UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 2
290 BROADWAY
NEW YORK, NY 10007-1866

August 30, 2021

Mr. Christopher M Hogan
NYSDEC
Headquarters
625 Broadway
Albany, NY 12233
chris.hogan@dec.ny.gov

Re: Combined Draft PSD and title V Operating Permit for Astoria Gas Turbine Power, LLC
Permit ID # 2-6301-00191/00003, Astoria, Queens County, NY

Dear Mr. Hogan:

Thank you for the opportunity to comment on the combined draft PSD and title V operating[1] permit for Astoria Gas Turbine Power LLC ("Astoria" or "facility") that the New York State Department of Environmental Conservation Region 2 office (NYSDEC) issued for a 60-day public review on June 29, 2021.

Astoria is an existing power plant that consists of twenty four (24) older, peaking-only combustion turbine generators (CTG), gas and oil fired, with a combined gross output power rating of 646 MW[2] to be delivered to the grid. The draft permit would authorize Astoria the installation and operation of a new simple cycle GE H-Class 7HA.03 CTG turbine, rated at approximatively 437 MW gross output power[3] that would provide electric power to the grid during periods of peak demand. The turbine will be fired on natural gas, and ultra low sulfur diesel fuel oil, as back up fuel. The air pollution controls will include dry low NO_x combustors[4], water injection[5] and SCR for the control of NO_x emissions, and oxidation catalyst for the control of CO, VOC, and HAPs. The draft permit would also authorize the installation and operation of one 500 kW new diesel emergency engine, and two new diesel fire pump engines rated at 117 kW and 177 kW, respectively. Further, the draft permit authorizes the removal of 22 out of the 24 existing peaking turbines and limiting the operation of the remaining 2 turbines as black start only turbines. As stated in the application, the CTG generating system will include an evaporative inlet cooler for cooling the combustion air in order to achieve greater gross electrical output, new circuit breakers[6], and new natural gas handling and piping system.

[1] This permitting action constitutes both, a renewal, and a major modification of the facility current title V operating permit
[2] The 646 MW accounts, also, for seven old turbines that were already retired.
[3] Gross output power is the electrical power generated by the turbine and does not reflect the internal plant power consumptions. The gross output power of 437 MW was provided by the turbine manufacturer and corresponds to" full" or "base" or "100%" load, while, combusting natural gas at the high heating fuel value, evaporative cooler on, and at International Standards Organization ("ISO") atmospheric conditions (59^0 F, 14.7 psia, and 60% relative humidity).
[4] Dry low NO_x combustors will be used in addition to SCR, while firing natural gas.
[5] Water injection will be used in addition to SCR, while firing fuel oil.
[6] Circuit breakers are part of the new electrical switchgear included with the project, and, are required for high voltage transmission systems, like the one that Astoria is connected to.

The facility is an existing major source under the Prevention of Significant Deterioration (PSD) of Air Quality and Nonattainment New Source Review (NNSR) programs[7], so the proposed modification or project constitutes a modification to an existing major source. The NYSDEC determined that the proposed modification would be a major modification subject to PSD requirements for PM/PM_{10}/$PM_{2.5}$ and GHG emissions, but it would not be subject to NNSR requirements. However, the draft permit includes requirements from the NYSDEC NNSR regulations (6 NYCRR Part 231-6[8]) for the nonattainment pollutants, NO_x, and VOC, for which NYSDEC determined that the modification would not result in a significant net emission increase.

We reviewed the draft permit, permit review report (PRR)[9], and application and have identified several significant concerns regarding the draft permit. Our overarching concerns are as follows:

1) The draft permit omits applicable requirements: BACT limits for GHG and PM/PM_{10}/$PM_{2.5,}$ federal standards and regulations, and NYSDEC's SIP-approved regulations.

2) The draft permit lacks appropriate monitoring requirements: Unenforceable BACT emission limits and practically unenforceable limits on the potential to emit for certain pollutants.

3) The draft permit, PRR and NYSDEC's ENB Public Notice do not provide for appropriate public participation in the air permitting process.

4) The permitting record (application and supporting documentation) are not readily available to the public or available at all.

As discussed below, if the Astoria draft permit is finalized without further revision, it is our position that it does not comply with the applicable Clean Air Act (CAA) requirements, NYSDEC's SIP approved air regulations, and federal regulations and standards. To ensure that the draft permit complies with the aforementioned requirements, and the permit record adequately supports the NYSDEC's permit decision, EPA recommends that the NYSDEC address the comments included in Enclosure A.

[7] The EPA has approved New York's NNSR and PSD regulations contained in 6 NYCRR Part 231 as consistent with the requirements of 40 CFR § 51.165 and 40 CFR § 51.166, respectively.
[8] 6 NYCRR Part 231-6.2(b) "Permit requirements for netting" at (1) requires that "A facility owner or operator which proposes a modification that does not result in a significant net emission increase, must apply for and obtain a permit which establishes an emission limit that equals the projected actual emissions or potential to emit, as appropriate, of the modification or each nonattainment contaminant(s) which exceed(s) the applicable significant project threshold.
[9] 40 CFR § 70.7(a)(5) requires permitting authorities to prepare a "statement of basis" for each Title V permit . The document that NYSDEC prepared and issued entitled "permit review report " is the functional equivalent of a statement of basis.

