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

JUL 15 2011

Mr. Bob Martin
Commissioner
New Jersey Department of
Environmental Protection
PO Box 402 - Mailcode 401-07
Trenton, NJ 08625-0402

Re: Final Revisions to the Federal Prevention of Significant Deterioration of Air Quality (PSD) Permit Program Delegation to New Jersey

Dear Commissioner Martin:

Enclosed are the final revisions to the terms and conditions of the USEPA delegation to New Jersey for implementation of the federal Prevention of Significant Deterioration of Air Quality (PSD) permit program in New Jersey containing our signatures. This final document was the result of months of intense collaboration and consultation between our staffs. I want to thank you and your staff for your dedication and efforts in achieving these important revisions to this delegation agreement.

Please have your staff contact Mr. Steven C. Riva, Chief of the Permitting Section, Air Programs Branch at (212) 637-4074, if you have any additional questions.

Sincerely,

Judith A. Enck

Judith A. Enck
Regional Administrator

Enclosure

cc: William O' Sullivan, New Jersey Department of Environmental Protection (w/enclosure)

EXHIBIT A

TERMS & CONDITIONS OF DELEGATION

The following terms and conditions will govern this revised delegation by the U.S. Environmental Protection Agency's Region 2 Office (EPA) to the New Jersey Department of Environmental Protection (DEP) of Prevention of Significant Deterioration of Air Quality (PSD) review requirements as found in Sections 160 to 169 of the Clean Air Act and at 40 CFR § 52.21 (as codified by statute or published in the Federal Register on the date this agreement becomes final). Subsequent revisions of the Clean Air Act or 40 CFR § 52.21 are understood to be automatically incorporated upon New Jersey's written acceptance of such revisions. Thus, DEP will implement PSD in New Jersey in accordance with 40 CFR § 52.21(u) and the terms described below.

a. Pursuant to its state authority, DEP will enforce all aspects of its state issued permits, including the terms and conditions in DEP-issued permits that are derived from the federal PSD requirements. EPA retains authority to directly enforce the federal PSD requirements codified at 40 CFR § 52.21.

b. All analyses by DEP of air quality for establishing compliance with PSD increments and NAAQS must be conducted in accordance with EPA air quality regulations and guidelines including 40 CFR Part 51, Appendix W and 40 CFR § 52.21.

c. The DEP will forward to EPA, at the onset of the public comment period, copies of all public notices and other documents required under 40 CFR § 52.21(q) and 40 CFR Part 124.

d. Class I Area: The DEP will provide the Federal Land Manager and EPA with copies of all notices and other materials required pursuant to 40 CFR § 52.21(p) in the time frames required therein. The DEP will ensure that any demonstration from or recommended action by the Federal Land Manager is duly acted upon in an appropriate and prompt manner pursuant to 40 CFR § 52.21(p).

e. DEP will ensure that permits issued under this delegation meet the requirements of 40 CFR § 52.21. Permits issued by the DEP under this delegation will contain language stating that the source or modification shall meet the requirements of 40 CFR §§ 52.21(j) through (r)(4), as applicable.

f. The DEP will forward to EPA copies of the final actions on PSD permit applications.

g. DEP will expeditiously submit Best Available Control Technology (BACT) determinations to EPA's RACT/BACT/LAER Clearinghouse (RBLC).

h. The overall status of the PSD program, including incomplete PSD permit applications and otherwise pending PSD permit actions, will be reported to EPA upon request. In any event, the DEP will semi-annually report to EPA the status of PSD permit applications of subject sources within New Jersey.

i. There will be a routine audit schedule which will allow EPA to monitor DEP's administration of the PSD program.

j. Neither this delegation, nor any technical or administrative functions described herein, may be re-delegated to any entity outside of the DEP without the prior approval of the Regional Administrator.

k. If the Regional Administrator determines that the DEP is not implementing the PSD program in accordance with the terms and conditions of this delegation, the requirements of 40 CFR § 52.21 "or" the Clean Air Act, this delegation may be revoked in whole or in part. Any such revocation shall be effective as of the date specified in the Notice of Revocation to the DEP, but in no event shall it be effective sooner than 30 days after the date of publication of the Notice of Revocation in the Federal Register.

l. Pursuant to Executive Order 12898: Federal Actions to Address Environmental Justice (EJ) in Minority Populations and Low-Income Populations, DEP will require all PSD permit applicants to provide information necessary to determine if the project is subject to any specific Federal executive order or State initiatives and policies regarding overburdened communities. DEP will address any EJ issues that may arise from that determination in accordance with the DEP EJ policy. DEP and EPA will coordinate with one another on any federal EJ requirements not covered by this agreement that are implicated by the issuance of a PSD permit.

m. Pursuant to Section 7 of the Endangered Species Act (ESA), 16 U.S.C. 1531 et seq, and 50 CFR Part 402, Subpart B ("Consultation Procedures"), DEP shall: (1) Ensure that the U.S. Fish and Wildlife Service (FWS), U.S. Marine Fisheries or other appropriate Federal Land Manager is notified of each PSD permit application and a copy of the application is provided if requested; (2) Notify applicants of the potential need for consultation between EPA and FWS/MF if the project may affect any endangered species; and (3) Refrain from issuing a final PSD permit until EPA has notified DEP that its obligations under the ESA, if any, have been met.

n. EPA will provide training, support, and guidance sufficient to properly implement the PSD program in New Jersey.

On behalf of the U.S. Environmental Protection Agency, I approve this revision of the delegation of the federal PSD program, 40 CFR § 52.21, to the New Jersey Department of Environmental Protection, pursuant to the terms and conditions of this delegation agreement and the requirements of the Clean Air Act.

Date 7/11/11

Judith A. Enck
Regional Administrator
Environmental Protection Agency

On behalf of the New Jersey Department of Environmental Protection, I accept this revision of the delegation of the federal PSD program, 40 CFR § 52.21, pursuant to the terms and conditions of this delegation agreement and the requirements of the Clean Air Act.

Date 6/28/2011

Bob Martin
Commissioner
New Jersey Department of
Environmental Protection

State of New Jersey

CHRIS CHRISTIE
Governor

KIM GUADAGNO
Lt. Governor

DEPARTMENT of ENVIRONMENTAL PROTECTION

Division of Air Quality
Bureau of Air Permits
401 E. State Street, 2nd floor, P.O. Box 420, Mail Code 401-02
Trenton, NJ 08625-0420

BOB MARTIN
Commissioner

FACT SHEET

FOR

Hess Newark Energy Center

Doremus Avenue and Delancy Street, Newark
(ESSEX COUNTY), NEW JERSEY, 07105

Program Interest (PI) Number: 08857 Permit Activity Number: BOP110001

APPLICATION FOR
AIR POLLUTION CONTROL OPERATING PERMIT (TITLE V)
AND
FEDERAL PREVENTION OF SIGNIFICANT DETERIORATION (PSD) OF AIR QUALITY PERMIT
AND
ACID RAIN PERMIT

Yogesh Doshi, Supervisor
Bureau of Air Permits

Bachir Bouzid, Section Chief
Bureau of Air Permits

EXHIBIT B

TABLE OF CONTENTS

A. FACILITY AND PROJECT DESCRIPTION

Hess NEC, LLC (Hess-NEC) submitted an application on October 6, 2011, for a federal Prevention of Significant Deterioration of Air Quality (PSD) permit, a Title V Operating Permit and an Acid Rain permit to construct and operate a new 655 MW facility, Newark Energy Center (NEC). NEC would be a combined-cycle power generating facility consisting of two General Electric (GE) 207FA.05 combined cycle combustion turbine generators (CTGs), two heat recovery steam generators (HRSG) each equipped with duct burners, one steam turbine electric generator (STG), one 12-cell wet mechanical draft cooling tower, and ancillary equipment. NEC would be located at Doremus Avenue and Delancy Street, in the city of Newark (Essex County), New Jersey.

The CTGs and duct burners would only use natural gas as fuel. Each combustion turbine would have a maximum rated heat input of 2,320 million British thermal units per hour (MMBtu/hr) at an ambient temperature of -8^0F, based on higher heating value of fuel (HHV) without duct-firing. The maximum heat input rate of the duct burner would be 211 MMBtu/hr (HHV). The combined maximum hourly electricity generated by the two combustion turbines would be 423MW.

Ancillary equipment would include a 66.2 MMBtu/hr (HHV) auxiliary boiler equipped with low NOx burners that would operate on natural gas for maximum 800 hrs per year or less, a 1500 kilowatt (KW) (14.36 MMBtu/hr HHV) emergency diesel generator, and a 270 HP (2.06 MMBtu/hr HHV) diesel fire pump. The emergency diesel generator and fire pump would be operated for 200 hrs per year or less, out of which 100 hrs/yr would be for testing and maintenance only, per equipment, and would use ultra-low sulfur distillate (ULSD) fuel oil with a sulfur content of 15 ppm by weight or less. Ancillary equipment would also include oil storage tanks.

The proposed 12-cell wet cooling tower system at NEC would have an average consumptive water use of 2.5 million gallons per day (MGD), and a maximum of 5.4 MGD during peak summer temperatures. Water for process use would be obtained in the form of treated effluent from the Passaic Valley Sewerage Commissioners (PVSC) treatment plant located just northwest of the site. Cooling tower blow down and process wastewater would be discharged back to PVSC.

The emissions from the turbines and duct burners would be exhausted to the atmosphere through two collocated stacks each 252 ft high.

B. AIR CONTAMINANT EMISSIONS

NEC would be located in Essex County which is designated as attainment area for National Ambient Air Quality Standards (NAAQS) for criteria pollutants i.e. Nitrogen Oxides (NO_x), Carbon Monoxide (CO), Sulfur Oxides (SO_2), Particulate Matter (PM), Particulate Matter less than 10 microns (PM_{10}), and lead. Essex County is designated as non-attainment area for the 8-hour ozone NAAQS and Particulate Matter less than 2.5 microns ($PM_{2.5}$) NAAQS.

Table 1 lists proposed maximum emissions of all criteria pollutants from NEC in pounds per hour (lbs/hr), parts per million on maximum dry volume basis at 15% oxygen (ppmdv @ 15% O_2), and pounds per million British thermal units (lbs/MMBtu). The proposed emission limits from the combustion turbines would be achieved after the installation and operation of air pollution control technologies that are discussed in Section C.

TABLE 1

MAXIMUM ALLOWABLE EMISSIONS FOR EACH COMBUSTION TURBINE/HRSG UNIT
(Operating Conditions: 100% load; - 8^0F ambient temperature, unless otherwise noted)
(Base Load Operations)

Air Contaminant units	Maximum Allowable Emissions Natural Gas
Nitrogen Oxides (as NO_2) lbs/hr[1] ppmvd @ 15% O_2[2]	 16.8 2.0
Carbon Monoxide (CO) lbs/hr ppmvd @ 15% O_2	 10.2 2.0
Volatile Organic Compounds (VOCs)[3] lbs/hr ppmvd @ 15% O_2	 5.7[4] 2.0[4]
Sulfur Oxides (SO_2) lbs/hr	 2.8
Total Suspended Matter (TSP) lbs/hr	 7.9
Particulate Matter less than 10 microns (PM_{10}) lbs/hr lbs/MMbtu	 13.2[5] 0.0062[5]
Particulate Matter less than 2.5 microns ($PM_{2.5}$) lbs/hr lbs/MMbtu	 13.2[5] 0.0062[5]
Ammonia (NH_3) ppmvd @ 15% O_2	 5.0
CO2e (for Greenhouse Gasses) lbs/hr	255,182

NOTES:
1. lbs/hr = Pounds per hour emissions.
2. ppmvd (@ 15% O_2) = parts per million by volume on a dry basis (corrected to 15 percent oxygen).
3. lbs/MMbtu = pounds per million British thermal unit
4. @ 59^0F with supplemental duct firing
5. @ 105^0F with supplemental duct firing

Table 2 shows the proposed maximum annual emissions of all criteria pollutants in tons per year (tpy) for the NEC. The Hazardous Air Pollutant (HAP) emissions from the project are included at Section H (Fact Sheet for Air Quality Impacts from Bureau of Technical Services). The applicability threshold for a major PSD of air quality source is equal to or greater than 100 tpy of emissions of any criteria pollutant for stationary sources that are one of the 28 named source categories in 40 CFR 52.21. NEC is one of the 28 source categories i.e. fossil fuel-fired steam electric generating plant of greater than 250 MMBTU/hr heat input. Based on the proposed potential annual emissions in Table 2 (given in tons per year), the proposed facility is considered a new major PSD source for NOx, CO, PM, PM_{10}, and H_2SO_4. The proposed facility is also a new major PSD source for Greenhouse Gases (GHG). The applicability threshold for PSD for GHG emissions is 100,000 tpy Carbon Dioxide equivalent (CO_2e) for a new source.

