

STATEMENT OF BASIS for BAYONNE ENERGY CENTER

TITLE V OPERATING PERMIT SIGNIFICANT MODIFICATION

Program Interest (PI): 12863 / Permit Activity Number: BOP150001

I. FACILITY INFORMATION

Bayonne Energy Center (BEC) located at 401 Hook Road in Bayonne, Hudson County, NJ 07002 is an electric generating plant. Bayonne Energy Center is owned and operated by Bayonne Energy Center LLC.

The facility is classified as a major facility based on its potential to emit 152 tons per year of carbon monoxide, 131 tons per year of nitrogen oxides, and 44.9 tons per year of volatile organic compounds, 119 tons per year of Total Suspended Particulates (TSP), 119 tons per year of Particulate Matter less than 10 microns (PM₁₀), 119 tons per year of Particulate Matter less than 2.5 microns (PM_{2.5}); and 1,634,523 tons per year of Greenhouse gases as Carbon Dioxide Equivalent (CO₂e) to the atmosphere.

This permit allows any individual hazardous air pollutant (HAP) to be emitted at a rate to not exceed: 148 pounds per year of acrolein, 44 pounds per year of lead, 8.14 tons per year of formaldehyde, and 1.22 tons per year of manganese.

This facility is not a major HAP facility. A major HAP emitting facility is designated as major when the allowed emissions exceed 10 tons per year of any individual hazardous air pollutant or 25 tons per year of any combination of individual hazardous air pollutants that may be emitted simultaneously.

II. AREA ATTAINMENT CLASSIFICATION

The Federal Clean Air Act (CAA) sets National Ambient Air Quality Standards (NAAQS) for six common air pollutants. These commonly found air pollutants (also known as "criteria pollutants") are particulate matter, ground-level ozone, carbon monoxide (CO), sulfur dioxide (SO₂), nitrogen dioxide (NO₂), and lead. The US Environmental Protection Agency (USEPA) also classifies areas as "attainment" or "nonattainment" for each criteria pollutant, based on the magnitude of an area's problem. Nonattainment classifications are used to specify what air pollution reduction measures an area must adopt, and when the area must reach attainment. Currently, the entire State of New Jersey is designated as nonattainment for the 8-hour ozone NAAQS and portions of the State are designated as nonattainment for the daily SO₂ NAAQS. This facility is located in a nonattainment area of the State in which the ambient air concentration exceeds 8-hour ozone NAAQS.

III. BACKGROUND AND HISTORY

The facility's current operating permit was approved on October 10, 2014. Please refer to the attached explanation sheet for the structure and configuration of conditions of approval, included in the Facility Specific Requirements section of this permit. This modification would allow the following changes to the facility's approved operating permit:

This significant modification is for the proposed construction and operation of two additional 66 MW each Siemens/Rolls Royce Trent 60 WLE simple-cycle combustion turbine generators (CTGs) at the Facility. The proposed CTGs will be dual-fueled fired with natural gas as the primary fuel and ultra low-sulfur distillate oil (ULSD) with a sulfur content of less than or equal to 15 ppm by weight as back-up fuel limited to no more than 720 hours per year per CTG. Each CTG will have an annual capacity factor limited to no greater than 39.87% of its design capacity while firing natural gas.

Each of the CTG will be equipped with Water Injection and Selective Catalytic Reduction System (SCR) to control Nitrogen Oxide (NO_x) emissions and Oxidation Catalyst to control Carbon Monoxide (CO) and Volatile Organic Compounds (VOC) emissions. The CTGs will have continuous emissions monitoring systems (CEMs) for NO_x and CO.

The proposed increase in emissions from the two proposed combustion turbines will be less than the significant emission increase threshold for criteria pollutants under Federal Prevention of Significant Deterioration of Air Quality (PSD) or NJDEP Emission Offset Rule (Subchapter 18) permitting

STATEMENT OF BASIS for BAYONNE ENERGY CENTER

TITLE V OPERATING PERMIT SIGNIFICANT MODIFICATION

Program Interest (PI): 12863 / Permit Activity Number: BOP150001

requirements. The Project will therefore not constitute a major modification under the PSD program and will not be subject to Subchapter 18 offsets requirement.

Title V facilities whose potential emissions of Hazardous Air Pollutants (HAPs) are above specified thresholds are required to conduct risk assessment as a part of their facility's operating permit application.

The Department's review of the health risk assessment conducted for HAPs at this facility is negligible in accordance with Technical Manual 1003.

