Clean Distributed Generation in New York State:

State and Local Siting, Permitting and Code Issues

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Prepared by
Thomas Bourgeois
Adam Hinge
Anish A. Joshi
Pace University Energy Project
White Plains, NY

And
Bruce Hedman
Energy and Environmental Analysis
Arlington, VA

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ABSTRACT

Businesses and industry in New York State that employ on-site power generation with heat recovery can dramatically reduce both energy consumption and its associated environmental impacts. This approach, called combined heat and power (CHP – also known as cogeneration), is already an important generating resource in New York with approximately 5,000 MW of capacity installed at 210 sites. Much of this capacity is in very large sites. This Guidebook is targeted at the growing market for smaller-sized projects, those in the 1 MW to 5 MW range, or below 1 MW in size.

Clean distributed generation (DG) and combined heat and power (CHP) offer an array of benefits to energy customers and the public. However, once an on-site generation project becomes more than an idea, a plethora of siting, permitting and codes-related approval processes must typically be navigated to bring the project to fruition.

A major hurdle in obtaining approvals for DG/CHP project is lack of clarity about what requirements exist, which agencies have jurisdiction, what agency processes must be followed, and the timetable for approvals. This lack of clarity can consume time and money for both developers and agency staff, in the form of research, meetings, review and correction of applications, re-design of projects, and construction modifications.

The purpose of this guidebook is to dispel this confusion for prospective project developers, owners and planning/code officials in New York State by providing a step-by-step, user-driven menu of information. The guidebook is designed to serve as the starting point and continuing reference for those seeking to design, install and operate smaller-sized DG/CHP systems in the state.

In New York, there are:

- ✓ 57 counties, each with multiple cities, plus the City of New York, with 5 local boroughs (building codes, land use, noise, aesthetics)
- ✓ Six major investor-owned utilities, almost 40 major municipal utilities, over 325 water companies (interconnection to the electric grid, supply of natural gas through distribution pipelines, water supply)
- ✓ Eleven regional state building code offices.

New York City and the upstate region (the rest of the state) feature different sets of building codes. With regard to air quality requirements, NYC and certain surrounding counties (Nassau, Suffolk, Westchester, Rockland, parts of Orange County) are classified as severe non-attainment areas in terms of air quality. The remainder of the State is classified as a moderate non-attainment area and faces different air permitting thresholds. DG developers should be aware of these differences as they identify the appropriate bodies that govern the prospective project site and seek the approvals that are needed for the project under consideration.

Acknowledgements

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Note: any corrections or updates to information in this guidebook can be sent to Tom Bourgeois at the Pace Energy Project: TBourgeois@law.pace.edu or fax 914-422-4180
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Distributed Generation Siting, Permitting and Codes Guidebook

- This guidebook is an interactive, drill-down capable, HTML linked application to be available through the NYSERDA and Pace Energy Project websites. It is intended to step prospective project developers, owners, and planning/code officials through all applicable regulations governing smaller-scale (from .1 MW to 10 MW) on-site generation projects.

- The focus of this guidebook is small to medium sized facilities installing clean Combined Heat and Power technologies (reciprocating engines, microturbines, fuel cells, combustion turbines), but some Title V Major Source information is provided.

•The information in this guidebook is up to date as of **May 1, 2003**.

•The online version of the Guidebook is available at:
www.law.pace.edu/energy/index.html

This Guidebook Contains Seven Modules

How This Guidebook Works

- The roles and responsibilities of several authorities having jurisdiction over DG/CHP siting and permitting are outlined, including:
  - ✓ Local building inspectors (e.g., building permits)
  - ✓ Local Fire Marshalls (e.g., fuel storage codes)
  - ✓ Local Zoning Boards (e.g., noise limitations)
  - ✓ City/State Environmental Departments (e.g., air emissions permits)

- For all but the smallest DG/CHP applications, the principal hurdle is likely to be the air permit

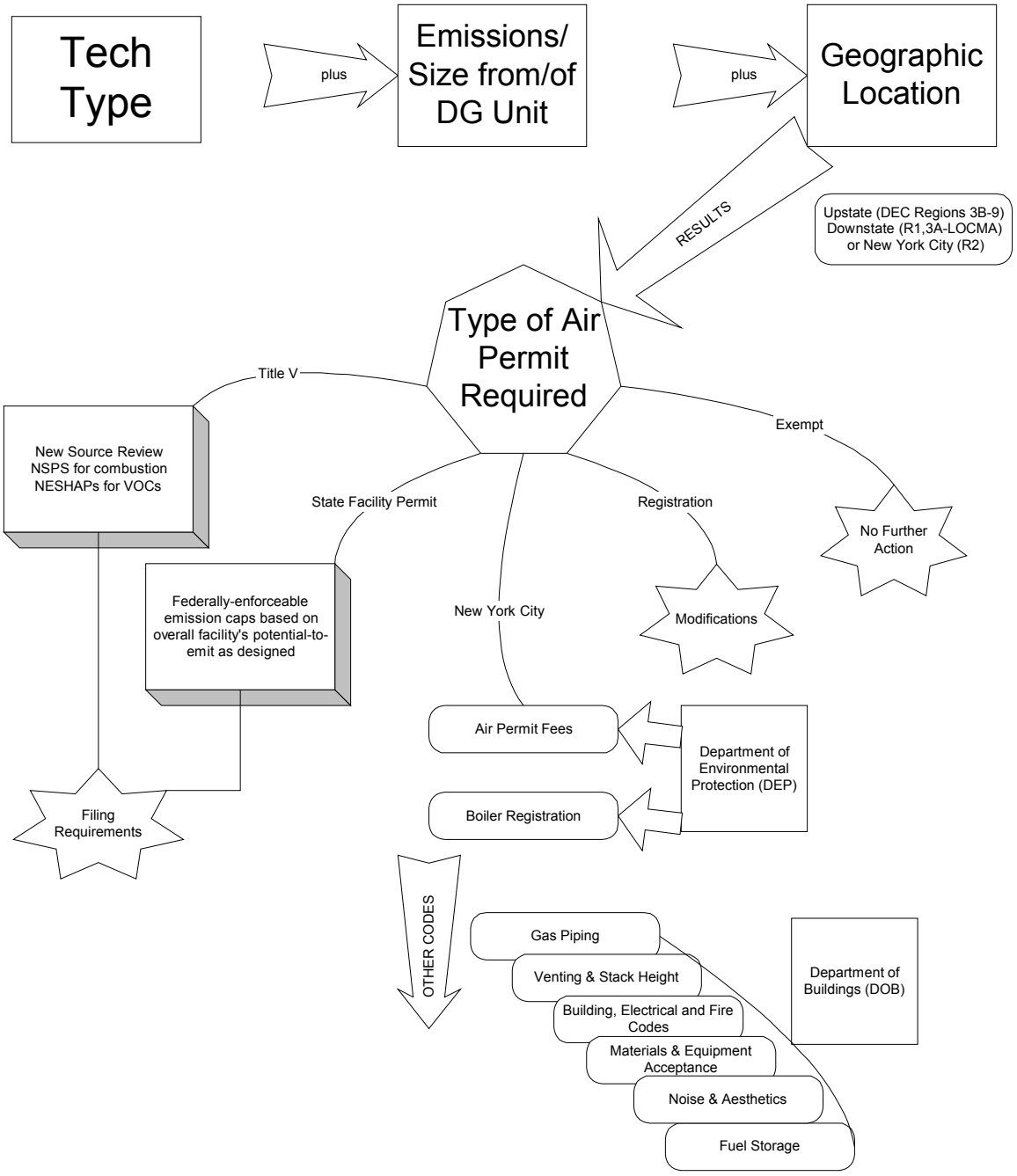
- For this reason, the guidebook has been set up to first determine which air permit requirements will apply; the other permitting and code requirements follow

- Air permitting guidance follows a sequential structured pattern of consideration:
  - ✓ Location
  - ✓ Technology
  - ✓ Size/emissions rates

- It is not expected that a user would need or see all of the screens provided in the guidebook, but only those that apply for their situation

- The process flow chart on the next page shows the typical procedure that a user would need to follow

DG Siting, Permitting and Codes Process Flow



Useful Definitions

Listed below are definitions for terms referred to throughout this Guide. Additional definitions can be found in the Glossary (Appendix H) go to page 84.

Best Available Control Technology (BACT): An emission limitation based on the maximum degree of reduction which DEC determines is achievable taking in to account energy, environmental and economic impacts and other costs. CAA § 169(3).

Criteria Pollutant: CAA § 108(2) Pollutants for which National Ambient Air Quality Standards (NAAQS) have been set by the EPA:

1. Carbon monoxide (CO)
2. Nitrogen oxides (NOx)
3. Sulfur dioxide (SO2)
4. Particulate matter (with an aerodynamic diameter less than 10 microns) (PM-10)
5. Ozone (and its precursors)
6. Lead

Facility: An existing or planned location or site at which prime movers, electric generators, and/or equipment for converting mechanical, chemical, and/or nuclear energy into electric energy are situated, or will be situated. A facility may contain more than one generator of either the same or different prime mover type. For a cogenerator, the facility includes the industrial or commercial process.

Hazardous Air Pollutant: An air pollutant listed by the EPA in Section 112(b) of the Federal Clean Air Act, or determined by the DEQ Environmental Quality Commission to cause adverse effects to human health or the environment.

Lowest Achievable Emission Rate (LAER). The rate of emissions which reflects the most stringent emission limitation which is contained in the NY SIP or, the most stringent emission limitation achieved in practice, whichever is more stringent. CAA § 171(3).

Major Source: Federal regulations require states to initially classify a combustion facility as Major if its physical capacity (i.e., heat input design rating) and operational capacity (i.e., continuous operation-24 hrs/day, 365 days/yr), also known as potential to emit (PTE), equal or exceed the Major thresholds. Limiting factors such as seasonal operation or fuel usage may give a more realistic actual annual emission level. However, these limiting factors must be recorded in a DEC air permit to be considered valid.

Major Source Thresholds (NO_X): The major source thresholds for NO_X is 25 tons per year in the severe non attainment areas of New York and 100 tons per year for the remainder of New York State

Maximum Achievable Control Technology (MACT): The maximum degree of reduction in emissions for new and existing air pollution sources, taking into consideration cost, non-air quality health and environmental impacts, and energy requirements.

Nameplate Capacity: The maximum electrical generating output (in MWe) that a generator can sustain over a specified period of time when not restricted by seasonal or other deratings as measured in accordance with the United States Department of Energy

National Emissions Standards for Hazardous Air Pollutants (NESHAP): The national standards covering asbestos, benzene, beryllium, inorganic arsenic, mercury, radionuclides and vinyl chloride.

Nonattainment Area: A geographic area that violates the National Ambient Air Quality Standards.

Point Source: Any discernible, confined, and discrete conveyance, including, but not limited to, any pipe, ditch channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft, from which pollutants are or may be discharged.

Potential To Emit (PTE): means the maximum capacity of an air pollution source to emit any regulated air pollutant under its physical and operational design; PTE assumes the source operates at maximum capacity 24 hours per day, 365 days per year (8760 hours/yr).

Pollutant: A contaminant that adversely alters the physical, chemical or biological properties of the environment.

Pollution Prevention: Any practice which reduces environmental degradation caused by human activities. Pollution prevention can be achieved by the protection of natural resources by conservation and improved management practices, increased efficiency in the use of raw materials, energy, water, or other resources, or source reduction and other practices that reduce or eliminate the creation of pollutants.

Prevention of Significant Deterioration (PSD): Prevention of Significant Deterioration program, as established in 40 CFR 52

Severe Non Attainment Area (NO_X and VOC): In New York State the severe non attainment area for NOX includes New York City, Nassau and Suffolk counties, Westchester County and the lower Orange County metropolitan area. All other areas of New York State are classified as Moderate Non attainment area for NO_X and VOC.

Site: The land or water area where any facility or activity is physically located or conducted, including adjacent land used in connection with the facility or activity.

STATIONARY SOURCE: Any "building, structure, facility, or installation" that emits or has the potential to emit any air pollutant subject to regulation under the Clean Air Act (see Appendix J go to pg. 86)

RACT Reasonably Available Control Technology: the lowest emission limit that a particular source is capable of meeting by the application of control technology that is reasonably available considering technological and economic feasibility.

Tons per year (TPY): Tons per year is based on the combined potential to emit (PTE) of all

combustion installations at a facility.

Volatile Organic Compounds (VOCs): Chemical compounds which easily evaporate into the atmosphere where they can react with sunlight to produce ground-level ozone, better known as smog.

Air Permitting Basics

The NY State Department of Environmental Conservation (NYSDEC), through the Division of Air Quality, establishes and oversees the air permitting regulations for the state. New York City's Department of Environmental Protection interprets and enforces these regulations within the five boroughs comprising New York City (NYC). The three types of air permits that NYSDEC issues are based primarily on a comparison of the facility's potential to emit (PTE) with the federally-defined major source thresholds.

The following paragraphs outline major NYSDEC air permitting requirements, with pending recommendations noted.

Exemptions from permitting. NYSDEC currently exempts the following types of equipment from air permitting:

- Emergency generators that operate only during losses of normally supplied electricity, for less than 500 hours per year
- Gas turbines with peak load heat input of less than 10 MMBtu/hour
- Internal combustion engines with a total of less than 1,000 brake horsepower that are at a site for less than 30 days.
- Small internal combustion engines: diesel or natural gas, less than 225 brake horsepower, in severe non-attainment areas; diesel or natural gas, less than 400 brakepower in the rest of the state; and gasoline powered, less than 50 brake HP.

In 2001, DG units used for peak electric demand reduction (through the state EDRP[1]), both emergency generators and other types of units, were exempt from air permitting, but during 2002, such units were required to obtain new or modified permits. The State is currently in the process of proposing clarifications to the sections of the electric demand reduction program that address such usage. The proposed language exempts only DG units that are used exclusively for emergency purposes (i.e., when the source of electricity is unavailable). Fuel cells installations would also be exempt. All other DG sources would fall into one of the three permitting categories already established by NYSDEC, as follows.

Minor Facility Registration. Facilities that can cap their emissions to 50% or less of the major source threshold (calculated on a rolling 12-month total basis) receive a registration from NYSDEC. It is good for the life of the unit, assuming that facility records demonstrate adherence to the cap. Modifications to the installation that change the number of emissions points require that a new registration or other applicable permit be issued. The application process for a registration is the simplest of the three permits.

State Facility Permits. Facilities with PTE that is;

i. **greater than** the major source threshold, and

ii. with actual emissions falling below the major source threshold, but

[1] Emergency Demand Response Program, which is part of the Coordinated Demand Reduction Program (CDRP).

iii. in excess of 50% of the limit required for Registrations

qualify for a State Facilities permit.

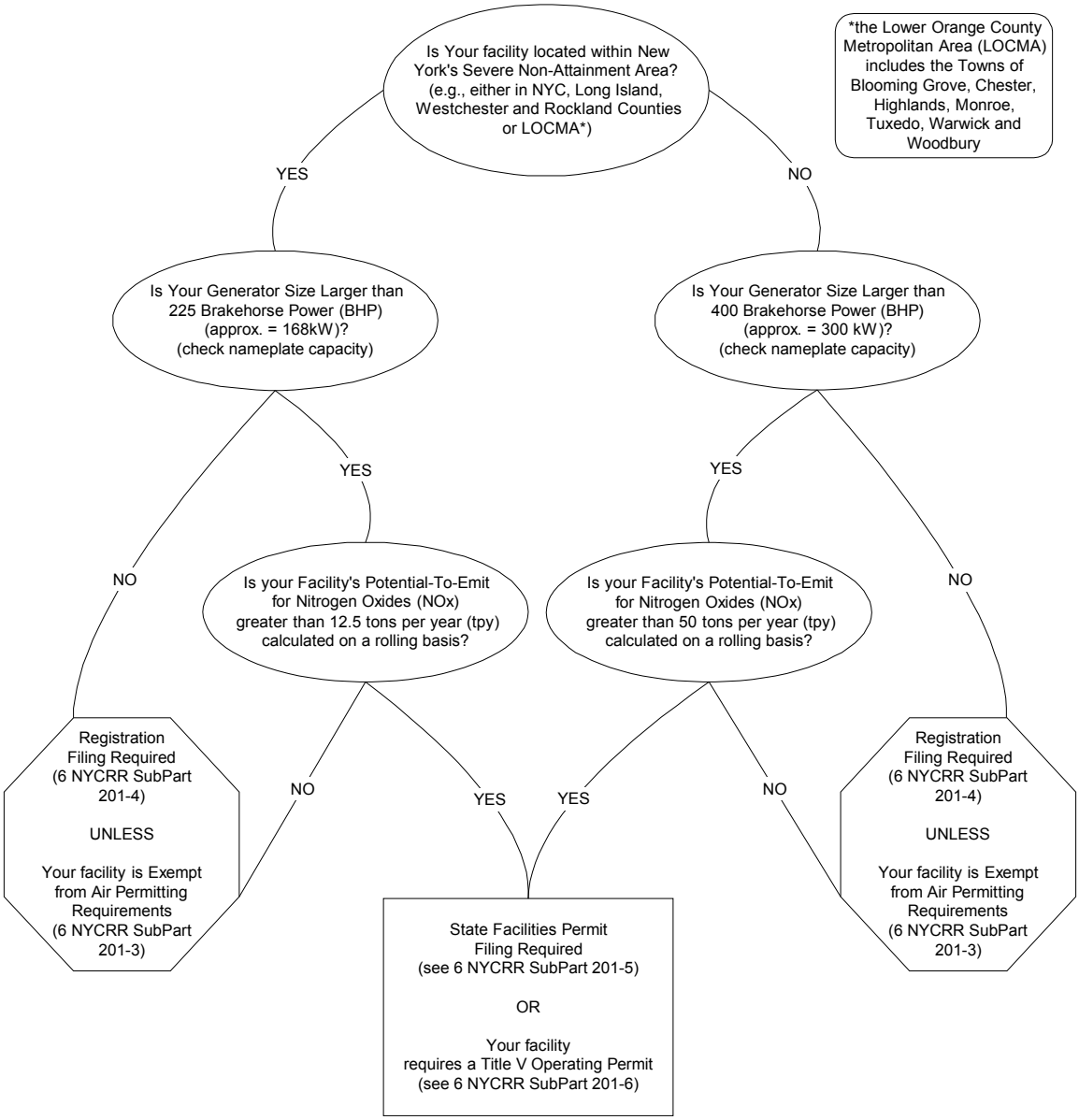
The NYSDEC makes draft permits available during a 30-day public comment period, and responds to comments via a Responsiveness Summary. State permits generally do not specify an expiration date. Addition of a new emission unit or changes in how it is operated triggers the need for a modified permit if it causes emissions limits to be exceeded or renders the source subject to additional requirements. Facilities with PTE greater than the major source threshold but that cap their actual emissions to a level greater than 50% but less than the threshold limit can qualify for a state facility permit through a synthetic minor emissions cap.

Title V permits. This permit type is mandatory for major sources, which are those featuring a PTE for one or more regulated pollutants that is greater than the federal thresholds. It is also required for certain sources that are subject to the federal New Source Performance Standards. This type of permit requires submission of much more extensive documentation than the state facilities permit. A 30-day public comment period on a proposed permit applies, and EPA has 45 days for review. If EPA objects, NYSDEC must satisfy its objections before the permit can be issued. Facilities must certify each year that they are in compliance with the permit conditions, and must renew the permit every five years.