TABLE 2

Facility Potential Emissions, PSD Applicability Thresholds and PSD Applicability

Air Contaminant	Proposed Maximum Potential Emissions from NEC (TPY)[1]	PSD Applicability Threshold (TPY)	PSD Applicable (TPY)
Carbon Monoxide (CO)	483.70	100	Yes
Nitrogen Oxides (NO_x)	139.10	40	Yes
Sulfur Dioxide (SO_2)	19.73	40	No
Particulate Matter (PM/TSP)	67.17	25	Yes
PM_{10}	101.27	15	Yes
[2] $PM_{2.5}$	97.65	N/A	N/A
Volatile Organic Compounds (VOC)	34.99	40	No
Lead	0.0002	0.6	No
Sulfuric Acid Mist	10.55	7	Yes
Greenhouse Gasses (CO_2e)	2,003,654	100,000	Yes

NOTES:

[1] Maximum potential emissions based on the following:

- Worst case potential to emit calculations are based on 8,500 hours of natural gas-fired combustion turbine operation including 653 hours of natural gas-fired start-up/shutdown operation, and 1800 hours of natural gas-fired duct burning operation.
- One cooling tower: 8500 hrs per year;
- Auxiliary boiler: 800 hours per year on natural gas,
- Limited operation (200 hrs/yr) of emergency diesel fire pump, which includes100 hrs/yr for testing and maintenance
- Limited operation (200 hrs/yr) of emergency diesel generator ,which includes100 hrs/yr for testing and maintenance

[2] Essex County is designated non-attainment for $PM_{2.5}$.

As shown in Table 3, the proposed NEC is subject to Non-Attainment New Source review requirements at N.J.A.C 7:27-18 (Subchapter 18 Control and Prohibition of Air Pollution from New or Altered Sources Affecting Ambient Air Quality (Emission Offset Rules)) for NOx, and VOC. This is because the proposed potential emissions of NOx and VOC which are precursors for ozone, are greater than the N.J.A.C 7:27-18 applicability thresholds of 25 tpy.

Table 3 also shows that the proposed CO and PM_{10} emissions from NEC are greater than the N.J.A.C 7:27-18 thresholds of 100 tpy. As per N.J.A.C 7:27-18.2(b)2, the facility is required to conduct an air quality impact analysis to show that the proposed emissions of CO and PM_{10} would not equal or exceed the significant impact level (SIL), nor result in a violation of an National Ambient Air Quality Standards (NAAQS) and the New Jersey Ambient Air Quality Standards (NJAAQS).

The attached air quality impact analysis fact sheet shows that emissions increases in NOx, CO, and PM_{10} will not cause or contribute to violations of New Jersey or National Ambient Air Quality Standards in an area that is attainment for them. Significant impact levels of CO, PM_{10} and annual NO_2 will not be exceeded.

Proposed NEC would be located in Essex County which is designated non-attainment area for $PM_{2.5}$. The Department has evaluated the proposed $PM_{2.5}$ emissions from NEC consistent with its December 14, 2010 Memorandum of Division of Air Quality "Revised Interim Permitting and Modeling Procedures for New or Modified Sources Emitting between less than 100 tons per year of $PM_{2.5}$ Fine Particulate and proposing between a 10 – 99 ton per year increase in $PM_{2.5}$". Based on the December 14, 2010 memo the Department required HNEC conduct Air Quality Modeling analysis. The modeling analysis demonstrated that the proposed $PM_{2.5}$ from NEC would not cause or create $PM_{2.5}$ NAAQS violations in areas designated non-attainment for $PM_{2.5}$.

The Department also reviewed NOx emissions as a precursor of $PM_{2.5}$ emission. The proposed NOx emissions are in compliance with $PM_{2.5}$ non-attainment NSR requirements.

TABLE 3

Proposed Potential Emissions and Non-Attainment New Source Review (N.J.A.C 7:27-18) Thresholds and Applicability

Air Contaminant	Proposed Maximum Potential Emissions from NEC (TPY)[1]	(N.J.A.C 7:27-18) Applicability Threshold (TPY)	N.J.A.C 7:27-18 Applicable
Carbon Monoxide (CO)	483.7	100	No[3]
Nitrogen Oxides (NO_x)	139.10	25	Yes
Sulfur Dioxide (SO_2)	19.73	100	No
Particulate Matter (PM/TSP)	67.17	100	No
PM10	101.27	100	No[3]
[2]PM-2.5	97.65	100[2]	No
Ozone (Volatile Organic Compounds)	34.99	25	Yes

NOTES

1. Maximum potential emissions determined based on the following worst case potential to emit calculations:
   - 8,500 hours of natural gas-fired combustion turbine operation which includes up to 653 hours of natural gas-fired start-up/shutdown operation, and 1800 hours of natural gas-fired duct burning operation.
   - One cooling tower: 8500 hrs per year
   - Auxiliary boiler: 800 hours per year on natural gas
   - Limited operation (200 hrs/yr) of emergency diesel fire pump, which includes100 hrs/yr for testing and maintenance
   - Limited operation (200 hrs/yr) of emergency diesel generator, which includes100 hrs/yr for testing and maintenance

2. December 14, 2010 Memorandum of Division of Air Quality regarding $PM_{2.5}$ Permitting and Modeling Procedures.

3. Essex County is attainment for CO and PM_{10}, so offsets are not required. Air quality impact analysis is required to ensure no new violations of Air quality standards.

The facility is also required to have State of the Art Control (SOTA) Technology of New Jersey Air Pollution Control Regulations (N.J.A.C. 7:27-22.35). SOTA includes performance limits that are based on air pollution control technology, pollution prevention methods, and process modifications or substitutions that would provide the greatest emission reductions that are technologically and economically feasible.

C. AIR POLLUTION CONTROL TECHNOLOGIES

NEC is subject to the federal PSD 40 CFR 52.21 requirements including evaluation of Best Available Control Technology (BACT) for each PSD affected pollutant (NO_x, H_2SO_4, CO, PM, PM_{10} and Greenhouse Gases (GHG)). BACT must be applied to control emissions to the maximum degree for each regulated pollutant taking into account technical feasibility, energy, economics and other environmental factors.

NEC is also subject to N.J.A.C.7:27-18 requirements including evaluation of Lowest Achievable Emission Rate (LAER) for each non-attainment pollutant (NO_x and VOC). LAER is the most stringent emission limitation contained in the implementation plan of any State for a particular source category, or which is achieved in practice by a particular source category, whichever is most stringent. For NEC, compliance with LAER requirements also satisfies BACT requirements.

1. Nitrogen Oxide (NO_x) Control Technologies

a. Description of NOx Control Technologies

NOx Control Technologies for Turbines

The two major ways in which NO_x is formed in the combustion process are known as fuel NOx formation and thermal NO_x formation. Fuel NO_x is formed when nitrogen and nitrogen compounds present in the fuel combine with oxygen present in the combustion zone to form NO_x. Thermal NO_x is formed when nitrogen from the air in the combustion zone combines with oxygen in the combustion zone at high temperature. The rate of formation is proportional to temperature in the combustion chamber.

Hess-NEC evaluated the following four technologies for controlling NO_x emissions from the proposed combustion turbines:

1. Selective Catalytic Reduction System (SCR)

Selective catalytic reduction system (SCR) is a process in which ammonia is injected directly into the flue gas and then passed over a catalyst to react with NO_x, converting the NO_x and ammonia to nitrogen and water. The insertion of a catalyst into the gas path of the HRSG allows this reaction to take place at a temperature within the operating range of the HRSG.

2. Selective Non-Catalytic Reduction (SNCR)

SNCR is another method of post combustion control of NOx emissions. SNCR selectively reduces NOx into nitrogen and water vapor by reacting the flue gas with a reagent. The SNCR system is dependent upon the reagent injection location and temperature to achieve proper reagent/flue gas mixing for optimum NOx reduction. SNCR systems require a fairly narrow temperature range for reagent injection in order to achieve a specific NOx removal efficiency. The optimum temperature range for ammonia injection is 1,500° to 1,900°F. The NOx removal efficiency of an SNCR system decreases rapidly at temperatures outside the optimum temperature window. Operation below this temperature window results in excessive ammonia emissions, also referred to as ammonia slip. Operation above the temperature window results in increased NOx emissions.

3. Dry Low-NOx Combustors

Dry Low-NO_x (lean pre-mix) combustors stage fuel combustion, lowering flame temperatures, thus reducing the amount of thermal NO_x formation without the use of diluents such as steam or water.

4. Lean Burn Combustion

Typical gas turbines are designed to operate at a nearly stoichiometric ratio of fuel and in the combustion zone, with additional air introduced downstream. This is the point where the highest combustion temperature and quickest combustion reactions (including NOx formation) occur. Fuel-to-air ratios below stoichiometric are referred to as fuel-lean mixtures (i.e., excess air in the combustion chamber). The rate of NOx production falls off dramatically as the flame temperature decreases.

Thus, very lean, dry combustors can be used to control emissions by reducing thermal NOx formation within the combustion chamber. The lean combustors typically are two-staged premixed combustors designed for use with natural gas fuel. The first stage serves to thoroughly mix the fuel and air and to deliver a uniform, lean, unburned fuel-air mixture to the second stage.

NOx Control Technologies for Auxiliary Boiler

The following control technologies for NOx emission controls were evaluated by Hess-NEC for auxiliary boiler:

SCR and SNCR - SCR emission control technology is not considered technically feasible for the proposed auxiliary boiler because the design effectiveness of an SCR is not achieved until the flue gas temperature reaches between 400 and 800°F. The proposed auxiliary boiler would be required to supply steam in an expedited manner to minimize the duration of the combined cycle unit start-up, which produces elevated pollutant emission concentrations from the turbine during each start-up procedure. For this same reason, SNCR was also not found to be technically feasible for the auxiliary boiler.

Dry Low-NOx Burners – Dry Low NOx Burners (DLN) reduce NOx through staged combustion. Staging partially delays the combustion process, resulting in a cooler flame, which suppresses thermal NOx formation. NOx emission reductions of 40 to 85 percent (relative to uncontrolled emission levels) have been observed with Low-NOx Burners.

Flue Gas Recirculation (FGR) – In an FGR system, a portion of the flue gas is recirculated from the stack to the burner. The recirculated gas is mixed with combustion air prior to being fed to the burner. The FGR system reduces NOx emissions because the recirculated gas reduces combustion temperatures, thus suppressing the thermal NOx mechanism. FGR also reduces NOx formation by lowering the oxygen concentration in the primary flame zone. Together, Low-NOx Burners and FGR are capable of reducing NOx emissions by 60 to 90 percent.

b. Technical Review of Proposed NOx Controls

NOx Controls for Combustion Turbines and Duct Burners

Hess-NEC has proposed to install DLN burners with SCR on each of the two combustion turbines as LAER to achieve an emission limitation of 2.0 ppmdv, corrected to 15% O_2 on natural gas for all normal operations.

The Department has reviewed the proposed emission limitation with emission limitation of similar sized combustion turbines having SCR and DLN in the RACT/BACT/LAER Clearinghouse (RBLC) and found that the proposed emissions are approvable as LAER.

NOx Controls for Auxiliary Boiler

The proposed auxiliary boiler would be limited to natural gas firing only and would be operated for the purposes of supplying steam during the start-up of the combined cycle unit.

Hess-NEC has proposed to install dry Low-NOx Burners to control NOx emissions, along with the use of natural gas, and limiting hours of operation (800 hrs/yr) to meet LAER for the auxiliary boiler. A search of RBLC shows that LAER for 66.2 MMBtu/hr is in the range of 0.011 lb/MMBtu to 0.4 lb/MMBtu. The LAER emission 0.011 lb/MMBtu was for boilers this size with SCR and low NOx burners or with ultra-low NOx burners only as controls. The proposed NO_x emission limit for the auxiliary boiler is 0.010 lbs/MMBtu (equivalent to 0.66 lb/hr or 0.26 TPY). This limit is more stringent than the LAER limit of 0.011 and the SOTA limit of 0.020 lbs/MMBtu for this size boiler firing natural gas. Hess-NEC has also proposed to take a restriction on the amount of natural gas usage for the boiler equal to 51.9 MMscf/yr, which is equivalent to 800 hours annually, operating at 100 percent load. The Department has reviewed the proposed NOx emission limitations and found them to be LAER.

NOx Controls for Emergency Engines

Hess-NEC has proposed NO_x emission limitations for the emergency diesel generator, and emergency diesel fire pump to comply with LAER.

The emergency diesel generator and emergency diesel fire water pump would operate on ULSD exclusively, which is considered a clean fuel with low emissions and would meet the emission limits of NSPS IIII. The proposed NO_x emission limit for the emergency diesel generator is 18.53 lbs/hr or 1.85 TPY and, for the diesel fire water pump, the limit is 1.55 lbs/hr or 0.16 TPY. Hess-NEC has also proposed to take restrictions on the hours of operation for emergency diesel generator of less than or equal to 200 hours per year out of which 100 hrs/yr would be for testing and maintenance. The hours and for the emergency diesel fire water pump would be less than or equal to 200 hours per year, out of which 100 hrs would be for testing and maintenance. The Department has reviewed these and found the proposed emission limitations to be LAER.

2. VOC Control Technologies

a. Description of Control Technologies

Combustion Control
The emissions of VOC in a combustion process are a result of the incomplete combustion of organic compounds within the fuel. In an ideal combustion process, all carbon and hydrogen contained within the fuel are oxidized to form carbon dioxide and water. The rate of VOC emissions depends on combustion efficiency. VOC emissions are minimized by combustion practices that promote high combustion temperatures, long residence times at those temperatures, and turbulent mixing of fuel and combustion air.