We look forward to working with you to address these comments. If you have any further questions or wish to discuss any of these issues, please feel free to contact me at 212-637-4019 or chan.suilin@epa.gov, or Viorica Petriman at 212-637-4021 or petriman.viorica@epa.gov.

Sincerely,

SUILIN CHAN Digitally signed by SUILIN CHAN
Date: 2021.08.30 18:42:22 -04'00'

Suilin W. Chan, Chief
Permitting Section
Air and Radiation Division

ENCLOSURE A

I. Non-Compliance with CAA §§ 504(a) and (c), 40 CFR § 70.6, and 6 NYCRR 201-6.4

As specified at CAA §§ 504(a) and (c), 40 CFR § 70.6(a)(1) and (3), and 6 NYCRR 201-6.4, each title V permit must include all emission limits and standards, as well as operational requirements and limitations that assure compliance with all applicable requirements at the time of permit issuance. The permit must also include all necessary testing, monitoring, recordkeeping, and reporting requirements to demonstrate compliance with the emission limitations. As discussed below, the Astoria draft permit must be revised to comply with the provisions of CAA §§ 504(a) and (c), 40 CFR § 70.6(a)(1) and (3), and 6 NYCRR 201-6.4.

A. Best Available Control Technology (BACT) Requirements

BACT emission limits and associated monitoring, recordkeeping and reporting requirements that apply to the emission sources at Astoria are applicable requirements that must be included in the draft permit.

1. GHG and PM/PM_{10}/$PM_{2.5}$ BACT Emission Limits for Emergency Engine and Fire Pump Engines Omitted from Draft Permit

Although the application includes BACT emission limits for the GHG (measured as CO_2e) and PM/PM_{10}/$PM_{2.5}$ emissions resulting from the new emergency engine and two new fire pump engines, the draft permit did not include those limits. NYSDEC should revise the draft permit to include the BACT emission limits for these pollutants and their associated monitoring, recordkeeping, and reporting requirements in the draft permit for the new emergency engine and the two new fire pump engines.

2. GHG BACT Emission Limits for Circuit Breakers and Natural Gas Handling and Piping System Omitted from Draft Permit

The application states that the proposed modification includes the installation of new equipment (emission sources), such as circuit breakers ("CBs"), and a natural gas handling and piping system ("NGHPS")[10] that have the potential to emit sulfur hexafluoride ("SF_6") and methane ("CH_4") as fugitive emissions from equipment leaks.

As described on the EPA web site[11], SF6 is "the most potent greenhouse gas known to-date. Over a 100-year period, SF_6 is 22,800 times more effective at trapping infrared radiation than an equivalent amount of carbon dioxide (CO_2). SF_6 is also a very stable chemical, with an atmospheric lifetime of 3,200 years. As the gas is emitted, it accumulates in the atmosphere in an essentially un-degraded state for many centuries. Thus, a relatively small amount of SF_6 can have a significant impact on global climate change."

[10] The NGHPS are described as connectors, flanges, regulators, valves, and meters. *See* page 4-20 of the application.
[11] *See* additional information at https://www.epa.gov/eps-partnership/sulfur-hexafluoride-sf6-basics

In the BACT analysis section of the application where selection of BACT to control SF6 emissions from circuit breakers is documented, Astoria dismissed the use of SF6-free circuit breakers for its project. The justification provided by Astoria is that the project requires 138-kW circuit breakers but the highest voltage SF6-free circuit breakers that are commercially available operate only at 72.5 kW, well below the voltage requirement for Astoria's project. EPA disagrees and finds Astoria's justification unacceptable. Contrary to Astoria's assertion, EPA's document, titled "*Moving Toward SF_6-Free High Voltage Circuit Breakers: Considerations for Adopting Vacuum Breaker and Fluorinated Gas Alternative Technologies"*[12], states that SF6-free circuit breakers that meet Astoria's voltage requirement are indeed commercially available. If SF6-free circuit breakers were selected, the circuit breakers will no longer be subject to BACT for GHG/SF6. Astoria did not provide an acceptable justification to eliminate SF6-free circuit breakers; therefore, the facility must update its application to provide a reason for not selecting SF6-free circuit breakers. The NYSDEC shall transmit such documentation to EPA along with its response to public comments and the proposed permit.

The application includes GHG emissions estimates for the CBs and NGHPS. The methods and measures for minimizing those GHG emissions are proposed as BACT for the GHG emissions from these emission sources. Monitoring and recordkeeping methods were included as well. However, the draft permit did not address emissions from the CBs and NGHPS at all. In the event that the facility successfully rejects SF6-free circuit breakers for its project and the NYSDEC finds it acceptable, the draft permit should be revised to include the CBs and NGHPS as emission sources; specify the GHG BACT emission limits, in the form of CO_2e, for each CB and NGHPS; establish as a limit in the draft permit the maximum annual leakage rate for SF_6 at no more than 0.5% of the total SF_6 storage capacity of the plant's circuit breakers[13]; include all of the measures proposed by the facility for controlling and minimizing GHG emissions [14]; and include the monitoring and recordkeeping methods specified in the application.

