DG & CHP Siting & Permitting Guidebook

CHP in New York State - Two Years Later
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Great Potential for Clean DG & CHP Development

- Recent NYSERDA study shows potential for 2200 MW of cost-effective CHP projects, with substantial environmental benefits
- Many hurdles are impairing this development
- This paper reports on a project to review siting, permitting and codes barriers and opportunities for streamlining

Barriers to CHP/DG Market Development

- Utility interconnection regulations and requirements
- Air permitting issues
- Local siting issues
- Tariff issues
- Economic and Financing Issues
- Regulatory and Policy Initiatives to address these

Local Siting, and Building Codes and Permits

- Local Siting and Zoning issues can delay projects; generally education of local officials is the key but can take a lot of time
- A variety of codes and permits apply; New York City has the most complex issues and requirements

This presentation will cover an online Guidebook on Codes, Siting and Permitting issues facing smaller-sized distributed generation and CHP.

The Guidebook was prepared on behalf of NYSERDA and Oak Ridge National Labs

Clean Distributed Generation in New York State:

State and Local Siting, Permitting and Code Issues

Prepared for the
New York State
Energy Research and
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Albany, NY
www.nyserda.org

and

Oak Ridge National Labs

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This Guidebook Contains Seven Modules

Introduction and Definitions... pg. 2

Air Permitting in Downstate ("Severe Non-Attainment") areas... pg. 12

Building/Health & Safety/Noise Permits – New York City ... pg. 38

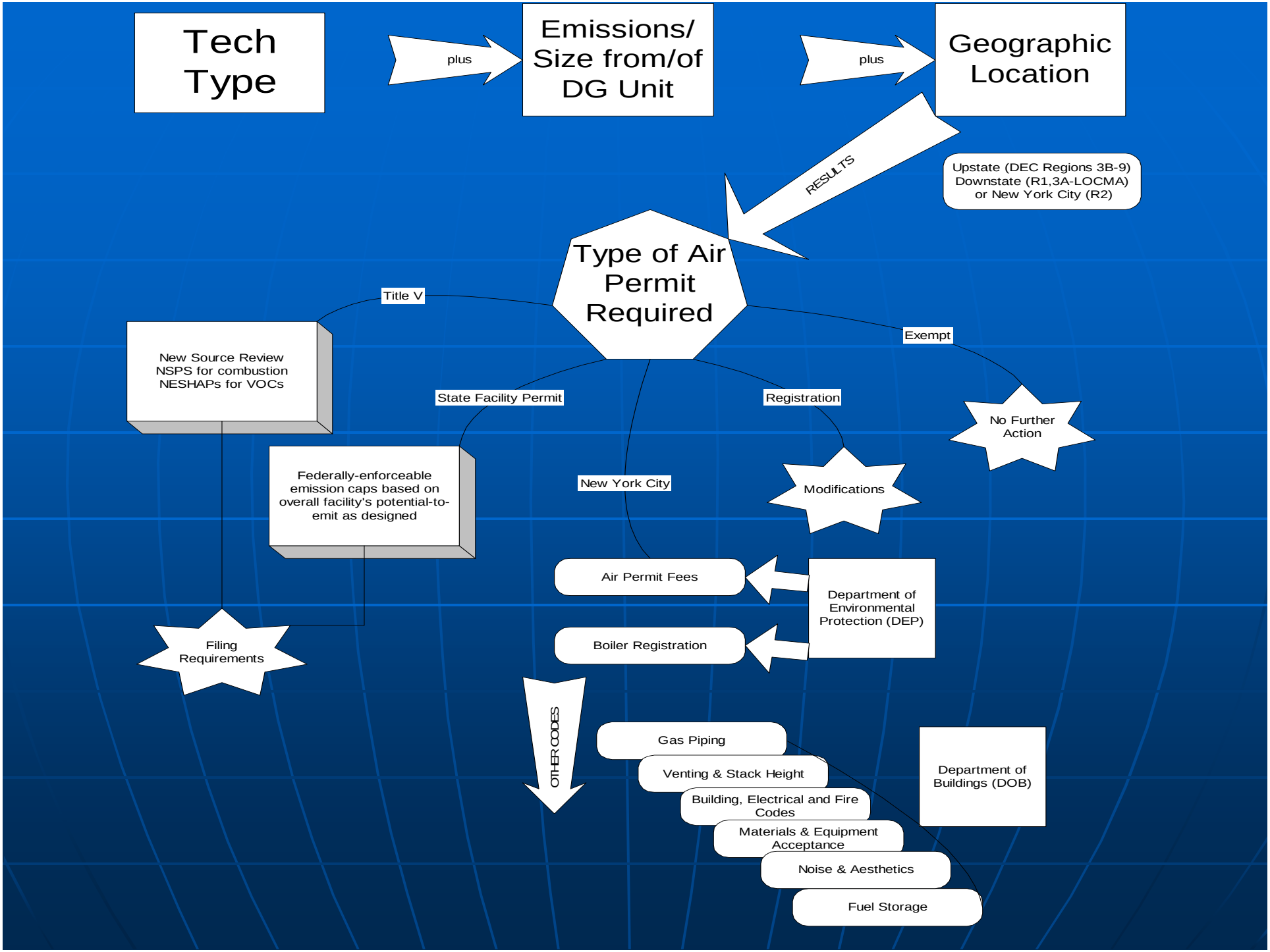
Air Permitting in Upstate ("Non-Attainment") areas ... pg. 42