Oxidation Catalyst:
In an Oxidation catalyst, exhaust gases are passed over a catalyst bed where excess air oxidizes the CO to carbon dioxide. CO reduction efficiencies in the range of 80 to 90 percent can be guaranteed.

b. **Technical Review of Proposed VOC Controls**

VOC Controls for Combustion Turbines and Duct Burners

Along with good combustion practices, NEC has proposed the installation of an oxidation catalyst for CO control which would also reduce VOC emissions. The oxidation catalyst would reduce VOC emissions to 1.0 ppm without duct firing. The proposed VOC emissions limits when burning natural gas are 2.0 ppmdv corrected to 15% O_2 at 100% load with supplemental duct-firing. The Department has reviewed the RBLC for VOC emission limitations of similar sized combustion turbines and found the proposed VOC emission limitations to be LAER.

VOC Controls for Auxiliary Boiler

No technically feasible post-combustion control methods have been identified to assure the reduction of VOC emissions from auxiliary boilers. As discussed below, it is feasible to utilize an oxidation catalyst to control CO emissions from a boiler, which may also reduce VOC emissions. However, the use of oxidation catalyst to control CO emissions from an auxiliary boiler is not feasible, since this boiler would be used primarily during start-up of the combustion turbines.

The proposed VOC emission limit, with good combustion control, for the auxiliary boiler is 0.004 lbs/MMBtu (equivalent to 0.27 lb/hr or 0.106 TPY), which meets LAER limitations for boilers of this size firing natural gas. The Department has found the proposed VOC emission limitations would be LAER.

VOC Controls for Emergency Engines

Hess-NEC has proposed VOC emission limitations for the emergency diesel generator, and emergency diesel fire water pump that meet the New Source Performance Standards (NSPS) Subpart IIII emission limits for these size emergency engines. The proposed VOC emission limit for the emergency diesel generator is equivalent to 2.62 lbs/hr or 0.26 TPY. The proposed VOC emission limitation for the emergency diesel fire pump is equivalent to 0.22 lbs/hr or 0.02 TPY.

The Department found the proposed VOC emission limitations for emergency diesel generator, and emergency diesel fire pump to be LAER for VOC.

3. Carbon Monoxide (CO) Control Technologies

a. Description of Control Technologies

Combustion Control

Carbon Monoxide is usually generated due to the incomplete combustion of fuel. CO emissions are minimized by good combustion practices that oxidize carbon and hydrogen contained within the fuel to form carbon dioxide and water. Several factors lead to incomplete combustion, including insufficient oxygen availability, poor air/fuel mixing, cold wall flame quenching, reduced combustion temperature, decreased combustion residence time and load reduction. By controlling the combustion process carefully, CO emissions can be minimized.

Oxidation Catalyst

After combustion control, the only practical control method to reduce CO emissions from combustion of fuel is the use of an oxidation catalyst. Exhaust gases from the combustion equipment are passed over a catalyst bed where excess air oxidizes the CO to carbon dioxide (CO_2). CO reduction efficiencies in the range of 80 to 90 percent can be guaranteed, although CO reduction may at times be somewhat less than the design value.

Process Controls

Modern data acquisition and control systems, which optimize combustion performance also minimize pollutant emissions, including CO, through a combination of operator and software-driven process adjustments and notifications.

b. Technical Review of Proposed CO Controls

CO Controls for Combustion Turbines and Duct Burners

Both turbines at NEC would be equipped with oxidation catalyst to reduce Carbon Monoxide (CO) emissions. Hess-NEC is proposing the use of oxidation catalyst as BACT for CO emissions along with process control and good combustion practices. The oxidation catalyst system would reduce inlet CO concentrations over 90% during all steady-state operating modes. The oxidation catalyst would be located in an optimum temperature region within the HRSG immediately upstream of the SCR ammonia injection grid and downstream of the gas-fired duct burner. The proposed emission limitation when firing natural gas is 2.0 ppmvd corrected to 15% O_2 at 100% load.

The Department found the proposed CO emission limitation of 2.0 ppmvd corrected to 15% O_2 after the application of oxidation catalyst and process controls to be BACT for the combustion turbines with duct burners.

CO Controls for Auxiliary Boiler

Although an oxidation catalyst has been used to reduce CO emissions from boilers, it is not considered technically feasible to use it with the auxiliary boiler since the auxiliary boiler is required to supply steam quickly to the combined cycle units during the startup procedure and the oxidation catalyst requires a high flue gas temperature to achieve effective control. For this boiler use, more effective method of reducing emissions, including CO, is by good combustion control and restricting operation on an annual basis.

Hess-NEC has proposed CO emission limitations for the auxiliary boiler of 0.037 lbs/MMBtu (equivalent to 2.45 lb/hr), as well as restricting the hours of operation to 800 hrs/yr. The proposed limit meets BACT limit in RBLC for this size boilers, and the Department's published SOTA guidelines for boilers < 100 MMbtu/hr.

CO Controls for Emergency Engines

The facility has proposed a CO emission limitation for the emergency diesel generator of 3.5 gms/kW-hr (11.56 lbs/hr or 1.16 TPY), and a CO emission limitation for the emergency diesel fire pump of 3.5 gms/kW-hr (equivalent to 1.55 lbs/hr or 0.16 TPY) and proposed restricted hours of operation of 200 hrs/yr as BACT. The Department has found these emission limitations to be BACT.

4. Sulfuric Acid Mist Control Technologies

a. Description of Sulfuric Acid Control Technologies

Sulfur dioxide emissions are formed from oxidation of sulfur in the fuel. A fraction of the SO_2 is further oxidized to SO_3, which in turn may react with water vapor to form sulfuric acid mist. The most practical means for controlling SO_2 emissions from combustion equipment is to use low sulfur content fuel like natural gas and ultra-low sulfur distillate oil.

Add-on controls have not been used for reducing SO_2 and sulfuric acid mist from combustion turbines, boilers using natural gas, and engines using ULSD.

b. Technical Review of Proposed Sulfuric Acid Controls

Sulfuric Acid Controls for Combustion Turbines and Duct Burners

The New Source Performance Standard (NSPS) sulfur content limit for combustion turbines (40 CFR Subpart KKKK) in natural gas is 20 grains sulfur/100 SCF and 0.06 lb SO_2/MMBtu in liquid fuel. Hess-NEC is proposing natural gas, an inherently low sulfur fuel, as the exclusive fuel for the combustion turbines and duct burners. The maximum fuel sulfur limit proposed by Hess-NEC for natural gas is 0.42 grains S/100 SCF per turbine. The maximum was obtained from the proposed potential suppliers of natural gas to the project, Transco, based on historical information. This maximum limit is well below the NSPS limit of 20 grains sulfur/100 SCF.

Sulfuric acid mist emissions are minimized by use of low sulfur fuels. Sulfuric acid mist emissions would be limited to 0.001 lb/MMBtu (1.5 lb/hr per turbine with duct or without duct firing) when firing natural gas for the combustion turbines. The Department has found the proposed sulfuric acid mist emissions to be BACT.

Sulfuric Acid Controls for Auxiliary Boiler

Hess-NEC proposes to fire natural gas in the auxiliary boiler to meet BACT for sulfuric acid. The maximum proposed H_2SO_4 BACT emission limit is 0.0001 lb/MMBtu or 0.006 lb/hr. The

proposed H_2SO_4 emission limit is below the 0.05 lb/hr N.J.A.C. 7:27-22 Appendix, Table A "Thresholds for Reporting Emissions of Air Contaminants."

Sulfuric Acid Controls for Emergency Engines.

For the emergency diesel generator and the emergency diesel fire pump Hess-NEC has proposed to use only ultra-low sulfur distillate (ULSD) fuel oil with a sulfur content limit of 15 ppm by weight or approximately 0.000031 lb SO_2/MMBtu, which is well below the NSPS limit of 0.06 lb SO_2/MMBtu. The Sulfuric Acid mist emission limitations for emergency diesel generator and the emergency diesel fire water pump based on 15 ppm sulfur content are below the N.J.A.C. 7:27-22 Reporting Thresholds, and hence are not listed in the permit.

5. PM /PM_{10}/$PM_{2.5}$ Control Technologies

a. Description of Control Technologies

PM, PM_{10} and $PM_{2.5}$ emissions from the combustion equipment like combustion turbines, boilers and engines may be formed from noncombustible constituents in fuel or combustion air, or from products of incomplete combustion or as a result of various chemical reactions (e.g. formation of sulfates and nitrates) post combustion.

The use of natural gas (or other low ash content fuels like ULSD) is BACT for PM, PM_{10}, and $PM_{2.5}$.

b. Technical Review of proposed PM /PM_{10}/$PM_{2.5}$ Controls

PM /PM_{10}/$PM_{2.5}$ Controls for Combustion Turbines and Duct Burners

Particulate matter is formed from non-combustible constituents in the fuel or combustion air, or from formation of sulfates post combustion. No combustion turbine project has been required to install add on controls for PM, PM_{10} or $PM_{2.5}$. Post-combustion controls, such as bag house, scrubbers and electrostatic precipitators (ESP) are technically not feasible due to the high pressure drops, the large flue gas volumes and the low concentrations of PM/ PM_{10}/$PM_{2.5}$ present in the exhaust gas.

The combustion of clean burning fuels is the most effective means for controlling PM emissions from combustion equipment. Hess-NEC is proposing exclusive use of natural gas as the fuel for turbines and duct burners.

A review of USEPA's RBLC lists over 300 natural gas-fired combined cycle facilities from the and recently issued air permit searches (see Appendix C of Hess-NEC Air Permit Application).

The proposed emission limits by Hess-NEC for PM_{10}/$PM_{2.5}$ is 0.0062 lb/MMBtu (13.2 lb/hr) per turbine and for PM/TSP is 0.0036 lb/MMBtu (7.7 lb/hr) per turbine when firing natural gas in the combustion turbine with duct burners operating. The proposed emission limits by Hess-NEC for PM_{10}/$PM_{2.5}$ is 0.0056 lb/MMBtu (11.2 lb/hr) per turbine and for PM/TSP is 0.0033 lb/MMBtu (6.5 lb/hr) per turbine when firing natural gas in the combustion turbine without duct burner operating. These limits have been reviewed by the Department and found to be BACT for PM/ PM_{10}. The

proposed limits for $PM_{2.5}$ are found to be LAER as discussed below at 3.a, under Compliance Determination with Federal $PM_{2.5}$ NSR Requirements.

PM /PM_{10}/$PM_{2.5}$ Controls for Ancillary Sources

The auxiliary boiler would fire natural gas only. For the emergency diesel generator and the emergency diesel fire pump Hess-NEC has proposed very low ash, ULSD oil as PM/ PM_{10}/$PM_{2.5}$ emission control. The use of very low ash fuels such as natural gas and very low ash, ULSD oil is regarded as BACT for PM_{10}, and PM and LAER for $PM_{2.5}$.

The Project includes one 12 cell wet mechanical cooling tower with minimum water recirculation rate of 220,870 gallons per minute (gpm). Control of airborne emissions particulate matter from cooling tower drift is achieved with drift eliminators. Hess-NEC has proposed to install high efficiency drift eliminators which would limit the drift to 0.0005% of the re-circulating water rate. At a maximum dissolved solids concentration of 4,150 ppm, the total PM_{10} from drift would be limited to an average of 1.332 lb/hr from the cooling tower or 5.66 tpy. The total $PM_{2.5}$ from drift would be limited to 0.47 lb/hr from the cooling tower or 1.99 tpy. The PM from drift would be limited to 2.29 lb/hr from the cooling tower or 9.74 tpy.

The Department has reviewed the proposed drift eliminator efficiency and found it to be BACT for PM_{10} and PM, and LAER for $PM_{2.5}$.

6. Greenhouse Gases (GHG) Control Technologies

The major sources of GHG emissions for the NEC are the combustion turbines, duct burners, and the auxiliary boiler. GHG emissions are also generated from the operation of the diesel engines, which are intended for limited operation (emergency power and fire protection).

On June 3, 2010, USEPA issued a final rule with the applicability provisions of PSD for greenhouse gas (GHG) emissions. A new source (facility) that commences construction after July 1, 2011 is subject to PSD permitting requirements for GHG emissions, if the potential GHG emissions from the new source are greater than 100,000 tons/year, or if the source is otherwise subject to PSD for another pollutant and its GHG potential emissions are equal to or greater than 75,000 tpy.

Because NEC would be a new source and the proposed potential GHG emissions would be greater than 100,000 tons/year, it is subject to PSD permitting requirements for GHG emissions.

For PSD purposes, GHGs are considered a single air pollutant Carbon Dioxide Equivalent (CO_2e) defined as the aggregate group of the following six gases:

- Carbon dioxide (CO_2)
- Methane (CH_4)
- Nitrous oxide (N_2O)
- Hydro fluorocarbons (HFCs)
- Per fluorocarbons (PFCs)
- Sulfur hexafluoride (SF_6)

a. **Description of GHG (CO2e) Control Technologies*:***

The major constituent of CO_2e emissions for combustion sources is CO_2, which accounts for over 95% CO_2e emissions.