Significant modification of a Title V permitted facility, i.e., addition of a new or modification of an existing emission unit or change in mode of operation, triggers the need to apply either for a modified Title V permit or a state permit for the new unit.

As an example, major NO_X source facilities are defined as those with PTE >= 25 tons/year in ”severe non-attainment areas” (NYC and surrounding counties) and >=100 tons/year for “non-attainment areas” (remainder of the state).

OVERVIEW OF SMALL GENERATOR AIR PERMITTING



See chart on Page 26 for State Facilities Permit and Title V requirements

SUMMING UP TOTAL NO_x POINT SOURCES AT A SITE

The permitting category and requirements (exempt, registration, state facility permit, etc.,) is based on the **total** NO_x emissions from all sources at a site, including any existing boilers or other combustion equipment/emitters at the site.

Guidance on how to calculate and sum up the NOX emissions from all onsite sources can be found in DEC Regulations 6 NYCRR Part 227, Section 227-3.13 [http://www.dec.state.ny.us/website/regs/227.htm#227-3!13]

If the addition of a DG/CHP unit displaces an existing NO_X point source (e.g. an old boiler) it is possible that the new total site emissions could shift to a different permit category. In many cases, the existing permit/registration will remain in force. The owner should consult with the regional air permit office for guidance where a CHP/DG project is planned and simultaneously there will be modifications in the operation of an existing permitted source at the site. See information on summing up total NO_X point source emissions.

Where Is This Project Located? Choose Your Region

State Regions

Region 1 Nassau and Suffolk counties

Region 2 Bronx, Kings, New York, Queens and Richmond

Region 3A • Westchester and Rockland Counties PLUS the Lower Orange County Metropolitan Area (LOCMA includes the Towns of Blooming Grove, Chester, Highlands, Monroe, Tuxedo, Warwick and Woodbury)

Region 3B Dutchess, northern Orange outside LOCMA, Putnam, Sullivan, and Ulster counties

Region 4 Albany, Delaware, Columbia, Greene, Montgomery, Otsego, Schenectady, Schoharie and Rensselaer counties

Region 5 Clinton, Essex, Franklin, Fulton, Hamilton, Saratoga, Warren and Washington counties

Region 6 Herkimer, Jefferson, Lewis, Oneida and St. Lawrence counties

Region 7 Broome, Cayuga, Chenango, Cortland, Madison, Onondaga, Oswego, Tioga and Tompkins counties

Region 8 Chemung, Genesee, Livingston, Monroe, Ontario, Orleans, Schuyler, Seneca, Steuben, Wayne and Yates counties

Region 9 Allegany, Cattaraugus, Chautauqua, Erie, Niagara and Wyoming counties

You can locate the appropriate region on the map or on the list to the left.

Note:
Region 3 has been legally disaggregated into 3A and 3B according to the list to the left

Source: [http://www.dec.state.ny.us/website/dle/roster/index.html]

Click here to find contact information for your regional office
[http://www.dec.state.ny.us/website/about/abtrull3.html]
OR your regional environmental permit office
[http://www.dec.state.ny.us/website/dcs/regions/index.html]
OR your regional office with Army Corps of Engineers jurisdiction
[http://www.dec.state.ny.us/website/dcs/regions/state.htm]

If located Downstate (severe non-attainment area)

Go to Downstate Section (go to pg. 12) *Downstate includes Regions 1, 2 and 3A consisting of NYC, Long Island, Westchester and Rockland Counties or LOCMA**

> **the Lower Orange County Metropolitan Area (LOCMA) includes the Towns of Blooming Grove, Chester, Highlands, Monroe, Tuxedo, Warwick and Woodbury*

If located Upstate (non-attainment area)

Go to Upstate Section (go to pg. 43)

Upstate includes Regions 3B and 4 through 9

FOR GUIDANCE ON AIR PERMITTING ISSUES, PLEASE SELECT WHICH TECHNOLOGY WILL BE UTILIZED (click on the appropriate link)

To calculate/understand which environmental permits apply to your facility, "click here" go to pg. 7

Click here to view a Bar Chart (go to APPENDIX C.) and explanatory text that describe the four air permitting threshold levels, including exempt; registrations; state facilities permit; and, Title V Major Source.

If your project is large enough and you have other air emissions point sources, environmental impact reviews may be necessary at the earliest stage of your planned CHP unit installation, Go To Appendix B for specific considerations and to obtain resource and guidance information on the New York State Environmental Quality Review Act(SEQRA) and New York City (CEQR) environmental quality review process. The purpose of SEQRA/CEQR is to facilitate and document that government agencies have considered the relevant environmental implications before undertaking an official action such as issuing an air permit.

Natural Gas Recip Engines

- This project is located within a severe ozone non-attainment area (New York City, Long Island, Westchester County, Rockland, or lower Orange County)

- If the engine(s) nameplate rating is less than 225 Brake Horsepower (bhp) (or 168 kW) ***and*** the maximum annual Potential-To-Emit (PTE) of NOx from *all sources** at site are less than 25 tons per year (TPY), the project is an exempt/trivial source; go to Downstate Exempt/Trivial go to page 20

- If the engine(s) nameplate rating is greater than 225 bhp (or 168 kW), but:

  - ✓ Less than 870 bhp (or 650 kW+) ***and*** the maximum annual Potential-To-Emit (PTE) of NOx from *all sources** at site are less than 12.5 tons per year (TPY), the project qualifies for Minor Facility Registration; go to Facility Registration pg. 23

  - ✓ Greater than 870 bhp (or 650 kW+) ***and*** PTE of NOx from *all sources** at site exceeds 12.5 TPY but can be capped at less than 25 TPY, the project qualifies for a State Facility Permit; go to State Facility Permits go to pg. 26

  - ✓ Greater than 1740 bhp (or 1300 kW+) ***or*** PTE of NOx from *all sources** at site can not be capped under 25 TPY then Go To Title V Major Source Permits go to pg. 30

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* To understand how other existing NOx point sources at the site can affect relevant permitting requirements, go to "click here" (pg. 10)
+ Engine size limits are based on NYDEC proposed DG standards for lean burn natural gas engine NOx emissions of 4.4 lb/MWh (about 1.5 g/bhp-hr); click here
(**go to pg. 33**) if your emissions rate is significantly different.

Diesel or Primarily Diesel (dual-fueled/pilot-ignition) Recip Engines

- This project is located within a severe ozone non-attainment area (New York City, Long Island, Westchester County, Rockland, or lower Orange County)

- If the engine(s) nameplate rating is less than 225 Brake Horsepower (bhp) (or 168 kW) ***and*** the maximum annual Potential-To-Emit (PTE) of NOx from *all sources** at site are less than 25 tons per year (TPY), the project is an exempt/trivial source; go to Downstate Exempt/Trivial go to pg. 20

- If the engine(s) nameplate rating is greater than 225 bhp (or 168 kW), but:

  - ✓ Less than 560 bhp (or 420 kW+) ***and*** the maximum annual Potential-To-Emit (PTE) of NOx from *all sources** at site are less than 12.5 tons per year (TPY), the project qualifies for Minor Facility Registration; go to Facility Registration pg. 23

  - ✓ Greater than 560 bhp (or 420 kW+) ***and*** PTE of NOx from *all sources** at site exceeds 12.5 TPY but can be capped at less than 25 TPY, the project qualifies for a State Facility Permit; go to State Facility Permits go to pg. 26

  - ✓ Greater than 1120 bhp (or 840 kW+) ***or*** PTE of NOx from *all sources** at site can not be capped under 25 TPY then Go To Title V Major Source Permits (go to pg. 30)

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* To understand how other existing NOx point sources at the site can affect relevant permitting requirements, go to "click here"(pg. 10)
+ Engine size limits are based on NYDEC proposed DG standards for diesel compression engine NOx emissions of 6.8 lb/MWh; "click here" (**go to pg. 34**) if your emissions rate is significantly different.

Natural Gas / Waste Gas MicroTurbines

- This project is located within a severe ozone non-attainment area (New York City, Long Island, Westchester County, Rockland, or lower Orange County)

- If the fuel input to the turbine(s) is less than 10 MMBtu/hr (turbine(s) nameplate rating less than 800 kW) ***and*** the maximum annual Potential-To-Emit (PTE) of NOx from *all sources** at site are less than 25 tons per year (TPY), the project is an exempt/trivial source; go to Downstate Exempt/Trivial go to pg. 20

- If the turbine(s) nameplate rating(s) is greater than 800 kW (10 MMBtu/hr fuel input) but:

  - ✓ Less than 2200 kW+ ***and*** the maximum annual Potential-To-Emit (PTE) of NOx from *all sources** at site are less than 12.5 tons per year (TPY), the project qualifies for Minor Facility Registration; go to Facility Registration pg. 23

  - ✓ Greater than 2200 kW+ ***and*** PTE of NOx from *all sources** at site exceeds 12.5 TPY but can be capped at less than 25 TPY, the project qualifies for a State Facility Permit; go to State Facility Permits go to pg. 26

  - ✓ Greater than 4400 kW+ ***or*** PTE of NOx from *all sources** at site can not be capped under 25 TPY then Go To Title V Major Source Permits go to pg. 30

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* To understand how other existing NOx point sources at the site can affect relevant permitting requirements, go to "click here" (pg. 10)
+ Turbine size limits are based on NYDEC proposed DG standards for natural gas turbine NOx emissions of 1.3 lb/MWh (about 25 ppm @ 15% O2); "click here" if your emissions rate is significantly different (**go to pg. 36**).

Combustion Turbines

- This project is located within a severe ozone non-attainment area (New York City, Long Island, Westchester County, Rockland, or lower Orange County)

- If the fuel input to the turbine(s) is less than 10 MMBtu/hr (turbine nameplate rating less than 800 kW) ***and*** the maximum annual Potential-To-Emit (PTE) of NOx from *all sources** at site are less than 25 tons per year (TPY), the project is an exempt/trivial source; go to Downstate Exempt/Trivial go to pg. 20

- If the turbine(s) nameplate rating(s) is greater than 800 kW (10 MMBtu/hr fuel input) but:

  - ✓ Less than 1300 kW+ ***and*** the maximum annual Potential-To-Emit (PTE) of NOx from *all sources** at site are less than 12.5 tons per year (TPY), the project qualifies for Minor Facility Registration; go to Facility Registration pg. 23

  - ✓ Greater than 1300 kW+ ***and*** PTE of NOx from *all sources** at site exceeds 12.5 TPY but can be capped at less than 25 TPY, the project qualifies for a State Facility Permit; go to State Facility Permits go to pg. 26

  - ✓ Greater than 2500 kW+ ***or*** PTE of NOx from *all sources** at site can not be capped under 25 TPY then Go To Title V Major Source Permits go to pg. 30

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* To understand how other existing NOx point sources at the site can affect relevant permitting requirements, go to "click here" – go to page 10
+ Turbine size limits are based on NYDEC proposed DG standards for natural gas turbine NOx emissions of 2.2 lb/MWh (about 41 ppm @ 15% O2); "click here" if your emissions rate is significantly different (**go to pg. 35**).

Fuel Cells

- Fuel cells are not currently covered as a separate technology in the NYSDEC regulations. The emissions from fuel cells are negligible and generally would not appreciably add to a site's existing emissions. The literature reports a NO_X emissions rate that ranges from .01 lbs/MWH for Solid Oxide Fuel Cells to 0.03 lbs/MWH of for Phosphoric Acid Fuel Cells.

- However, building and health / safety codes are relevant to fuel cell technologies and must be addressed to insure that the project has been properly permitted prior to operation.

Click here to continue to New York City Building, Health/Safety Codes Section
(Go to pg. 37)

Renewable Energy: Biomass

- The NO_x and particulate emissions of certain Biomass generation facilities, such as those burning construction and demolition debris, can be significant. On the other hand, other types of projects such as farm gas digester projects can have environmental benefits. Air permitting of biomass facilities will need to be handled on a case-by-case basis depending on the biomass sources, technology and size. NYSERDA's biomass web page can provide more information on recent project experience. www.nyserda.org/energyresources/biomass.html

Renewable Energy: Solar & Wind

- Solar and Wind Electric Generating Units are Exempt from State and New York City Air Permitting Requirements.

- However, Noise and Visual Requirements Still Apply as well as all Applicable Building and Health/Safety Codes Requirements

  Click here for Discussion of Applicable Noise Requirements (pg. 41)
  Click here for Discussion of Applicable Visual Requirements (pg. 41)
  Click here for Discussion of Applicable Electrical Code Requirements (pg. 39)

- For Solar Installations, structural issues such as building loading requirements and wind shear requirements may arise – click here for more information on Structural Requirements (pg. 42)

AIR-PERMITTING EXEMPTIONS AND TRIVIAL ACTIVITIES

- Exempted and trivial activities do not require a State Facility Permit (SFP) or Minor Facility Registration, but are not exempt from other controlling local or New York City air pollution control regulations. Exemptions include:

  - 6 NYCRR Subpart 201-3.2(c)(3) [http://www.dec.state.ny.us/website/regs/201c.htm#category]: Internal combustion engine powered by diesel or natural gas, within any severe ozone non-attainment area, and have maximum mechanical power rating < 225 BHP/ 168kW (or < 400 BHP/300kW if outside severe area).

  - 6 NYCRR Subpart 201-3.2(c)(5) [http://www.dec.state.ny.us/website/regs/201c.htm#category]: Gas turbines with heat input at peak load < 10 mmBTU/hour if burning fossil fuels (or < 20 mmBTU/hour if built before 6/9/89).

Sources:
1) 6 NYCRR Part 201-3.
2) Karell, Marc, P.E., Guide to New York State's Title V Operating Permit Program, June 25, 1996;
3) Dana, Dawn, "Review of Regulatory Requirements for Operation of Emergency Generators," NYSERDA FlexTech Services and NOVUS Engineering, P.C., July 6, 2001, p.9.

Other Air-Permitting Exempt Activities

•Emergency generators operating <500 hours and only in emergency situations pursuant to 6 NYCRR § 201-3.2(c)(6) [http://www.dec.state.ny.us/website/regs/201c.htm#category].

- Emergency units are defined as being "for use when the usual sources of heat, power, water and lighting are temporarily unobtainable…"
- Emergency units operated "under contract with a utility to provide peak-shaving generation to the grid…" are, however, excluded from this exemption.

✓ Contact Engineering Department at NYC DEP Bureau of Environmental Compliance, to file your emergency generator if facility is located within NYC's Five Boroughs.
  - (718) 595-3855

•Special permits required for emergency generators operating within the Emergency Demand Response Program, subject to a call by the New York Grid operator

•Centrally dispatched emergency power generating units where each individual unit operates for no more than 200 hours per year pursuant to 6 NYCRR § 201-3.2(c)(6) [http://www.dec.state.ny.us/website/regs/201c.htm#category].

•Use of some renewable energy technologies such as solar photovoltaic, wind and hydro-electric technologies.

Sources:
1) Dana, Dawn, "Review of Regulatory Requirements for Operation of Emergency Generators," NYSERDA FlexTech Services and NOVUS Engineering, P.C., July 6, 2001, p.3-4.
2) 6 N.Y.C.R.R. § 201-3.2(c)(6).

Proof of Eligibility and Maintenance of Control Equipment Exempt and Trivial Activities

- 6 NYCRR Subpart 201-3.2(a)(1) [http://www.dec.state.ny.us/website/regs/201c.htm#Proof] – Maintain all required records on-site for a period of five years and make them available to representatives of the Department upon request.

- 6 NYCRR Subpart 201-3.2(b) [http://www.dec.state.ny.us/website/regs/201c.htm#Proof] – Operate and maintain such emission control devices in a manner consistent with good engineering practices. Failure to do so constitutes a violation of this Part.

- See § 201-3.3(a)-(b) [http://www.dec.state.ny.us/website/regs/201c.htm#Proof2] for Proof of eligibility and Maintenance of control equipment for Trivial Activities.

END OF AIR PERMIT EXEMPT SECTION

- ***For projects in New York City:*** Click here (pg. 37) to determine City building, health/safety, noise and other permits that apply to your facility OR
- ***For Other Codes issues pertaining to projects in New York State except New York City:*** Click here (go to pg. 51) determine building, health/safety, noise and other permits that apply to your facility

- ***Otherwise,***
  Click here to return to the Downstate Generator Technology Page
  (go to pg. 12)

Or click here (go to pg. 60) for or FAQ's on air permits and air permit assistance

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MINOR FACILITY REGISTRATION

- Registration requirements are found in Subpart 201-4 [http://www.dec.state.ny.us/website/regs/201d.htm]

- Applicable to any stationary source with potential to emit capped-by-rule pursuant to Section 201.7.3(e)(1) [http://www.dec.state.ny.us/website/regs/201g.htm#201g!3]:

- Cap by Rule Emissions Thresholds for Minor Facility Registrations:
  •(1) 50 percent of the major stationary source thresholds for regulated air pollutants,
  •(2) 5 tons of a single hazardous air pollutant,
  •(3) 12.5 tons of any combination of hazardous air pollutants
  •(4) 50 percent of any lesser threshold for a single hazardous air pollutant that the Administrator may establish by rule and upon incorporation into state regulation.

- Therefore, your geographic location within the state determines your capping thresholds as follows:

  1. Severe Non-attainment Areas: Capped at 12.5 tons per year (tpy) of Nitrogen Oxides (NOx), or
  2. Other Non-Attainment Areas: Capped at 50 tpy of NOx.

- Contrast §201-7.2 Emission Capping Using Synthetic Minor Permits [http://www.dec.state.ny.us/website/regs/201g.htm#201g!2].

Sources:
1) 6 N.Y.C.R.R. Parts 201-7.2, 201-7.3(e).
2) EPA'S Clean Air News for small business, Volume 4, Number 2; Spring/Summer 2000, "DEC's Registration & Permit Application Review Procedures," pgs.4,12.

More on Registrations

- Valid registrations last forever, and they need no renewal absent a facility modification or sufficient increase in emissions.

- Minor Facilities must annually certify to DEC that the facility's emission rates, even for exempt or permitted activities, remain below the 50% cap. See Subpart 201-4.5 for required Notification of Changes [http://www.dec.state.ny.us/website/regs/201d.htm#201d!5].

- Registration application content specifications found in Subpart 201-4.4 [http://www.dec.state.ny.us/website/regs/201d.htm#201d!5].

- DEC must respond within 30 days of receipt of your completed application.

- Call your DEC Regional Air Pollution Control Engineer (RAPCE) or the Small Business Environmental Ombudsman (SBEO) at 800-782-8369 for assistance and to check on the status.

- Some minor facilities must retain records of validation for below-cap emissions on-site as described below:

  §201-1.10 Public Access to Recordkeeping.
  [http://www.dec.state.ny.us/website/regs/201.htm#201!10]

  (a) Where emission source owners and/or operators keep records pursuant to compliance with the operational flexibility requirements of 201-5.4(b)(1), and/or the emission capping requirements of 201-7.2(d), 201-7.3(f), 201-7.3(g), 201-7.3(h)(5), 201-7.3(i) and 201-7.3(j), the Department will make such records available to the public upon request in accordance with Part 616 - Public Access to Records. Emission source owners and/or operators must submit the records required to comply with the request within sixty working days of written notification by the Department of receipt of the request.

  (b) For facilities subject to Subpart 201-6, the Department will make available to the public any permit application, compliance plan, permit, and monitoring and compliance certification report pursuant to Section 503(e) of the Act, except for information entitled to confidential treatment pursuant to 6 NYCRR Part 616 - Public Access to Records and Section 114(c) of the Act.