Building/Health/Safety/Noise Permits – Outside of the NYC ... pg. 51

FAQs about Air Permitting ... pg. 61

Forms Checklist and Detailed Appendices ... pg. 64

DG Siting, Permitting and Process Flow in New York


Tech Type
plus
Emissions/ Size from/of DG Unit
plus
Geographic Location
RESULTS
Upstate (DEC Regions 3B-9) Downstate (R1,3A-LOCMA) or New York City (R2)
Type of Air Permit Required
Title V
New Source Review NSPS for combustion NESHAPs for VOCs
State Facility Permit
Federally-enforceable emission caps based on overall facility's potential-to-emit as designed
Registration
Modifications
Exempt
No Further Action
New York City
Air Permit Fees
Boiler Registration
Department of Environmental Protection (DEP)
Filing Requirements
OTHER CODES
Gas Piping
Venting & Stack Height
Building, Electrical and Fire Codes
Materials & Equipment Acceptance
Noise & Aesthetics
Fuel Storage
Department of Buildings (DOB)

HOW THIS GUIDEBOOK WORKS

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

Size/emissions

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

Where Is This Project Located? Choose Your Region

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

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

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

1) Natural Gas Recip Engine - Downstate go to pg. 13
2) Diesel Recip Engine - Downstate go to pg. 14
3) MicroTurbine – Downstate go to pg. 15
4) Combustion Turbine – Downstate go to pg. 16
5) Fuel Cell - Downstate go to pg. 17
6) Renewables; Biomass - Downstate go to pg. 18
7) Renewables; Solar, Wind - Downstate go to pg. 19

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.

Air Permitting Categories

- Exempt (includes PV, Natural Gas recip or MicroTurbine under 168 kW Downstate and 300 kW Upstate)
- Minor Source Registration (Natural Gas Recip Engines CHP up to 1200 kW at 2.25 lbs/MWH NOx emissions rate)
- State Facilities Permit
- Title V Facility (Major Source) 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; **Downstate Exempt/Trivial** **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**