Carbon Capture and Sequestration (CCS)

The USEPA has indicated in the document, *PSD and Title V Permitting Guidance for Greenhouse Gases*, that carbon capture and sequestration (CCS) should be considered in BACT analyses. Currently, there are no combined cycle power plants utilizing CCS, and although theoretically feasible, this technology is not commercially available and has not been demonstrated in practice for combined cycle facilities.

CCS requires three distinct processes:

1. Isolation of CO_2 from the waste gas stream;
2. Transportation of the captured CO_2 to a suitable storage location; and
3. Safe and secure storage of the captured and delivered CO_2.

There are several methods that may be used for capturing CO_2 from gas streams including chemical and physical absorption, cryogenic separation, and membrane separation. Physical and chemical absorption are considered technically implementable for a high volume, low concentration gas stream from turbine exhaust. The cost for designing, installing and operating this type of capture system are prohibitive. In addition, the costs of compressing the captured CO_2 to pressure needed for transportation would result in a large parasitic load to the facility, reducing its efficiency and increasing overall emissions of CO_2 and all other regulated pollutants on a per megawatt-hour basis.

The next step in the CCS process is transportation of the captured CO2 to a suitable storage location. Geologic conditions at the proposed project site are not suitable for carbon sequestration. The closest commercially available CO_2 sequestration site is in Saskatchewan Canada, over 2,000 miles from the project site. However, there is no existing pipeline located near the project site, the nearest pipeline being over 1,000 miles away. As such, a CO_2 transportation pipeline would need to be constructed. The cost for permitting and constructing this pressurized pipeline would be economically prohibitive.

Based upon the large costs associated with the capture, transportation and storage of CO_2, in addition to the large parasitic load, CCS is considered cost prohibitive and economically infeasible for the project.

High Efficiency Electric Generation

Power plant efficiency is defined as the amount of heat content in (Btu) per the amount of electric energy out (kWh), commonly called a heat rate (Btu/kWh). This is a measure of efficiency that defines the ratio of the input as fuel (Btu) to net output as power (kWh). The lower the heat rate number, the less fuel is needed to generate one unit of electricity. A lower heat rate equates with greater efficiency. Heat rate improvement is the most cost-effective and immediately available control process for lowering CO_2 emissions. As a rough estimate, a one (1) percent heat rate

reduction corresponds to an equivalent 1 percent reduction in CO_2 emissions, or about 40,000 tons/year.

b. Technical Review of Proposed GHG Controls

GHG Controls for Combustion Turbines and Duct Burners

NEC is proposing a limit of 6,774 Btu/kW-hr LHV (ISO conditions without duct firing) (7,523 Btu/kW-hr at HHV) as well as 887 pounds of CO_2 per megawatt hour (gross output) as BACT for the proposed project. These limits represent the lowest heat input rate that can reasonably be assured under all operating scenarios for these turbines. This level of emissions would be achieved through utilization of high efficiency, state-of-the-art, combustion turbine technology and combusting only commercially available, pipeline quality natural gas in the turbines.

The proposed net heat rate for NEC turbines of 6,774 Btu/kW-hr LHV at ISO conditions without duct firing is consistent with other recent GHG BACT determinations that have been made in US. One of the determinations is for Calpine Russell City Energy Center in Hayward, California that has at heat rate limit 7,730 Btu/kW-hr for the natural gas fired Siemens/Westinghouse 501F combustion turbines (operating at 100% load, ISO conditions and without duct firing). The second determination is for Cricket Valley Energy Center in Dover, New York, which has a heat rate limit for GE 7FA.05 combustion turbines, of 7,605 Btu/kW-hr (LHV) at ISO conditions with no duct firing. This emission level is also consistent with 7,605 Btu/kW-hr the limits proposed in the draft permit for CPV's proposed Woodbridge Energy Center (WEC) in New Jersey. The proposed CO_2 BACT emission limit for WEC is 925 lb/MWh(gross).

In November 2011 EPA Region 6 issued a PSD for GHG emissions to the Lower Colorado River Authority (LCRA) Thomas C. Ferguson Plant for a new 590 MW natural gas powered combined cycle plant. This plant would consist of two 195 MW GE 7FA combustion turbines, two HRSGs and one 200 MW steam turbine. The heat rate for each combustion turbine is 7,720 Btu/kWh (HHV), with corresponding CO_2 limit of 0.459 tons/MWh(net) which is approximately 918 lb/MWh(net).

Hess-NEC is also proposing CO_2e annual emission limits of 2,000,268 tons per year for combustion turbines and duct burners combined. Compliance with the annual CO_2e limit would be demonstrated through the use of a CO_2 CEMS on each turbine along with fuel usage and emission factors for methane and nitrous oxide.

GHG Controls for Auxiliary Boiler

To reduce GHG emissions from the Auxiliary boiler, Hess-NEC is proposing to use natural gas which has the lowest CO_2 emissions compared to other combustion fuels, to limit its operation 800 hours per year and to operate it efficiently.

GHG Controls for Emergency Engines

The reduction of GHG emissions from the emergency diesel generator and fire pump would be achieved by limiting the total hours of operation to 200 hours per year, including 100 hrs/yr would be for testing and maintenance.

D. APPLICABLE REGULATIONS

1. Prevention of Significant Deterioration (PSD) of Air Quality

DEP has determined that the proposed facility is subject to the federal PSD regulations codified at 40 CFR 52.21. The threshold for PSD applicability for a new facility is 100 tons per year of emissions of any regulated pollutant for a listed source category fossil fuel-fired steam electric plants of greater than 250 MMBTU/hr heat input. Based on the proposed maximum potential annual emissions in Table 2, the NEC was determined to be subject to PSD requirements for emissions of nitrogen oxides (NO_x), carbon monoxide (CO), particulate matter with an aerodynamic diameter less than 10 microns (PM_{10}), PM, sulfuric acid and Greenhouse gases (CO_2e).

Air Quality Impact Analyses

In addition to the BACT control technology requirements discussed in Section C above, the PSD regulations require the facility to review the effect of the project and its emissions on the following:

(1) Visibility, soils and vegetation that would be affected as a result of the source,

(2) Air quality projected for the area as a result of general commercial, residential, industrial and other growth associated with associated with NEC, and

(3) Endangered species.

NEC has stated that there would be no adverse impacts on visibility, soils and vegetation and air quality as the result of general commercial, residential, industrial and other growth associated with it. Cleanup of soil contamination on the site will improve soils. Visibility should be improved as low sulfur and low NOx electric generation replaces high emitting electric generation.

A review of federally listed species at U.S. Fish and Wildlife Service (USFWS) New Jersey Field Office (NJFO) website, indicates no federally listed species are located within the City of Newark in Essex County. Under the Endangered Species Act, a species list is valid for only 90 days. The recent review of this listing was conducted by NEC in March, 2012.

Environmental Justice (EJ) Analyses

Hess-NEC conducted an Environmental Justice (EJ) analysis to determine whether the construction and operation of the NEC would have a significant adverse and disproportionate effects on an "environmental justice community." The EJ analysis is per the Executive Order 12898 ("EO"), entitled "Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations" (February 11, 1994). The EO requires federal agencies to consider disproportionately high adverse human health or environmental effects of their actions on minority and low income populations. New Jersey has similar order in Executive Order 131 that requires state agencies, including NJDEP, to allow for public participation in decisions that affect environmental quality and public health.

The "USEPA Region 2 Interim Environmental Justice Policy" (USEPA, 2000) (Interim Policy) provides guidance in conducting the EJ Analysis. The Interim Policy defines an "EJ Community" as: "A minority and/or low income area suffering a disproportionate and adverse environmental burden as a result of the unfair or unequal development, implementation, or enforcement of environmental laws, regulations or policies."

An "adverse environmental burden" is defined by the Interim Policy as: "When there is an acknowledged health or welfare standard for the burden in question, the burden is adverse only when it exceeds that standard. When there is no standard, the decision is based on additional site-specific analysis"

For this analysis, NEC used U.S. Census 2000 block groups as boundaries for COCs of the project. NEC used USEPA Region 2's EJ View mapping tool to compare the demographic information of these Census 2000 block groups with USEPA Region 2's demographic criteria for EJ communities (Table 4). The cities of Newark and Jersey City meet the criteria for federal EJ communities and many of the block groups in the vicinity of the project meet either of the criteria. The COCs and EJ communities are all located within ozone and PM2.5 nonattainment areas.

Table 4: Demographics of Environmental Justice Communities of Concern

Community	Percent Below Poverty	Percent Minority
City of Newark	28.5	85.7
Jersey City	18.9	76.8
Reference Areas		
Essex County	15.6	62.4
Hudson County	15.5	64.7
New Jersey	8.5	34.0
USEPA Region 2 – Statewide Urban Thresholds		
New Jersey	**18.58**	**48.52**

Air dispersion modeling was used to determine which EJ communities have the potential to be significantly impacted by the project. The air dispersion modeling analysis submitted by Hess-NEC demonstrated that NEC's potential air contaminant emission would not cause or significantly contribute to a violation of an ambient air quality standard and, thus, would not result in a disproportionately high and adverse burden on communities in the area. New Jersey additionally required an air toxic risk assessment which allowed no significant risk. This included a multisource cumulative impact analysis. The only area of significant impact is about 1500 feet to the north, east and south of the facility, only during the combustion turbines warm startups. This is mostly over water and not near any residential area. Additional information on impacts in Newark's Iron Bound section is provided at Section H (Fact Sheet for Air Quality Impacts from Bureau of Technical Services).

Air Quality Modeling Analyses

The PSD air quality modeling analyses are discussed in detail in Section F. The facility has demonstrated that project emissions are in compliance with the NAAQS, NJAAQS, and PSD Class I and Class II increments. The maximum significant air quality impact locations do not fall within any residential areas, and do not have a significant effect on EJ communities.

2. N.J.A.C 7:27-18 Emission Offset Rule

Essex County is non-attainment for Ozone (precursors NOx and VOC) and $PM_{2.5}$. Since the NEC would be located in Essex County, it was determined to be subject to N.J.A.C 7:27-18 for emissions of NO_x, VOC CO and PM_{10}. The proposed potential emissions of NO_x and VOC are greater than 25 tons per year (the threshold for N.J.A.C 7:27-18 applicability). The potential emissions of CO and PM_{10} are greater than (N.J.A.C 7:27-18 applicability threshold) 100 tpy. While fine particulate ($PM_{2.5}$) levels are now below the health standards, until the area is formally re-designated as attainment of those standards, the emission offsets requirement continues to apply.

Proposed sources with emissions levels that exceed the Subchapter 18 applicability threshold for any pollutant must meet the following requirements for all pollutants with potential emissions greater than the pollutant's significant net emission increase threshold.

Lowest Achievable Emission Rate (LAER)
Hess-NEC must demonstrate that the proposed emissions from NEC would meet LAER for nonattainment pollutants that exceed the significant net emission increase threshold. For the NEC project, this applies to NOx and VOC. The discussion on proposed NOx and VOC emission limits for the equipment at NEC and their compliance with LAER is discussed in the Section C and D above.

Offsets
Hess-NEC must secure offsets for the nonattainment pollutants for which the potential emissions are greater than the pollutant's significant net emission increase threshold. The offset ratios increase based on the distance of the offsets from the project's location. For the proposed the minimum offset ratio for ozone is 1.3:1 for both NO_x and VOC, per N.J.A.C. 7:27-18.5. The use of emission reduction credits (CERs) to offset NO_x and VOC emissions must be within 100 miles for the 1.3:1 ratios to apply. Therefore, multiplying the potential to emit (PTE) by 1.3 results in a requirement for 180.83 tons per year (tpy) of NO_x (PTE = 139.10 tpy) offsets, and 45.5 tons of VOC (PTE = 34.99 tpy) offsets. The minimum offset ratio for NOx as a PM2.5 precursor is 1.0: to 1:0. NEC has secured the required NO_x and VOC emission offsets from sources within 100 miles of its site and within the same non-attainment areas. Compliance with NOx and VOC offset requirements is demonstrated at Section I (Hess Newark Energy Center (NEC) - Compliance with Offset Requirements).

Alternatives Analysis
NJAC 7:27-18.3(c)(2) requires Hess-NEC to submit an analysis of alternative sites, fuels, facility size, and control technologies for the project which demonstrates that having the project constructed outweighs the environmental and social costs of the project.

Alternative Sites - The purpose of the proposed project is to provide a nominal 655 MW of electricity to respond to regional energy needs using clean-burning natural gas technology. The NEC site was selected due to its location. The proposed NEC site is situated in an area surrounded by other industrial land uses and is over one mile from residential areas. In addition, it is close to an adequate and accessible gas supply and an electricity interconnection point. The site has an

available supply of cooling water. Hess-NEC is proposing to use treated effluent from PVSC, which also has available treatment capacity.

Alternative Sizes – Hess-NEC proposes to develop a combined cycle power plant using two F-Class combustion turbines. The two units would operate independently, with each unit capable of generating approximately 327.5 MW (nominally). This would enable the project to respond to changing electric demand conditions. Hess-NEC considered alternate turbine sizes with fewer and greater numbers of units. Larger class turbines (G or H), because of their increased electrical output, provide less flexibility. Smaller turbines (aero-derivatives) cannot match F-Class turbines' environmental performance (lb/MW-hr).