3. $PM/PM_{10}/PM_{2.5}$ BACT Emission Limits for New Turbine Startup and Shutdown Periods Omitted from Draft Permit

The draft permit Conditions 51, 52, 57 and 58 that establish $PM/PM_{10}/PM_{2.5}$ BACT emission limits in the form of "lb/MMBTU" for the new turbine, while firing natural gas and fuel oil, state that those BACT emission limits apply only during steady state operation. The draft permit doesn't specify what $PM/PM_{10}/PM_{2.5}$ BACT emission limits apply during startup (which also accounts for fuel switching)[15] and shutdown.

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[12]The EPA document *"Moving Toward SF_6-Free High Voltage Circuit Breakers: Considerations for Adopting Vacuum Breaker and Fluorinated Gas Alternative Technologies* " can be find at https://www.epa.gov/eps-partnership/sulfur-hexafluoride-sf6-basics

[13] The maximum annual leakage rate for SF_6 at no more than 0.5% of the total SF_6 storage capacity of the plant's circuit breaker is specified in the application.

[14] *See* page 4-20 of the application.

[15] Fuel switching, which is descried as the process of switching from natural gas to fuel oil or from fuel oil to natural gas, is included in the draft permit and application within the startup on fuel oil scenario.

BACT emission limits[16] should apply at all times, including periods of startup, shutdown, and fuel switching. Consistent with EPA guidance and Environmental Appeal Board decisions[17], if BACT emission limits[18] specified during normal load operation (or steady state operation) are not feasible under certain conditions (such as startup, shutdown, and fuel switching), a permitting authority can make an on-the-record determination that such compliance is infeasible and create a secondary BACT limits for those events. The permitting authority should also describe what measures will be undertaken to minimize emissions during those events and demonstrate that the secondary BACT limit(s) are in compliance with all applicable requirements, including NAAQS and PSD increment provisions. Consistent with the foregoing, this draft permit should include PM/PM_{10}/$PM_{2.5}$ BACT limits for periods of startup and shutdown. In its application, Astoria estimated the startup and shutdown PM/PM_{10}/$PM_{2.5}$ emissions in the form of "lb/event"[19] and subsequently used them in the air quality analyses for the startup and shutdown scenarios. The "lb of PM/PM_{10}/$PM_{2.5}$ per startup and shutdown event" in the application could be included in the permit as BACT limits for periods of startup and shutdown. This is consistent with the way BACT limits for startup and shutdown periods have been expressed in prior air permits issued by air permitting authorities[20] across the country and by the EPA[21].

4. Unenforceable PM/PM_{10}/$PM_{2.5}$ BACT and GHG Emission Limits and Heat Rate Limit

Background - Astoria Application and Effects of Ambient Conditions on Turbine Heat Input, Power Output, Heat Rate, and Emission Limits

It is well known that the ambient conditions (such as temperature, pressure, humidity) under which a turbine operates have a noticeable effect on the amount of its fuel input, which converts into heat input (MMBTU/hr) rate, power output (MW) (gross), and the heat rate (BTU/kW-hr). The information provided in the Astoria application indeed documents the effect of ambient conditions on the heat input, power output (gross), heat rate, and GHG emissions (in lb CO_2e/MW-hr) of the new turbine. S*ee* pages 2-4, 4-9, 4-10, 4-13, 4-14, and "Performance and Emission Data" of Appendix C, information supplied by GE, the turbine manufacturer.

The ambient conditions under which the heat input rate, power output (gross), heat rate, and GHG emissions limits (lb CO_2e/MW-hr) were established were included in the application as 59^0 F, 14.7 psia, and 60% relative humidity, the standard atmospheric conditions accepted by the International Organization of Standardization ("ISO" conditions). However, NYSDEC listed the above limits in the draft permit without referencing the ambient conditions, rendering these

[16] The same is valid for LAER limits.
[17] S*ee In re:* Tallmadge Generating Station, PSD Appeal No. 02-12, (EAB, May 22, 2003) and *In re:* Rockgen Energy Center, PSD Appeal No. 99-1, (EAB, August 25, 1999).
[18] The same is valid for LAER limits.
[19] The mass emissions rates for startup and shutdown are, usually, based on data provided by turbine manufactures, such as General Electric, and are derived from test cell operation of units similar to the model proposed for a certain project.
[20] *See* PSD Air Permit issued by MA DEP on 9/29/2017 for NRG Canal 3, which can be find at https://www.mass.gov/doc/final-prevention-of-significant-deterioration-psd-permit-nrg-canal-3-development-llc/download
[21] *See* PSD Air Permit issued by EPA R2 on 4/7/2006 and revised on 8/19/2020 for Caithness Long Island LLC, which can be find at https://www.epa.gov/caa-permitting/caithness-long-island-llc-brookhaven-ny-4

limits unenforceable. As discussed below, the NYSDEC should revise the draft permit to list each heat input rate, power output (gross), heat rate, and lb CO_2e/MW-hr with the same ambient conditions referenced in the application. To demonstrate compliance with the above limits, the lb CO_2e/MW-hr, for example, measured at other ambient conditions can be corrected to the ISO conditions.

