, in combination with a Selective Catalytic Reduction (SCR) system are considered BACT/LAER controls for NO<sub>x</sub>. The Athens Generating combined-cycle combustion turbines utilize DLN combustion or water injection in combination with an SCR system to control NO<sub>x</sub> emissions to less than or equal to 2.0 ppmvd @ 15% O<sub>2</sub> or 9 ppmvd @ 15% O<sub>2</sub>, respectively, when firing natural gas or distillate fuel. Since BACT/LAER controls are generally more stringent than RACT, Athens Generating is proposing the current NO<sub>x</sub> Controls and permit limits as NO<sub>x</sub> RACT for the combustion turbines.

Page 59a in Part 2 of this application contains the proposed changes to the Permit to reflect the current NO<sub>x</sub> RACT requirements. A partial copy of the RBLC search results (including recently permitted sources in NY, NJ, CT, MA & PA) is included in Part 3 of the application.

10. Regional Greenhouse Gas Initiative (RGGI) – 6 NYCRR 242

Emission Units U-00001 through U-00003 are CO<sub>2</sub> Budget Trading Program Units subject to 6 NYCRR 242, which implements the RGGI Program requirements in New York. Page 87a in Part 2 of this application contains proposed changes to the Permit to incorporate the applicable requirements in 6 NYCRR 242 as “state-only” requirements.

11. CO<sub>2</sub> Performance Standards for Major Electric Generating Facilities – 6 NYCRR 251

Emission Units U-00001 through U-00003 are existing major electric generating facilities, as defined in 6 NYCRR 251.1(b), and are therefore subject to the CO<sub>2</sub> emission limits in 6

<sup>3</sup> Other storage tanks at the facility are exempt or trivial activities, per 6 NYCRR 201-3.2 & 3.3, and are therefore not subject to Part 212 per 6 NYCRR 212-1.4(a).

<sup>4</sup> U-00005 & U-00006 are emergency power generating stationary internal combustion engines and are therefore exempt from the rule requirements per 6 NYCRR 227-2.4(f)(6).

NYCRR 251.3(b), beginning on December 31, 2020. Per 6 NYCRR 251.4, the owner or operator of a facility subject to this rule must specify in its permit application whether the facility will comply with the input-based (lb/MMBTU) or output-based (lb/MWh) CO<sub>2</sub> emission limit.

The Athens Generating combustion turbines will comply with the 180 lb/MMBTU input-based emission limit in 6 NYCRR 251.3(b). Page 87b in Part 2 of this application contains proposed changes to the Permit to incorporate the applicable requirements as “state-only” requirements for emission units U-00001 through U-00003.

### **C. Facility-Requested Changes**

In addition to regulatory updates, Athens Generating is proposing several changes to the Title V Permit to improve operational flexibility and correct minor error and omissions noted in the current Permit. Some of these changes were proposed in an *Air Title V Facility Permit Minor Modification* application, dated October 17, 2016, and an *Air Title V Facility Permit Administrative Amendment Request*, dated January 28, 2019, that were previously submitted to NYSDEC. NAGC is requesting NYSDEC approval of these changes as part of the Permit renewal application.

#### **1. Combustion Turbine Upset (Protective Load Shed) Provisions**

As noted in the October 17, 2016 *Air Title V Facility Permit Minor Modification* application, prepared by ESS Group Inc. (ESS), there are occasions when a combustion turbine experiences an upset condition that requires a reduction in turbine output (either manually by plant operators or automatically by the turbine control system) below 75% of base load in order to safely take corrective action. Often, the upset condition can be quickly resolved and the turbine could be restored to normal operations in a relatively short period of time; however, since the Permit currently prohibits operations at less than 75% of base load, the facility must instead shut down the turbine to avoid a violation. The shutdown and subsequent restart results in additional emissions that could be avoided if the Permit allowed for short periods of turbine operation below 75% load following a turbine upset condition.

The 10/17/16 minor modification application proposed adding provisions to the Permit to allow limited operations below 75% load following a turbine upset. These provisions are included on page 23 of the *Air Permit Application* forms in Part 2 of this application, with the following changes:

- Instead of 75% load, the Minimum Emissions Compliance Load (MECL), as discussed below, is the designated minimum operating level for normal operations.
- In Part 2 of this application, the proposed Protective Load Shed provisions limit the duration of operations below the MECL following an upset to three hours per occurrence (the maximum duration for a hot startup allowed by the Permit) instead of the 30 minutes per occurrence proposed in the 10/17/16 minor modification application.
- The proposed Protective Load Shed provisions in this application do not limit the number of occurrences per year.



- The proposed Protective Load Shed provisions in this application specify that the NOx and CO emission limits in the Permit for startup and shutdown will apply during upset conditions.

## 2. Extended Startup Provisions

The current Title V Permit limits the duration of cold starts of the combustion turbines to eight hours per occurrence; but, as noted in the 10/17/16 minor modification application, there are occasions when the need for tuning or commissioning of the turbine controls during a startup requires additional time to reach to 75% load. On these occasions, the turbine must be shut down and restarted to avoid a violation of startup duration limit. The shutdown and subsequent startup may result in more emissions than would have occurred if the turbine startup had continued to completion.

The 10/17/2016 minor modification application proposed the addition of provisions for a limited number (six per turbine per year) of “extended” startups of up to 12 hours in duration per occurrence. These provisions are included on page 52a in Part 2 of this Title V renewal application with the proposed number of extended starts per year being a total of eighteen for all three turbines.

## 3. Startup CO Emissions Limit Averaging Period

On January 28, 2019, NAGC submitted an *Air Title V Facility Permit Administrative Amendment Request*, prepared by ESS Group Inc. (ESS), to correct the averaging period for the combustion turbine CO emission limits during start up from a 1-hour rolling average to a 1-hour block average. The proposed changes are included on pages 48 and 49 in Part 2 of this Title V renewal application.