Compliance Certification – NJAC 7:27-18.3(b)(2) requires any person subject to the Emission Offset Rule to

"Certify, in accordance with N.J.A.C. 7:27-1.39, that all existing facilities in New Jersey, which Are owned or operated by the person applying for the permit, or by any entity controlling, controlled by, or under common control with such person, are operating:

i. In compliance with the provisions of this chapter and with all applicable emission limitations and standards promulgated pursuant to the Federal Clean Air Act; or
ii. In conformance with an enforceable compliance schedule approved by the Department."

Hess-NEC has certified compliance with in its June 21, 2012 submittal to the Department.

Air Quality Impact Analysis – Hess-NEC provided dispersion modeling for the pollutants that exceed the significant net emission increase threshold to demonstrate that the predicted impacts from these pollutants would meet the National Ambient Air Quality Standards (NAAQS) and New Jersey Ambient Air Quality Standards (NJAAQS).

Essex County is in attainment for CO and PM_{10}. As per N.J.A.C 7:27-18.2(b)2, the facility is required to conduct air quality impact analysis to show that the proposed emissions of CO and PM_{10} would not equal or exceed the significant air quality impact level, nor result in a violation of an National Ambient Air Quality Standard (NAAQS) or the New Jersey Ambient Air Quality Standard (NJAAQS).

NEC is located in Essex county which is non-attainment for $PM_{2.5}$. While the federal non-attainment requirements are not triggered, air quality modeling was required by NJDEP pursuant to the December 14, 2010 Memorandum of Division of Air Quality regarding $PM_{2.5}$ Permitting and Modeling Procedures. This expanded air quality modeling has demonstrated compliance with all air quality standards.

EPA proposed more stringent fine particulates NAAQS on June 14, 2012. EPA proposed to lower the annual health standards for fine particles from 15 microgram per meter cubed (ug/m^3) to a yet to be determined level in the range of 12 ug/m^3 to 13 ug/m^3. While existing applications are expected to be exempt from this new standard, NEC is projected to comply. When the modeled NEC impacts are added to monitored background particle levels, the result is less than 12 ug/m^3.

3. Other Regulatory Requirements

a. Federal Regulations

Compliance Determination with Federal $PM_{2.5}$ NSR Requirements

The proposed project would comply with the federal non-attainment NSR requirements for PM-2.5. Pursuant to EPA May 16, 2008 NSR rule for PM-2.5, NOx is considered "presumed-in" precursor to PM-2.5 in attainment and non-attainment areas of PM-2.5 unless New Jersey demonstrate to EPA that NOx emissions in specific area are not a significant contributor to that area's ambient $PM_{2.5}$ concentrations. Since New Jersey has not rebutted this EPA presumption, NOx must be regulated as a precursor of $PM_{-2.5}$ under the PSD and non-attainment NSR program for PM-2.5.

Hess Newark Energy Center would be located in a current $PM_{-2.5}$ non-attainment area of New Jersey, and the proposed 139.10 TPY NOx emissions as a precursor for PM-2.5 are greater than 100 TPY major stationary source threshold specified in 40 CFR Part 51, Appendix S section II.A.4. Therefore, the NOx emissions as a precursor of PM-2.5 are subject to non-attainment NSR requirements including LAER and offset. The non-attainment NSR requirement also included an air quality impact analyses. Since NOx is a precursor to PM-2.5, it contributes to the PM-2.5 ambient air concentration. This NOx contribution to the ambient PM-2.5 concentration was accounted for in the Air Quality Modeling Assessment. The highest modeled 24-hour PM-2.5 concentration was used to determine compliance with PM-2.5 NAAQS, while the definition of the standard specifies the use of the eighth highest concentration. Using the highest modeled PM-2.5 concentration is conservative since the NOx to PM-2.5 conversion rate is very low and the majority of conversions would occur downwind. Additional compliance demonstration with the offset requirement is provided at Section I (Hess Newark Energy Center (NEC) - Compliance with Offset Requirements)

The proposed project would install SCR, which is LAER. For offsets, Hess Newark Energy Center is required to secure NOx offsets for ozone and PM-2.5. Hess would be securing NOx offsets under ozone at the rate of 1.3:1.0 (Reductions:Increase) which would be more stringent than NOx offsets under PM-2.5 at the rate of 1.0:1.0. The offsets for ozone and PM2.5 must each come from the related air quality control region.

New Source Performance Standards (NSPS)

In addition to PSD regulations codified at 40 CFR 52.21, the NEC is subject to the following federal subparts of NSPS codified at 40 CFR 60:

- Subpart A: General Provisions
- Subpart Dc, the NSPS for industrial steam generating units greater than or equal to 10 MMBTU/hr but less than 100 MMBTU/hr (auxiliary boiler)
- Subpart IIII, the NSPS for stationary CI internal combustion engine, and
- Subpart KKKK, the NSPS for stationary gas turbines.

The emission limitations proposed by the Hess-NEC as shown in Table 1 and discussed in Section C satisfy the federal NSPS requirements. The case by case determinations of best available control technology, BACT, resulted in emission limits which are more stringent than the federal NSPS.

On March 27, 2012, EPA proposed a NSPS for carbon dioxide (CO_2). If adopted, the emission limit would be 1000 pounds of CO_2 per megawatt-hour (gross) for fossil fuel-fired electric utility generating units. The best available control technology limit of 887 pounds of CO_2 per megawatt hour (gross) proposed for the combined-cycle combustion turbines NEC would be more stringent.

Acid Rain Program

The Acid Rain Permit is proposed pursuant to the air pollution control permit provisions of Title IV of the federal Clean Air Act, federal rules promulgated at 40 CFR 72, and state regulations promulgated at N.J.A.C. 7:27-22. These rules require facilities operating "affected units" that are subject to the Acid Rain Program to obtain an Acid Rain Permit for those units. Pursuant to Title IV of the Clean Air Act, the United States Environmental Protection Agency (USEPA) has not previously approved sulfur dioxide allowances for the two units, Unit 1 (U001), and Unit 2 (U002), proposed for NEC. Each allowance provides authorization to emit up to one ton of sulfur dioxide during a specified calendar year. In accordance with USEPA's rules, NEC may sell or purchase allowances on the open market in order to more accurately reflect current operation. The total number of SO_2 allowances allocated to the referenced units are as follows: Unit 001: 10, Unit 002: 10. The designated acid rain representative for NEC is Peter Haid. This is a relative small amount because SO_2 emissions for this facility would be less than 0.1 % the SO_2 emissions from an equally sized coal unit without scrubbers.

National Ambient Air Quality Standards

The National Ambient Air Quality Standards (NAAQS) are codified at 40 CFR 50. The dispersion modeling analysis discussed in Section E, demonstrate compliance with the NAAQS requirements.

Maximum Achievable Control Technology (MACT)

The MACT standards are codified at 40 CFR 63 (National Emission Standards for Hazardous Air Pollutants for Source Categories), and are applicable to sources that emit Hazardous Air Pollutants (HAPs).

The combustion turbines along with duct burners, auxiliary boiler and emergency engines are sources of HAPs. The MACT rules for these sources are codified at:

Subpart YYYY:	for Stationary Combustion Turbines.
Subpart JJJJJJ:	Industrial, Commercial, Institutional (ICI) boilers and process heaters
Subpart ZZZZ:	for Stationary Reciprocating Internal Combustion Engines.

NEC would not be a major source HAP. A source is major for HAPS if the total HAPs from the facility are 25 tons per year or greater, or if the emissions of a single HAP is 10 tpy or greater.

The total maximum HAPs from NEC would be 8.22 tpy, which is less than 25 tons per year. Formaldehyde would be the single HAP emitted from the combustion turbines with highest estimated annual emission rate of 2.7 tpy. The HAP emissions from all other equipment at NEC

are below the reporting thresholds in Table B of Appendix to N.J.A.C. 7:27-22. Additional HAPs were evaluated in the risk assessment even though below thresholds for risk assessment.

Since the NEC is not a major source of HAPs, the combustion turbines are not subject to MACT standards at Subpart YYYY.

The new auxiliary boiler is not subject to Subpart JJJJJJ as it would be burning natural gas.

The new emergency engines would comply with Subpart ZZZZ by complying with NSPS IIII, since NEC is an area HAPs source (those that are not major HAPs sources).

b. ***New Jersey Regulations***

The facility is subject to New Jersey Air Pollution Control Regulations, codified in N.J.A.C. 7:27-1 et seq. for air pollution control, and the New Jersey Ambient Air Quality Standards (NJAAQS). The proposed emission rates in Table 1 and Table 2 satisfy the New Jersey regulations. For example the New Jersey NOx emission limits for existing combined cycle combustion turbines firing natural gas is 0.15 lb/MMBtu and for new combined cycle combustion turbines firing natural gas is about 0.075lb/MMBtu. The proposed BACT limit is 0.0073 lb/MMBtu.

E. TESTING AND MONITORING REQUIREMENTS

The Hess-NEC would be required to conduct stack testing for NOx, CO, TSP, PM_{10}, $PM_{2.5}$, VOC, and SO_2 to demonstrate the ability of the facility to operate within the approved emission limitations. In addition, Continuous Emission Monitors (CEM) and recorders for NOx, CO, O_2 and CO_2 would be required. The scope of the stack testing and CEMS is detailed in the draft compliance plan.

Since the facility is proposing direct $PM_{2.5}$emissions of 98.7 tons per year, which is very close to 100 tpy the threshold for triggering non-attainment, the Department proposes to require quarterly stack testing for $PM_{2.5}$ for the first two years. If compliance is determined with a reasonable margin of safety during first eight quarterly stack tests, NEC may apply to the Department to reduce the frequency of stack testing.

F. AIR QUALITY ANALYSIS

Based on the air quality modeling analysis, the air contaminant emissions from the proposed facility would not exceed Federal or New Jersey Ambient Air Quality Standards or PSD increments. The source's Class I impacts at the Brigantine National Wildlife Refuge would be within allowable EPA Class I increments, and below Class I area Significant Impact Levels (SILs). Air toxics risk would be insignificant.

G. CUMULATIVE IMPACTS FROM EXISTING SOURCES

Reducing disproportionate impacts from existing sources of air pollution is a goal of the NJDEP. Newark is an area where the NJDEP has recognized there are disproportionate impacts from multiple sources of air pollution. As described in the air modeling sections of this fact sheet, a cumulative air quality impact analysis has been done for this proposed project, with multisource

modeling of major sources in the area added to monitored concentrations of nitrogen dioxide, which was the only air pollutant with significant impact level.

The NJDEP has also been focusing on reducing air contaminant emissions from sources that affect Newark and other urban communities. Within Newark, an agreement was recently reached with Covanta to modernize the particulate air pollution control system on the Essex incinerators. While the current system meets the permitted rates, the new bag house system will be the best available and will achieve much lower particulate emission levels.

Also, the Port Authority of NY and NJ is now implementing a plan to reduce particulate emissions from diesel engines associated with the movement of goods at Ports Newark and Elizabeth. This is in addition to the NJDEPs efforts to reduce diesel particulate emissions statewide, with special emphasis on urban areas. The Mandatory Diesel Emission Reduction Act is about half implemented with retrofits completed for most school buses, garbage trucks and buses. The last phase has just begun for retrofitting other public diesel vehicles, both on road and off road, with particulate filters. The NJDEP has also begun a pilot program under the Governor's Executive Order 60 to retrofit privately owned off road construction equipment if used on public contracts, again with an emphasis on projects in urban areas.

With respect to stationary sources of air pollution, the NJDEP's statewide efforts to control power plant emissions has resulted in the modernization of the 1 coal burning unit at the PSEG Hudson power plant in Jersey City. Emissions of particles and the particle precursors sulfur dioxide and nitrogen oxides from this coal unit, and others in NJ, have dropped by about 90%. Also, a two phase emission reduction rule is reducing nitrogen oxides from existing peaking power plants now, and will further reduce emissions in 2015. Because of this rule, over 2000 MW of peaking power plants are expected to shut down by the May 1, 2015 compliance date. This power would be replaced by new low emitting gas fired power plants, which have about 1% of the NOx emissions as the highest emitting turbines currently used for peaking.

All these efforts are producing dramatic improvement in particle air quality, with all monitors now showing attainment of the current 15 ug/m3 annual particle health standard, as well as the NJDEPs goal to achieve better than 12 ug/m3. NJDEP intends to continue its efforts to reduce air pollution from existing sources and maintain the improving air quality trends in NJ, and especially in our urban areas. For example, in addition to the 2015 NOx reductions from peakers, lower sulfur in heating oil rules will reduce sulfur levels in home heating oil from the current allowable of 2000 ppm, to 500 ppm in 2014, and 15 ppm in 2016. These measures will further improve air quality in Newark and elsewhere in NJ, where people live and work.