Sources:

1) NYS EFC Small Business Assistance Program (SBAB) Clean Air News for small business, Volume 4, Number 2; Spring/Summer 2000, "DEC's Registration & Permit Application Review Procedures," p.5,13.
2) Dana, Dawn, "Review of Regulatory Requirements for Operation of Emergency Generators," NYSERDA FlexTech Services and NOVUS Engineering, P.C., July 6, 2001, p.10.
3) 6 N.Y.C.R.R. Parts 201-1.10, 201-4.4.

END OF MINOR FACILITY REGISTRATION SECTION,

- ***For projects in New York City:*** Click here (go to pg. 37) to determine City building, health/safety, noise and other permits that apply to your facility OR

- ***For projects in New York State except New York City:*** Click here (go to pg. 51) to determine building, health/safety, noise and other permits that apply to your facility

- ***Otherwise,***

  Click here to return to the Downstate Generator Technology Page (go to pg. 12)

  Or click here (go to pg. 60) for FAQ's on air permits and air permit assistance

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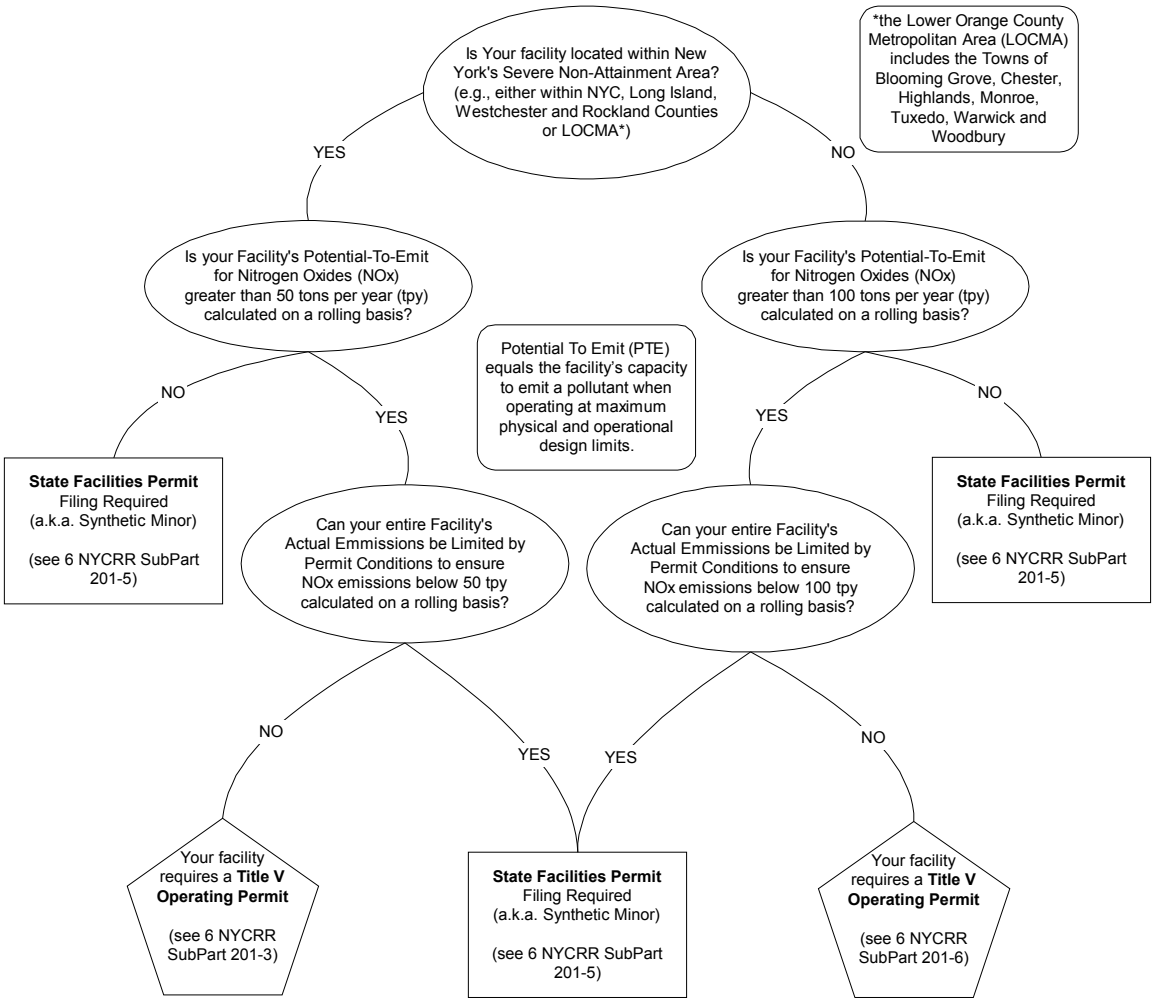
STATE FACILITY PERMIT (SFP)



STATE FACILITY PERMIT (SFP)

- Defined in Subpart 201-4 [http://www.dec.state.ny.us/website/regs/201e.htm]

- **§201-5.1 Applicability [http://www.dec.state.ny.us/website/regs/201e.htm#Applicability].**

  (a) *Applicability.* Owners and/or operators of stationary sources that are not exempt or trivial pursuant to Subpart 201-3 "Exemptions and Trivial Activities," are not eligible to register pursuant to Subpart 201-4 "Minor Source Registration," and are not required to obtain a Title V permit pursuant to 201-6 "Title V Permits" are subject to the requirements of this Subpart. See list of such sources in this subsection.

- **§201-5.2 (b) Addresses Issues of Completeness [http://www.dec.state.ny.us/website/regs/201e.htm#201e!2].**

  (b) In order to be complete, the application must include the following information at a minimum:

  (1) identifying information, including owner and/or operator name and address, plant name and address;

  (2) a location map with the site marked on it if the application is for a new facility;

  (3) a description of the emission units' processes and products;

  (4) a list of all emission units at the facility except those that are exempt or trivial pursuant to Subpart 201-3 [http://www.dec.state.ny.us/website/regs/201c.htm];

  (5) a list of all regulated air pollutants emitted from the facility;

  (6) the type, rate and quantity of emissions in sufficient detail for the Department to determine those state and federal requirements that are applicable to the facility.

MORE ON STATE FACILITY PERMITS

- SFP candidates are usually facilities whose potential to emit (PTE) exceeds the major source threshold, but whose actual or anticipated emissions are below this level. [25 tons per year of nitrogen oxides (or 12.5 tpy of VOCs) for severe nonattainment areas; 100 tons per year of nitrogen oxides (or 25 tpy of VOCs) for other areas of NYS]

- PTE equals the facility's capacity to emit a pollutant when operating at maximum physical and operational *design* limits.

- SFPs will obtain federally-enforceable emission caps ranging between 50% and ~90% of the major source threshold, or of similar variances granted by DEC.

- SFP Permit Content and Terms of Issuance can be found in Part 201-5.3 [http://www.dec.state.ny.us/website/regs/201e.htm#201e!3].

- Rules on Modifications and Operational Flexibility for SFPs can be found in Part 201-5.4 [http://www.dec.state.ny.us/website/regs/201e.htm#201e!3].

Sources:
1) 6 N.Y.C.R.R. Parts 201-5.3, 201-5.4
2) Dana, Dawn, "Review of Regulatory Requirements for Operation of Emergency Generators," NYSERDA FlexTech Services and NOVUS Engineering, P.C., July 6, 2001, p.10.

TIME FRAMES FOR ISSUANCE OF SFPs

[http://www.dec.state.ny.us/website/dcs/upa/upa_timeframes.html]

- Contact your Regional Air Pollution Control Engineer (RAPCE) at the initial stage of project plan development to reduce time to completion [http://www.dec.state.ny.us/website/about/abtrull3.html]
- Assistance is avaible from NYS Environmental Facilities Corp's Small Business Assistance Program (SBAP) call 800-780-7227 or NYS Small Business Environmental Ombudsman call 800-STATE-NY (800-782-8369)

- Submit forms to the Regional Permit Administrator (RPA) in the Division of Environmental Permits. [http://www.dec.state.ny.us/website/dcs/regions/index.html]

- DEC will respond within 15 days with its application completeness determination.

- DEC will then review your complete SFP application for up to 30, 45 or 60 days.

- A 30-day public comment period will follow DEC's review.

Sources:

1) NYS EFC Small Business Assistance Program (SBAP) Clean Air News for Small Business, Volume 4, Number 2; Spring/Summer 2000, "DEC's Registration & Permit Application Review Procedures," p.4. http://161.11.129.165/news/index.cfm

2) DEC's "[Uniform Procedures Act] UPA Time Frames," September 28, 2000, [http://www.dec.state.ny.us/website/dcs/upa/upa_timeframes.html].

End of State Facility Permit Section

- ***For projects in New York City:*** Click here (go to pg. 37) to determine City building, health/safety, noise and other permits that apply to your facility **OR**

- ***For projects in New York State except New York City:*** Click here (go to pg. 51) to determine building, health/safety, noise and other permits that apply to your facility

- ***Otherwise,***

Click here to return to the Downstate Generator Technology Page (go to pg. 12)

Or click here (go to pg. 60) for or FAQ's on air permits and air permit assistance

TITLE V PERMITS FOR MAJOR SOURCES

- Major facilities require a Title V Air Permit when actual emissions, at the entire facility (not just from one stack), exceed 25 tpy of NOx in severe nonattainment areas (a.k.a., Downstate), or exceed 100 tpy of NOx in other nonattainment areas (a.k.a., Upstate).

  Note: DEC assumes that a 10% buffer zone of emission thresholds will be accounted for, thereby adjusting the enforceable thresholds to 22.5 tpy and 90 tpy of NOx, respectively.

- DEC also issues Title V air permits (Part 201-6) [http://www.dec.state.ny.us/website/regs/201f.htm] pursuant to its authority granted by the United States Environmental Protection Agency (EPA).

- NOx RACT STANDARD FOR STATIONARY IC ENGINES

  •see Part 227-2.4(f) for applicable technology performance standard [http://www.dec.state.ny.us/website/regs/227.htm#227-2!4]
  NOx RACT (Reasonably Achievable Control Technology) Standard for stationary internal combustion engines exceeding 225 BHP (approx. 168 kW).

  •Consult DEC's Air Guide-20 [http://www.dec.state.ny.us/website/ogc/egm/airguide20.html] to discover how to utilize the NOx RACT economic variance option. Contact your DEC RAPCE for more information.

Sources:
1. 6 NYCRR Subpart 231-2.1(21): Definition of major facility.
2. 6 NYCRR Subpart 201-6: EPA delegation to DEC to administer the Federal Clean Air Act.
3. 6 NYCRR 227-2: REASONABLY AVAILABLE CONTROL TECHNOLOGY (RACT) FOR OXIDES OF NITROGEN (NOx).
4. DEC Air Guide-20 [http://www.dec.state.ny.us/website/ogc/egm/airguide20.html]

Title V Application Time Frames and Completeness Determination

[http://www.dec.state.ny.us/website/dcs/upa/upa_timeframes.html]

- Part 201-6.2 [http://www.dec.state.ny.us/website/regs/201f.htm#Phase]: Owners and/or operators of facilities subject to this Subpart shall submit a complete application defined in this Subpart as follows:

  (i) Name and phone number of the responsible official

  (ii) Facility identification and location (including topographical maps with the site marked)

  (iii)Description of facility activities (including SIC codes)

  (iv) Identification of major/minor status with respect to regulated air pollutants

  (v) Identification of applicable requirements

  (vi) Definition of compliance status with respect to applicable requirements (to include compliance schedule as necessary pursuant to SubPart 201-6.5(d) [http://www.dec.state.ny.us/website/regs/201f.htm#Compliance])

  (vii)Certification of compliance status with respect to applicable requirements pursuant to SubPart 201-6.5(e) [http://www.dec.state.ny.us/website/regs/201f.htm#Compliance2].

- Part 201-6.3(a) [http://www.dec.state.ny.us/website/regs/201f.htm#Timely]: Title V Application Time Tables

- Part 201-6.3(b) [http://www.dec.state.ny.us/website/regs/201f.htm#Completeness]: Notice of the completeness determination shall be provided to the applicant within sixty days of receipt of the complete application, followed by a public notice and comment period pursuant to Subpart 621.
  - Allow for a 30-day public comment period on your draft permit and a 45-day comment period on your proposed permit.

Source: 6 NYCRR Parts 201-6.2, 201-6.3.

NSRs: PERMIT APPLICATION PROCESS

Once a source determines that NSR applies:

(1) complete the permit application;
(2) make a BACT determination;
(3) attend any pre-permit application meetings;
(4) develop and negotiate draft permit with DEC;
(5) assess public comments and DEC responses;
(6) revise draft permit into its final form; AND
(7) attend any administrative or judicial appeals.

NOTE: Average NSR process takes 7 months.

Source: EPA's "NSR 90-Day Review: Background Paper," June 22, 2001, Docket A-2001-19, Document II-A-01, p.5.

Additional Resources on Title V Permitting

Myths and fact About NSR [http://www.epa.gov/nsr/nsrmythfact.pdf]
Title V Application with Instructions [http://www.dec.state.ny.us/website/dar/boss/resource.html]
Issued Title V Permits [http://www.dec.state.ny.us/website/dar/boss/afs/issued_atv.html]
NOVUS Report [Dana, Dawn, "Review of Regulatory Requirements for Operation of Emergency Generators," NYSERDA FlexTech Services and NOVUS Engineering, P.C., July 6, 2001.]
Titlev.org web site [http://www.titlev.org/]

End of Title V Permit Section

- ***For projects in New York City:*** Click here (go to pg. 37)to determine City building, health/safety, noise and other permits that apply to your facility OR

- ***For projects in New York State except New York City:*** Click here (go to pg. 51) to determine building, health/safety, noise and other permits that apply to your facility

- ***Otherwise,***

  Click here to return to the Downstate Generator Technology Page (go to pg. 12)

  Or click here (pg. 60) for FAQ's on air permits and air permit assistance

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FIGURE 1. ALLOWABLE NATURAL GAS RECIP ENGINE SIZE REMAINING BELOW THE 12.5 TON PER YEAR THRESHOLD: BASED ON VARIOUS EMISSIONS RATES (in Grams/BHP-Hour)

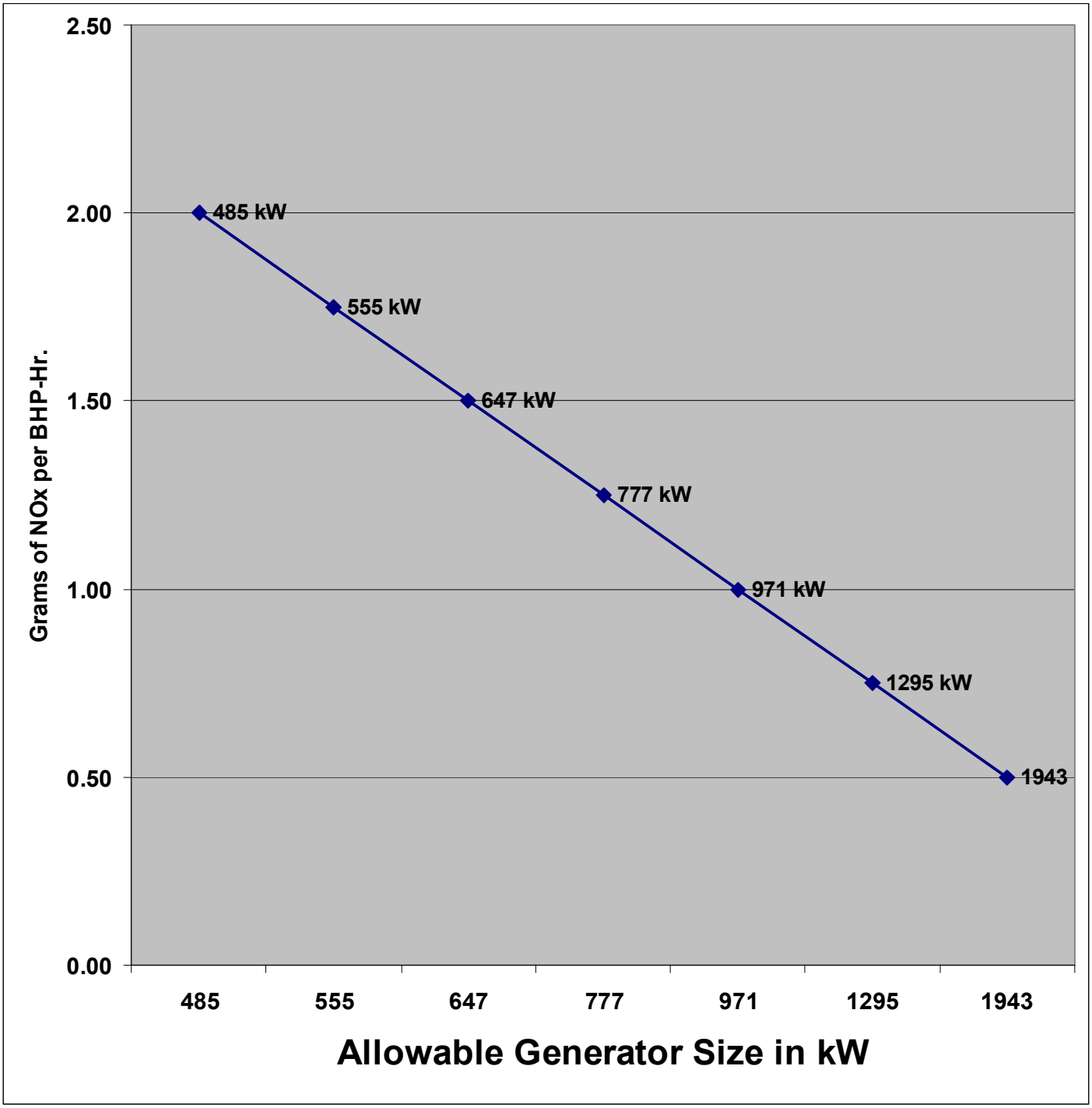


FIGURE 2. ALLOWABLE DIESEL ENGINE SIZE REMAINING BELOW THE 12.5 TON PER YEAR THRESHOLD: BASED ON VARIOUS EMISSIONS RATES (in Grams/BHP-Hour)