## 4. Removal of the Aqueous Ammonia Storage Tanks as Emission Unit U-00004 in the Permit

The three, 20,000-gallon aqueous ammonia storage tanks are listed as Emission Unit U-00004 in the current permit, but the tank design and operating procedures prevent ammonia emissions from the tanks during normal operations. The vent valves for these tanks are spring-loaded and do not open unless the pressure in the tank reaches the relief setpoint (15 psig). In addition, during filling operations, the vapor space of the tank is connected via hoses to the aqueous ammonia delivery vehicle so that displaced vapors are captured and returned to the vehicle.

Per correspondence<sup>5</sup> with NYSDEC, therefore, NAGC is requesting the removal of the aqueous ammonia storage tanks as Emission Unit U-00004 in the Title V Permit. This change is indicated on pages 80 and 81 of the *Application Forms* in Part 2 of this renewal application. The tanks are instead included on the *List of Exempt Activities* in Part 3 of the application as exempt storage vessels per 6 NYCRR 201-3.2(c)(22).

## 5. Restriction on Simultaneous Combustion Turbine Startup Operations

As noted above, NAGC is proposing to limit simultaneous startup operations of the combustion turbines so that no more than two units are in startup mode at any time. This will

<sup>5</sup> July 8 & 10, 2020 email correspondence between Colleen Dolan, New Athens Generating and Edward Pellegrini, NYSDEC Region 4.



ensure that NO<sub>x</sub> emissions from the combustion turbines do not cause an exceedance of the 1-hour NO<sub>2</sub> NAAQS. The proposed startup restriction is included on page 23 of the *Air Permit Application* forms in Part 2 of this application.

6. Minimum Emissions Compliance Load (MECL)

The initial emissions testing for the NAGC combustion turbines was completed in 2003 and included NO<sub>x</sub> testing at 50%, 75%, 85% and 100% load and CO testing at 75% and 100% load. (No emissions tests for other pollutants at less than 100% load were included.) The test results demonstrated that NO<sub>x</sub> and CO emissions while firing natural gas at or above 75% load were within the permit limits<sup>6</sup> for steady-state operation.

Consistent with these results, the current Title V Permit prohibits operation of a combustion turbine below “75% of its base load of 245 MW”. Depending on the turbine operating conditions, however, compliance with the steady-state emission limits can be maintained at load levels below 75%. Since the combustion turbine NO<sub>x</sub> and CO emissions are continuously monitored, NAGC proposes to change the minimum load level at which the turbines are permitted to operate from 75% of base load to the “minimum emissions compliance load” (MECL); defined as “the minimum load level for the existing ambient and turbine operating conditions at which the applicable NO<sub>x</sub> and CO emission limits are met, as determined by the CEMS”.

The proposed changes to the Permit are indicated on various pages in Part 2 of this application (including page 23 and the Process Definitions on pages 70, 74 and 78) as specified in the Summary of Changes table at the beginning of Part 2.

7. Use of Part 75 CEMS RATA Timing and Data Validation

Since the NAGC combustion turbines are subject to the Acid Rain and CSAPR Programs, the NO<sub>x</sub>-diluent (i.e. NO<sub>x</sub> and O<sub>2</sub>) CEMS must meet the quality assurance (QA) requirements of 40 CFR 75, Appendices A & B. Conversely, the Title V Permit specifies 40 CFR 60, Appendices B & F as the “Reference Test Method” for the Conditions requiring a Continuous Emissions Monitoring (CEM) for NO<sub>x</sub>, CO and NH<sub>3</sub>.

Section 5.1 of 40 CFR 60, Appendix F specifies that CEMS Relative Accuracy Test Audits (RATAs) must be conducted at least once every four calendar quarters; while Section 2.3.1 of 40 CFR 75, Appendix B requires a CEMS RATA at least once every four QA Operating Quarters<sup>7</sup> (not to exceed eight calendar quarters). Similarly, Sections 4.3.1 & 4.3.2 of 40 CFR 60, Appendix F state that data for a CEMS that is “out of control” due to a daily calibration failure is invalid starting from the end of the *previous* daily calibration; while Section 2.1.4 of 40 CFR 75, Appendix B states that the invalid data period begins following the failed calibration.

To reconcile the differences between the Part 60 and Part 75 CEMS QA requirements, NAGC is proposing to use the procedures in Part 75, Appendix B (in lieu of 40 CFR 60, Appendix F) to determine the frequency and timing of Relative Accuracy Test Audits

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<sup>6</sup> NO<sub>x</sub> ≤ 2.0 ppmvd at 15% O<sub>2</sub> & 23.4 lb/hr and CO ≤ 15 ppmvd at 15% O<sub>2</sub> & 105.2 lb/hr

<sup>7</sup> A QA Operating quarter is a calendar quarter in which the combustion turbine operates during 168 hours or more. A RATA is required every two QA operating quarters if the previous RATA results did not meet the reduced RATA frequency criteria in 40 CFR 75, App. B, Section 2.3.1.2.

(RATAs) and the data validation status following daily calibration checks for all of the CEMS monitors. Page 56a in Part 2 of this application is a *Facility Compliance Certification* form for a new Permit Condition with the proposed changes.

#### 8. Formaldehyde, VOC and Sulfuric Acid Emissions Test Requirements

Conditions 23 & 70 and 37 & 40 in the current Title V Permit contain, respectively, formaldehyde<sup>8</sup> and VOC emission limits for natural gas operations of the combustion turbines; but the monitoring requirements in these Permit Conditions are inconsistent. The Monitoring Frequency for Conditions 23, 37 and 40 is “Once During the Term of The Permit”, but the Monitoring Frequency for Condition 70 is “Single Occurrence” and the Monitoring Descriptions for Conditions 40 and 70 state that compliance with the limit was demonstrated with an initial stack test that was performed within 12 months of startup.