a. Unenforceable PM/PM_{10}/$PM_{2.5}$ BACT Emission Limits

Conditions 51, 52, 57 and 58 of the draft permit establish PM/PM_{10}/$PM_{2.5}$ BACT limits in the form of "lb/MMBTU" for the turbine on natural gas and fuel oil at steady state operations. Conditions 51 and 57 state that the limits "apply to steady operations of less than 75 percent load", and Conditions 52 and 58 state that the limits "apply to steady operations of 75 percent load or greater". The term "load" is not defined in the draft permit. However, based on the application, the term "load" refers to the turbine manufacturer's design capacity heat input rating (MMBTU/hr), which is also referred to as "full load", "100% load", or "base load". The meaning of the term "load" in the application is consistent with other permits and relevant technical documents. The draft permit should explicitly define "load" as the "full-load", and "full-load" as the design capacity of the heat input rating (MMBtu/hr), consistent with the application. The above-mentioned BACT emission limits are unenforceable because the draft permit does not establish clear monitoring requirements for these limits. The draft permit should be revised to address the following: (1) establish a numerical value corresponding to "75 % load"; (2) specify the minimum "% load" (below the "75% load"), above which the facility is required to comply with the lb/MMBTU limits on PM/PM_{10}/$PM_{2.5}$ and disallow the turbine to operate below that minimum load, except for startups and shutdowns; and (3) revise the draft permit to list the limits with the referenced ISO conditions, as they appear in the application.

b. Unenforceable BACT lb CO_2e/MW-hr Emission Limit

i. Conditions 53 and 59 of the draft permit cite to 6 NYCRR Part 231-8 and establish the following limits for the CO_2e emissions for the new turbine: 1,119 lb CO_2e/MW-hr for natural gas combustion and 1,608 lb CO_2e/MW-hr for oil combustion. Both limits are based on gross electrical output of the new turbine. These conditions are unenforceable because there are no monitoring requirements and they do not specify the ambient conditions, i.e., the % load, HHV, status of the evaporative cooler, conditions under which the 2 limits apply. The draft permit should be revised by specifying that the two GHG emission limits (in lb CO_2e/MW-hr) are at HHV, full load, ISO conditions and evaporative cooler off, as presented in the application. Monitoring requirements must also be added to demonstrate compliance with these limits.

ii. Conditions 53 and 58 of the draft permit should clarify whether the lb CO_2e/MW-hr emission limits apply only to steady state operations.

iii. Conditions 53 and 59 should clearly define what averaging time is meant by "Daily block average." If it means "a 24-hour daily (block) average" of the arithmetic hourly average emissions, it should say so. These conditions also lack monitoring requirements to verify compliance with the BACT limits.

c. Unenforceable Heat Rate BTU/kW-hr Limit

Condition 47 of the draft permit cites to 6 NYCRR 231-8 and establishes a heat rate of 9,300 BTU/kW-hr for the new turbine and states it is based on the higher heating value of the fuel. However, this condition does not clearly state that the limit applies to both natural gas and fuel oil. This heat rate limit is different from the two heat rate limits included in the application and does not specify the HHV, % load, ambient conditions, and the evaporative cooler status associated with the heat rate limit. Specifically, in the application, there are 2 separate heat rates limits for the new turbine: a heat rate of 9,544 BTU/kW-hr, gross power output, HHV, full load, ISO conditions, evaporative cooler off for natural gas, and a heat rate of 9,850 BTU/kW-hr, gross power output, HHV, full load, ISO conditions, evaporative cooler off for fuel oil. The NYSDEC should include justification in the permitting record for selecting 9,300 BTU/kW-hr as the heat rate limit and not the heat rate limits provided in the application. In any event, the heat rate limit in Condition 47 is not enforceable for the lack of clear monitoring requirements. Condition 47 should be revised to specify that the heat rate limit is based on gross power output, full load, at ISO conditions, evaporative cooler off , as consistent with the application, or other conditions, if appropriate, and state whether it applies to both natural gas and fuel oil. Alternatively, the draft permit can be revised to include the two heat rate limits from the application with all relevant references (HHV, % load, ambient conditions, etc.).