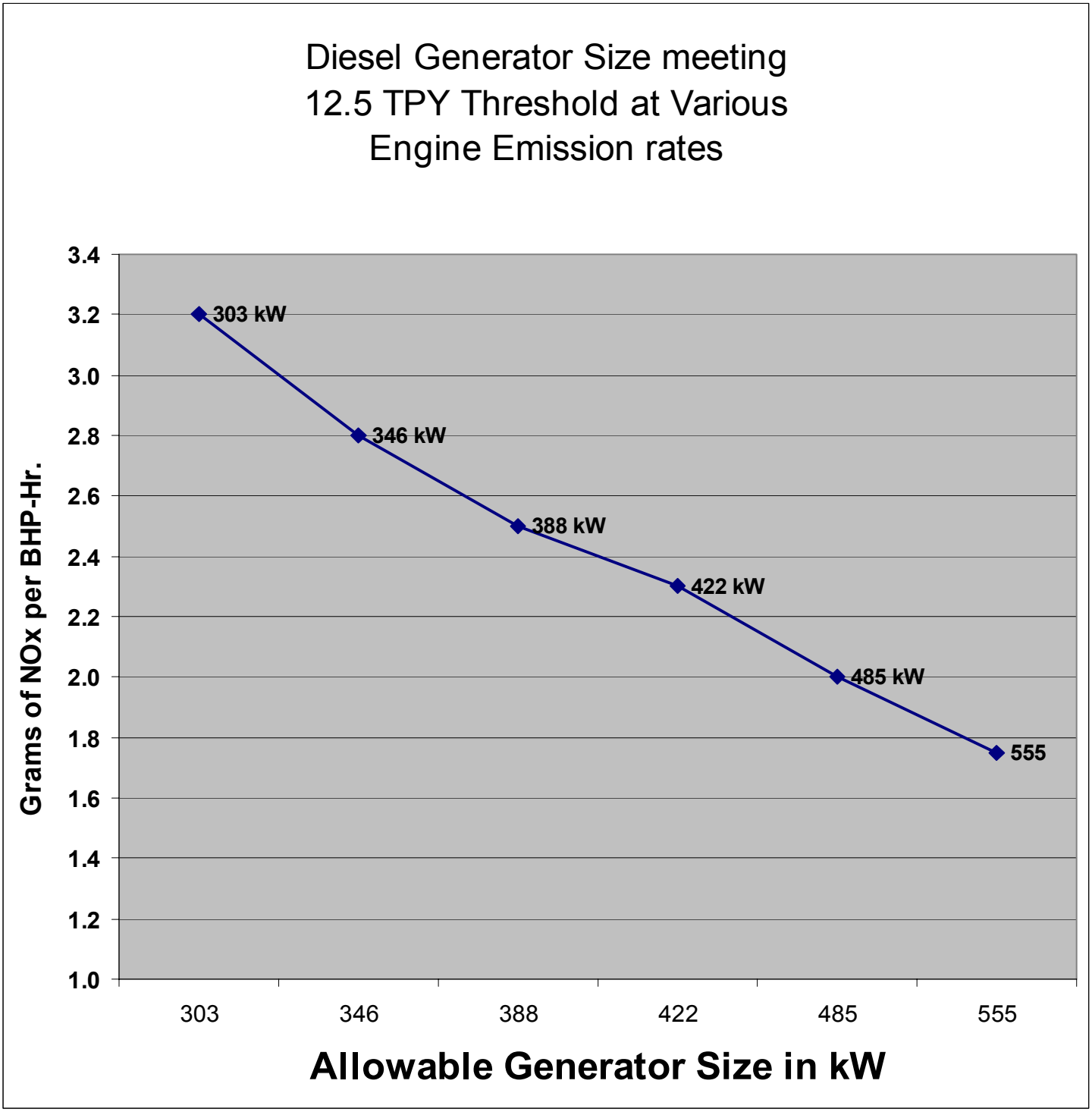


FIGURE 3. ALLOWABLE GAS COMBUSTION TURBINE SIZE REMAINING BELOW THE 12.5 TON PER YEAR THRESHOLD: BASED ON VARIOUS EMISSIONS RATES (in Lbs/MWH)

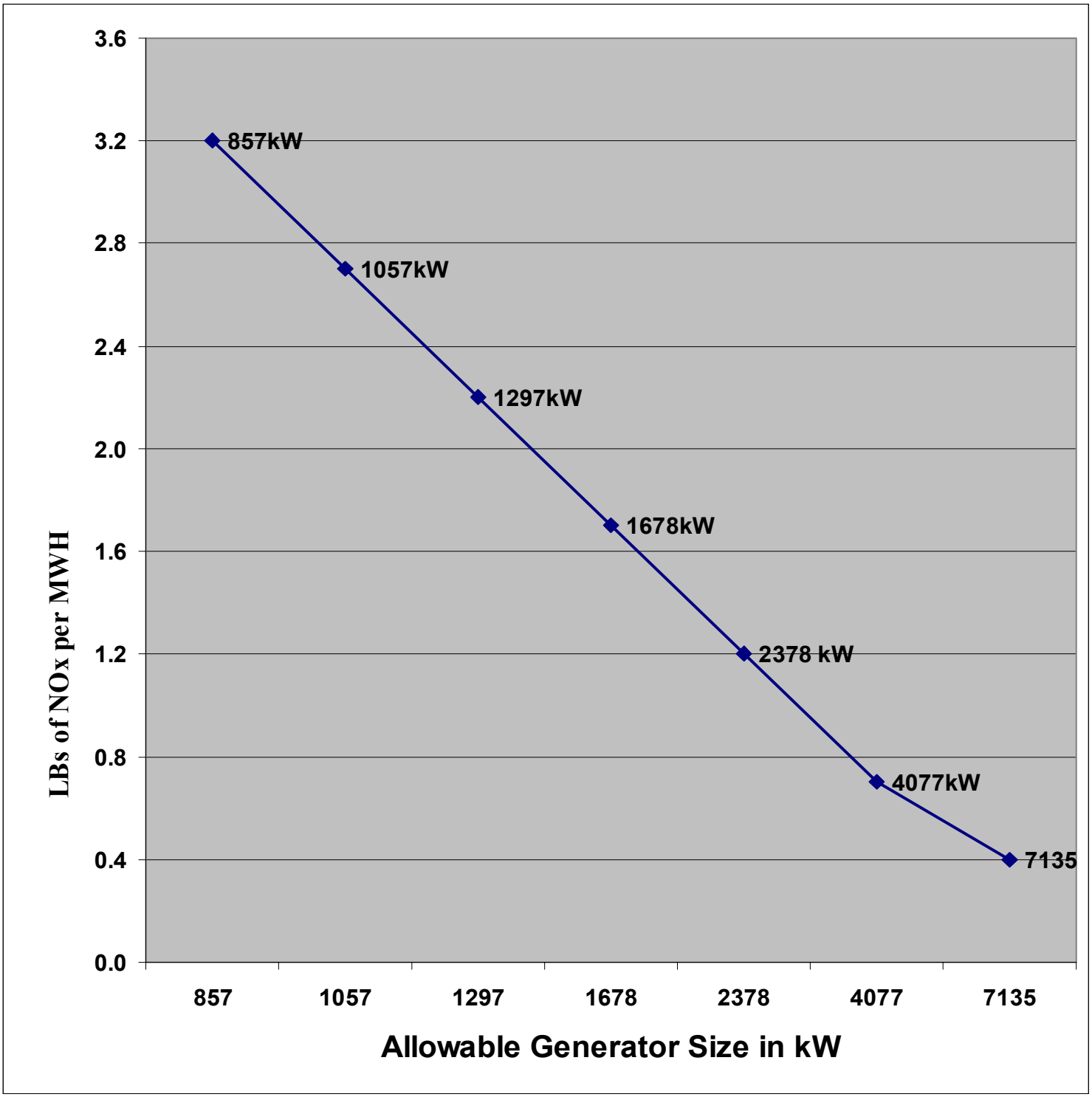
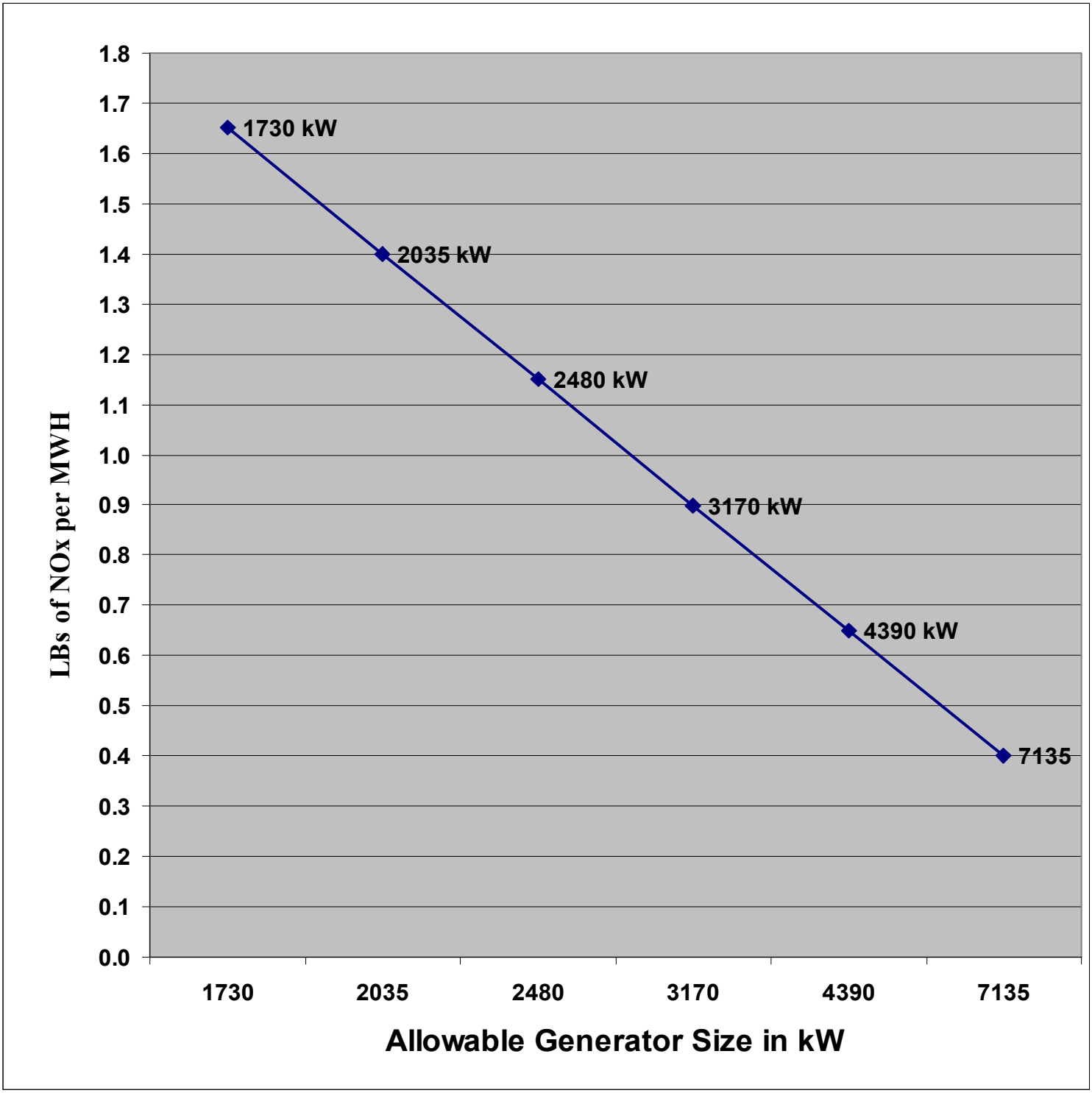


FIGURE 4. ALLOWABLE MICROTURBINE SIZE REMAINING BELOW THE 12.5 TON PER YEAR THRESHOLD: BASED ON VARIOUS EMISSIONS RATES (in Lbs/MWH)



OTHER RELEVANT CODES AND PERMITS IN NEW YORK CITY

This section of the Guidebook identifies Building, Health/Safety, Noise, Visual/Aesthetic codes and regulations that apply in the five boroughs of New York City and which may affect the siting and permitting of CHP facilities.

For checklist of forms in APPENDIX A click here (go to page 63)

Gas Piping and Venting – Fuel Gas Code	Go to Fuel Gas Code (pg. 38)
Electrical Code Issues - Electrical Code	Go to Electrical Code (pg. 39)
Fuel Storage & Fire Code, Health/Safety Issues –	Go to Fire Codes and On-site Fuel Storage (pg. 40)
Noise Issues	Go to Noise Issues (pg. 41)
Visual Aesthetic Issues	Go to Aesthetic Issues (pg. 41)

For definitions of different types of generators (emergency, backup, standby, etc.,) please see New York City Code Sections 700 - 702

GAS PIPING AND VENTING ISSUES

Inside a building structure fuel gas supply is governed by the New York City Building Code and Fire Department regulations and requirements, which cover materials, construction, installation of fuel gas piping systems, components, fuel gas utilization equipment and related accessories.

- In NYC, gas piping over certain pressures (e.g., > = 15 psi) requires welded pipe with special inspections. Contact Fire Dept. of NY

  Note that some microturbines that require external gas pressure boosters may have additional review or inspections.

  Regulations for Gas distribution piping operating at pressure levels above 10 psig are found at Reference Standards 16 (RS 16-5) Part 115.7n
  See http://www.bluelinenews.com/code/building/bcrs16.pdf Reference Standards - RS-16 Plumbing and Gas Piping

- NYC Department of Building (DOB) has detailed venting requirements; one of particular relevance is that the stack height must be minimum of 3' above highest building within 100' of a CHP unit to eliminate downdraft.

- For hookup specs, GO TO **Con Edison's Blue Book (of Building and Construction)** [http://www.thebluebook.com/ny/htm/0026294900000.shtml]

  OR for more information call 1-800-431-2584 or 718-904-4714.

NYC ELECTRIC CODE ISSUES

NYC Electrical Code Filing Requirements: In New York City there is both *i. Filing* and *ii. Approval* processes that must be met, dependent upon project size.

The Bureau of Electrical Control enforces the Electrical Code. They are located at 2322 Municipal Building, New York, New York 10007. Tel: (212) 669-8353

The BEC website is http://www.nyc.gov/html/dob/html/elcode.html

Detailed information about the New York City electric code and code interpretation can be found at http://www.nyc.gov/html/dob/html/code_interpre.html

Some issues of specific concern to CHP projects include the following;

- Any project above 480V must be filed with the NYC Bureau of Electrical Control (BEC)
- Any project 1000 kVa and above must be approved by the BEC Advisory Board.

NYC Fuel Storage & Fire Code Issues

The fire department will be concerned with fuel storage, gas shutoff provisions and gas pressure issues.

- In New York City, all installations with gas pressures in excess of 15 psi are under the regulations of the Fire Department of the City of New York (FDNY). A Fire Department inspection is required for all such systems. For residential installations the threshold is greater than 2 psi.
- NYC Fire Codes govern on-site fuel storage; there are limitations on above and below grade storage
- The Fire Department will shut off gas before entering a building
- Diesel generators are required for certain emergency / life-safety equipment. On-site fuel storage is required
- Most CHP units will likely be fired by natural gas thereby reducing concerns over fuel storage and fire code issues.

Equipment Approvals

- In NYC, most equipment must go through "Materials & Equipment Acceptance" (MEA) by Department of Buildings (DOB) to have the technology approved:

    (A) DOB Advisory Board meets about monthly

    (B) UL certification provides baseline assurances
    - Can take 6 to 12 months to obtain UL certification
    - Comply with NYC and other local Fire Department specs

Click to NYC Building Code forms [http://www.nyc.gov/html/dob/html/code.html]
Or, click here to see Materials and Equipment Acceptance (MEA) information in Appendix A (pg. 65)

Noise Issues

- In New York City, the DEP has noise guidelines that should be consulted and taken account of in project design. Noise Control Code Title 24 - Chapter 2, March 1998. Available at www.nonoise.org/lawlib/cities/newyork.htm
- NYC Department of Buildings (DOB) has noise regulations for applications near residential buildings

- DISTANCE as well as decibels is at issue when assessing noise sources and their impacts. Determinations may be made as to the locations at which to measure the distance e.g., from the property line of the noise source, or at the point of use/inhabitance of the adjacent and affected property. Decibel level analysis incorporates pitch and duration of sound.

- The land use classification (ZONING) of adjacent and abutting property is an important concern. You may need to identify proximity to sensitive receptors including residences, schools, churches, synagogues and public open space

If noise may be an issue, consult New York City Administrative Code, Title 24, Subchapter 6, Section 24-243 ("Ambient Noise Quality Zones, Criteria and Standards") and New York City Zoning Resolution, Article IV, Section 42-21 (noise performance standards).

Noise impact potential is one of many issues for consideration in a CEQR review.
Consult City Environmental Quality Review (CEQR) Technical Manual, 2001, Section 3R (Noise) Go to CEQR section for more information [go to Appendix B / pg. 69]

DEC's offers technical guidance on noise impacts. This document does not supercede any local noise ordinances or regulations but offers helpful information.

- Be Aware that some "dump radiators' / heat rejection systems can act like sound amplifiers and have been known to cause extra noise problems

AESTHETIC / VISUAL ISSUES

In New York City, as is the case throughout the state, Aesthetic / Visual issues are regulated by local government agencies. The City's CEQR process is unlikely to apply to the smaller combined heat and power projects that are the focus of this Guidebook.
In CEQR Technical Manual, Section 3H. considerations of land use, urban design, visual resources, historic resources, socioeconomic conditions, traffic and noise are addressed.

The NYS DEC has prepared a guidance document to assist local planning agencies with aesthetics issues. The document, ***Assessing and Mitigating Visual Impacts*** is available at http://www.dec.state.ny.us/website/dcs/policy/visual/visual2000.PDF .
Originating Unit: Division of Environmental Permits, Author Jeffrey Sama, dated July 31, 2000

Structural Concerns

- PV and other solar collectors must be securely anchored to avoid wind shear and potential damage to property in severe winds. PV systems mounted to new or existing buildings will need to demonstrate that adequate structural elements are in place to support and anchor at design wind loads.

- For more information about structural issues, see the NREL website [www.nrel.gov].

For detailed technical information on solar technologies and residential buildings codes see *Photovoltaic and Solar-Thermal Technologies in Residential Building Codes,* David Wortman and Linda Echo-Hawk. NREL/TP-520-26579 September 1999 http://www.nrel.gov/docs/fy99osti/26579.pdf

UPSTATE SECTION

FOR GUIDANCE ON AIR PERMITTING ISSUES, PLEASE SELECT WHICH TECHNOLOGY WILL BE UTILIZED

To calculate/understand which environmental permits apply to your facility, click here
active link to explanation on page 7

Click here to view a Bar Chart (APPENDIX C pg. 69) and explanatory text that describe the four air-permitting threshold levels, including exempt; registrations; state facilities permit; and, Title V Major Source.

As environmental impact reviews may be necessary at the earliest stage of your planned CHP unit installation. Click here to go to Appendix B (page 68) for specific considerations and to obtain resource and guidance information on the New York State Environmental Quality Review Act(SEQRA) and New York City (CEQR) environmental quality review process. The purpose of SEQRA/CEQR is to facilitate and document that government agencies have considered the relevant environmental implications before undertaking an official action such as issuing an air permit.

Natural Gas Recip Engines

- This project is located **outside** the severe ozone non-attainment area (New York City, Long Island, Westchester County, Rockland, or lower Orange County) in the state of New York

- If the engine(s) nameplate rating is less than 400 Brake Horsepower (bhp) (or 300 kW) ***and*** the maximum annual Potential-To-Emit (PTE) of NOx from *all sources** at site are less than 50 tons per year (TPY), the project is an exempt/trivial source; go to Exempt/Trivial go to pg. 20

- If the engine(s) nameplate rating is greater than 400 bhp (or 300 kW), but:

  - ✓ Less than 3500 bhp (or 2600 kW+) ***and*** the maximum annual Potential-To-Emit (PTE) of NOx from *all sources** at site are less than 50 tons per year (TPY), the project qualifies for a Minor Facility Registration; go to Facility Registration go to pg. 23

  - ✓ Greater than 3500 bhp (or 2600 kW+) ***and*** PTE of NOx from *all sources** at site exceeds 50 TPY but is less than 100 TPY, the project qualifies for a State Facility Permit; go to State Facility Permits go to pg. 26

  - ✓ Greater than 7000 bhp (or 5200 kW+) ***or*** PTE of NOx from *all sources** at site can not be capped under 100 TPY then Go To Title V Major Source Permits go to pg. 30

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* To understand how other existing NOx point sources at the site can affect relevant permitting requirements, go to "click here" (page 10)

+ + Engine size limits are based on NYDEC proposed DG standards for lean burn natural gas engine NOx emissions of 4.4 lb/MWh (about 1.5 g/bhp-hr); click here (**go to pg. 85**) if your emissions rate is significantly different.