The results of VOC and formaldehyde emissions tests<sup>9</sup> with the combustion turbines firing natural gas have been consistently below the applicable permit limits. To resolve the inconsistent monitoring requirements, therefore, NAGC requests that NYSDEC change the Monitoring Frequency for these Permit Conditions 23, 37 & 40 to “Single Occurrence” and revise the Monitoring Descriptions for Conditions 23 & 37 to indicate (as in Conditions 40 and 70), that compliance with the limit was demonstrated during the initial stack tests. The proposed changes are indicated on pages 9, 54, 62 and 64 in Part 2 of this application.

Similarly, Conditions 58 & 72 in the current Permit require periodic emissions testing for sulfuric acid “Once During the Term of The Permit” while firing natural gas. NAGC requests that NYSDEC change the Monitoring Frequency for these Permit Conditions to “Single Occurrence” and revise the Monitoring Descriptions to indicate, that compliance with the limit was demonstrated during the initial stack tests<sup>10</sup>. The proposed changes are indicated on pages 8 and 41 in Part 2 of this application.

Alternatively, if NYSDEC retains the requirements for periodic formaldehyde, VOC and/or sulfuric acid testing for natural gas operations, NAGC requests that the facility be allowed to demonstrate compliance with the emission limits for these parameters by testing one of the three combustion turbines, since the units are identical.

#### 9. Administrative Changes and Corrections

The *Air Permit Application* forms in Part 2 of this application contain several other proposed updates and corrections to regulatory references and typographical errors in the Permit. These are described in the *Summary of Changes* at the beginning of Part 2.

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<sup>8</sup> Note that Condition 70 in the Permit lists the formaldehyde “Upper Permit Limit” as 0.000064 “pounds per hour”; but the limit in Condition 23 (0.2 lb/hr) and the combustion turbine heat input rating when firing natural gas (3100 MMBTU/hr) suggest that the units for the Condition 70 limit should be lb/MMBTU (0.000064 lb/MMBTU × 3100 MMBTU/hr = 0.2 lb/hr). This correction is included on page 9 of the Application Forms in Part 2 of this application.

<sup>9</sup> Emissions testing for VOC and formaldehyde was conducted for each of the three combustion turbines while firing natural gas in 2003, 2010 and 2015.

<sup>10</sup> Emissions testing for sulfuric acid was conducted for each of the three combustion turbines while firing natural gas in 2003, 2010 and 2015.

**RBLC NOx Controls Search Results (Partial) - 7/8/2020**

Large Combined-Cycle Combustion Turbines firing Natural Gas or Distillate Fuel Oil