This modification will also change the facility-wide emission limits as listed in the following table:

| Allowable Emission Limits | Facility's Potential Emissions (tons per year) | | | | | | | | | | |
|---------------------------|--|-----------------|-------|-----------------|-------------|---------------|--------------------------|---------------------------|---------|--------------|--------------------------|
| | VOC (total) | NO _x | CO | SO ₂ | TSP (total) | Other (total) | PM ₁₀ (total) | PM _{2.5} (total) | Pb | HAPs (total) | CO _{2e} (total) |
| Current Permit | 36.9 | 107 | 128 | 23.2 | 94.9 | NA | 94.9 | 94.9 | 0.022 | 11.8 | 1,362,586 |
| Proposed Permit | 43.7 | 131 | 152 | 25.9 | 119 | NA | 119 | 119 | 0.0224 | 12.9 | 1,634,559 |
| Change (+ / -) | +6.80 | +23.7 | +24.3 | +2.69 | +24.5 | NA | +24.5 | +24.5 | +0.0004 | +1.15 | +271,937 |

| | | | |
|-----------------|---|-------------------|--------------------------------|
| VOC | Volatile Organic Compounds | PM ₁₀ | Particulates under 10 microns |
| NO _x | Nitrogen Oxides | PM _{2.5} | Particulates under 2.5 microns |
| CO | Carbon Monoxide | Pb | Lead |
| SO ₂ | Sulfur Dioxide | HAPs | Hazardous Air Pollutants |
| TSP | Total Suspended Particulates | CO _{2e} | Carbon Dioxide equivalent |
| Other | Any other air contaminant regulated under the Federal Clean Air Act | | |

This modification replaces the Clean Air Interstate Rule (CAIR) permit for this facility with requirement to comply with Cross-State Air Pollution Rule (CSAPR) pursuant to 40 CFR 97.

IV. CASE-BY-CASE DETERMINATIONS

Emission offsets have been previously required at the BEC for NO_x and VOC and since the facility is proposing an increase in the emissions of these two air contaminants, which is not a significant net emission increase, pursuant to N.J.A.C. 7:27-18.3(c)

- i) The facility conducted a Lowest Achievable Emission Rate (LAER) analysis and the proposed turbines will meet LAER limits for NO_x and VOC as follows:
NO_x: 2.5 parts per million dry volume at 15 percent oxygen (ppmvd@15% O₂) when firing natural gas, and 5 ppmvd@15% O₂ when firing ULSD.
VOC: 2.0 ppmvd@15% O₂ when firing natural gas, and 4.5 ppmvd@15% O₂ when firing ULSD.
- ii) The facility submitted certification in accordance with N.J.A.C. 7:27-1.39 that BEC is the only facility owned, operated or controlled by BEC in New Jersey, and, that all existing facilities in New Jersey, which are owned or operated by BEC, or by any entity controlling, controlled by, or under common control with such person, are operating in compliance with the provisions of Subchapter 18 and with all applicable emission limitations and standards promulgated pursuant to the Federal Clean Air Act.

V. EMISSION OFFSET REQUIREMENTS

This modification is not subject to Emission Offset requirements.

STATEMENT OF BASIS for BAYONNE ENERGY CENTER

TITLE V OPERATING PERMIT SIGNIFICANT MODIFICATION

Program Interest (PI): 12863 / Permit Activity Number: BOP150001

VI. BASIS FOR MONITORING AND RECORDKEEPING REQUIREMENTS

The facility's operating permit includes monitoring, recordkeeping and reporting requirements that are sufficient to demonstrate the facility's continued compliance with the applicable requirements consistent with the following:

1. Provisions to implement the testing and monitoring requirements of N.J.A.C. 7:27-22.18, the recordkeeping and reporting requirements of N.J.A.C. 7:27-22.19, and all emissions monitoring and analysis procedures or compliance assurance methods required under the applicable requirements, including any procedures and methods promulgated pursuant to 40 CFR 64; and
2. Where the applicable requirement does not require direct periodic monitoring of emissions, the Department requires periodic monitoring of surrogate parameters sufficient to yield reliable data from the relevant time period that are representative of the facility's compliance with the permit.
3. In situations where the underlying applicable requirement did not specify any periodic testing or monitoring, the following factors were considered in the evaluation and determination of the appropriate methodology for compliance demonstration for each emission unit:
 - Pollutant's potential impact on public health and environment.
 - Emission unit and control device (older, less reliable equipment generally require more monitoring to ensure ongoing compliance).
 - Compliance history and margin of compliance.
 - Emissions variability and process stability (emissions units with highly variable process rates or materials generally require more monitoring to ensure ongoing compliance)
 - Quantity of emissions (emissions units that will have more impact on the environment generally require more monitoring to ensure ongoing compliance).