Diesel or Primarily Diesel (dual-fueled/pilot-ignition) Recip Engines

- This project is located **outside** of the severe ozone non-attainment area (New York City, Long Island, Westchester County, Rockland, or lower Orange County) in New York State.

- If the engine(s) nameplate rating is less than 400 Brake Horsepower (bhp) (or 300 kW) ***and*** the maximum annual Potential-To-Emit (PTE) of NOx from *all sources** at site are less than 50 tons per year (TPY), the project is an exempt/trivial source; go to Exempt/Trivial go to pg. 20

- If the engine(s) nameplate rating is greater than 400 bhp (or 300 kW), but:

  - ✓ Less than 2250 bhp (or 1680 kW+) ***and*** the maximum annual Potential-To-Emit (PTE) of NOx from *all sources** at site are less than 50 tons per year (TPY), the project qualifies for a Minor Facility Registration; go to Facility Registration go to pg. 23

  - ✓ Greater than 2250 bhp (or 1680 kW+) ***and*** PTE of NOx from *all sources** at site exceeds 50 TPY but is less than 100 TPY, the project qualifies for a State Facility Permit; go to State Facility Permits go to pg. 26

  - ✓ Greater than 4500 bhp (or 3360 kW+) ***or*** PTE of NOx from *all sources** at site can not be capped under 100 TPY then Go To Title V Major Source Permits go to pg. 30

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* To understand how other existing NOx point sources at the site can affect relevant permitting requirements, "click here"(pg. 10)

+ Engine size limits are based on NYDEC proposed DG standards for diesel compression engine NOx emissions of 6.8 lb/MWh; "click here" (**go to pg. 86**) if your emissions rate is significantly different.

Natural Gas / Waste Gas Microturbines

- This project is located **outside** of the severe ozone non-attainment area (New York City, Long Island, Westchester County, Rockland, or lower Orange County) in New York State.

- If the fuel input to the turbine(s) is less than 10 MMBtu/hr (turbine(s) nameplate rating less than 800 kW) ***and*** the maximum annual Potential-To-Emit (PTE) of NOx from *all sources** at site are less than 50 tons per year (TPY), the project is an exempt/trivial source; go to Exempt/Trivial go to pg. 20

- If the turbine(s) nameplate rating(s) is greater than 800 kW (10 MMBtu/hr fuel input) but:

  - ✓ Less than 8800 kW+ ***and*** the maximum annual Potential-To-Emit (PTE) of NOx from *all sources** at site are less than 50 tons per year (TPY), the project qualifies for a Minor Facility Registration; go to Facility Registration go to pg. 23

  - ✓ Greater than 8800 kW+ ***and*** PTE of NOx from *all sources** at site exceeds 50 TPY but is less than 100 TPY, the project qualifies for a State Facility Permit; go to State Facility Permits go to pg. 26

  - ✓ Greater than 17,600 kW+ ***or*** PTE of NOx from *all sources** at site can not be capped under 100 TPY then Go To Title V Major Source Permits pg. 30

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* To understand how other existing NOx point sources at the site can affect relevant permitting requirements "click here"(pg. 10)

+ Turbine size limits are based on NYDEC proposed DG standards for natural gas turbine NOx emissions of 1.3 lb/MWh (about 25 ppm @ 15% O2); "click here" if your emissions rate is significantly different (**see page 87**).

Combustion Turbines

- This project is located **outside** of the severe ozone non-attainment area (New York City, Long Island, Westchester County, Rockland, or lower Orange County) in the State of New York.

- If the fuel input to the turbine(s) is less than 10 MMBtu/hr (turbine nameplate rating less than 800 kW) ***and*** the maximum annual Potential-To-Emit (PTE) of NOx from *all sources** at site are less than 25 tons per year (TPY), the project is an exempt/trivial source; go to Exempt/Trivial go to pg. 20

- If the turbine(s) nameplate rating(s) is greater than 800 kW (10 MMBtu/hr fuel input) but:

  - ✓ Less than 5200 kW+ ***and*** the maximum annual Potential-To-Emit (PTE) of NOx from *all sources** at site are less than 50 tons per year (TPY), the project qualifies for a Minor Facility Registration; go to Facility Registration pg. 23

  - ✓ Greater than 5200 kW+ ***and*** PTE of NOx from *all sources** at site exceeds 50 TPY but is less than 100 TPY, the project qualifies for a State Facility Permit; go to State Facility Permits pg. 26

  - ✓ Greater than 10,400 kW+ ***or*** PTE of NOx from *all sources** at site can not be capped under 100 TPY then Go To Title V Major Source Permits pg. 30

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* To understand how other existing NOx point sources at the site can affect relevant permitting requirements, "click here" – go to page 10

+ Turbine size limits are based on NYDEC proposed DG standards for natural gas turbine NOx emissions of 2.2 lb/MWh (about 41 ppm @ 15% O2); "click here" if your emissions rate is significantly different (**go to pg. 88**).

Fuel Cells

- Fuel cells are not currently covered as a separate technology in the NYSDEC regulations. The emissions from fuel cells are negligible and generally would not appreciably add to a site's existing emissions. The literature reports a NO_X emissions rate that ranges from .01 lbs/MWH for Solid Oxide Fuel Cells to 0.03 lbs/MWH of for Phosphoric Acid Fuel Cells.

- However, building and health / safety codes are relevant to fuel cell technologies and must be addressed to insure that the project has been properly permitted prior to operation.

Click here to continue to Building, Health/Safety Codes Sections.
Go to pg.51

Renewable Energy: Biomass

- The NO_x and particulate emissions of certain Biomass generation facilities, such as those burning construction and demolition debris, can be significant. On the other hand, other types of projects such as farm gas digester projects can have environmental benefits. Air permitting of biomass facilities will need to be handled on a case-by-case basis depending on the biomass sources, technology and size. NYSERDA's biomass web page can provide more information on recent project experience. www.nyserda.org/energyresources/biomass.html

Renewable Energy: Solar & Wind

- Solar and Wind Electric Generating Units are Exempt from State and New York City Air Permitting Requirements.

- However, Noise and Visual Requirements Still Apply as well as all Applicable Building and Health/Safety Codes Requirements

  For discussion of Applicable Noise Requirements Go to pg. 56
  for Discussion of Applicable Visual Requirements Go to pg. 58
  for Discussion of Applicable Electrical Code Requirements Go to pg. 54

- For Solar Installations, structural issues such as building loading requirements and wind shear requirements may arise – click here for Structural Requirements go to pg. 59

FOR ACCESS TO THE COMPLETE UPSTATE CODES SECTION Go to pg. 51

Other relevant codes and permits (outside of New York City)

Local Permit Approvals

- In most cases, a local planning agency or commission will need to approve that any planned project will be in compliance with local zoning requirements. The applicant must be certain that they are in compliance with applicable zoning codes, or zoning variances may add significant review time. The local code enforcement officer can provide a summary of applicable codes and regulations.

- Often issues raised in past DG projects involved noise or visual/aesthetic concerns; while these approvals are all locally controlled, NYS DEC has guidelines for evaluating these issues.

- In some cases, Historic Preservation issues may also apply if the DG application is to go into an historic building, particularly if there is any exterior visual impact.

- All relevant building and other municipal codes need to be verified and met; often an early meeting with the local code enforcement officer can be very helpful.

Building / Health&Safety / Noise & Aesthetics Codes outside of NYC

This section of the Guidebook identifies Building, Health/Safety, Noise, Visual/Aesthetic codes and regulations that may affect the siting and permitting of CHP facilities.

For checklist of forms in APPENDIX A click here (go to page 63)

Gas Piping and Venting	Go to Fuel Gas Code (pg. 53)
Electrical Code Issues	Go to Electrical Code (pg. 54)
Fuel Storage & Fire Code, Health/Safety	Go to Fire / Fuel Storage (pg 55)
Noise Issues	Go to Noise Issues (pg. 56)
Visual / Aesthetic Concerns	Go to Visual/Aesthetics (pg. 58)

New York State has recently adopted a full set of revised Fire Prevention and Building Codes based on the national model codes developed by the International Code Council. Details on these codes and how to obtain them can be found at the Department of State website www.state.ny.us/codes or www.ICBO.org

FUEL GAS CODE OF New York State

- Inside a building structure fuel gas supply is governed by the Fuel Gas Code of New York State, which is based on the International Fuel Gas Code with some New York specific modifications. Materials, construction, installation of fuel gas piping systems, components, fuel gas utilization equipment and related accessories.

- Among the areas covered by the code:

  Gas Piping Installations
  Pipeline sizes for specified applications
  Construction materials used -- steel or other metal
  Shut-off valve locations
  Metering Devices
  Piping Protection
  Pipe Hangers and Supports

  Combustion, Ventilation and Dilution Air

  Chimneys and Vents

  Fuel Cell Power Plants

  Gas Boilers

The Building Code of New York State (contains by reference the National Electric Code)

- Local jurisdictions throughout New York State can adopt their own electrical codes through a more restrictive local standard. However, throughout NYS the same universal code is applied as the minimum level of enforcement (NFPA 70-1999, Ch. 34). New electric codes are currently in development but are not expected to be in effect until 2004 at the earliest. Go to www.icbo.org to purchase new codes.

- These codes cover general topics such as:
  Branch Circuits
  Overcurrent Protection
  Grounding

- The national electric code references include:

  1) Structural Design and Seismic considerations in Chapter 16

  2) Section 915 of the Mechanical Code of New York State

  3) Section 615 of the Fuel Gas Code of New York State

  4) NFPA 37-1998 Stationary Combustion Engines and Gas Turbines:

     Requirements for mounting, locating and housing engines

     Enclosures -- standards for cabinet construction and design, protection from natural elements and accidental force impacts

     Specifications for outdoor enclosures -- the sizing, materials and construction, minimum distances from buildings and combustible walls

     Liquid fueled engine fuel tank and daytank installations

     Addresses Gas-fueled engine materials with references to NFPA 54 and NFPA 58

     Exhaust Piping and Venting -- details for safe exhaust piping, routing and installation

Source: Operation and Performance Standards for Microturbine Generator Sets. Anne-Marie Borbely-Bartis et.al. 2000 www.eren.doe.gov/der/microtrubines/pdf/mtstandards.pdf

On-site Fuel Storage, Fire (and Life) Safety Codes

- The Fire Code of New York State controls the design of:
  - Fire Protection Systems (Chapter 9)
  - Flammable and Combustible Liquids (Chapter 34)

- The local fire department, fire marshal and code official will be concerned with fuel storage, gas shutoff provisions and gas pressure issues.

- Especially in larger cities throughout the Empire State (NYC, White Plains, Albany Buffalo), the local code officials such as fire marshals and zoning officers ultimately determine the appropriate parameters for fuel storage and fire safety.

- Sometimes, the fire safety approval process involves third-party fire inspectors.

Noise Issues

- Concerns about noise have slowed down certain DG/CHP approvals in the past. Noise concerns are generally covered through local zoning or planning ordinances that vary by locality. Be sure to ask local planning and building department officials about relevant noise codes, as addressing these issues early can save much time.

- Be Aware that some "dump radiators' / heat rejection systems can act like sound amplifiers and have been known to cause extra noise problems

- The NYS DEC has prepared a guidance document to assist local planning agencies with noise issues. This document is available at: www.dec.state.ny.us/website/decs/policy/noise/noise2000.pdf *Assessing and Mitigating Noise Impacts*, Division of Environmental Permits, October 2000

- Noise impact potential is one of many issues for consideration in a SEQR review. For more on SEQR see Appendix B [click or go to pg. 68]

- DEC's technical guidance on noise impacts does not supercede any local noise ordinances or regulations.

    - ♦ In some jurisdictions, such as the Town of Colonie, noise levels simply can not be "disagreeable" to the hypothetically average person.
    - ♦ In comparison, the DEC standard is practical applicability.

- Strategies to Eliminate Noise Concerns
    a. Obtain a special use permit by the local government
    b. Incorporate appropriate best management practices into your operational plan

- Key issues from the DEC Guidance Document include:
  - ✓ The applicant or their agent, in preparing an application for a permit and supporting documentation, is responsible for assessing the potential noise impacts on area receptors
  - ✓ The addition of any noise source, in a **nonindustrial** setting, should not raise the ambient noise level above a maximum of 65 dB(A).
  - ✓ Ambient noise levels in industrial or commercial areas may exceed 65 dB(A) with a high end of approximately 79 dB(A) (EPA 550/9-79-100, November 1979).
  - ✓ The goal in an industrial/commercial area, where ambient levels are already at a high level, should be not to exceed the ambient.
  - ✓ If a new source operates at the same noise level as the ambient, then 3 dB(A) must be added to the existing ambient noise level to obtain the future noise level.

NOTE: TABLES ARE PROVIDED IN THE DOCUMENT FOR CALCULATING HOW INCREMENTAL NOISE SOURCE ADDITIONS WILL CHANGE FUTURE NOISE LEVELS

Aesthetic/Visual Concerns

The NYS DEC has prepared a guidance document to assist local planning agencies with aesthetics issues. The document, ***Assessing and Mitigating Visual Impacts*** is available at http://www.dec.state.ny.us/website/dcs/policy/visual/visual2000.PDF .
Originating Unit: Division of Environmental Permits, Author Jeffrey Sama, dated July 31, 2000

Concerns about visual / aesthetics issues have slowed down DG approvals in the past. Visual aesthetics concerns are generally covered through local zoning or land use planning ordinances that vary by locality. Consult with local planning and building department officials about relevant requirements governing aesthetics issues at the project, as addressing these issues early can save much time.

This concern especially applies when needing to comply with the balancing provisions of SEQR/CEQR or the National Historic Preservation Act.

When a facility is within the viewshed of a designated aesthetic resource, DEC will require the applicant to employ *reasonable and necessary measures* to eliminate, mitigate or compensate for adverse aesthetic effects. Small-scale projects are generally not burdened with the costs of sophisticated visual assessments. If applicable at all, local officials and DEC might seek mitigation strategies that can be implemented at modest cost.

Structural and Seismic Concerns

- PV and other solar collectors as well as wind generators must be securely anchored to avoid being blown away in severe winds. PV systems mounted to new or existing buildings will need to demonstrate that adequate structural elements are in place to support and anchoring at design wind loads.

- For more information about structural issues related to PV systems, see the NREL website at www.nrel.gov

Also see The Building Code of New York State, which includes by reference the National Electric Code.

Seismic Code Considerations -- The most recent New York State Building Code that applies throughout New York State except New York City has seismic design issues that must be addressed

For detailed technical information on solar technologies and residential buildings codes see *Photovoltaic and Solar-Thermal Technologies in Residential Building Codes,* David Wortman and Linda Echo-Hawk. NREL/TP-520-26579 September 1999 http://www.nrel.gov/docs/fy99osti/26579.pdf

FREQUENTLY ASKED QUESTIONS (FAQ's)

AVOIDING PERMITTING DELAYS

- Allow at least 6 months to:
  (1) start the application process,
  (2) seek technical assistance from The New York State Small Business Stationary Source Technical and Environmental Compliance Assistance Program (SBAP),
  (3) schedule a pre-application conference with DEC,
  (4) gather information,
  (5) prepare your application, and
  (6) obtain all air and building permits.

- To learn more on how file a DEC permit, GO TO [http://www.dec.state.ny.us/website/dcs/upa/upa_1.html]

Source:
1) EPA'S Clean Air News for small business, Volume 4, Number 2; Spring/Summer 2000, "DEC's Registration & Permit Application Review Procedures," p.4.
2) DEC web site on "How Does One File for a DEC Permit?." [http://www.dec.state.ny.us/website/dcs/upa/upa_1.html]

PRE-APPLICATION ASSISTANCE

- Contact your Regional Air Pollution Control Engineer (RAPCE) or Regional Permit Administrator (RPA) to schedule a conference or discuss orally [http://www.dec.state.ny.us/website/dcs/regions/index.html]:

  (1) your project plans,
  (2) application procedures, other DEC permits, other determinations, and other regulatory jurisdiction,
  (3) emission limits, and
  (4) standards for permit issuance.

Source:
1) DEC's "Application Procedures", Division of Environmental Permits - Air Pollution Control Permit Program [http://www.dec.state.ny.us/website/dcs/air/air03.html].

NEW SOURCE REVIEWS (May not be applicable)

- New source pre-construction review (NSR) in nonattainment areas (or in ozone transport regions) requires (1) lowest achievable emission rate control technology (Part 231-2.5) [http://www.dec.state.ny.us/website/regs/231b.htm#231-2!5] AND (2) offsetting (Part 231-2.1(b)(13) for definition) [http://www.dec.state.ny.us/website/regs/231b.htm#231-2!1]of emissions from new major facilities.

- For a new Title V facility (a.k.a., greenfield or brownfield source), NSR is triggered (1) if the potential emissions qualify as major under the established NSR regulations.

- Also requiring NSRs are existing major (or Title V) facilities located in any nonattainment area within New York State that exhibit a significant increase in emissions, which most likely will not apply here.

  NOTE: The current NY State Implementation Plan (SIP) excludes reference to NSRs, so see Appendix D on New York State NSRs, which are administered pursuant to Part 231 [http://www.dec.state.ny.us/website/regs/231.htm].

  Go to APPENDIX E to learn more about nonattainment NSRs.

Sources:
1. EPA's "NSR 90-Day Review: Background Paper," June 22, 2001, Docket A-2001-19, Document II-A-01, p.5.
2. 6 NYCRR 231-2

Strategies To Avoid New Source Reviews

- Limit your facility's Potential-To-Emit (PTE) for NOx to stay below the significant level by installing controls or limiting fuel burned and operating hours.
  - Significance levels vary by pollutant and attainment status
  - NSR regulations use the significance level as the baseline comparison figure in determining which facility modifications will become subject to a NSR.

- Offer past or future emissions decreases at other units at the applicant facility that fall within the same DEC Permit ID Number.
  - Offsets and Netting

  GO TO APPENDIX G to learn more on how to calculate offset ratios and to use netting to your advantage

- To avoid NSPS, do not increase the actual hourly emissions rate measured at current maximum capacity. Under federal requirements, combustion turbines larger than 600 kW are subject to federal New Source Performance Standards (NSPS) under 40 CFR 60 subpart GG. However, there are no NSPS standards for reciprocating engines.

Sources:
1) EPA's "NSR 90-Day Review: Background Paper," June 22, 2001, Docket A-2001-19, Document II-A-01, p.6-7.
2) Dana, Dawn, "Review of Regulatory Requirements for Operation of Emergency Generators," NYSERDA FlexTech Services and NOVUS Engineering, P.C., July 6, 2001.

Modifications/Changes Not Triggering NSR

- Definition: Modification is defined as a physical change (where maximum hourly emissions are increased – 40 C.F.R. § 60.14(h)) or a change in method of operation.