**Natural Gas**

RBLCID	FACILITY NAME	STATE	ZIP CODE	EPA REGION	AGENCY	PERMIT NUM	NAICS CODE	PERMIT ISSUANCE DATE	LAST UPDATED	PROCESS NAME	PROCESS TYPE	PRIMARY FUEL	THROUGH PUT	THROUGHPUT UNIT	POLLUTANT	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	EMISSION LIMIT 1 UNIT	CASE-BY-CASE BASIS
CT-0157 / 0158	CPV TOWANTIC, LLC	CT	6478	1	CONNECTICUT DEPT OF ENERGY & ENVIRONMENTAL PROTECTION	144-0023 / 0024	221112	11/30/2015	2/19/2016	Combined Cycle Power Plant	15.21	Natural Gas	2120000	MMBtu/12 months	Nitrogen Oxides (NOx)	SCR	2	PPMVD @ 15% O2	LAER
CT-0161	KILLINGLY ENERGY CENTER	CT	6241	1	CONNECTICUT DEPT OF ENERGY & ENVIRONMENTAL PROTECTION	089-0107	221112	6/30/2017	5/11/2018	Natural Gas w/o Duct Firing	15.21	Natural Gas	2969	MMBtu/hr	Nitrogen Oxides (NOx)	SCR	2	PPMVD @ 15% O2	LAER
MA-0039	SALEM HARBOR STATION REDEVELOPMENT	MA	1970	1	MASSACHUSETTS DEPT OF ENVIRONMENTAL PROTECTION	NE-12-022	221112	1/30/2014	5/5/2016	Combustion Turbine with Duct Burner	15.21	Natural Gas	2449	MMBtu/H	Nitrogen Oxides (NOx)	Dry Low NOx Combustors & Selective Catalytic Reduction	2	PPMVD @ 15% O2	LAER
NJ-0079	WOODBIDGE ENERGY CENTER	NJ	7095	2	NEW JERSEY DEPT OF ENV PROTECTION, DIVISION OF AIR QUALITY	18940 - BOP110003	221112	7/25/2012	4/17/2018	Combined Cycle Combustion Turbine w/o duct burner	15.21	natural gas	40297.6	mmcubic ft/year	Nitrogen Oxides (NOx)	DLN combustion system with SCR on each of the two combustion turbines and use of only natural gas as fuel.	2	PPMVD	LAER
NJ-0080	HESS NEWARK ENERGY CENTER	NJ	7105	2	NEW JERSEY DEPT OF ENV PROTECTION, DIVISION OF AIR QUALITY	08857/BOP110001	221112	11/1/2012	4/17/2018	Combined cycle turbine with duct burner	15.21	natural gas	39463	mmcubic ft/year*	Nitrogen Oxides (NOx)	Selective catalytic reduction (SCR) system	2	PPMVD	LAER
NJ-0081	PSEG FOSSIL LLC SEWAREN GENERATING STATION	NJ	07077-1439	2	NEW JERSEY DEPT OF ENV PROTECTION, DIVISION OF AIR QUALITY	18068 -(BOP120002)	221112	3/7/2014	5/2/2016	Combined Cycle Combustion Turbine - Siemens turbine without Duct Burner	15.21	Natural gas	33691	MMCF/YR	Nitrogen Oxides (NOx)	Selective Catalytic Reduction and Dry Low NOx	2	PPMVD@ 15% O2	LAER
NJ-0082	WEST DEPTFORD ENERGY STATION	NJ	8086	2	NEW JERSEY DEPT OF ENV PROTECTION, DIVISION OF AIR QUALITY	56078/BOP120001	221112	7/18/2014	5/2/2016	Combined Cycle Combustion Turbine without Duct Burner	15.21	Natural Gas	20282	MMCF/YR	Nitrogen Oxides (NOx)	Selective Catalytic Reduction System (SCR) and use of natural gas a clean burning fuel	2	PPMVD@15%O2	LAER
NJ-0085	MIDDLESEX ENERGY CENTER, LLC	NJ	8872	2	NEW JERSEY DEPT OF ENV PROTECTION, DIVISION OF AIR QUALITY	19149/PCP150001	221112	7/19/2016	11/3/2016	Combined Cycle Combustion Turbine firing Natural Gas without Duct Burner	15.21	Natural Gas	8040	H/YR	Nitrogen Oxides (NOx)	Selective Catalytic Reduction System and Dry Low NOx	2	PPMVD@15%O2	LAER
NY-0104	CPV VALLEY ENERGY CENTER	NY	10940	2	NEW YORK DEPT. OF ENVIRONMENTAL CONSERVATION	3-335600136/00001	221112	8/1/2013	9/28/2017	Turbines and duct burners - NG	15.21	natural gas	0		Nitrogen Oxides (NOx)	Dry low NOx combustion technology and selective catalytic reduction.	2	PPMVD @ 15% O2	LAER
PA-0278	MOXIE LIBERTY LLC/ASYLUM POWER PL T	PA		3	PENNSYLVANIA DEPT OF ENVIRONMENTAL PROTECTION, BUREAU OF AIR QUALITY	08A-00045A	221112	10/10/2012	4/3/2015	Combined-cycle Turbines (2) - Natural gas fired	15.21	Natural Gas	3277	MMBtu/H	Nitrogen Oxides (NOx)	Dry low-NOx (DLN) combustor and selective catalytic reduction (SCR)	2	PPMVD	BACT-PSD
PA-0286	MOXIE ENERGY LLC/PATRIOT GENERATION PLT	PA		3	PENNSYLVANIA DEPT OF ENVIRONMENTAL PROTECTION, BUREAU OF AIR QUALITY	41-00084A	221112	1/31/2013	3/2/2020	Combined Cycle Power Blocks 472 MW - (2)	15.21	Natural Gas	0		Nitrogen Oxides (NOx)	SCR	2	PPMVD	BACT-PSD
PA-0288	SUNBURY GENERATION LP/SUNBURY SES	PA		3	PENNSYLVANIA DEPT OF ENVIRONMENTAL PROTECTION, BUREAU OF AIR QUALITY	55-00001E	221112	4/1/2013	3/2/2020	Combined Cycle Combustion Turbine AND DUCT BURNER (3)	15.21	Natural Gas	2538000	MMBtu/H	Nitrogen Oxides (NOx)	SCR	2	PPM	OTHER CASE-BY-CASE
PA-0291	HICKORY RUN ENERGY STATION	PA		3	PENNSYLVANIA DEPT OF ENVIRONMENTAL PROTECTION, BUREAU OF AIR QUALITY	37-337A	221112	4/23/2013	3/2/2020	COMBINED CYCLE UNITS #1 and #2	15.21	Natural Gas	3.4	MMCF/HR	Nitrogen Oxides (NOx)	SCR	2	PPMVD @ 15% O2	OTHER CASE-BY-CASE
*PA-0298	FUTURE POWER PA/GOOD SPRINGS NGCC FACILITY	PA	17980	3	PENNSYLVANIA DEPT OF ENVIRONMENTAL PROTECTION, BUREAU OF AIR QUALITY	54-00082A	221112	3/4/2014	2/19/2020	Turbine, COMBINED CYCLE UNIT (Siemens 5000)	15.21	Natural Gas	2267	MMBtu/H	Nitrogen Oxides (NOx)	SCR	2	PPMVD	BACT-PSD
PA-0306	TENASKA PA PARTNERS/WESTMORELAND GEN FAC	PA		3	PENNSYLVANIA DEPT OF ENVIRONMENTAL PROTECTION, BUREAU OF AIR QUALITY	65-00990 C/E	221112	2/12/2016	12/21/2018	Large combustion turbine	15.21	Natural Gas	0		Nitrogen Oxides (NOx)	SCR, DLN, and good combustion practice	2	PPMVD@15% O2	LAER
PA-0307	YORK ENERGY CENTER BLOCK 2 ELECTRICITY GENERATION PROJECT	PA	17314	3	PENNSYLVANIA DEPT OF ENVIRONMENTAL PROTECTION, BUREAU OF AIR QUALITY	67-05083D/F	221112	6/15/2015	12/21/2018	Two Combine Cycle Combustion Turbine with Duct Burner	15.21	Natural Gas	3001.57	MCF/hr	Nitrogen Oxides (NOx)	SCR, Dry Lo-NOx combustor, good combustion practices and low sulfur fuels	2	PPMVD @ 15 O2	LAER
PA-0309	LACKAWANNA ENERGY CTR/JESSUP	PA	18434	3	PENNSYLVANIA DEPT OF ENVIRONMENTAL PROTECTION, BUREAU OF AIR QUALITY	35-00069A	221112	12/23/2015	12/21/2018	Combustion turbine with duct burner	15.21	Natural gas	3304.3	MMBtu/hr	Nitrogen Oxides (NOx)	Dry low-NOx burners, SCR, exclusive natural gas	2	PPMVD @ 15% O2	LAER