5. Averaging times for PM/PM_{10}/$PM_{2.5}$ BACT Emissions Limits Omitted from Draft Permit

Conditions 51, 52, 57 and 58 establish PM/PM_{10}/$PM_{2.5}$ (lb/MMBTU) BACT emision limits for the new turbine, but do not specify the time averaging period or averaging times for these limits. All of these conditions state "AVERAGING METHOD AS PER REFERENCE TEST METHOD INDICATED". The EPA Test Methods 201A and 202 referenced in these conditions do not prescribe the averaging times for the measured pollutants. BACT limits and other emission limits are unenforceable if they are not associated with an appropriate time averaging period. 40 CFR § 70.6(a)(3)(i)(B) and (c)(1) and 6 NYCRR 201-6.4 (b)(2) require "periodic monitoring, including the use of test methods, sufficient to yield reliable data from the relevant time period that is representative of the source's compliance with the permit. Such monitoring requirements shall assure use of terms, test methods, units, averaging periods, and..." The NYSDEC needs to revise the draft permit to include the appropriate averaging times associated with the above-mentioned BACT limits in order for these permit conditions to be practically enforceable.

6. Other Issues on Permit Conditions Containing BACT PM/PM_{10}/$PM_{2.5}$ Emission Limits

a. Conditions 51, 52, 57 and 58 that establish PM/PM_{10}/$PM_{2.5}$ lb/MMBTU limits for the turbine, should be revised to remove the reference to "VOC" from their description section.

b. Condition 51 of the draft permit should be revised to include the correct limit of 0.0096 lb/MMBTU in the "Upper Permit Limit" section, instead of 0.096 lb/MMBTU, as currently written.

7. Heat Input Rate for New Turbine

Condition 39, Items 39.4 through 39.8 of the draft permit cite to 6 NYCRR Part 201-6 and include a brief description of the 4 types of operation for the new turbine (steady state on natural gas, steady state on fuel oil, startup on natural gas, startup on fuel oil, shutdown on natural gas and shutdown (and fuel switching) on fuel oil. All of these conditions list the same numerical value, 3,996 MMBTU/hr, as the "design capacity" for the new turbine. This design capacity (in MMBTU/hr) is not consistent with the heat input rate(s) provided in the application and does not specify the HHV, % load, ISO conditions, and the evaporative cooler status, as it is properly done in the application. The application specifies a heat input rate capacity of 3,906 MMBTU/hr for natural gas at HHV, full- load, ISO conditions, with evaporative cooling on and 3,962 MMBTU/hr for fuel oil at HHV, full- load, ISO conditions and evaporative cooling on. The NYSDEC should include justification in the permitting record for specifying in the draft permit 3,996 MMBTU/hr as the design capacity heat input rate for both fuels, and not the heat input rates (MMBTU/hr) provided in the application. In any event, Condition 39, Items 39.4 through 39.8, should be revised to specify the relevant references (HHV, full load, ambient conditions and status of the evaporative cooler) associated with the design capacity of 3,996 MMBTU/hr. Alternatively, the draft permit can be revised to include the two heat input rate limits from the application in the manner these limits are provided in the application.

8. Monitoring Requirements For Assuring Enforceable BACT Emissions Limits and Limits on the PTE for BACT Pollutants

a. The draft permit shall require Astoria to comply with the following monitoring requirements that would ensure enforceability of the BACT emission and PTE limits:

1. Install, certify, maintain, and continuously operate a CO_2 emissions Continuous Monitoring System (CEMS) in accordance with the applicable requirements of 40 CFR Part 75.

2. Measure and record the actual heat input (BTU) on an hourly basis in accordance with 40 CFR Part 75.

3. Install, operate, and maintain a certified pipeline natural gas flow meter and a certified ULSD fuel oil flow meter that satisfy the requirements of 40 CFR Part 75 to continuously monitor the fuel flow to the turbine.

4. Measure continuously and record the following on an hourly basis:
   i. Gross electrical output of the turbine (MW)
   ii. CO_2 mass emission rate (tons or lb CO_2/hr)
   iii. Heat input rate (MMBTU/hr)
   iv. The type and amount of fuel (natural gas or ULSD fuel oil) burned

5. Install and maintain a non-resettable elapsed operating hour meter or equivalent software to accurately indicate the date and hours that the turbines operate.

6. Monitor and record the turbine operating time as steady state, startup, shutdown, or fuel switching.

7. Calculate and record the emission rate of lb CO_2e/MW-hr during each hour in which power is being generated by the turbine.

8. Calculate and record BTU/kW-hr.

b. Condition 46 of the draft permit establishes an annual limit on the fuel oil combusted by the new turbine. To improve clarity of the permit, this condition should be revised to state that the fuel limit includes all turbine operations, including startup, shutdown, and fuel switching.

B. Federal Standards, Federal Regulation and SIP Approved Regulation Requirements Omitted from Draft Permit

1. Requirements from the following federal standards that apply to the new turbine were omitted from the draft permit:

   a. 40 CFR 60 Subpart KKKK - Standards of Performance for Stationary Combustion Turbines (NSPS 4K).

   b. 40 CFR 60 Subpart TTTT - Standards of Performance for Greenhouse Gas Emissions for Electric Generating Units (NSPS 4T).