  A. Routine physical changes

Routine maintenance
Repair or replace equipment

B. Routine operational changes not already limited via permit conditions
Increase in operating hours
Increase in production rates
Change in facility ownership

C. Pollution control projects meeting EPA's environmental regulations

D. Emissions increase below the significant level

GO TO **APPENDIX F** to learn much more about modifications and strategies to prevent notice to DEC or burdensome reviews

Source: EPA's "NSR 90-Day Review: Background Paper," June 22, 2001, Docket A-2001-19, Document II-A-01, p.4,6

For small business assistance contact the New York State Environmental Facilities Corp (NYS EFC) Small Business Assistance Program, or the Small Business Environmental Ombudsman at 800-STATE-NY affiliated with the Empire State Development Corporation (NYS ESDC).

APPENDIX A. FORMS CHECKLIST AND COMPENDIUM OF APPLICABLE FORMS

AIR REGULATIONS AND PERMITS

New York City Department of Environmental Protection (DEP)

1. New York City DEP's Air Pollution Control Code (March 1992)
   -code amendments, if any for CHP projects
2. Engineering Fee Schedule
3. Engineer's Professional Certification (in triplicate)
4. Application to operate Fossil Fuel Combustion Equipment (Form APC 5-C)
5. APC III PA Environmental Rating Report Summary of Points Emission (One Set)
6. Material Safety Data Sheet for Each Contaminant (One Set)
7. Fuel Oil Burning Criteria – Engineering Criteria
8. Application for Boiler Registration (APC 501) (renew every 3 years)
   -instructions
9. Title 15 City Rules – Official Compilation; Vol. 5, Titles 15-18
   a. -code amendments, if any for CHP projects
10. NYAC Title 24, Chs. 1 & 2
    a. -code amendments, if any for CHP projects
11. City Environmental Quality Review Manual, Appendices and Forms
12. Application for Stationary Combustion Installation Boilers (construct or operate) (Form 76-11-4)
    -instructions
13. Application for Process, Exhaust and/or Ventilation (Construct or Operate) (Form 76-19-3)
    -instructions for completing Form 76-19-3
    -related instructions for completing Form 76-19-2
    -related instructions for completing Form 76-19-13

New York State Department of Environmental Conservation (DEC) air permits

All items listed below found at [http://www.dec.state.ny.us/website/dar/boss/resource.html]

State Facility Permits
-instructions

Request for Modifications
DEC Regulations identifying exempt facility modifications

Title V Permit
-completed samples
-instructions to complete Title V application

Minor Facility Registration (renewal not required, generally)

Continuing Application

Exemption Form

BUILDING CODES AND PERMITS

New York City Department of Environmental Protection

Noise Control Code (Title 24 - Chapter 2, March 1998)
www.nonoise.org/lawlib/cities/newyork.htm

Asbestos Abatement Activity Forms [http://www.ci.nyc.ny.us/html/dep/html/asbestosf.html]

Form ACP9, "Asbestos Variance Application"
-instruction sheet
Form ACP8, "Asbestos Project Amendment Form for Form ACP 7"
-instruction sheet
Form ACP7, "Asbestos Inspection Report" Asbestos Project Notification
-instruction sheet
-Regulatory Interpretation Memorandum
Form ACP5, "Not an Asbestos Project" Notification
-instruction sheet

* Certified Asbestos Investigators, Contractors and Firms
[http://www.ci.nyc.ny.us/html/dep/html/airfirms.html]

* Asbestos Rules and Regulations [http://www.ci.nyc.ny.us/html/dep/html/asbestos.html]

New York City Department of Buildings

NYC Building Code [http://www.ci.nyc.ny.us/html/dob/html/code.html]
-includes links to "Reference Standards"

See for example Regulations for Gas distribution piping operating at pressure levels above 10 psig, found at Reference Standards 16 **(RS 16-5) Part 115.7n**

DOWNLOADABLE FORMS:
Complaints
Complaint Form (ADM-55) [http://www.nyc.gov/html/dob/html/pdfinst.html#complaints]

Work Permits
Plan/Work Approval Application (PW-1) [http://www.nyc.gov/html/dob/html/pdfinst.html#permit]
-instructions

Schedule C – Heating & Combustion Equipment (PW-1C)
[http://www.nyc.gov/html/dob/html/pdfinst.html#permit]
-instructions

New York City Department of Buildings (continued)

Work Permit Renewal application (PW2) [http://www.nyc.gov/html/dob/html/pdfinst.html#permit]

-instructions
-tips

Cost Affidavit (PW-3) [http://www.nyc.gov/html/dob/html/pdfinst.html#permit]

Equipment Use Application/Permit with instructions (PW-4)
[http://www.nyc.gov/html/dob/html/pdfinst.html#permit]

Certificate of Occupancy (PW-6) [http://www.nyc.gov/html/dob/html/pdfinst.html#permit]
-instructions

Local law 58 of 1987 Accessibility Waiver Request (PEO-1)
[http://www.nyc.gov/html/dob/html/pdfinst.html#permit]

Form for Additional Information (AI-1) [http://www.nyc.gov/html/dob/html/pdfinst.html#permit]

Technical Reports

1. Statement of Responsibility (TR-1) [http://www.nyc.gov/html/dob/html/pdfinst.html#tech]

Boilers

- ✓ Notice of Proposed Boiler Installation (900A)
  [http://www.nyc.gov/html/dob/html/pdfinst.html#elev]
- ✓ Low Pressure Boiler – Annual Inspection Report (OP1-LP)
  [http://www.nyc.gov/html/dob/html/pdfinst.html#elev]

Materials and Equipment Acceptance

1. Materials or Equipment Acceptance Application (MEA-1)
   [http://www.nyc.gov/html/dob/html/pdfinst.html#mea]
2. Professional Certification of Laboratory Testing (MEA-2)
   [http://www.nyc.gov/html/dob/html/pdfinst.html#mea]
   -instructions (for MEA-1 and MEA-2)
   -required information list (for MEA-1 and MEA-2)

New York City Department of Buildings (continued)

Plumbing

1. Alteration Repair Application (**ARA-1**) (for Minor Plumbing Repair/Oil Burning Installation/Sprinkler-Standpipe Work) (this form must be completed (starting August 3, 2000) by the Licensed Master Plumber, Licensed Boiler Installer or Licensed Fire Suppression contractor for approval by Local Law 6/97, and / or repairs requiring permits in accordance with section 27-175 of The Building Code). [http://www.nyc.gov/html/dob/html/pdfinst.html#plumb]

2. Notification of Proposed Self-certification of Plumbing Inspection/Test (**OP-38**) (used by licensed master plumbers and licensed fire suppression contractors to indicate to DOB date and time of inspection/tests). [http://www.nyc.gov/html/dob/html/pdfinst.html#plumb]

3. Self-certification of Plumbing Inspection/Test (**OP-39**) (used by licensed master plumbers, licensed fire suppression contractors and other qualified professionals to indicate to DOB inspection/tests results). [http://www.nyc.gov/html/dob/html/pdfinst.html#plumb]

New York State Building Codes

The New York State Code adopts the International Building Code® International Fire Code®, International Residential Code®, International Plumbing Code®, International Mechanical Code®, International Fuel Gas Code®, International Property Maintenance Code® and International Energy Conservation Code®.

The home page for the NYS Dept. of State – Division of Code Enforcement is
http://www.dos.state.ny.us/code/ls-codes.html

The Division provides technical assistance, administers variances, delivers educational courses, oversees the enforcement practices of local governments and serves as secretariat to the State Fire Prevention and Building Code Council.
New York State Codes FAQ have been prepared by the Division and are available at
http://www.dos.state.ny.us/code/faq.htm

The full set of codes are also available through the International Conference of Building Code Officials
http://www.icbo.org/Code_Talk/Adoptions/ny-codes.html

New York State Department of Environmental Conservation

New York State Air Permit Regulations are available on the internet and referenced throughout this guide. Information on 6 NYCRR SubPart 201 can be obtained in detail on the internet or by contacting the regional DEC offices or the central DEC office in Albany

The **GATEWAY** to information online, including linkages to all permits applications, permit guidance, regulations and reports can be found at
http://www.dec.state.ny.us/website/locator/enper.html#guidance

From this page, all DEC permits and applications can be found at
http://www.dec.state.ny.us/website/dcs/permits_level2.html

Detailed information on air permits can be located from
http://www.dec.state.ny.us/website/dcs/air/index.html

Assessing and Mitigating Visual Impacts by Jeffrey Sama (July 31, 2000) is available at
http://www.dec.state.ny.us/website/dcs/policy/visual/visual2000.PDF

Assessing and Mitigating Noise Impacts by Jeffrey Sama (October 2000) is available at
http://www.dec.state.ny.us/website/dcs/policy/noise/noise2000.PDF

SITING

Land Use & Zoning Regulation Considerations are very localized in nature.
Make sure to discuss the project in early stages with the local codes inspector, planning department and zoning board if any

CLICK HERE TO RETURN TO HOMEPAGE

APPENDIX B
SEQR/CEQR Thresholds

New York State SEQR Regs:
6 N.Y.C.R.R. Part 617 (or Article 8 of the Environmental Conservation Law)
[http://www.dec.state.ny.us/website/regs/617.htm]

- A Citizen's Guide to SEQR by DEC
  [http://www.dec.state.ny.us/website/locator/enper.html#guidance]
- SEQR Cookbook by DEC
  [http://www.dec.state.ny.us/website/locator/enper.html#guidance]
- SEQR forms downloadable
  [http://www.dec.state.ny.us/website/dcs/permits/olpermits/interface.html]
- Introduction to SEQR [http://www.dec.state.ny.us/website/dcs/seqr/seqr_1.html]
- Other SEQR publications
  [http://www.dec.state.ny.us/website/dcs/ep_pubs.html]

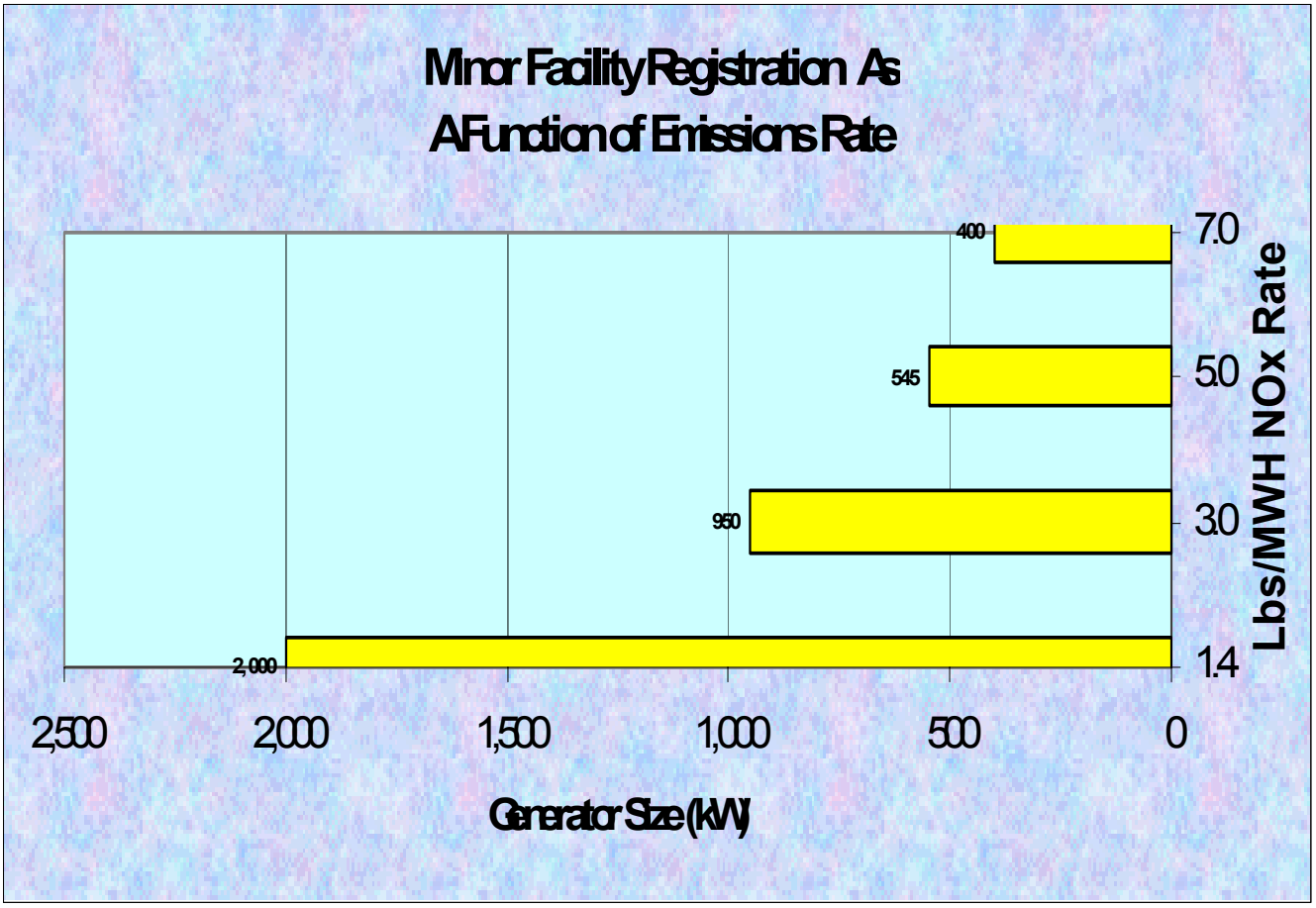
New York City: CEQR Technical Manual (October 2001)
[http://www.nyc.gov/html/moec/html/ceqrdownload.html]

- Call 718-595-4412 for assistance from the Office of Environmental Planning & Assessment and to order the 2001 Appendices to the 2001 Technical Manual
- The Mayor's Office of Environmental Coordination (MOEC)
  - Environmental Assessment Statement Form (located at http://www.nyc.gov/html/moec/html/easdownload.html)

NOTE: SEQR short forms are prepared by the project manager at the initial stages of the plan, stored on site and made available to DEC or your local planning board official upon request. [http://www.dec.state.ny.us/website/dcs/permits/olpermits/shorteaf.pdf]

NOTE: Most, if not all, CHP projects are UNLISTED actions AND will most commonly result in an initial agency finding of no significant impact (FONSI) during any environmental assessment done pursuant to SEQR/CEQR. Therefore, no full-scale environmental impact statement (EIS) would be required. In the rare event that a draft EIS becomes necessary (e.g., an agency funding or project development involved), the lead agency would almost always issue a negative declaration (negdec) as the quality of the human involvement would not be significantly and adversely affected, thereby resulting in no additional follow up done by the government facility to comply with SEQR/CEQR requirements.

NOTE: Generally in NYC, CEQR does not command you to prepare either an Environmental Assessment or an Environmental Impact Statement if the generator size is less than 5MW in size. For more information go to website at [http://www.nyc.gov/html/moec/html/ceqrdownload.html]



APPENDIX C: This BAR CHART describes the maximum generator size for which a REGISTRATION may be an acceptable permitting level in the New York City Region, given certain NO_X emissions rates. It further assumes that there are no other air emissions point sources at the facility. For example, if your NO_X emission rate exceeds 3.0 lbs./MWH then the maximum generator size is 950 KW, assuming no other NO_X point sources. That is, your PTE for a generator greater than 950 KW with a NO_X rate of 3.0 lbs/MWH will exceed the 12.5 Ton Per Year threshold that is required for a <u>REGISTRATION</u> in the New York Severe Non-Attainment area. In this case, you will probably require a <u>STATE FACILITIES PERMIT</u>. If your PTE exceeds 25 tons per year, including ALL point sources at your site, you may need a <u>TITLE V MAJOR SOURCE</u> permit. These numbers are multiplied by 4 for areas in Upstate NY that are outside of the Severe Non-Attainment area.

APPENDIX D
State New Source Reviews Pursuant to Part 231

1. EPA requires States, such as New York, to develop minor NSR programs to address growth from facilities that do not trigger major facility cutoffs, and from modifications that do not increase emissions above the significant levels established in regulation.

2. NSR requirements are different for nonattainment areas where a state's NSR program can only be a SIP-approved program meeting the criteria listed in federal NSR regulations for SIP approval.

Generally, NSR is administered by state or local air pollution permitting authorities.

APPENDIX E
Nonattainment Preconstruction Reviews

- Nonattainment preconstruction reviews applies to modifications such as some larger CHP unit installations and, if needed, requires use of the lowest achievable emissions rate (LAER).

- For nonattainment NSR, the major source threshold ranges from 100 tpy down to 10 tpy depending on the regulated air pollutant emitted and on the severity of the air quality problem where the source is located.

- To be a major source under nonattainment NSR, the source must actually or potentially emit above the major source level the specific pollutant (or its precursor) for which the area is designated nonattainment (e.g., NOx or VOC).

- To obtain a nonattainment permit, the applicant must *offset* its emissions increase by securing emission reductions from other sources in the same area or under the same DEC Permit Number.

- The amount of the offset must be as great or greater than the new increase depending on the severity of the area's nonattainment classification and on the type of pollutant.

- Offsets must be real, lifetime reductions in emissions, not otherwise required by the Clean Air Act.

Source: EPA's "NSR 90-Day Review: Background Paper," June 22, 2001, Docket A-2001-19, Document II-A-01, p.5.

APPENDIX F
MODIFICATIONS REQUIRING NOTIFICATION TO DEC

•Changes that cause emission levels to exceed those specified in a regulation or federally-enforceable emissions cap.

•Changes that cause your facility to be subject to a new regulation or requirement.

•Relocating an emission point at the facility.

•Emitting a regulated air pollutant not already listed on your permit.

•Installing or altering emission control equipment.

Source:
1) NYS EFC Small Business Assistance Program (SBAP) **Clean Air News** Volume 4, Number 2; Spring/Summer 2000, "DEC's Registration & Permit Application Review Procedures," p.4.

More FAQ's On Modifications

•DEC must make a final decision on your proposed modification within 15 days of receiving your completed request.

•Facility modifications that do not require DEC approval include:

(1) changes that do not seek to modify an emissions cap, and
(2) changes that do not subject the facility to a new regulation or emissions standard.

•In NYC, event requiring DEP approval of modification sometimes triggered by complaints.

Source: NYS EFC Small Business Assistance Program (SBAP) **Clean Air News** Volume 4, Number 2; Spring/Summer 2000, "DEC's Registration & Permit Application Review Procedures," pgs.4,12.

MORE REGULATORY RELIEF

CHP installation at your facility will likely not be a significant project, which relieves much of the regulatory burden from choosing this project.

DEC may allow certain applicants to avoid transitioning to Title V status, Part 201-6.2, by proposing limits or a "cap" on their facility's potential to emit.

Part 201-6.5(g): Permit shields will protect facilities that stay below the emission limits stated in the permits after installing CHP equipment.

Part 201-6.7(c)(1): Minimal permit modifications are allowed under circumstances listed here.
Allowable Minor Modifications:
(i) Do not violate any applicable requirement;
(ii) Do not involve significant changes to existing monitoring, reporting, or recordkeeping requirements in the permit and are not otherwise a significant change in the permit.
(iii)Do not require or change a case-by-case determination of a federal emission limitation or other federal standard, or a specific determination for portable sources causing adverse ambient impacts, or a visibility or increment analysis;
(iv) Do not seek to establish or change a permit term or condition that the facility has assumed to avoid an applicable requirement to which the emission source would otherwise be subject. Such terms and conditions include:
(a) A federally enforceable emissions cap assumed to avoid classification as a modification under any provision of Title I of the Act, including Part 231 of this Chapter; or
(b) An alternative emissions limit approved pursuant to the early reduction program under Section 112 of the Act.