**Distillate Fuel Oil**

RBLCID	FACILITY NAME	STATE	ZIP CODE	EPA REGION	AGENCY NAME	PERMIT NUM	NAICS CODE	PERMIT ISSUANCE DATE	LAST UPDATED	PROCESS NAME	PROCESS TYPE	PRIMARY FUEL	THROUGH PUT	THROUGHPUT UNIT	POLLUTANT	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	EMISSION LIMIT 1 UNIT	CASE-BY-CASE BASIS
CT-0157 / 0158	CPV TOWANTIC, LLC	CT	6478	1	CONNECTICUT DEPT OF ENERGY & ENVIRONMENTAL PROTECTION	144-0023/0024	221112	11/30/2015	2/19/2016	Combined Cycle Power Plant	15.29	ULSD	1720000	gal/ 12 months	Nitrogen Oxides (NOx)	SCR	5	PPMVD @ 15% O2	LAER
CT-0161	KILLINGLY ENERGY CENTER	CT	6241	1	CONNECTICUT DEPT OF ENERGY & ENVIRONMENTAL PROTECTION	089-0107	221112	6/30/2017	5/11/2018	ULSD w/o Duct Firing	15.29	ULSD	2639	MMBtu/hr	Nitrogen Oxides (NOx)	SCR	4	PPMVD @ 15% O2	LAER
NJ-0085	MIDDLESEX ENERGY CENTER, LLC	NJ	8872	2	NEW JERSEY DEPT OF ENV PROTECTION, DIVISION OF AIR QUALITY	19149/PCP150001	221112	7/19/2016	11/3/2016	COMBINED CYCLE COMBUSTION TURBINE FIRING ULTRA LOW SULFUR DISTILLATE OIL	15.29	ULSD	720	H/YR	Nitrogen Oxides (NOx)	Selective catalytic Reduction Systems and Dry Low NOx	4	PPMVD@15% O2	LAER
NY-0104	CPV VALLEY ENERGY CENTER	NY	10940	2	NEW YORK DEPT. OF ENVIRONMENTAL CONSERVATION	3-335600136/00001	221112	8/1/2013	9/28/2017	Turbines - diesel fuel	15.29	ultra low sulfur diesel	0		Nitrogen Oxides (NOx)	Water injection and selective catalytic reduction.	6	PPMVD @ 15% O2	LAER
PA-0307	YORK ENERGY CENTER BLOCK 2 ELECTRICITY GENERATION PROJECT	PA	17314	3	PENNSYLVANIA DEPT OF ENVIRONMENTAL PROTECTION, BUREAU OF AIR QUALITY	67-05083D/F	221112	6/15/2015	12/21/2018	Two combined cycle combustion turbines ULSD fired with duct burner NG fired	15.29	ULSD and NG	0		Nitrogen Oxides (NOx)	SCR and good combustion practices with ULSD fuels	6	PPMVD @ 15% O2	LAER
PA-0310	CPV FAIRVIEW ENERGY CENTER	PA		3	PENNSYLVANIA DEPT OF ENVIRONMENTAL PROTECTION, BUREAU OF AIR QUALITY	11-00536A	221112	9/2/2016	12/21/2018	Combustion turbine and HRSG without duct burner ULSD	15.29	Ultra low sulfur diesel	0		Nitrogen Oxides (NOx)	Water/steam injection, SCR, good combustion practices	6	PPMVD @ 15% O2	LAER
*PA-0316	RENOVO ENERGY CENTER, LLC	PA	17764	3	PENNSYLVANIA DEPT OF ENVIRONMENTAL PROTECTION, BUREAU OF AIR QUALITY	18-00033A	221112	1/26/2018	3/26/2019	Combustion Turbine firing ULSD	15.19	ULSD	0		Nitrogen Oxides (NOx)	SCR	4	PPMVD	LAER



## Athens Generating Company NO<sub>x</sub> RACT (BACT/LAER)

### Athens, New York

### Revised NO<sub>x</sub> RACT Analysis

### DEC ID# 4-1922-00055/00005

*Review conducted by Fausto Taveras*

- NYSDEC already held the facility's public comment period for the completed permit application but is holding off sending it to EPA Permitting for their 45-day review.
- The Title Renewal permit contains a RACT variance that must be submitted to EPA for approval as a source specific revision to the New York SIP.
- The facility utilizes **three combined-cycle combustion turbines. Emission Units: U-00001, U-00002, & U-00003**

### 6 NYCRR Subpart 227-2 Requirements

(e) *Combustion turbines.* The owner or operator of a combustion turbine with a maximum heat input rate of 10 million Btu per hour or greater must comply with either the relevant presumptive RACT emission limit in paragraph (1) or (2) of this subdivision or a case-by-case RACT determination pursuant to paragraph (3) of this subdivision, as applicable:

(2) For combined cycle combustion turbines:

- (i) prior to July 1, 2014, 42 ppmvd, corrected to 15 percent oxygen, when firing gas; and
- (ii) prior to July 1, 2014, 65 ppmvd, corrected to 15 percent oxygen, when firing oil.

For facilities that have a duct burner, compliance will be based on the combination of the turbine and the duct burner when both fire, and the turbine alone when not duct-firing.

Compliance with these emission limits must be determined with a one hour average unless the owner or operator chooses to use a CEMS under the provisions of section 227-2.6(b) of this Subpart.

(3) For combustion turbines fired primarily with fuels not listed in paragraph (2) of this subdivision that operate prior to July 1, 2014, and for all combustion turbines that operate after July 1, 2014, the owner or operator must submit a proposal for RACT to be implemented that includes descriptions of:

- (i) the available NO<sub>x</sub> control technologies, the projected effectiveness of the technologies considered, and the costs for installation and operation for each of the technologies; and
- (ii) the technology and the appropriate emission limit selected as RACT considering the costs for installation and operation of the technology.