2. Requirements from the following federal standards that apply to the new emergency engine and the 2 new fire pump engines were omitted from the draft permit:

   a. 40 CFR 60 Subpart IIII – Standards of Performance for Stationary Compression Ignition Internal Combustion Engines (NSPS 4I).

   b. 40 CFR 63 Subpart ZZZZ – National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (NESHAP 4Z)

The draft permit should be revised to include all applicable requirements from the above-mentioned federal standards.

3. 40 CFR Part 64 – Compliance Assurance Monitoring (CAM) Requirements

   Astoria is subject to the CAM rule requirements for the VOC emissions resulting from the new turbine which would be controlled by an oxidation catalyst (an add-on control device).

   The CAM rule was designed to ensure source owners or operators of large emission units at title V facilities that use add-on control devices detect and quickly correct problems associated with their emission control devices. Such activity helps owners and operators

maintain their control devices at levels that assure compliance with their applicable requirements. CAM is intended to establish monitoring for a control device to ensure that once installed, it is properly operated and maintained so that compliance with an emission limit is continuously met. Regarding continuity, sources that remain major sources after application of control devices need to supply at least one indicator of compliance at least four times an hour; other sources need to provide at least one indicator of compliance at least once per day. The CAM rule allows the subject source to design a CAM plan and propose the plan to the permitting authority for approval. As specified at 40 CFR § 70.6 (a)(3)(i)A) and 6 NYCRR 201-6.4(b)(1), title V permits must include all applicable CAM requirements. The minimum monitoring requirements of Part 64 that need to be included in title V permits are specified at § 64.6(c)(1) through (c)(4) and are discussed below:

- As required by §64.6(c)(1)(i) through (iii), the approved monitoring approach includes (1) the indicators to be monitored (such as measuring temperature at the inlet/outlet of an oxidation catalyst, pressure drop, emissions, or similar parameter); (2) the method of measuring the indicators (such as a thermocouple for an oxidation catalyst, visual observation); and (3) the performance criteria established to satisfy § 64.3 (b) or (d) (e.g., degree Fahrenheit for temperature at inlet/outlet of an oxidation catalyst), as applicable, must be included in the permit.

- Pursuant to § 64.6(c)(2), a title V permit shall specify, at a minimum, the means of defining exceedances or excursions, the level which constitutes an exceedance or excursion, or the means by which that level will be defined; the averaging period associated with an exceedance or excursion; and the procedures for notifying the permitting authority of the establishment or reestablishment of any exceedance or excursion level.

- § 64.6(c)(3) addresses the obligation to conduct monitoring and satisfy the requirements of §§ 64.7 through 64.9.

- § 64.6(c)(4) requires that "the permit shall specify if appropriate, the minimum data availability requirement for valid data collection for each averaging period and if appropriate, for the averaging periods in a reporting period."

The draft permit for Astoria does not address the CAM Rule requirements, and the application did not include a CAM Plan prepared by Astoria for the proposed project. The NYSDEC should ensure that all monitoring requirements at § 64.6(c)(1) through (c)(4) that apply to the oxidation catalyst (used for controlling VOC emissions from the new turbine), as well as the reporting and recordkeeping requirements at § 64.9 (a) and (b) are included in the draft permit. Each permit condition that addresses a CAM requirement should cite to the specific low-level provision of the CAM Rule as the underlying authority for the applicable requirement.

4. 6 NYCRR Subpart 227-2 "Reasonably Available Control Technology (RACT) for Major Facilities of Oxides of Nitrogen (NO_x)"

The requirements of 6 NYCRR Subpart 227- NO_x RACT rule that apply to the new turbine should be added to the draft permit.

II. Limitations on Potential to Emit Must Be Federally and Practically Enforceable

The draft permit includes limits on the potential to emit (PTE) of the following pollutants: 717,002 tpy of CO_2e emissions for the facility (Condition 21); 25.4 tpy of VOC emissions for the proposed project (one new turbine, one new engine, two new fire pumps, Condition 29), 97.5 tpy of NOx for the proposed project (Condition 30); and, 52.6 tpy of $PM/PM_{10}/PM_{2.5}$ emissions for the facility (Condition 31). In order to ensure that the above-mentioned limits are federally and practically enforceable, and that the limits are consistent with the NYSDEC's DAR-17/Federal Enforceability of Air Pollution Control Permits, please address the following:

a. Revise the above-mentioned draft permit conditions (Conditions 21, 29, 30, and 31) to include the respective emission sources that are covered under each emission limit. Require the inclusion of all emissions resulting from each emission source, including startup, shutdown, fuel switching, and shakedown emissions in the calculation of actual emissions for demonstrating compliance with each PTE limit. Condition 21 should be revised to require the facility to include the GHG emissions from the emergency engine, two fire pumps, circuit breakers and natural gas handling and piping system, along with the emissions from the new turbine and two old turbines.

b. Revise the draft permit by including the following assumptions used by Astoria, in the application, in establishing the PTE of CO_2e, VOC, NO_x, $PM/PM_{10}/PM_{2.5}$, as permit limits: 1,900 hours/yr of operation at full-load and steady-state for the new turbine on natural gas; 180 startup/shutdown events on natural gas; 65 startup/shutdown events on fuel oil for the new turbine; and 500 hours/yr of operation for each of the new emergency engine and the two new fire pumps.

c. All the above-mentioned conditions should specify the emission factors or emission rates for each pollutant that is not measured via CEMS which Astoria should use to calculate the actual emissions during steady state, startup, shutdown, fuel switching, and shakedown for compliance demonstration purposes. EPA notes that the draft permit should include the startup and shutdown emission rates that are included in the application and require their use in the calculation of the actual emissions occuring during these periods. The facility should propose emission factors for shakedown.