(v) Are not modifications under any provision of Title I of the Act, including modifications resulting in significant net emission increases as defined and regulated under Part 231 of this Chapter or the federal Prevention of Significant Deterioration program regulations at 40 CFR 52.21.

Sources:
1. Department of Environmental Conservation – Division of Air Resources, "Permit Profile: Air Pollution Control," October, 1998.
2. 6 NYCRR Parts 201-6.7(d)(v), 201-6.5(g), 201-6.7(c)(1).

APPENDIX G: NETTING AND OFFSETS

NETTING CALCULATIONS UNDER NSR FOR NEW SOURCES/FACILITIES

Trigger: Modifications that result in a significant net emissions increase of any regulated pollutant under the Clean Air Act require a NSR.

Strategy: A major facility can "net" the CHP-induced emissions increase by offering past or future emissions decreases at its other units located at the same facility to counterbalance this increase and exempt CHP projects from certain preconstruction permit requirements.

Note: Units within the same facility will be under the same DEC Permit ID Number.

Limitations:
A) Future emissions offered to offset current year emissions can not extend period 5 calendar years.
B) The CHP unit operations must meet:
   i) applicable new source performance standards (NSPS) under CAA § 111(a)(1),
   ii) national emissions standards for hazardous air pollutants (NESHAPs) listed in CAA § 112 or an EPA Notice-of-Intent-to-List,
   iii) preconstruction applicability review requirements under 40 CFR 51.18(a)-(h), and
   iv) New York State Implementation Plan (SIP) requirements.

Ultimately, the net increase emissions increase resulting from the netting calculation must result in an increase above the significance level for nonattainment NSR to apply.

Sources:
1. EPA's "NSR 90-Day Review: Background Paper," June 22, 2001, Docket A-2001-19, Document II-A-01, p.4.
2. Squillace, Mark S. and David R. Wooley, Air Pollution, 1999: Third Edition, Anderson Publishing Company (Cincinnati, Ohio).

NETTING CALCULATIONS UNDER NSR FOR EXISTING SOURCES

- For existing sources, the net increase in emissions is compared against the significance level, not the entire emissions for the modified unit(s).

- Current emissions equal actual emissions over the recent past, i.e., within three calendar years.

- Future increases are generally determined using maximum capacity to emit, or stated permit limits.

- For electrical utilities, compare past actual emissions with future actual emissions.

Source: EPA's "NSR 90-Day Review: Background Paper," June 22, 2001, Docket A-2001-19, Document II-A-01, p.4.

EMISSION OFFSETS

- Subpart 231-2.9: Applies for a proposed source project, including some CHP projects, which emits VOC (volatile organic compounds, NOx (Nitrogen Oxides), PM-10 (particulate matter over ten microns) or CO (carbon monoxide).

- Requires that the project emission potential or facility emission potential respectively shall be "offset" by past or future emissions decreases at the same facility's other units in the same nonattainment area according to the offset ratios found in Subpart 231-2.9(b)(1) [http://www.dec.state.ny.us/website/regs/231b.htm#231-2!9] and 40 CFR 51.18(j) (SIP requirements). This "bubble" concept is applied similarly by EPA when applicable pursuant to CAA § 173(c)(1), 42 U.S.C. § 7503(c)(1), which also allows a source to offset its emissions with a source in another nonattainment area when certain conditions are met. Also see 51 Fed. Reg. 43,814 (1986).
- Subpart 231-2.9(e)(1)(i)[http://www.dec.state.ny.us/website/regs/231b.htm#231-2!9]:

Intrastate offset sources. An emission offset of VOC or NOx be obtained from:

- the same ozone nonattainment area, or

- other ozone nonattainment areas of equal or higher classification, if emissions from such other areas contribute to a violation of the NAAQS for ozone in the nonattainment area where the proposed source project or proposed major facility is to be located.

Appendix D [ftp://www.dec.state.ny.us/dar/library/airguides/ag26appd.pdf] of Air Guide 26 (or equivalent department policy) may be used by an applicant to find default acceptable VOC or NOx offset source locations within New York State or to do a case specific contribution demonstration.

Sources:
1) 6 NYCRR Part 231-2.9.
2) DEC's Air Guide 26, Appendix D [ftp://www.dec.state.ny.us/dar/library/airguides/ag26appd.pdf].

INTERNAL OFFSET EXEMPTION (for SEVERE nonattainment areas only) (DOWNSTATE)

- Part 231-2.8 [http://www.dec.state.ny.us/website/regs/231b.htm#231-2!8]: If found to be a significant project, this section represents a mechanism for avoiding a determination of applicability of this Subpart, for emissions of VOC or NOx in the severe ozone nonattainment area only, in those instances where a significant source project is proposed at an existing major facility and a net emission increase determination of non-applicability is not possible.

- Part 231-2.1(20) [http://www.dec.state.ny.us/website/regs/231b.htm#231-2!1]: Definition of internal offset.

- Part 231-2.1(25) [http://www.dec.state.ny.us/website/regs/231b.htm#231-2!1]: Definition of offset ratio.

Source: 6 NYCRR Parts 231-2.8, 231-2.1.

OFFSET RATIOS (for ANY nonattainment pollutant)

(1) Subpart 231-2.9(b)(1) [http://www.dec.state.ny.us/website/regs/231b.htm#231-2!9] An emission offset of VOC or NOx shall exceed the corresponding project emission potential or facility emission potential (subsequent to application of LAER-downstate or BACT-upstate), as appropriate, by the ratio amounts indicated in section 231-2.12 of this Subpart [http://www.dec.state.ny.us/website/regs/231b.htm#231-2!12].

(2) Subpart 231-2.9(b)(2) [http://www.dec.state.ny.us/website/regs/231b.htm#231-2!9] An emission offset of PM-10 or CO shall at least equal the corresponding project emission potential or facility emission potential (subsequent to application of LAER-downstate or BACT-upstate), as appropriate. A greater amount of offset may be required to provide a net air quality benefit as set forth in section 231-2.9(d) of this Subpart [http://www.dec.state.ny.us/website/regs/231b.htm#231-2!9].

Source: 6 NYCRR Part 231-2.9(b)(1)-(2),(d).

OFFSETS IN SEVERE NONATTAINMENT AREAS (DOWNSTATE)

- Part 231-2.2(b)(2) [http://www.dec.state.ny.us/website/regs/231b.htm#231-2!2]: At an *existing major facility* located in a severe ozone nonattainment area, if the facility *emissions potential* of VOC or NOx is *100 tons per year or more*, then:
  - (i) both an emission offset of the project emission potential at a ratio of at least 1.3 to 1 and LAER (CAA § 173) are required; or
  - (ii) if the project emission potential is internally offset at a ratio of at least 1.3 to 1, the proposed source project is exempt from the requirements of LAER and an emission offset, but is subject to sections 231-2.3 [http://www.dec.state.ny.us/website/regs/231b.htm#231-2!3] and 231-2.4 [http://www.dec.state.ny.us/website/regs/231b.htm#231-2!4] of this Subpart.
- Part 231-2.2(b)(1) [http://www.dec.state.ny.us/website/regs/231b.htm#231-2!2]: At an *existing major facility* located in a severe ozone nonattainment area, if the facility *emissions potential* of VOC or NOx is *less than 100 tons per year*, then:

- (i) an emission offset of the project emission potential at a ratio of at least 1.3 to 1 is required, except that best available control technology (BACT) may be substituted for LAER; or

- (ii) if the project emission potential is internally offset at a ratio of at least 1.3 to 1, the proposed source project is exempt from the requirements of BACT and an emission offset, but is subject to sections 231-2.3 [http://www.dec.state.ny.us/website/regs/231b.htm#231-2!3] and 231-2.4 [http://www.dec.state.ny.us/website/regs/231b.htm#231-2!4] of this Subpart.

Sources:
1) 6 NYCRR Part 231-2: REQUIREMENTS FOR EMISSION UNITS SUBJECT TO THE REGULATION ON OR AFTER NOVEMBER 15, 1992.

2) 6 NYCRR Part 231-1: REQUIREMENTS FOR EMISSION UNITS SUBJECT TO THE REGULATION BEFORE NOVEMBER 15, 1992.

OFFSETS IN NON-SEVERE NONATTAINMENT AREAS (UPSTATE)

The offset ratios in New York's Upstate region are more lenient as the following table indicates:

§231-2.12 [http://www.dec.state.ny.us/website/regs/231b.htm#231-2!12] -
Table 2 - Ozone nonattainment area and transport region classification for volatile organic compounds (VOC) and nitrogen oxides (NOx).

Ozone Nonattainment Area and Transport Region Classification for VOC and NOx

Area/Contaminant Classification	*Major Facility Size Threshold (tons per year)*[1]	*Significant Source Project Threshold (tons per year)*[2]	*Significant Net Emission Increase Threshold (tons per year)*[3]	*Offset Ratio*
Marginal, or Moderate, or Ozone Transport Region				
VOC	50	40	40	1.15:1 or more
NOx	100	40	40	1.15:1 or more
Severe				
VOC	25	2.5	more than 25	1.3:1 or more
NOx	25	2.5	more than 25	1.3:1 or more

[1] - *facility emission potential*
[2] – *project emission potential*
[3] - *net emission increase*

Source: 6 N.Y.C.R.R. Parts 231-2.2(b), 231-2.12

APPENDIX H
GLOSSARY OF KEY TERMS

ATTAINMENT AREA – An area which currently does meet the the National Ambient Air Quality Standards for a criteria pollutant as listed in New York's State Implementation Plan and administered by the Department of Environmental Conservation and the Department of Environmental Protection. *Contrast* Non-Attainment Area.

BASELINE CONCENTRATION – The ambient concentration level of a pollutant which exist at the time of the first application for a air permit. Used to determine significant emissions increases for major modifications.

BEST AVAILABLE CONTROL TECHNOLOGY (BACT) – An emission limitation based on the maximum degree of reduction which DEC determines is achievable taking in to account energy, environmental and economic impacts and other costs. CAA § 169(3).

BIOMASS - Plant materials and animal waste used as a source of fuel.

BRAKE HORSE POWER (BHP) -

BTU (British Thermal Unit). A standard unit for measuring the quantity of heat energy equal to the quantity of heat required to raise the temperature of 1 pound of water by 1ºF between 32ºF and 212ºF.

CAP – A limit on the tons of a pollutant that can be emitted in a specific period for a specific sector and/or region. A cap is sometimes called an emissions budget.

CAPACITY - The maximum load a generating unit, generating station, or other electrical apparatus is rated to carry by the user or the manufacturer or can actually carry under existing service conditions.

CLEAN AIR ACT (CAA) – Legislation to protect ambient air quality, enacted in 1970 by the U.S. Congress and amended by them most recently in 1990. CAA regulates the nation's pollutant emissions from power plants, industrial facilities, and equipment through the reduction or mitigation of pollutants.

COGENERATION - Production of heat energy and electrical or mechanical power from the same fuel source and in the same facility. A typical cogeneration facility produces electricity and steam for industrial process use.

Cogeneration means the sequential use of energy for the production of electrical and useful thermal energy. The sequence can be thermal use followed by power production or the reverse, subject to the following standards: (a) At least 5 percent of the cogeneration project's total annual energy output shall be in the form of useful thermal energy. (b) Where useful thermal energy follows power production, the useful annual power output plus one-half the useful annual thermal energy output equals not less than 42.5 percent of any natural gas and oil energy input.

COMBUSTION TURBINE - A fossil-fuel-fired power plant that uses the conversion process known as the Brayton cycle. The fuel, oil, or gas is combusted and drives a turbine-generator.

COMBINED HEAT AND POWER (CHP)
Utilization of otherwise wasted heat as steam or hot water for heating, cooling or additional power that lowers energy costs and increases power reliability. CHP systems use the same energy source for the simultaneous or sequential generation of electrical power, mechanical shaft power, or both, in combination with the generation of steam or other forms of useful thermal energy (including heating and cooling applications). Also see COGENERATION.

CRITERIA POLLUTANTS – CAA § 108(2) Pollutants for which National Ambient Air Quality Standards (NAAQS) have been set by the EPA:

7. Carbon monoxide (CO)
8. Nitrogen oxides (NOx)
9. Sulfur dioxide (SO2)
10. Particulate matter (with an aerodynamic diameter less than 10 microns) (PM-10)
11. Ozone (and its precursors)
12. Lead

DEPARTMENT OF ENERGY (DOE) (US DOE) -- The federal department established by the Department of Energy Organization Act to consolidate the major federal energy functions into one cabinet-level department that would formulate a comprehensive, balanced national energy policy.

DIESEL OIL Fuel for diesel engines obtained from the distillation of petroleum. It is composed chiefly of aliphatic hydrocarbons. Its volatility is similar to that of gas oil. Its efficiency is measured by cetane number.

DISTILLATE FUEL OIL A general classification for one of the petroleum fractions produced in conventional distillation operations. It includes diesel fuels and fuel oils. Products known as No. 1, No. 2, and No. 4 diesel fuel are used in on-highway diesel engines, such as those in trucks and automobiles, as well as off-highway engines, such as those in railroad locomotives and agricultural machinery. Products known as No. 1, No. 2, and No. 4 fuel oils are used primarily for space heating and electric power generation.

DISTILLATE FUEL OIL NO. 2 Diesel Fuel: A fuel that has distillation temperatures of 500 degrees Fahrenheit at the 10-percent recovery point and 640 degrees Fahrenheit at the 90-percent recovery point and meets the specifications defined in ASTM Specification D 975. It is used in high-speed diesel engines, such as those in railroad locomotives, trucks, and automobiles. Low Sulfur Diesel Fuel: No. 2 diesel fuel that has a sulfur level no higher than 0.05 percent by weight. It is used primarily in motor vehicle diesel engines for on-highway use. High Sulfur Diesel Fuel: No. 2 diesel fuel that has a sulfur level above 0.05 percent by weight. Fuel oil (Heating Oil): A distillate fuel oil that has distillation temperatures of 400 degrees Fahrenheit at the 10-percent recovery point and 640 degrees Fahrenheit at the 90-percent recovery point and meets the specifications defined in ASTM Specification D 396. It is used in atomizing type burners for domestic heating or for moderate capacity commercial/industrial burner units.

DISTRIBUTED GENERATION (DG) – The production of electricity at or near an end user's facility.

ELECTRICITY
Energy derived from either moving or stationary electric charge, usually electrons, and the science, technology, and applications associated with this energy form. Electricity is a high-quality form of energy in that it can be used to do work with little transformation loss, this loss having already been expended in the production of the electricity.

Electricity is a property of the basic particles of matter. A form of energy having magnetic, radiant and chemical effects. Electric current is created by a flow of charged particles (electrons).

ELECTRIC GENERATOR A device that converts a heat, chemical or mechanical energy into electricity.

ELECTRIC UTILITY Any person or state agency with a monopoly franchise (including any municipality), which sells electric energy to end-use customers; this term includes the Tennessee Valley Authority, but does not include other Federal power marketing agency.

EMISSION STANDARD The maximum amount of a pollutant legally permitted to be discharged from a single source.

EMISSIONS UNIT – Any part of a stationary source that emits or has the potential to emit any pollutant subject to regulation under the Clean Air Act.

ENERGY The capacity for doing work. Forms of energy include: thermal, mechanical, electrical and chemical. Energy may be transformed from one form into another.

ENERGY CONSERVATION - a term which has also been used but it has the connotation of doing without in order to save energy rather than using less energy to do the some thing.

ENERGY EFFICIENCY Using less energy/electricity to perform the same function or programs designed to use electricity more efficiently by doing the same with less.

ENVIRONMENTAL ASSESSMENT (EA)
A public document that analyzes a proposed federal action for the possibility of significant environmental impacts. The analysis is required by NEPA. If the environmental impacts will be significant, the federal agency must then prepare an environmental impact statement.

ENVIRONMENTAL IMPACT STATEMENT (EIS)
A statement of the environmental effects of a proposed action and of alternative actions. Section 102 of the National Environmental Policy Act (NEPA) requires an EIS for all major federal actions.

THE ENVIRONMENTAL PROTECTION AGENCY (EPA) A federal agency charged with protecting the environment.

FACILITY

An existing or planned location or site at which prime movers, electric generators, and/or equipment for converting mechanical, chemical, and/or nuclear energy into electric energy are situated, or will be situated. A facility may contain more than one generator of either the same or different prime mover type. For a cogenerator, the facility includes the industrial or commercial process.

FONSI
Finding of No Significant Impact. A document describing the reasons why the impacts of a proposed federal action are not significant. Required by NEPA after an environmental assessment when a federal agency is not preparing an environmental impact statement.

FUEL - A substance that can be burned to product heat.

FUEL CELL - An advanced energy conversion device that converts fuels to power very efficiently and with minimal environmental impact. A device that converts the energy of a fuel directly to electricity and heat without combustion.

A device or an electrochemical engine with no moving parts that converts the chemical energy of a fuel, such as hydrogen, and an oxidant, such as oxygen, directly into electricity. The principal components of a fuel cell are catalytically activated electrodes for the fuel (anode) and the oxidant (cathode) and an electrolyte to conduct ions between the two electrodes, thus producing electricity.

FUEL OIL Petroleum products that are burned to produce heat or power.

GAS
A fuel burned under boilers and by internal combustion engines for electric generation. These include natural, manufactured, and waste gas.

GAS TURBINE PLANT
A plant in which the prime mover is a gas turbine. A gas turbine consists typically of an axial-flow air compressor, one or more combustion chambers, where liquid or gaseous fuel is burned and the hot gases are passed to the turbine and where the hot gases expand to drive the generator and are then used to run the compressor.

GEOTHERMAL - An electric generating station in which steam tapped from the earth drives a turbine-generator, generating electricity.

JOULE
The unit of work or energy in the pounds per second system, being the amount of work done equal to 10,000,000 ergs.

KILOWATT (kW) - The electrical unit of power equal to 1,000 watts.

Kilowatt-Hour (kWh) - The basic unit of electric energy equal to one kilowatt of power supplied to or taken from an electric circuit for one hour.

A watt is a unit of power in the International System of Units (SI) that is required to do work at the rate of 1 joule per second. Kilo is from the metric system and means 1,000. Therefore, a kilowatt is power required to do work at the rate of 1,000 joules per second.

A Kilowatt-hour is the total number of kilowatts used in one hour, or 3,600,000 joules. A unit of electrical energy equal to that done by one kilowatt acting for one hour.

LOWEST ACHIEVABLE EMISSIONS RATE (LAER) – The rate of emissions which reflects the most stringent emission limitation which is contained in the NY SIP or, the most stringent emission limitation achieved in practice, whichever is more stringent. CAA § 171(3).

MAJOR SOURCE (TITLE V) – Federal regulations require states to initially classify a combustion facility as Major if its physical capacity (i.e., heat input design rating) and operational capacity (i.e., continuous operation-24 hrs/day, 365 days/yr), also known as potential to emit (PTE), equal or exceed the Major thresholds. Limiting factors such as seasonal operation or fuel usage may give a more realistic actual annual emission level. However, these limiting factors must be recorded in a DEC air permit to be considered valid

MAJOR MODIFICATION – A physical change or change in the method of operation at an existing major source that causes a net emissions increase of any regulated pollutant that is considered significant.

MEGAWATT (MW) One thousand kilowatts or one million watts. One megawatt is enough energy to power 1,000 average homes.

MEGAWATT HOUR (MWh) One thousand kilowatt-hours, or an amount of electricity that would supply the monthly power needs of a typical home having an electric hot water system.

MMBtu – Million BTUs.