- *Federally approved Subpart 227-2*: Compliance with these emission limits must be determined with a one-hour average unless the owner or operator chooses to use a CEMS under the provisions of section 227-2.6(b) of this Subpart.

### **Description of Facility**

- Athens Generating is major facility for NO<sub>x</sub> as defined in 6 NYCRR 201-2.1. Consequently, Emission Units U-00001 through U-00003 are subject to NO<sub>x</sub> RACT requirements under 6 NYCRR Subpart 227-2.
- The current version of [Section 227-2.4\(e\)\(2\)](#) requires that owners or operators of combined-cycle combustion turbines to submit a case-by-case RACT analysis with the Title V Permit Renewal application.

### **Review of Alternative NO<sub>x</sub> Control Technologies**

- A search of the U.S. EPA RACT/BACT/LAER Clearinghouse for large, combined-cycle combustion turbines permitted during the past ten years shows that a Dry Low NO<sub>x</sub> (DLN) combustion system, when firing natural gas, and water or steam injection, when firing distillate fuel oil, in combination with a Selective Catalytic Reduction (SCR) system are considered BACT/LAER controls for NO<sub>x</sub>.
- The Athens Generating facility has determined that current combustion turbine NO<sub>x</sub> emission controls (SCR and Dry Low NO<sub>x</sub> burners for natural gas and SCR and water injection for distillate fuel oil) and emission limits constitute BACT/LAER.

### **RACT Cost Effectiveness Threshold**

- According to NYSDEC issued Program Policy DAR-20: Economic and Technical Analysis for Reasonably Available Control Technology (RACT) Networks. Based on this document, the NYSDEC established a cost effectiveness threshold of approximately \$5,475 per ton of NO<sub>x</sub> removed (adjusted for inflation).

### **Proposed Alternative NO<sub>x</sub> RACT Limits**

- The following alternative NO<sub>x</sub> limits are proposed:
  - **NO<sub>x</sub> emission rate of 2.0 ppmvd @ 15% O<sub>2</sub> when firing natural gas. This NO<sub>x</sub> emission limit is a three hour average. This limit applies during normal operation while the turbines are firing natural gas. Compliance will be continuously demonstrated using a CEMS at the gas turbine exhaust stack.**
  - **NO<sub>x</sub> emission rate of 9.0 ppmvd @ 15% O<sub>2</sub> when firing distillate oil. This NO<sub>x</sub> emission limit is a three hour average. This limit applies during normal operation while the turbines are firing natural gas. Compliance will be continuously demonstrated using a CEMS at the gas turbine exhaust stack.**

### **Conclusion**

- The NO<sub>x</sub> RACT Analysis for Athens' Generating Plant seems to be straight forward and the limits detailed in the permit and analysis seem to justify RACT. The three combined-cycle turbines also fulfill the requirements to incorporate CEMs, which is required under [6 NYCRR Subpart 227-2.6\(a\)\(4\)](#). The BACT/LAER limits for these units also seem to be more stringent than the presumptive RACT emission limits outlined in the federally approved version of [6 NYCRR Subpart 227-2.4\(e\)\(2\)](#).





## **Appendix B: Case-by-case Permit Conditions**

Permit ID: 4-1922-00055/00005

Facility DEC ID: 4192200055

Reporting Requirements: SEMI-ANNUALLY (CALENDAR)  
 Reports due 30 days after the reporting period.  
 The initial report is due 1/30/2023.  
 Subsequent reports are due every 6 calendar month(s).

**Condition 38: Compliance Certification**  
**Effective between the dates of 07/01/2022 and 06/30/2027**

**Applicable Federal Requirement: 6 NYCRR 227-2.4 (e) (2)**

**Item 38.1:**

The Compliance Certification activity will be performed for the facility:  
 The Compliance Certification applies to:

Emission Unit: U-00001

Emission Unit: U-00002

Emission Unit: U-00003

Regulated Contaminant(s):  
 CAS No: 0NY210-00-0 OXIDES OF NITROGEN

**Item 38.2:**

Compliance Certification shall include the following monitoring:

Monitoring Type: RECORD KEEPING/MAINTENANCE PROCEDURES

Monitoring Description:

The owner or operator of a combined-cycle combustion turbine with a maximum heat input rate of 10 mmBtu/hr or greater must submit a case-by-case RACT analysis upon the submission of either a new or renewal application for a title V permit.

This facility has determined that the current combustion turbine NOx emission controls (SCR and Dry Low NOx burners for natural gas and SCR and water injection for distillate fuel oil) and emission limits constitute BACT/LAER. Consequently, the NOx controls and emission limits contained in the permit also represent RACT.

For any combined cycle combustion turbine having a maximum heat input rate greater than 250 mmBtu/hr, NOx emissions must be measured with a CEMS. The owner/operator must calculate block hourly arithmetic average emission rates using data points generated by the CEMS and expressed in terms of ppm on a dry volume basis, corrected to 15% oxygen.

Manufacturer Name/Model Number: Thermo 42i or equivalent

Monitoring Frequency: CONTINUOUS

Averaging Method: 1-HOUR AVERAGE

Permit ID: 4-1922-00055/00005

Facility DEC ID: 4192200055

Work Practice Type: PARAMETER OF PROCESS MATERIAL  
 Process Material: NATURAL GAS  
 Parameter Monitored: SULFUR CONTENT  
 Upper Permit Limit: 21.0 pounds per hour  
 Reference Test Method: 40 CFR Part 75, APPENDIX D  
 Monitoring Frequency: AS REQUIRED - SEE PERMIT MONITORING DESCRIPTION  
 Averaging Method: 1-HOUR AVERAGE  
 Reporting Requirements: QUARTERLY (CALENDAR)  
 Reports due 30 days after the reporting period.  
 The initial report is due 10/30/2022.  
 Subsequent reports are due every 3 calendar month(s).