VII. APPLICABLE STATE AND FEDERAL RULES

This modification is subject to New Jersey Air Pollution Control Regulations, codified in N.J.A.C. 7:27-1 through 34, as applicable. A complete text of these regulations is available at: <http://www.nj.gov/dep/aqm/rules27.html>

This modification is also subject to Federal regulations listed below.

- NSPS Subpart A: New Source Performance Standards - General Provisions
- NSPS Subpart KKKK: New Source Performance Standards for Stationary Gas Turbines
- NSPS Subpart TTTT Standards of Performance for Greenhouse Gas Emissions for Electric Generating Units
- 40 CFR 72 Acid Rain Program
- 40CFR 97 Cross-State Air Pollution Rule (CSAPR)

The Greenhouse Gas (GHG) emissions from this facility are 1,634,523 TPY CO₂e and the GHG emissions increase are 271,937 TPY CO₂e.

VIII. FACILITY'S COMPLIANCE STATUS

The Responsible Official at the facility has certified that the facility currently meets all applicable requirements of the Federal Clean Air Act and the New Jersey Air Pollution Control Act. Based on this certification, the Department's evaluation of the information included in the facility's application, and a review of the facility's compliance status, the Department has concluded that this air pollution control operating permit should be approved.

This operating permit includes a permit shield, pursuant to the provisions of N.J.A.C. 7:27-22.17. A permit shield provides that compliance with the relevant conditions of the operating permit shall be deemed compliance with the specific applicable requirements that are in effect on the date of issuance of the draft operating permit, and which form the basis for the conditions in the operating permit.

STATEMENT OF BASIS for BAYONNE ENERGY CENTER

TITLE V OPERATING PERMIT SIGNIFICANT MODIFICATION

Program Interest (PI): 12863 / Permit Activity Number: BOP150001

This operating permit includes a permit shield, pursuant to the provisions of N.J.A.C. 7:27-22.17. A permit shield provides that compliance with the relevant conditions of the operating permit shall be deemed compliance with the specific applicable requirements that are in effect on the date of issuance of the draft operating permit, and which form the basis for the conditions in the operating permit.

Also, prior to the expiration of the five-year period, the facility will be required to apply for a renewal of this operating permit, at which time the Department will evaluate the facility and issue a public notice with its findings.

IX. EXEMPT ACTIVITIES

The facility's operating permit does not include exempt activities such as office and interior maintenance activities, maintenance shop activities, food preparation facilities, cafeterias and dining rooms, etc. A complete list of exempt activities, as allowed by the Operating Permit rule, can be found at N.J.A.C. 7:27-22.1.

FACILITY NAME (FACILITY ID NUMBER)

BOP050001

Activity Number
(assigned by the
Department)

**New Jersey Department of Environmental Protection
Facility Specific Requirements**

Emission unit number
(assigned by the
facility)

Brief description of emission unit

Emission Unit: U1 25 MM BTU/hour Boiler burning Fuel Oil and Natural Gas
Operating Scenario: OS Summary OR OSXX Boiler burning Fuel Oil

OS Summary lists all rules and requirements that apply to an emission unit, regardless of operating scenarios. Emission unit may contain one or more pieces of equipment and the corresponding operating scenarios

OSXX denotes the operating scenario number and lists the rules and requirements that apply to a particular scenario. An operating scenario represents various ways (or scenarios) a piece of equipment can operate.

Records to be kept

Submittal requirement

Item Number

Description of applicable requirement

Air contaminants

Monitoring method to ensure compliance

Actions to be taken by the facility

| Ref.# | Applicable Requirement | Monitoring Requirement | Recordkeeping Requirement | Submittal/Action Requirement |
|-------|---|--|---|---|
| 1 | Conduct a comprehensive stack test at emission point PTXX at least 18 months prior to the expiration of the approved operating permit to demonstrate compliance with the <u>NOx, TSP and VOC emission limits</u> . [N.J.A.C. 7:27-22.16(e)] | Other: <u>Stack emission testing</u> . Stack test shall be conducted for CO, NOx, TSP, and VOC emissions (add language as needed). Based on any 60-minute period. [N.J.A.C. 7:27-22.16(e)] | Other: <u>Stack test results</u> . [N.J.A.C. 7:27-22.16(e)] | Stack Test - <u>Submit a protocol, conduct stack tests, submit results</u> per the approved schedule. <u>Submit a stack test protocol to the Emission Measurement Section</u> at PO Box 437, Trenton, NJ 08625 at least 30 months prior to the expiration of the approved operating permit. [N.J.A.C. 7:27-22.18(e)] and [N.J.A.C. 7:27-22.18(h)] |

Rule citation (subchapter, section, and paragraph) for the applicable requirement

Rule citation for the monitoring requirement

Rule citation for the recordkeeping requirement

Rule citations for the submittal/action requirement