III. Other Issues

1. Averaging times for VOC Emissions Limits Omitted from Draft Permit

Conditions 48 and 54 of the draft permit establish VOC emission limits in the form of "lb/hr" for the new turbine, but do not specify the averaging times for these limits. These conditions state that "AVERAGING METHOD AS PER REFERENCE TEST METHOD INDICATED". The EPA Test Methods, 18 or 25A, which are indicated in these draft permit conditions, as well

as other EPA Test Methods, do not prescribe the averaging times for the measured pollutants. Emissions limits are unenforceable if they are not associated with an appropriate time averaging period. The NYSDEC needs to establish the averaging times associated with the above-mentioned VOC limits and the draft permit must be revised to include them.

2. Inadequate Origin of Authority for Several Draft Permit Conditions

40 CFR § 70.6 (a)(1)(i) and NYCRR Part 206-6.4(a) (1)(i) require that each permit shall specify the origin of authority for each term or condition. Please address the following:

a. For clarity, Conditions 51, 52, 57 and 58, which are meant to establish PM/PM_{10}/$PM_{2.5}$ BACT emission limits, and Conditions 53 and 59, which are meant to establish lb CO_2e/MW-hr BACT emission limits, should cite to 6 NYCRR Part 231-8.6(b) "BACT Limitations" as their origin of authority, instead of 6 NYCRR Part 231-8 "Modifications to Existing Major Facilities in Attainment Areas (Prevention of Significant Deterioration)." Their description section should also be revised to indicate that the limit is a BACT limit.

b. The following draft permit conditions cite to 6 NYCRR Part 201-6 as their origin of authority and establish substantive air requirements (limits on CO_2e tpy, VOC lb/hr, NO_x and CO ppm limits, startup and shutdown definitions, duration, and measuring emissions during startup/shutdown). Using title V regulation as the origin of authority for these conditions is not appropriate, as title V does not authorize new or substantive air requirements on emission sources or facilities, except for some gap-filling monitoring or recordkeeping requirements. EPA recommends that the origin of authority for these conditions be revised as indicated below or by using other non-Part 201-6 citations, if more appropriate:

   i. The origin of authority for the following conditions should be 6 NYCRR Part 231-8.6(a):
      - Condition 21, which establishes a CO_2e "tpy" limit for the facility;
      - Conditions 42 and 43, which establish the duration of each startup and shutdown events for the new turbine;
      - Conditions 49 and 56, which establish CO limits as "ppmvd@15%O_2" for the new turbine; and
      - Conditions 50, 55, and 56 which establish NO_x limits as "ppmvd@15%O_2" for the new turbine.

   ii. The origin of authority for the following conditions should be 6 NYCRR Part 231-6.4(a)(1):
      - Condition 45, which requires the facility to measure NO_x, CO and NH_3 emissions during the first 15 startups, shutdowns, and fuel switchings for the new turbine within 18 months of commencement of commercial operation; and
      - Condition 48 and 54, which establish VOC limits as "lb/hr" for the new turbine.

3. Sulfur content of Natural Gas Omitted from Draft Permit

The draft permit shall include the sulfur content of 0.5 grain S/100 standard cubic feet of natural gas that was used in the application for estimating the SO_2 emissions from the new turbine and

the two old turbines as a permit limit along with the necessary monitoring, recordkeeping, and reporting requirements.

4. Emission Reduction Credits (ERCs) and Contemporaneous period

In order to avoid the NNSR review for the addition of the new turbine, one new emergency engine and two new fire pumps, the facility proposed to use emission reduction credits resulting from shutting down the old turbines and limiting the operation of the two old turbines as black start turbines only. Based on 6 NYCRR 231-4.1(b)(30)(iii), the ERCs used in determining the net emissions increase must be contemporaneous[22] with the particular project or modification. In order to ensure that the actual emissions reductions to be used by Astoria as ERCs will occur within the contemporaneous period, we recommend that the following or similar language be added to the permit:

> "The shutdown of the existing turbines and the use of the 2 existing turbines as black start engines must occur prior to the "commencement of operation date" (as the term is defined in 6 NYCRR 231-4.1(b (12)), of the 3 new identical diesel engines. The facility must maintain and submit appropriate records to the NYSDEC for demonstrating compliance with this applicable requirement."

> "The facility is allowed a shakedown period that meets all applicable provisions of 6 NYCRR 231-3.8. The facility must maintain and submit appropriate records to the NYSDEC for demonstrating compliance with this applicable requirement."