**Condition 56: Compliance Certification**  
**Effective between the dates of 07/01/2022 and 06/30/2027**

**Applicable Federal Requirement: 40CFR 52.21, Subpart A**

**Item 56.1:**

The Compliance Certification activity will be performed for the facility:  
 The Compliance Certification applies to:

Emission Unit: U-00005

Emission Unit: U-00006

Regulated Contaminant(s):  
 CAS No: 0NY210-00-0 OXIDES OF NITROGEN

**Item 56.2:**

Compliance Certification shall include the following monitoring:

Monitoring Type: WORK PRACTICE INVOLVING SPECIFIC OPERATIONS

Monitoring Description:

NOx emissions from emission units U-00005 and U-00006 shall not exceed 20.6 tons/yr. The facility shall meet this limit by maintaining a log of the hours of operation of the engines and the reason for operation on-site. Each engine shall be equipped with an hour meter. Operational hours shall be calculated from the hour meter and recorded in a log. Hours of operation shall be summed with the previous eleven months to calculate a rolling 12-month total.

Work Practice Type: HOURS PER YEAR OPERATION  
 Upper Permit Limit: 500 hours per year  
 Monitoring Frequency: MONTHLY  
 Averaging Method: ANNUAL MAXIMUM ROLLED MONTHLY  
 Reporting Requirements: SEMI-ANNUALLY (CALENDAR)  
 Reports due 30 days after the reporting period.  
 The initial report is due 1/30/2023.

Permit ID: 4-1922-00055/00005

Facility DEC ID: 4192200055

Regulated Contaminant(s):  
CAS No: 0NY210-00-0 OXIDES OF NITROGEN

**Item 61.2:**

Compliance Certification shall include the following monitoring:

Monitoring Type: CONTINUOUS EMISSION MONITORING (CEM)  
Monitoring Description:

Total NOx emissions from emission units U-00001, U-00002,  
and U-00003 shall not exceed 424.2 tons/yr on a 12-month  
rolling total basis.

Manufacturer Name/Model Number: Thermo Model 42i or equivalent  
Upper Permit Limit: 424.2 tons per year  
Reference Test Method: RM-20/7E  
Monitoring Frequency: CONTINUOUS  
Averaging Method: ANNUAL MAXIMUM ROLLED MONTHLY  
Reporting Requirements: SEMI-ANNUALLY (CALENDAR)  
Reports due 30 days after the reporting period.  
The initial report is due 1/30/2023.  
Subsequent reports are due every 6 calendar month(s).

**Condition 62: Compliance Certification**  
**Effective between the dates of 07/01/2022 and 06/30/2027**

**Applicable Federal Requirement:40CFR 52.21, Subpart A**

**Item 62.1:**

The Compliance Certification activity will be performed for the facility:  
The Compliance Certification applies to:

Emission Unit: U-00001  
Process: 1BD

Emission Unit: U-00001  
Process: 1MD

Emission Unit: U-00002  
Process: 2BD

Emission Unit: U-00002  
Process: 2MD

Emission Unit: U-00003  
Process: 3BD

Emission Unit: U-00003  
Process: 3MD

Regulated Contaminant(s):  
CAS No: 0NY210-00-0 OXIDES OF NITROGEN

Permit ID: 4-1922-00055/00005

Facility DEC ID: 4192200055

Process: 3MD

Regulated Contaminant(s):

CAS No: 0NY210-00-0 OXIDES OF NITROGEN

**Item 82.2:**

Compliance Certification shall include the following monitoring:

Monitoring Type: CONTINUOUS EMISSION MONITORING (CEM)

Monitoring Description:

This NOx emission limit of 9.0 ppmv corrected to 15% oxygen is a three hour block average. This limit applies during normal operation while the turbines are firing fuel oil. Compliance will be continuously demonstrated using a CEMS at the gas turbine exhaust stack.

Manufacturer Name/Model Number: Thermo 42i or equivalent

Upper Permit Limit: 9.0 parts per million by volume  
(dry, corrected to 15% O2)

Reference Test Method: 40 CFR Part 60, Appendix B&F

Monitoring Frequency: CONTINUOUS

Averaging Method: 3-HOUR BLOCK AVERAGE

Reporting Requirements: SEMI-ANNUALLY (CALENDAR)

Reports due 30 days after the reporting period.

The initial report is due 1/30/2023.

Subsequent reports are due every 6 calendar month(s).

**Condition 83: Compliance Certification**

**Effective between the dates of 07/01/2022 and 06/30/2027**

**Applicable Federal Requirement:40CFR 52.21, Subpart A**

**Item 83.1:**

The Compliance Certification activity will be performed for the facility:

The Compliance Certification applies to:

Emission Unit: U-00001

Process: 1BG

Emission Point: 00001

Emission Unit: U-00001

Process: 1MG

Emission Point: 00001

Emission Unit: U-00002

Process: 2BG

Emission Point: 00002

Emission Unit: U-00002

Process: 2MG

Emission Point: 00002

Emission Unit: U-00003

Process: 3BG

Emission Point: 00003

Emission Unit: U-00003

Emission Point: 00003

Permit ID: 4-1922-00055/00005

Facility DEC ID: 4192200055

Process: 3MG

Regulated Contaminant(s):

CAS No: 0NY210-00-0 OXIDES OF NITROGEN

**Item 83.2:**

Compliance Certification shall include the following monitoring:

Monitoring Type: CONTINUOUS EMISSION MONITORING (CEM)

Monitoring Description:

This NOx emission limit of 2.0 ppmv corrected to 15% oxygen is a three hour block average. This limit applies during normal operation while the turbines are firing natural gas. Compliance will be continuously demonstrated using a CEMS at the gas turbine exhaust stack.