MODIFICATION - A physical change (where maximum hourly emissions are increased – 40 C.F.R. § 60.14(h)) or a change in method of operation.

NAMEPLATE RATING
The full-load continuous rating of a generator or other electrical equipment under specified conditions as designated by the manufacturer, and written on the nameplate.

NATIONAL AMBIENT AIR QUALITY STANDARDS (NAAQS) – EPA-set standards that limit the allowable outdoor concentration of criteria pollutants. CAA § 109.

NEPA

NATIONAL EMISSION STANDARD for HAZARDOUS AIR POLLUTANTS (NESHAPs) – Standards established under CAA § 112 to control emissions of hazardous air pollutants.

NATURAL GAS A gaseous mixture of hydrocarbon compounds, found in the earth, composed of methane, ethane, butane, propane and other gases.

NET EMISSIONS INCREASE – Emissions increases associated with the proposed source or modification, minus source-wide emissions decreases , plus source-wide emissions increases.

NEW SOURCE PERFORMANCE STANDARDS (NSPS) – Emission standard prescribed for criteria pollutants from certain stationary source categories under Section 111 of the Clean Air Act.

NEW SOURCE REVIEW (NSR) – Program for pre-construction review and permitting of new emission sources. In New York, NSR administered by DEC through 6 N.YC.R.R. Part 231.

NON-ATTAINMENT AREA – An area which currently does not meet NAAQS for a given criteria pollutant. CAA § 171(2). *Contrast* Attainment Area.

NON-ATTAINMENT NEW SOURCE REVIEW – The new source review (NSR) program applicable to sources located in areas that are not in attainment for a given pollutant.

NITROGEN OXIDES (NOx) Oxides of nitrogen that are a chief component of air pollution that can be produced by the burning of fossil fuels.

New York State Energy Research And Development Authority (NYSERDA)

OFFSETS – The principle which prohibits the construction of major new sources of air pollution in nonattainment areas unless the proponent of the new source can obtain reductions in pollution within the area that will more than compensate for the pollution contributions to be made by the new source. CAA § 173(a)(1).

PHOTOVOLTAICS - A technology that directly converts light into electricity. The process uses modules, which are usually made up of many cells (thin layers of semiconductors).

POTENTIAL-TO-EMIT (PTE) – means the maximum capacity of an air pollution source to emit any regulated air pollutant under its physical and operational design; PTE assumes the source operates at maximum capacity 24 hours per day, 365 days per year (8760 hours/yr). Capability at maximum design capacity to emit a pollutant, except as constrained by federally-enforceable conditions.

POWER The rate at which energy is transferred. Electrical energy is usually measured in watts. Also used for a measurement of capacity.

POWER PLANT A central station generating facility that produces energy.

REGISTRATIONS – Ministerial acts not requiring a more traditional air permit. In NYC, refers to DEP boiler registrations.

RENEWABLE ENERGY - Energy that is capable of being renewed by the natural ecological cycle. Resources that constantly renew themselves or that are regarded as practically inexhaustible. These include solar, wind, geothermal, hydro and wood. Although particular geothermal formations can be depleted, the natural heat in the earth is a virtually inexhaustible reserve of potential energy. Renewable resources also include some experimental or less-developed sources such as tidal power, sea currents and ocean thermal gradients.

SIGNIFICANT EMISSIONS INCREASE – Threshold increases in net emissions in a major modification as set for each pollutant by EPA (and DEC).

SOURCE-WIDE – Occurring anywhere within the entire stationary source or within the same DEC Facility ID #.

STATE IMPLEMENTATION PLAN (SIP) – SIPs are plans developed by the states subject to EPA approval for achieving and maintaining the NAAQS for that state. If a state fails to adopt an adequate SIP, EPA must devise and implement a SIP for that state.

STATIONARY SOURCE – Any "building, structure, facility, or installation" that emits or has the potential to emit any air pollutant subject to regulation under the Clean Air Act (see Appendix J)

THERMAL RECOVERY – Useful heat produced from generating electricity for heating, cooling or processing (steam, hot water, etc.).

U.S. DEPARTMENT OF ENERGY (DOE) - The DOE managers programs of research, development and commercialization for various energy technologies, and associated environmental, regulatory and defense programs. DOE announces energy policies and acts as a principal advisor to the President on energy matters.
U.S. Environmental Protection Agency (EPA) - The EPA administers federal environmental policies, enforces environmental laws and regulations, performs research, and provides information on environmental subjects. The agency also acts as chief advisor to the President on U.S. environmental policy and issues.

WATT - The electric unit of power or rate of doing work equal to 3.4 BTU/hour.. One horsepower is equivalent to approximately 746 watts. A unit of measure of electric power at a point in time, as capacity or demand. One watt of power maintained over time is equal to one joule per second. Some Christmas tree lights use one watt. The Watt is named after Scottish inventor James Watt and is capitalized when shortened to w and used with other abbreviations, as in kWh.

WATT-HOUR One watt of power expended for one hour and one thousandth of a kilowatt-hour.

Glossary Terminology Sources:
California Energy Commission Glossary of Energy Terms
[www.energy.ca.gov/glossary/index.html]

Energy Information Administration [www.eia.doe.gov/glossary/glossary_main_page.htm]

Getting to Know Arc View, ESRI Press

Merriam-Webster Online Dictionary

Squillace, Mark S. and David R. Wooley, Air Pollution, 1999: Third Edition, Anderson Publishing Company (Cincinnati, Ohio).

Oregon Office of Energy Biomass Energy Glossary
[http://www.energy.state.or.us/biomass/Glossary.htm]

The Institute for Sustainable Energy at Eastern Connecticut State University
[http://www.sustainenergy.org/glossary.asp]

Energy Ideas Organization's Energy Glossary
[http://www.energyideas.org/glossary/]

Washington State University Energy Program CHP Guide

KEYSPAN Energy Delivery Glossary of Terms for Distributed Generation

Consolidated Edison's Glossary of Electric Utility Competition Terms

APPENDIX J: STATIONARY SOURCE

•**Applicable Definition:**

Any "building, structure, facility, or installation" that emits or has the potential to emit any air pollutant subject to regulation under the Clean Air Act.

WHERE

"building, structure, facility, or installation" means all the pollutant-emitting activities
(1) which belong to the same industrial grouping, ✔
(2) are located on one or more contiguous or adjacent properties, and
(3) are "under the control of the same person (or persons under common control or ownership)."▼

✔ Refers to "major groups" identified by two-digit codes in the Standard Industrial Classification (SIC) Manual, which is published by the Office of Management and Budget (OMB).

▼ U.S. Code regulations (applied in NY) codified in 40 CFR 51.165(a)(1)(ii), 40 CFR 52.21(b)(6), and 40 CFR 70.2.

Sources:

1) EPA's interpretation of the decision made in Alabama Power Company v. Costle, 636 F.2d 323 (D.C. Cir. 1979).

2) EPA *Draft Memo*, "Source Determinations for Combined Heat and Power Facilities under the Clean Air Act New Source Review and Title V Programs." Office of Air Quality Planning and Standards, OAR (MD-10), 10/15/01, p.4.

FIGURE 5. ALLOWABLE NATURAL GAS RECIP ENGINE SIZE REMAINING BELOW THE 50 TON PER YEAR THRESHOLD IN UPSTATE, NY: BASED ON VARIOUS EMISSIONS RATES (in Grams/BHP-Hour)

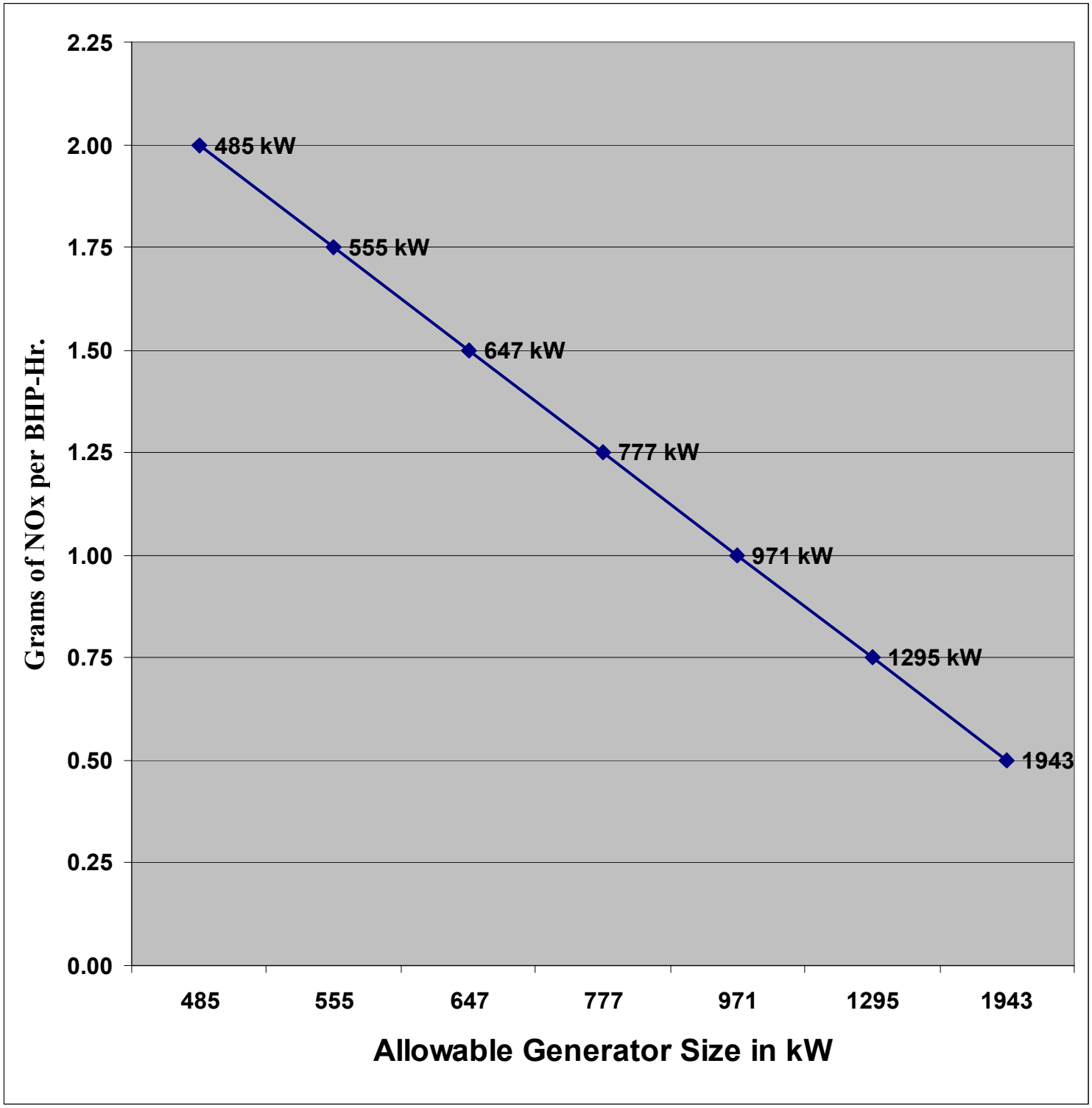


FIGURE 6. ALLOWABLE DIESEL ENGINE SIZE REMAINING BELOW THE 50TON PER YEAR THRESHOLD IN UPSTATE, NY: BASED ON VARIOUS EMISSIONS RATES (in Grams/BHP-Hour)

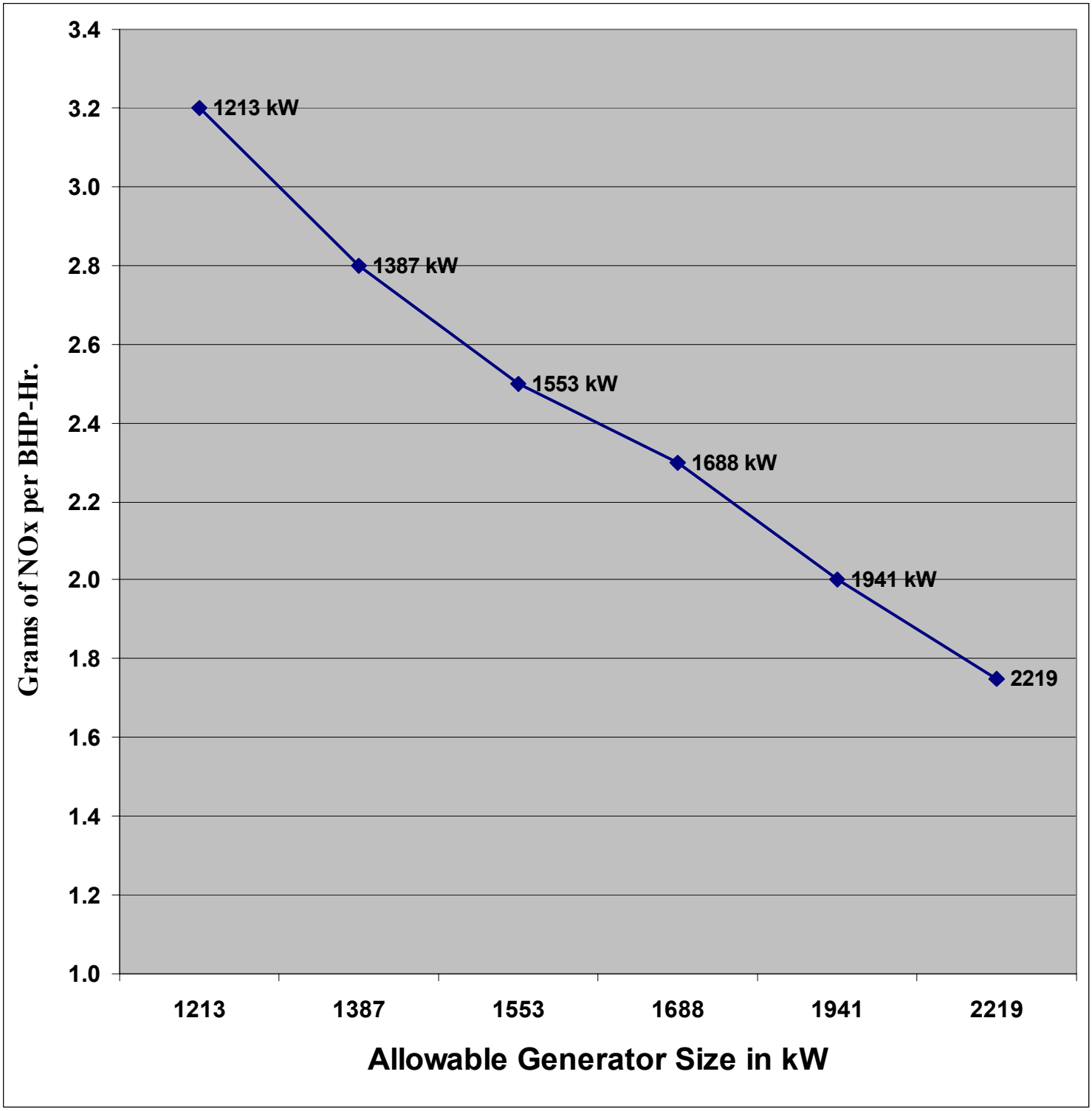


FIGURE 7. ALLOWABLE MICROTURBINE SIZE REMAINING BELOW THE 50TON PER YEAR THRESHOLD IN UPSTATE, NY: BASED ON VARIOUS EMISSIONS RATES (in Lbs./MWH-Hour)

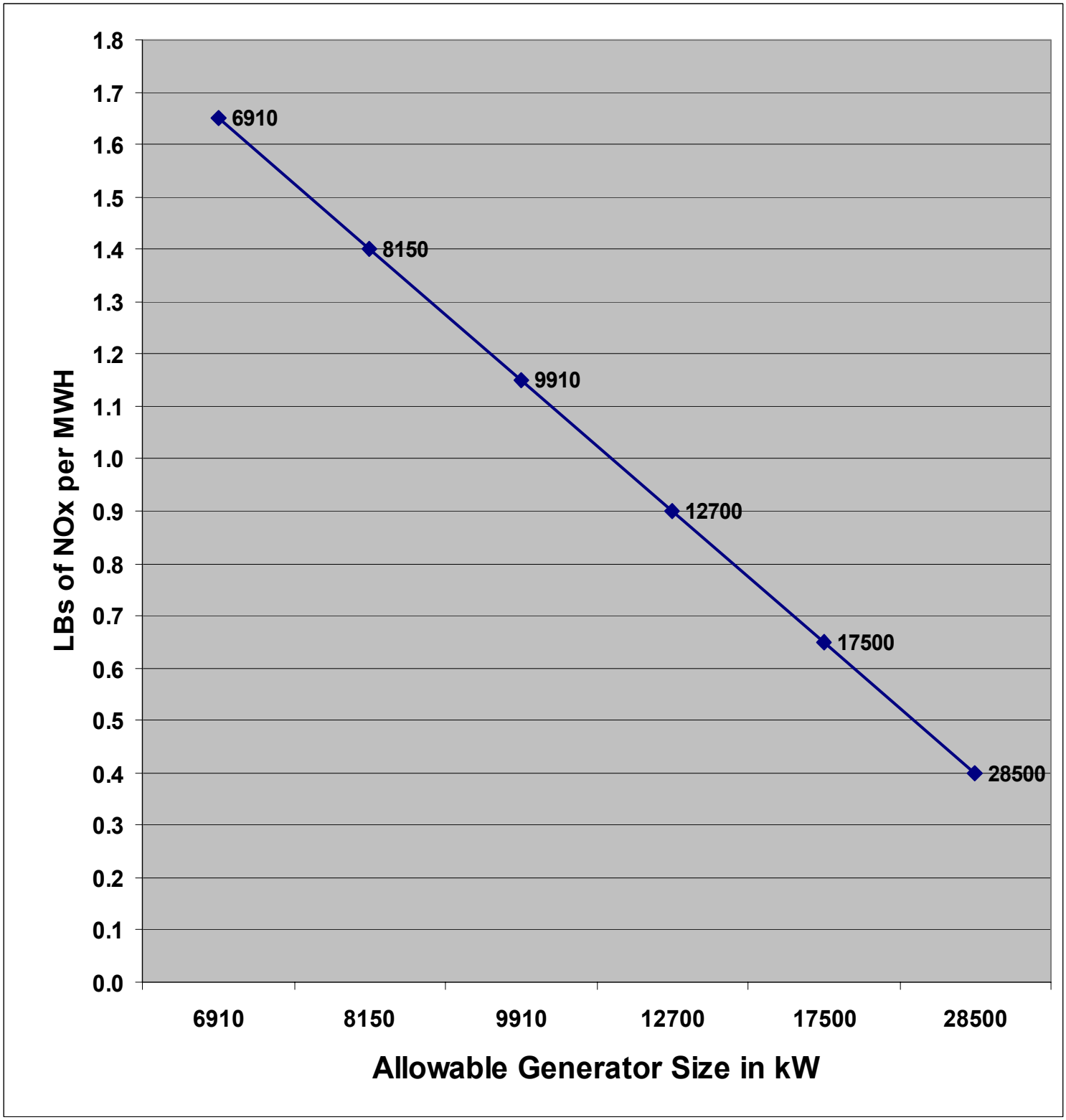


FIGURE 8. GAS COMBUSTION TURBINE SIZE REMAINING BELOW THE 50 TON PER YEAR THRESHOLD IN UPSATE: BASED ON VARIOUS EMISSIONS RATES (in Lbs/MWH)