H. FACT SHEET: AIR DISPERSION MODELING AND RISK ASSESSMENT

SUMMARY

a. Criteria pollutant emissions from the proposed Newark Energy Center operation will not cause or significantly contribute to violations of New Jersey or National Ambient Air Quality Standards for sulfur dioxide (SO_2), nitrogen dioxide (NO_2), carbon monoxide (CO), fine particulate ($PM_{2.5}$) and inhalable particulate (PM_{10}), or the applicable Prevention of Significant Deterioration (PSD) Increments.

b. Modeled impacts of hazardous air pollutants from the Newark Energy Center were predicted to have negligible health risks for air toxics.

1. Air Quality Analysis Methodology

Emissions of air pollutants from the proposed Newark Energy Center were mathematically modeled in order to predict its impact on ambient air quality. Predicted concentrations of criteria pollutants were combined with air monitoring data and compared with the National and New Jersey Ambient Air Quality Standards (NAAQS and NJAAQS). The primary ambient air quality standards were established to protect public health with an adequate margin of safety. The secondary ambient air quality standards were designed to protect public welfare from adverse effects such as soiling, vegetation damage, or material corrosion. Criteria pollutants which will be emitted by the proposed facility include sulfur dioxide (SO_2), nitrogen oxides as nitrogen dioxide (NO_2), carbon monoxide (CO), and particulate matter ($PM_{2.5}$ and PM_{10}). Modeled impacts of SO_2, NO_2, and PM_{10} were also compared to the USEPA's Prevention of Significant Deterioration (PSD) increment levels. A PSD increment is the maximum increase in a pollutant's concentration that is allowed to occur above an earlier established baseline value. Emissions of greenhouse gases such as carbon dioxide (CO_2) were not modeled because EPA has not established ambient air quality standards for these pollutants.

The air quality modeling analysis was performed using the U.S. Environmental Protection Agency's atmospheric dispersion model – AERMOD (version 12060). Basic inputs to the dispersion model were the facility's emission rates, stack height (252 ft), stack diameter, stack exit gas temperature and velocity, and the surrounding ground level elevations. Aerodynamic building downwash from the turbine building, heat recovery steam generators (HRSG), evaporative cooling tower and other significant structures at the facility were included in the modeling.

The AERMOD model was used with five years (2005-2009) of National Weather Service hourly surface meteorological data from Newark International Airport and concurrent upper air data from Brookhaven, NY. The Newark International Airport meteorological data used for the air quality modeling analysis is considered very representative because it was collected only 2 miles away from the Newark Energy Center site. A land cover classification analysis was performed and concluded urban source modeling option in AERMOD should be used. The AERMOD modeling analysis examined the Newark Energy Center's impact on the ambient levels of 1-hour and 8-hour average CO concentrations; 1-hour, 3-hour, 24-hour, and annual average SO_2 concentrations; 1-hour and annual average NO_2 concentrations; and 24-hour and annual average PM_{10} and $PM_{2.5}$ concentrations. AERMOD modeling and risk assessment were also conducted to evaluate potential adverse health impact of hazardous air pollutant emissions from the facility.

2. Dispersion Modeling Analysis - Single Source Refined Results

Air quality impacts from the proposed Newark Energy Center combustion turbines were examined, along with ancillary equipment and alternative operating scenarios (duct firing within the HRSGs, auxiliary boiler, and startup and shutdown conditions). Ten different combinations of ambient temperatures and varying turbine operating loads were evaluated to determine the worst-case turbine operating scenarios for use in the modeling analysis. Modeling results of the Newark Energy Center sources indicate that the facility had modeled concentrations below the Significant Impact Levels (SILs) for CO, PM_{10}, $PM_{2.5}$, SO_2, and annual NO_2.

The maximum 1-hour NO_2 impact during warm startup condition was predicted to exceed its SIL. Figure 1 shows the predicted 1-hour NO_2 concentrations above the SIL principally occur to the east of the proposed source. As a consequence of exceeding the SIL, a cumulative multisource modeling analysis was needed to demonstrate compliance with the 1-hour NO_2 NAAQS during warm startup condition (a scenario that will occur up to 250 times a year). This analysis is discussed in a later section of the fact sheet. The facility's 1-hour NO_2 impact during normal operations is less than the SIL.

For the pollutants and averaging times predicted to be below their respective SILs, Table 1 shows that when these impacts are added to the representative background concentrations, emissions from the proposed Newark Energy Center will not cause or significantly contribute to a violation of a NAAQS or NJAAQS. Table 2 shows the project will comply with the applicable PSD Class II increments.

TABLE 1 Proposed Newark Energy Center Compliance with NAAQS							
Pollutant	**Averaging Time**	**Maximum Impact (ug/m^3)**	**Significant Impact Level (ug/m^3)**	**Background Concentration (ug/m^3)**	**Monitor Location**	**Total Impact (ug/m^3)**	**NJAAQS/ NAAQS (ug/m^3)**
SO_2	1-hour	0.94	7.8	60.3	Jersey City	61.3	196
	3-hour	0.38	25	70.7	Jersey City	71.1	1,300
	24-hour	0.15	5	44.5	Jersey City	44.7	260[(b)]/365
	Annual	0.009	1	7.7	Jersey City	7.7	60[(b)]/80
NO_2	1-hour	14.9	10	**a**	Bayonne	**a**	188[(c)]
	Annual	0.42	1	35.9	Bayonne	36.3	100
CO	1-hour	121.3	2,000	3,220	Jersey City	3,341	40,000
	8-hour	81.0	500	1,955	Jersey City	2,036	10,000
$PM_{2.5}$	24-hour	1.15	1.2	29	Jersey City Firehouse	30.2	35
	Annual	0.28	0.3	10.7	Jersey City Firehouse	11.0	15
PM_{10}	24-hour	3.17	5	77.9	Jersey City Firehouse	81.1	150

a. Multisource modeling conducted to determine the total impact.
b. Values represent the secondary New Jersey ambient air quality standard.
c. Compliance determined using the 98th percentile (8th highest) of the annual distribution off daily maximum 1-hour averages.

TABLE 2 Proposed Newark Energy Center Compliance with PSD Increments			
Pollutant	**Averaging Time**	**Maximum Impact (ug/m^3)**	**PSD Class II Increment (ug/m^3)**
SO_2	3-hr	0.38	512
SO_2	24-hr	0.15	91
SO_2	annual	0.009	20
NO_2	annual	0.42	25
PM_{10}	24-hr	3.17	30
PM_{10}	annual	0.73	17

3. Cumulative Impact Analysis - Multisource 1-Hour Nitrogen Dioxide (NO_2) Emission Inventories

The 1-hour NO_2 impact during warm startup of the Newark Energy facility exceeds the 1-hour NO_2 SIL in an area extending approximately 1 km (0.6 miles) to the north, east, and south of the stacks, mostly are the water. A cumulative multisource modeling was conducted to assess the combined impact from Newark Energy Center and 11 other nearby significant NOx emission facilities, along with a representative ambient background concentration. Figure 2 shows the locations of the proposed Newark Energy Center Facility, the Bayonne NO_2 monitor used for background values, and the 11 other facilities whose NOx emissions were included in the modeling. The Bayonne NO_2 monitor is located only 2.5 miles southeast of the site, and its measurements are representative of the area surrounding the Newark Energy facility. A modeling methodology similar to that used in modeling Newark Energy Center sources was used in the multisource modeling (AERMOD with the 2005 through 2009 Newark meteorological data).

4. Cumulative Impact Analysis - Multisource 1-Hour Nitrogen Dioxide (NO_2) Modeling

Results of the multisource modeling analysis in Newark Energy Center's significant impact area are summarized in Table 3. Table 3 demonstrates that emissions from the proposed Newark Energy Center when combined with other nearby significant sources and background NO_2 concentration will not cause or significantly contribute to a violation of the NAAQS. The highest 98^{th} percentile 1-hour NO_2 concentration due to emissions from only Newark Energy Center is 12 ug/m^3. This value occurs approximately 700 meters east of the stacks.

TABLE 3
Maximum Predicted Multisource 98^{th} percentile 1-hr NO_2 in Newark Energy's Significant Impact Area

Newark Energy and 11 Other Nearby Sources (ug/m^3)	Background Air Quality (ug/m^3)	Cumulative Total Impact (ug/m^3)	1-hr NO_2 NAAQS (ug/m^3)
23.5[a]	126.4	149.9	188

a. Based on the receptor with the maximum 5-year average 98^{th} percentile (8th highest) 1-hr modeled concentrations.

5. Impacts on Newark's Ironbound Community

There is a large residential area of Newark located to the west through northwest of the proposed Newark Energy Center facility. The closest residential area, known as the Ironbound Community, is more than 1 mile from the Newark Energy center site. Emissions of SO_2, CO, annual NO_2, PM_{10}, and $PM_{2.5}$ from the Newark Energy Center operation are predicted to have a much lower impact on the Ironbound community than the maximum values listed in Table 1. For example, the maximum 24-hour $PM_{2.5}$ level in the Ironbound community was predicted to be less than 0.2 ug/m^3, which is well below the $PM_{2.5}$ 24-hour significance level of 1.2 ug/m^3 and the $PM_{2.5}$ 24-hour NAAQS of 35 ug/m^3.

A cumulative 1-hour NO_2 impact analysis was done using the same multisource inventory discussed above for the portion of the Ironbound Community nearest the proposed facility. When combined with background concentration, maximum impacts in this area of the Ironbound

Community ranged from 148.4 – 156.4 ug/m^3. These values are in compliance with the 1-hour NO_2 NAAQS of 188 ug/m^3. Emissions from Newark Energy NO_2 sources are predicted to have an insignificant 1-hr NO_2 impact (less than 10 ug/m^3) on the Ironbound community.

6. Risk Assessment

Risk assessment was conducted to assess the possible adverse health effects due to inhalation exposure to four Hazardous Air Pollutants (HAPs) emitted above their reporting thresholds from the Newark Energy Center facility operation. Emissions of sulfuric acid mist and ammonia, not considered HAPs but regulated by EPA, were also evaluated for health effects. Health risks from these HAP and non-HAP emissions were determined on an increment basis.

Benzene and formaldehyde are carcinogens and can cause cancer risks with prolonged exposure. NJDEP's cancer risk negligible threshold for 70 years of continuous exposure of a carcinogen is 1 in a million. According to risk assessment results listed in Table 4, cancer risks are 0.0007 in a million for 70 years of continuous exposure of benzene, and 0.01 in a million for 70 years of continuous exposure of formaldehyde. The projected cancer risks from these two HAPs are well below the negligible threshold.

All four HAPs and ammonia can cause acute (short-term) and long-term non-cancerous adverse health impact if at high concentrations. Sulfuric acid can cause an acute adverse health impact. NJDEP's negligible hazard index thresholds for short-term exposure and for long-term exposure are both 1. Based on modeling and risk assessment results listed in Table 5, the short-term and long-term hazard indices of all four HAPs as well as sulfuric acid mist and ammonia are all below the negligible threshold of 1. Therefore, the health effects due to HAP and sulfuric acid emissions from the Newark Energy Center are predicted to be negligible. Also, these HAP impacts are based on the point of maximum modeled concentrations which are not located in residential areas. Therefore, the health impact of HAP emissions from Newark Energy Center in these residential areas including the Ironbound community would be even lower.

TABLE 4.
Hazardous Air Pollutant Cancer Risks

Pollutant	70-Year Exposure Cancer Risk	Level of Concern above:
Benzene	0.0007 in a million	1 in a million
Formaldehyde	0.01 in a million	1 in a million

TABLE 5 HAPs Non-cancer Risks			
Pollutant	**Short-term Hazard Index**	**Long-term Hazard Index**	**Level of Concern above:**
Ammonia [a]	0.002	0.0005	1
Acrolein	0.0009	0.001	1
Benzene	0.000007	0.000003	1
Sulfuric Acid [a]	0.003	---	1
Formaldehyde	0.002	0.0001	1
Toluene	0.000003	0.0000002	1

a. EPA regulated pollutant, not a HAP

I. HESS NEWARK ENERGY CENTER (NEC) - COMPLIANCE WITH OFFSET REQUIREMENTS

Non-Attainment Pollutant	Proposed Emissions	Applicable Offset Ratio (Reduction: Increase)	Required Offsets	Federally Designated Non-attainment Area	Offsets Secured From (Emissions Credit Sellers)	Are the Secured Offsets from the Same Non-Attainment Area as Hess -NEC
NOx (as a precursor of Ozone) 8-Hr Ozone NAAQS	139.1 TPY	1.3:1.0	180.83 TPY	(NY-N NJ-CT) Bergen Essex Hudson Hunterdon Middlesex Monmouth Morris Passaic Somerset Sussex Union Warren	**NOx credits transferred to NEC:** 41.20 TPY Simkins (Bergen)- Transferred on 3/29/12 10.63 TPY GM Linden (Union)- Transferred on 6/19/12 11.08 TPY 3M Co. (Somerset)- Transferred on 5/31/12 6.00 TPY BASF (Warren)- Transferred on 6/15/12 42.90 TPY KMS Crossroad(Bergen)- Transferred on 6/15/12 13.40TPY Glen-Gery (Somerset)- Transferred on 6/21/12 67.07 TPY Gerdau (Middlesex)- Transferred on 6/27/12 ***192.28 TPY Total NOx Credits Secured***	**Yes**
NOx (as a precursor of PM-2.5) PM-2.5 NAAQS	139.1 TPY	1.0:1.0	139.83 TPY	(NY-N NJ-CT) Bergen Essex Hudson Middlesex Monmouth Morris Passaic Somerset Union	**NOx credits transferred to NEC:** 41.20 TPY Simkins (Bergen)- Transferred on 3/29/12 10.66 TPY GM Linden (Union)- Transferred on 6/19/12 11.08 TPY 3M Co. (Somerset)- Transferred on 5/31/12 42.90 TPY Crossroad(Bergen)- Transferred on 6/15/12 17.01 TPY GM Linden (Union)-Transferred on 6/19/12 13.40TPY Glen-Gery (Somerset)- Transferred on 6/21/12 67.07 TPY Gerdau (Middlesex)- Transferred on 6/27/12 ***186.28 TPY Total NOx Credits Secured***	**Yes**
VOC (as a precursor of ozone) 8-Hr Ozone NAAQS	34.99 TPY	1.3:1.0	45.49 TPY	(NY-N NJ-CT) Bergen Essex Hudson Hunterdon Middlesex Monmouth Morris Passaic Somerset Sussex Union Warren	**VOC credits transferred to NEC:** 94.04 TPY GM Linden (Union)- Transferred on 6/19/12 25.80 TPY Crossroad(Bergen)- Transferred on 6/15/12 ***119.84 TPY Total VOC Credits Secured***	**Yes**

NOTES:

(1) NOx offsets from the Ozone nonattainment area are used to satisfy the offset requirements of NOx as a PM2.5 precursor.