Manufacturer Name/Model Number: Thermo Model 42i or equivalent

Upper Permit Limit: 2.0 parts per million by volume  
(dry, corrected to 15% O2)

Reference Test Method: 40 CFR 60 Appendix B and F

Monitoring Frequency: CONTINUOUS

Averaging Method: 3-HOUR BLOCK AVERAGE

Reporting Requirements: SEMI-ANNUALLY (CALENDAR)

Reports due 30 days after the reporting period.

The initial report is due 1/30/2023.

Subsequent reports are due every 6 calendar month(s).

**Condition 84: CEMS**

**Effective between the dates of 07/01/2022 and 06/30/2027**

**Applicable Federal Requirement:40CFR 60.334(b), NSPS Subpart GG**

**Item 84.1:**

This Condition applies to:

Emission Unit: U00001

Emission Unit: U00002

Emission Unit: U00003

**Item 84.2:**

The owner or operator of any stationary gas turbine that commenced construction, reconstruction or modification after October 3, 1977, but before July 8, 2004, and which uses water or steam injection to control NOX emissions may, as an alternative to operating the continuous monitoring system described in paragraph (a) of this section, install, certify, maintain, operate, and quality-assure a continuous emission monitoring system (CEMS) consisting of NOX and O2 monitors. As an alternative, a CO2 monitor may be used to adjust the measured NOX concentrations to 15 percent O2 by either converting the CO2 hourly

## Appendix C: Public Notice Documents

# Statewide - Source-Specific State Implementation Plan Revision for Reasonably Available Control Technology for Athens Generating Plant; Permit ID: 4-1922-00055/00005 in Athens, New York

## This Page Covers

### Public Notice

#### Source-Specific State Implementation Plan Revision for Reasonably Available Control Technology for Athens Generating Plant; Permit ID: 4-1922-00055/00005 in Athens, New York

Notice is hereby given that the New York State Department of Environmental Conservation (NYS DEC) plans to submit a Source-Specific State Implementation Plan Revision (SSSR) for Reasonably Available Control Technology (RACT) for Athens Generating Plant to the United States Environmental Protection Agency (US EPA) for approval.

Title 6 of the New York Codes, Rules, and Regulations (NYCRR) contains several regulations that define RACT for certain categories of stationary sources. These regulations seek emissions reductions of nitrogen oxides (NO<sub>x</sub>) and/or volatile organic compounds (VOCs) to help attain and/or maintain the 8-hour ozone National Ambient Air Quality Standards (NAAQS). Depending upon the relevant RACT regulation, a source that is required to implement RACT must meet a presumptive RACT limit, meet an alternate limit determined from an approved technical analysis if reaching a presumptive RACT limit is technically or economically infeasible, or meet an approved case-by-case RACT limit for sources which do not have a presumptive RACT limit established in regulation.

The Air Title V Facility Permit for Athens Generating Plant issued on July 1, 2022 contains conditions to regulate the emission of oxides of nitrogen (NO<sub>x</sub>). The facility consists of three, combined-cycle, Westinghouse 501G combustion turbines with associated heat recovery steam generators (HRSGs). The combustion turbines are permitted to fire natural gas and No. 2 distillate fuel oil. Fuel oil operations are limited to 1,080 hours per year per turbine.

Each combustion turbine uses dry low-NO<sub>x</sub> (DLN) combustion and water injection systems for control of NO<sub>x</sub> emissions when firing natural gas and distillate oil, respectively. The HRSGs are equipped with selective catalytic reduction (SCR) systems to further control NO<sub>x</sub> emissions. The combustion turbine exhaust stacks are equipped with Continuous Emissions Monitoring Systems (CEMS) that monitor NO<sub>x</sub>, CO, NH<sub>3</sub> emissions and Oxygen (diluent) concentrations. It is the belief of NYS DEC and the facility operators that these control technologies constitute the best available control technologies (BACT) and therefore also satisfy RACT.

The Source-Specific State Implementation Plan Revision <<https://www.dec.ny.gov/chemical/8403.html>> for Athens Generating Plant that DEC plans to submit to US EPA for approval is available on the NYS DEC SIP webpage at: <https://www.dec.ny.gov/chemical/8403.html> <<https://www.dec.ny.gov/chemical/8403.html>>.

The Air Title V Facility Permit <[https://www.dec.ny.gov/dardata/boss/afs/permits/419220005500005\\_r2.pdf](https://www.dec.ny.gov/dardata/boss/afs/permits/419220005500005_r2.pdf)> that contains the permit conditions is available at: [https://www.dec.ny.gov/dardata/boss/afs/permits/419220005500005\\_r2.pdf](https://www.dec.ny.gov/dardata/boss/afs/permits/419220005500005_r2.pdf) <[https://www.dec.ny.gov/dardata/boss/afs/permits/419220005500005\\_r2.pdf](https://www.dec.ny.gov/dardata/boss/afs/permits/419220005500005_r2.pdf)>.

The Permit Review Report <[https://www.dec.ny.gov/dardata/boss/afs/permits/prr\\_419220005500005\\_r2.pdf](https://www.dec.ny.gov/dardata/boss/afs/permits/prr_419220005500005_r2.pdf)> for this facility is available at: [https://www.dec.ny.gov/dardata/boss/afs/permits/prr\\_419220005500005\\_r2...](https://www.dec.ny.gov/dardata/boss/afs/permits/prr_419220005500005_r2...) <[https://www.dec.ny.gov/dardata/boss/afs/permits/prr\\_419220005500005\\_r2.pdf](https://www.dec.ny.gov/dardata/boss/afs/permits/prr_419220005500005_r2.pdf)> .

Source-specific RACT determinations that are included in this permit action will be submitted to the US EPA for approval as a SSSR. The NYS DEC is providing a 30 day period to comment on the proposed SSSR or to request a hearing. **Written comments should be submitted by March 8, 2024, to the contact listed below.**



## Primary Contact

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