IV. Streamlining in title V Permits

In order to conform with CAA §§ 504(a) and (c), 40 CFR § 70.6 and 6 NYCRR 201-6.4, the draft permit should include all applicable requirements from federal regulations and standards, as well as from NYSDEC SIP-approved air regulations. Alternatively, if the facility and/or NYSDEC wishes not to include all applicable requirements, and instead, streamline some identical applicable requirements and include only the most stringent ones in the draft permit, the March 5, 1996 EPA *White Paper Number 2 for Improved Implementation of the Part 70 Operating Permits Program* (EPA White Paper #2) must be followed. The EPA White Paper #2 recommends that when streamlining is utilized, the permit should contain language indicating that when the facility is in compliance with the more restrictive applicable requirement, it is in compliance with the less restrictive applicable requirement. The citation of authority for the streamlined condition should reference the authority of the streamlined or more restrictive applicable requirement (emission limit, monitoring, recordkeeping, and reporting requirement, work practices, etc) as well as the authority of the subsumed or less restrictive applicable requirement. This is because the subsumed applicable requirements are still applicable requirements. By including the origin of authority of the subsumed applicable requirement in a

[22] Under 6 NYCRR 231-4.1(b)(13), "contemporaneous" is defined as "the period beginning five years prior to the proposed commence construction date of the new or modified emission source and ending with the proposed commence operation date." "Commence(s) operation or commencement of operation" is defined in 6 NYCRR 231-4.1(b)(12) as "(i) the date that a proposed new or modified facility first emits or increases emissions of any regulated NSR contaminant to which this Part applies; or (ii) the date on which the facility shakedown period ends for a proposed modified facility which utilizes future ERCs for netting."

title V document, the respective less restrictive requirement, which was not separately included in the permit, remains an applicable requirement.

Also, the EPA White Paper #2, provides that a streamlining demonstration should include a side-by-side comparison (streamlining demonstration) of all of the applicable requirements, including emission limits, monitoring, recordkeeping, and reporting requirements, and not just the emission limits, and such demonstration should be included in the PRR. Different limit formats (different "units" of measurement) require a detailed discussion to demonstrate which limit is more stringent, including a conversion factor established to allow for conversion from one unit of measure to another. In determining the stringency of an emission limit, the averaging times should be reviewed closely.

Please provide us with the streamlining demonstration involving all applicable requirements that the facility or NYSDEC seek to streamline (if this would be the case), promptly upon it becoming available from the facility.

V. Lack of Permit Shield for Several Applicable Requirements

In the "Notification of General Permittee Obligations" section of the draft permit, Item 1 is titled "Permit Shield - 6 NYCRR 201-6.4 (g)." Consistent with CAA §§ 504(f), 40 CFR § 70.6(f), and 6 NYCRR 201-6.4(g), Item I provides, in pertinent part, "compliance with the conditions of the permit shall be deemed compliance with any applicable requirements as of the date of permit issuance, provided that such applicable requirements are included and are specifically identified in the permit,or the Department, in acting on the permit application or revision, determines in writing that other requirements specifically identified are not applicable to the major stationary source, and the permit includes the determination or a concise summary thereof." As discussed in this letter, the draft permit fails to include applicable requirements from several federal standards, regulations, and SIP approved rule (NSPS 4K, NSPS 4T, NSPS 4I, NESHAP 4Z, CAM Rule, NO_x RACT rule) which apply to the new turbine, the new emergency engine and the 2 new fire pump engines. A title V facility can only be shielded from requirements that are addressed in the title V permit. Accordingly, if the Astoria permit were to be finalized without further revision, it is our position that the permit shield provision does not extend to the requirements of the above-mentioned federal standards, CAM rule, and NO_x RACT which were omitted from the permit.

VI. Permit Review Report

As provided by the Division of Air Resources Internal Guidance (DAIG-10), and consistent with 40 CFR 70.7(a)(5) and EPA guidance, a PRR must provide "a legal and factual basis for the draft permit conditions" in a title V permit, and "provide a brief description of any major regulatory program (e.g. PSD, NNSR, NSPS, NESHAP, RACT) that will be invoked by the action, along with the basis of the requirements that are being implemented because of their applicability." "It should also explain why certain requirements were left out of the permit (e.g., non-applicable regulations..." Also, a PRR is intended to support the requirements of CAA § 502(b)(6) by providing information to allow for "expeditious" evaluation of the permit terms and conditions, and by providing information that supports the public's participation in the permitting process.

However, the public notice posted on the NYSDEC's Environmental Notice Bulletin (ENB) and the Permit Review Report failed to mention that the project is subject to PSD review. This is an important piece of information that would help the public better understand the context of the permitting action so that one may perform a meaningful review of the draft permit within the 30-day public comment period, which in this case was later extended to 60 days by request. Both the ENB and the PRR failed to serve the purpose stated in the DAIG-10 Guidance, 40 CFR Part 70 or EPA guidance. NYSDEC should include sufficient information in future ENB notices and PRR.