(2) The NOx offsets required for PM-2.5 NAAQS are secured from the same PM-2.5 nonattainment area.

(3) N.J.A.C. 7:27-18.8(g) does not allow use of credits beyond 10 years (beyond 2002). The NOx offsets satisfy EPA requirement that the offsets should have occurred after 2002 (the year of the PM-2.5 emissions inventory used for the PM2.5 attainment demonstration).

STATEMENT OF BASIS for NEWARK ENERGY CENTER

DRAFT PREVENTION OF SIGNIFICANT DETERIORATION PERMIT AND

DRAFT TITLE V OPERATING PERMIT

Program Interest (PI): 08857 / Permit Activity Number: BOP110001

I. FACILITY INFORMATION

Newark Energy Center is a proposed a new facility to be located at Doremus Avenue and Delancy Street, City of Newark, Essex County, New Jersey, and would consist of a 655 megawatt (MW) combined cycle electric generating facility consisting of two General Electric (GE) 207FA.05 combined cycle combustion turbine generators (CTGs), two heat recovery steam generators (HRSG) equipped with duct burners, and other ancillary equipment. The turbines and duct burners would fire natural gas only. The facility is intended to operate as a base load facility and is proposed to be available to operate up to 8,500 hours per year. The facility would be owned and operated by Hess Newark Energy Center, LLC.

The facility is classified as a major facility based on its potential to emit 483.7 tons per year (tpy) of Carbon Monoxide (CO), 139.10 tons per year of Nitrogen Oxides (NOx), 34.99 tons per year of Volatile Organic Compounds (VOC), 19.73 tons per year of Sulfur Dioxide (SO_2), 67.17 tons per year of Particulate Matter /Total Suspended Particulates (PM/TSP), 97.65 tons per year of Particulate Matter less than 2.5 micros ($PM_{2.5}$), 101.27 tons per year of Particulate Matter less than 10 micros (PM_{10}), and 2.00 Million tons of Greenhouse Gases as Carbon dioxide equivalent (CO_2e).

Newark Energy Center would not be a major source of Hazardous Air Pollutants (HAPs). A 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. The total of all proposed HAPS emissions (that are above and below the reporting thresholds in Appendix B of N.J.A.C.7:27-22) from the facility is 8.22 tpy, which is less than the thresholds to be classified as a major source of HAPS. This permit allows individual HAP to be emitted at a rate not to exceed: 116.7 pounds per year of acrolein; 460 pounds per year of benzene; 4300 pounds per year of formaldehyde; and 5018 pounds per year of toluene.

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 (SO_2), nitrogen dioxide (NO_2), and lead. The CAA 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 annual and daily $PM_{2.5}$ and the SO_2 NAAQS. This facility would be located in an area designated nonattainment for 8-hour ozone NAAQS and $PM_{2.5}$.

III. BACKGROUND

The equipment that emits air contaminants from this facility include:

1. Two, natural gas fired, General Electric (GE) 207FA.05 combined cycle combustion turbine generators (CTGs), with two heat recovery steam generators (HRSG) equipped with duct burners. Each turbine will be equipped with Selective Catalytic Reduction System (SCR) to reduce NOx emissions and an Oxidation Catalyst to reduce CO and VOC emissions to the lowest possible level. Each combustion turbine will have a maximum rated heat input of 2,320 million British thermal units per hour (MMBtu/hr) at an ambient temperature of -8^0F, based on higher heating value of fuel (HHV) without supplemental duct-firing. The maximum heat input rate of the duct burner would be 211 MMBtu/hr (HHV) firing natural gas.
2. One 12-cell wet mechanical draft cooling tower.
3. One 66.2 MMBtu/hr (HHV) auxiliary boiler equipped with low NOx burners that would operate on natural gas for 800 hrs. per year or less.
4. One 270 HP diesel fire pump that would operate on ultra low sulfur distillate (ULSD) fuel oil with a sulfur content of 15 ppm by weight or less, for up to 200 hours per year, out of which 100 hours per year would be for testing and maintenance.

EXHIBIT C

5. One 1500 kilowatt (KW) emergency diesel generator that would use ULSD fuel oil and operate for 200 hours or less per year, out of which 100 hours per year would be for testing and maintenance.
6. Storage tanks, and ancillary equipment

The conditions of approval for this operating permit are based on applicable requirements in state and federal air pollution control rules. Each condition in the compliance plan includes the citation of the applicable requirement on which the condition is based. Please refer the Facility Specific Requirements section of the permit.

IV. CASE-BY-CASE DETERMINATIONS

- NOx RACT pursuant to N.J.A.C. 7:27-19.2

The State NOx RACT rule is for the use of reasonably available control technology (RACT) to prevent or control NO_x emissions from the sources which emit NOx emissions. NEC has proposed to comply with all the NOx RACT requirements applicable to turbines, boiler, emergency generator, and fire pump.

- VOC RACT pursuant to N.J.A.C. 7:27-16.17

VOC RACT rule is the State Rule for the control and prohibition of air pollution by volatile organic compounds and requires the facility to comply with VOC emission limits. NEC has proposed to comply with all the VOC RACT requirements applicable to turbines, boiler, emergency generator, and fire pump.

- State of the Art (SOTA) pursuant to N.J.A.C. 7:27-22.35

The facility is required to comply with State of the Art Control Technology (SOTA) of New Jersey Air Pollution Control Regulations (N.J.A.C. 7:27-22.35), for combustion turbines and auxiliary boiler. The facility would comply with SOTA for turbines and boilers by complying with Lowest Achievable Emission Rate (LAER) and/or Best Available Control Technology (BACT) limits.

- Lowest Achievable Emission Rate (LAER) pursuant to N.J.A.C. 7:27-18.3(b)

This facility is determined to be subject to Non-Attainment New Source review requirements at N.J.A.C 7:27-18 (Subchapter 18 Control and Prohibition of Air Pollution from New or Altered Sources Affecting Ambient Air Quality (Emission Offset Rules)) for NOx, and VOC. The proposed potential emissions of NOx and VOC which are precursors for ozone are greater than the N.J.A.C 7:27-18 thresholds of 25 tpy. The combustion turbines at NEC will meet the current LAER emission limit for NOx and VOC of 2 ppmvd @15% oxygen. The emission limits for NOx and VOC proposed by NEC for all other combustion equipment will also meet LAER.

- Best Available Control Technology (BACT) pursuant to 40 CFR 52.51

NEC is considered a new major source of Federal Prevention of Significant Deterioration of Air Quality (PSD) under 40 CFR 52.21. Pursuant to 40 CFR 52.21, NEC is one of the 28 named source categories (i.e. fossil fuel-fired steam electric generating plant of greater than 250 MMBTU/hr heat input), with proposed emissions of NOx, CO and PM_{10} more than 100 tons per year threshold for PSD applicability. The facility is also subject to PSD for sulfuric acid (H_2SO_4) and Greenhouse Gases (GHG). It is required to perform BACT analysis for all pollutants subject to federal PSD requirements. Additional information on BACT analysis is presented in the Fact Sheet.

V. EMISSION OFFSET REQUIREMENTS

NEC must secure offsets for the nonattainment pollutants for which the potential emissions are greater than the pollutant's significant net emission increase threshold. The offset ratios increase based on the distance of the offsets from the project's location. For the NEC project, offsets are required for NOx and

VOC. The minimum offset ratio is 1.3:1 for both NO_x and VOC, per N.J.A.C. 7:27-18.5. The use of emission reduction credits (CERs) to offset NO_x and VOC emissions must be within 100 miles for the 1.3:1 ratios to apply. Therefore, multiplying the proposed potential to emit (PTE) by 1.3 results in a requirement for 180.83 tons per year (tpy) of NO_x (PTE = 139.10 tpy) offsets, and 45.5 tons of VOC (PTE = 34.99 tpy) offsets. NEC has secured the required NO_x and VOC emission offsets from sources within 100 miles of its site.

The Department also reviewed NOx emissions as a precursor of PM-2.5 emissions. The proposed NOx emissions are in compliance with the PM-2.5 non-attainment NSR requirements specified in 40 CFR Part 51, Appendix S. NEC proposed to secure more than 181 tpy of NOx offsets for ozone NAAQS. NOx offsets from ozone non-attainment area would satisfy the offset requirements for NOx as a PM-2.5 precursor. Additional information on compliance with offset requirements are provided in the Fact Sheet.

VI. AIR QUALITY ANALYSIS

The Department has reviewed the ambient air quality impact of the proposed facility. Based on the air quality modeling analysis, the Department found that air contaminant emissions from the proposed facility would not exceed Federal or New Jersey Ambient Air Quality Standards.

Emissions of NOx, CO, VOC, SO_2, PM_{10} and $PM_{2.5}$ from this facility were first modeled to determine whether they will have a significant impact. The results of the single-source modeling analysis predicted significant impacts for the 1-hour NO_2 concentration during warm startup scenario. The results of the single-source modeling emissions predicted insignificant impact on the Brigantine Wildlife Refuge Class I area.

Since 1-hour NO2 impact exceeded 1-hour NO2 SIL during single-source modeling analysis multi source modeling analysis for 1-hr NO_2 impact was done using 11 facilities in the vicinity of Newark Energy Center. This analysis predicts that the proposed facility will not cause or contribute to a violation of a National or New Jersey Ambient Air Quality Standard (NAAQS/NJAAQS).

HAP emissions from the proposed facility are predicted to pose a negligible cancer and non-cancerous health risk off the property. In addition, the project is not expected to cause an odor problem.

VII. 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.

VIII. 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 facility is also subject to Federal regulations listed below and PSD regulations codified at 40 CFR 52.21 and federal New Source Performance Standards (NSPS) codified at 40CFR60.

- NSPS Subpart A: General Provisions
- NSPS Subpart IIII: NSPS for Stationary CI internal combustion engine
- NSPS Subpart KKKK: NSPS for stationary gas turbines, and.
- NSPS Subpart Dc: NSPS for industrial steam generating units greater than or equal to 10 MMBTU/hr but less than 100 MMBTU/hr (auxiliary boiler)
- 40 CFR 72 Acid Rain Program
- On March 27, 2012, EPA proposed a NSPS for carbon dioxide (CO_2). If adopted, the emission limit would be 1000 pounds of CO_2 per megawatt-hour (gross) for fossil fuel-fired electric utility generating units, and would be applicable to the combined cycle combustion turbines proposed for NEC.

IX. FACILITY'S COMPLIANCE STATUS

The Responsible Official at the facility has certified that the facility would meet 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, the Department proposes to approve this air pollution control operating permit, PSD permit and Acid Rain permit application. Prior to the expiration of the Operating Permit's five-year term, the facility would be required to apply for a renewal, at which time the Department will evaluate the facility and issue a public notice with its findings.

X. EXEMPT ACTIVITIES

The facility's operating permit does not include exempt activities such as equipment which have no potential for emitting any air contaminant, 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

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.

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

Records to be kept

Submittal requirement

Monitoring method to ensure compliance

Actions to be taken by the facility

Item Number

Description of applicable requirement

Air contaminants

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 CO, NOx, TSP and VOC emission limits.[N.J.A.C. 7:27-22.16(e)]	Other: Stack emission testing. 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: Stack test results . [N.J.A.C. 7:27-22.16(e)]	Stack Test - Submit a protocol, conduct stack tests, submit results: As per the approved schedule. Submit a stack test protocol to the Bureau of Technical Services (BTS) 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

NOTICE OF OPPORTUNITY FOR PUBLIC COMMENT for NEWARK ENERGY CENTER

DRAFT PREVENTION OF SIGNIFICANT DETERIORATION PERMIT AND

DRAFT TITLE V OPERATING PERMIT

Program Interest (PI): 08857 / Permit Activity Number: BOP110001

The New Jersey Department of Environmental Protection (NJDEP) is seeking public comment on its intent to approve a Prevention of Significant Deterioration (PSD) Air Quality Permit pursuant to the provisions of federal PSD rules promulgated at 40 CFR 52.21, and an Air Pollution Control Operating Permit, pursuant to the provisions of Title V of the Federal Clean Air Act, the federal rules promulgated at 40 CFR 70, and the state regulations promulgated at N.J.A.C. 7:27-22, and an Acid Rain Permit pursuant to the provisions of Title IV of the Federal Clean Air Act, the federal rules promulgated at 40 CFR 72. These rules require facilities with a potential to emit major amounts of air contaminants to obtain an operating permit which specifies the air pollution control requirements that apply to the facility; the maximum amount of air pollutants which can be emitted; and the monitoring, recordkeeping, and reporting requirements to assure compliance.

I. FACILITY INFORMATION

Newark Energy Center is a proposed new facility to be located at Doremus Avenue and Delancy Street, City of Newark, Essex County, New Jersey, and would consist of a 655 megawatt (MW) combined cycle electric generating facility consisting of two General Electric (GE) 207FA.05 combined cycle combustion turbine generators (CTGs), two heat recovery steam generators (HRSG) equipped with duct burners, and other ancillary equipment. The turbines and duct burners would fire natural gas only. The facility is intended to operate as a base load facility to be available to operate up to 8,500 hours per year. The facility would be owned and operated by Hess Newark Energy Center, LLC.

The facility is classified as a major facility based on its potential to emit 483.7 tons per year (tpy) of Carbon Monoxide (CO), 139.10 tons per year of Nitrogen Oxides (NOx), 34.99 tons per year of Volatile Organic Compounds (VOC), 19.73 tons per year of Sulfur Dioxide (SO_2), 67.17 tons per year of Particulate Matter (PM/TSP), 97.65 tons per year of Particulate Matter less than 2.5 microns ($PM_{2.5}$), 101.27 tons per year of Particulate Matter less than 10 microns (PM_{10}), and 2.00 Million tons of Greenhouse Gases as Carbon dioxide equivalent (CO_2e).

Newark Energy Center would not be a major source of Hazardous Air Pollutants (HAPs). A 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. The total of all proposed HAPS emissions (that are above and below the reporting thresholds in Appendix B of N.J.A.C.7:27-22) from the facility is 8.22 tpy, which is less than the thresholds to be classified as a major source of HAPS. This permit allows individual HAP to be emitted at a rate not to exceed: 116.7 pounds per year of acrolein; 460 pounds per year of benzene; 4300 pounds per year of formaldehyde; and 5018 pounds per year of toluene.

II. BACKGROUND

The equipment that emits air contaminants from this facility include:

1. Two, natural gas fired, General Electric (GE) 207FA.05 combined cycle combustion turbine generators (CTGs), with two heat recovery steam generators (HRSG) equipped with duct burners. Each turbine will be equipped with Selective Catalytic Reduction System (SCR) to reduce NOx emissions and an Oxidation Catalyst to reduce CO and VOC emissions to the lowest possible level. Each combustion turbine will have a maximum rated heat input of 2,320 million British thermal units per hour (MMBtu/hr) at an ambient temperature of -8^0F, based on higher heating value of fuel (HHV) without supplemental duct-firing, and a maximum heat input rate of the duct burner would be 211 MMBtu/hr (HHV). .
2. One 12-cell wet mechanical draft cooling tower.
3. One 66.2 MMBtu/hr (HHV) auxiliary boiler equipped with low NOx burners that would operate on natural gas up to 800 hrs. per year.

EXHIBIT D

4. One 270 HP diesel fire pump that would operate on ultra-low sulfur distillate (ULSD) fuel oil with a sulfur content of 15 ppm by weight or less, for up to 200 hours per year, out of which 100 hours per year would be for testing and maintenance.
5. One 1500 kilowatt (KW) emergency diesel generator that would use ULSD fuel oil and operate for 200 hours or less per year, out of which 100 hours per year would be for testing and maintenance.
6. Storage tanks and ancillary equipment.

The conditions of approval for this operating permit are based on applicable requirements in state and federal air pollution control rules. Each condition in the compliance plan includes the citation of the applicable requirement on which the condition is based. Please refer the Facility Specific Requirements section of the permit.

III. CASE-BY-CASE DETERMINATIONS

a. NOx RACT pursuant to N.J.A.C. 7:27-19.2

The State NOx RACT rule is for the use of reasonably available control technology (RACT) to prevent or control NO_x emissions from the sources which emit NOx emissions. NEC has proposed to comply with all the NOx RACT requirements applicable to turbines, boiler, emergency generator, and fire pump.

b. VOC RACT pursuant to N.J.A.C. 7:27-16.17

VOC RACT rule is the State Rule for the control and prohibition of air pollution by volatile organic compounds and requires the facility to comply with VOC emission limits. NEC has proposed to comply with all the VOC RACT requirements applicable to turbines, boiler, emergency generator, and fire pump.

c. State of the Art (SOTA) pursuant to N.J.A.C. 7:27-22.35

The facility is required to comply with State of the Art Control Technology (SOTA) of New Jersey Air Pollution Control Regulations (N.J.A.C. 7:27-22.35), for combustion turbines and auxiliary boiler. The facility would comply with SOTA for turbines and boilers by complying with Lowest Achievable Emission Rate (LAER) and/or Best Available Control Technology (BACT) limits.

d. Lowest Achievable Emission Rate (LAER) pursuant to N.J.A.C. 7:27-18.3(b)

This facility is determined to be subject to Non-Attainment New Source review requirements at N.J.A.C 7:27-18 (Subchapter 18 Control and Prohibition of Air Pollution from New or Altered Sources Affecting Ambient Air Quality (Emission Offset Rules)) for NOx, and VOC. The proposed potential emissions of NOx and VOC which are precursors for ozone are greater than the N.J.A.C 7:27-18 thresholds of 25 tpy. The combustion turbines at NEC will meet the current LAER emission limit for NOx and VOC of 2 ppmvd @15% oxygen. The emission limits for NOx and VOC proposed by NEC for all other combustion equipment will also meet LAER.

e. Best Available Control Technology (BACT) pursuant to 40 CFR 52.51

NEC is considered a new major source of Federal Prevention of Significant Deterioration of Air Quality (PSD) under 40 CFR 52.21. Pursuant to 40 CFR 52.21, NEC is one of the 28 named source categories (i.e. fossil fuel-fired steam electric generating plant of greater than 250 MMBTU/hr heat input), with proposed emissions of NOx, CO and PM_{10} more than 100 tons per year threshold for PSD applicability. The facility is also subject to PSD for sulfuric acid (H_2SO_4) and Greenhouse Gases (GHG). It is required to perform BACT analysis for all pollutants subject to federal PSD requirements. Additional information on BACT analysis is presented in the Fact Sheet.

IV. EMISSION OFFSET REQUIREMENTS

NEC must secure offsets for the nonattainment pollutants for which the proposed potential emissions are greater than the pollutant's significant net emission increase threshold. The offset ratios increase based on the distance of the offsets from the project's location. For the NEC project, offsets are required for NOx and VOC. The minimum offset ratio is 1.3:1 for both NO_x and VOC, per N.J.A.C. 7:27-18.5. The use of emission reduction credits (CERs) to offset NO_x and VOC emissions must be within 100 miles for the 1.3:1 ratios to apply. Therefore, multiplying the proposed potential to emit (PTE) by 1.3 results in a requirement for 180.83 tons per year (tpy) of NO_x (PTE = 139.10 tpy) offsets, and 45.5 tons of VOC (PTE = 34.99 tpy) offsets. NEC has secured the required NO_x and VOC emission offsets from sources within 100 miles of its site.

The Department also reviewed NOx emissions as a precursor of PM-2.5 emissions. The proposed NOx emissions are in compliance with the PM-2.5 non-attainment NSR requirements specified in 40 CFR Part 51, Appendix S. NEC proposed to secure more than 181 tpy of NOx offsets for ozone NAAQS. NOx offsets from ozone non-attainment area would satisfy the offset requirements for NOx as a PM-2.5 precursor. Additional information on compliance with offset requirements are provided in the Fact Sheet.

V. AIR QUALITY ANALYSIS

The Department has reviewed the ambient air quality impact of the proposed facility. Based on the air quality modeling analysis, the Department found that air contaminant emissions from the proposed facility would not exceed Federal or New Jersey Ambient Air Quality Standards.

Emissions of NOx, CO, VOC, SO_2, PM_{10} and $PM_{2.5}$ from this facility were first modeled to determine whether they will have a significant impact. The results of the single-source modeling analysis predicted significant impacts for the 1-hour NO_2 concentration during warm startup scenario. The results of the single-source modeling emissions predicted insignificant impact on the Brigantine Wildlife Refuge Class I area.

Since 1-hour NO2 impact exceeded 1-hour NO2 SIL during single-source modeling analysis multi source modeling analysis for 1-hr NO_2 impact was done using 11 facilities in the vicinity of Newark Energy Center. This analysis predicts that the proposed facility will not cause or contribute to a violation of a National or New Jersey Ambient Air Quality Standard (NAAQS/NJAAQS).

HAP emissions from the proposed facility are predicted to pose an insignificant cancer and non-cancerous health risk off the WEC property. In addition, the project is not expected to cause an odor problem.

VI. FACILITY'S COMPLIANCE STATUS

The Responsible Official at the facility has certified that the facility would meet 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, the Department proposes to approve this air pollution control operating permit, PSD permit and Acid Rain permit application. Prior to the expiration of the Operating Permit's five-year term, the facility would be required to apply for a renewal, at which time the Department will evaluate the facility and issue a public notice with its findings.

VII. PUBLIC COMMENTS AND CONTACT INFORMATION

This public notice, the statement of basis, the fact sheet, and the draft permits have been posted at the Air Quality Permitting website: http://www.state.nj.us/dep/aqpp/publicnotices.htm. The draft permit is available for inspection at the Northern Regional Office located at 7 Ridgedale Avenue, Cedar Knolls, New Jersey 07927 (973-656-4444). You may also inspect the draft permit, the application and the supporting materials, and other information and documents contained in the supporting file for the draft permit, at the Trenton location listed below, by calling for an appointment. If you would like to inspect the draft permit at either location, please call in advance for an appointment

All persons, including the applicant, who believe that any condition of the draft Air Pollution Operating Permit or the Department's tentative decision to approve this permit is inappropriate, must raise all reasonable issues of concern and submit all arguments and factual grounds or materials supporting their position during the public comment period. Any comments on this draft permit must be received within 45 calendar days of the date of this notice and addressed to:

Yogesh Doshi
New Jersey Department of Environmental Protection
Air Quality Permitting Program
Bureau of Air Permits
401 East State St. - 2nd Floor, PO Box 420, Mail Code 401-02
Trenton, NJ 08625-0420
609-633-7249

A DEP Public Information session will be held on July 12, 2012 at the Case De Minho located at 109 Saint Charles St, Newark, NJ, and phone number (973) 465-4020. The public information session will start at 5:00 PM and end at 8:00 PM.

The public hearing will be held on July 26, 2012 at the Newark City Hall located at 920 Broad Street, Newark, NJ 07102, and phone number (973) 733-6400. The public hearing will start at 7:00 PM and end at 9:00 PM. If there are still persons wishing to comment, the meeting will be extended until all persons present have had the opportunity to present their comments. At the public hearing, written and oral comments will be accepted by the Department. The public must submit all comments by the close of the public comment period.

The comment period will be closed 45 calendar days after the publication of the notice. All persons, including the applicant, who believe any condition of the draft permit is inappropriate must raise all reasonable issues of concern and submit all arguments and factual grounds, or materials supporting their position, during the public comment period.

The Department will consider and respond to all written and timely submitted comments. The applicant, and each person, who submitted written comments, will receive a notice of the Department’s final decision regarding the Operating Permit and a copy of the Response to Comment document.

The PSD regulations, specifically 40 CFR 52.21(q), provide for administrative review of the final PSD permit decision within 30 calendar days after the date of issuance of the final permit. The procedural requirements for administrative review are defined in the Consolidated Permits Regulations codified at 40 CFR, part 124 (45 FR 33405). Request for administrative review of a final PSD permit decision should be made to the Administrator of the United States Environmental Protection Agency, 401 M Street, Southwest, Washington, DC 20460.

Administrative review is available only to those persons who commented during the comment period and is restricted to issues raised during the comment period with the exception that any person, including those who failed to file comments or failed to participate in the public comment period on the preliminary permit determination, may petition for administrative review of the changes from the draft PSD permit to the final PSD permit.

Upon the issuance by the Department of the final permit decision, or in the case of the administrative review process, the final PSD permit decision will be a final U.S. Environmental Protection Agency action and will be published in the Federal Register. This final action may be challenged only by filing a petition for review in the United States Court of Appeals for the appropriate circuit within 60 calendar days of the date of the Federal Register notice. The final PSD permit shall not be subject to later judicial review in enforcement proceedings. Opportunity for judicial review is only provided at the completion of the administrative appeal process and is provided only to those persons who were parties in an administrative appeal.