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

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

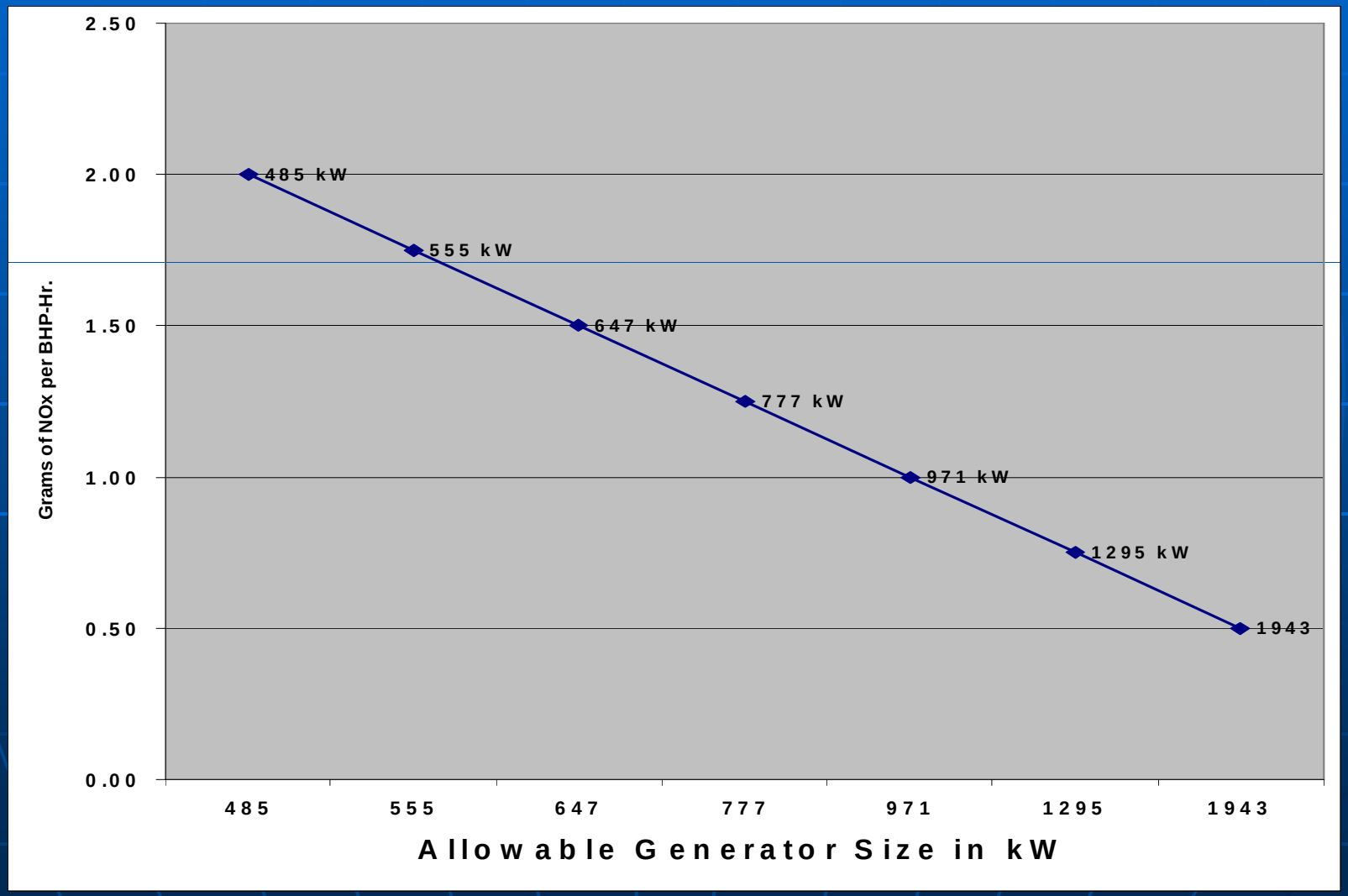
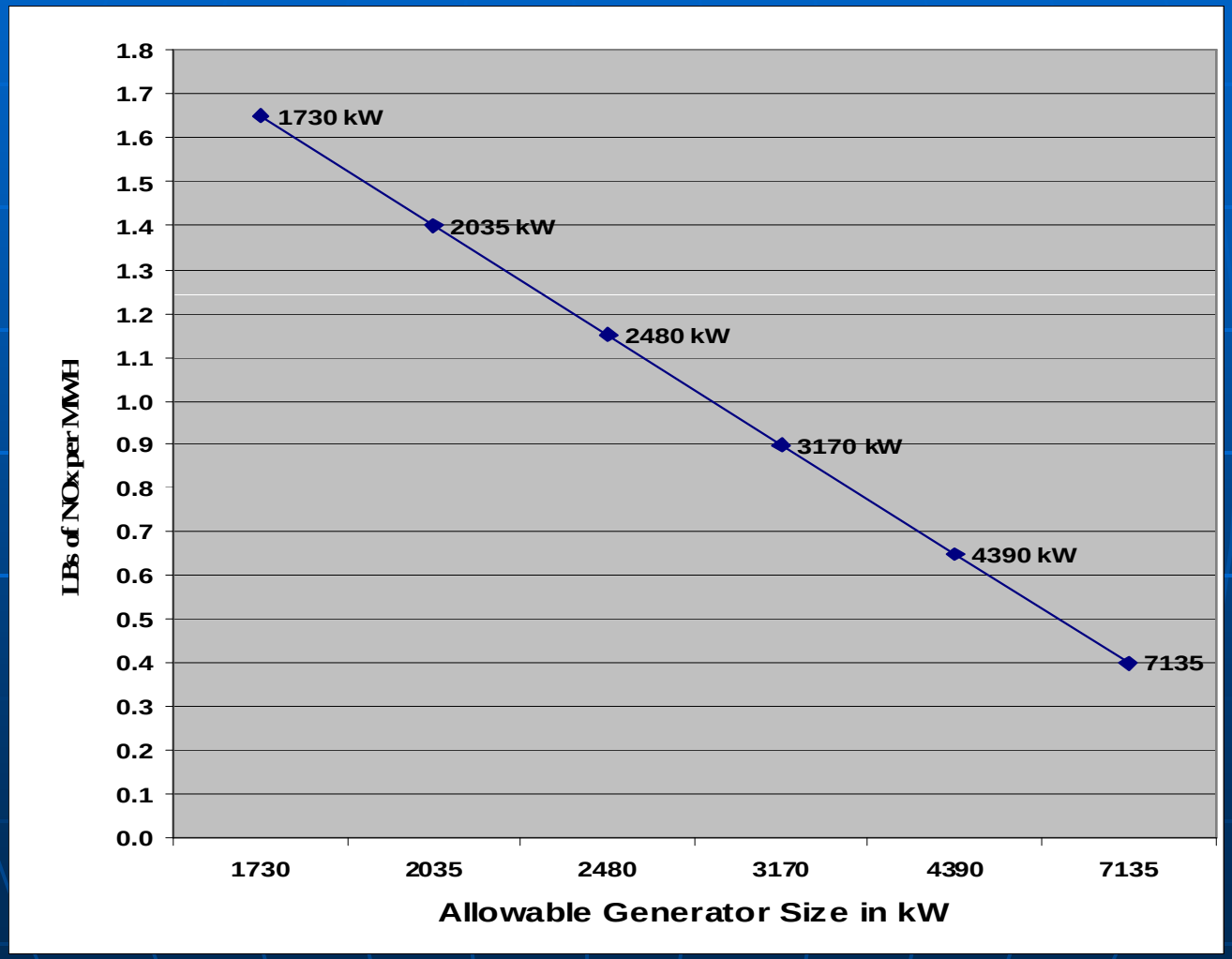
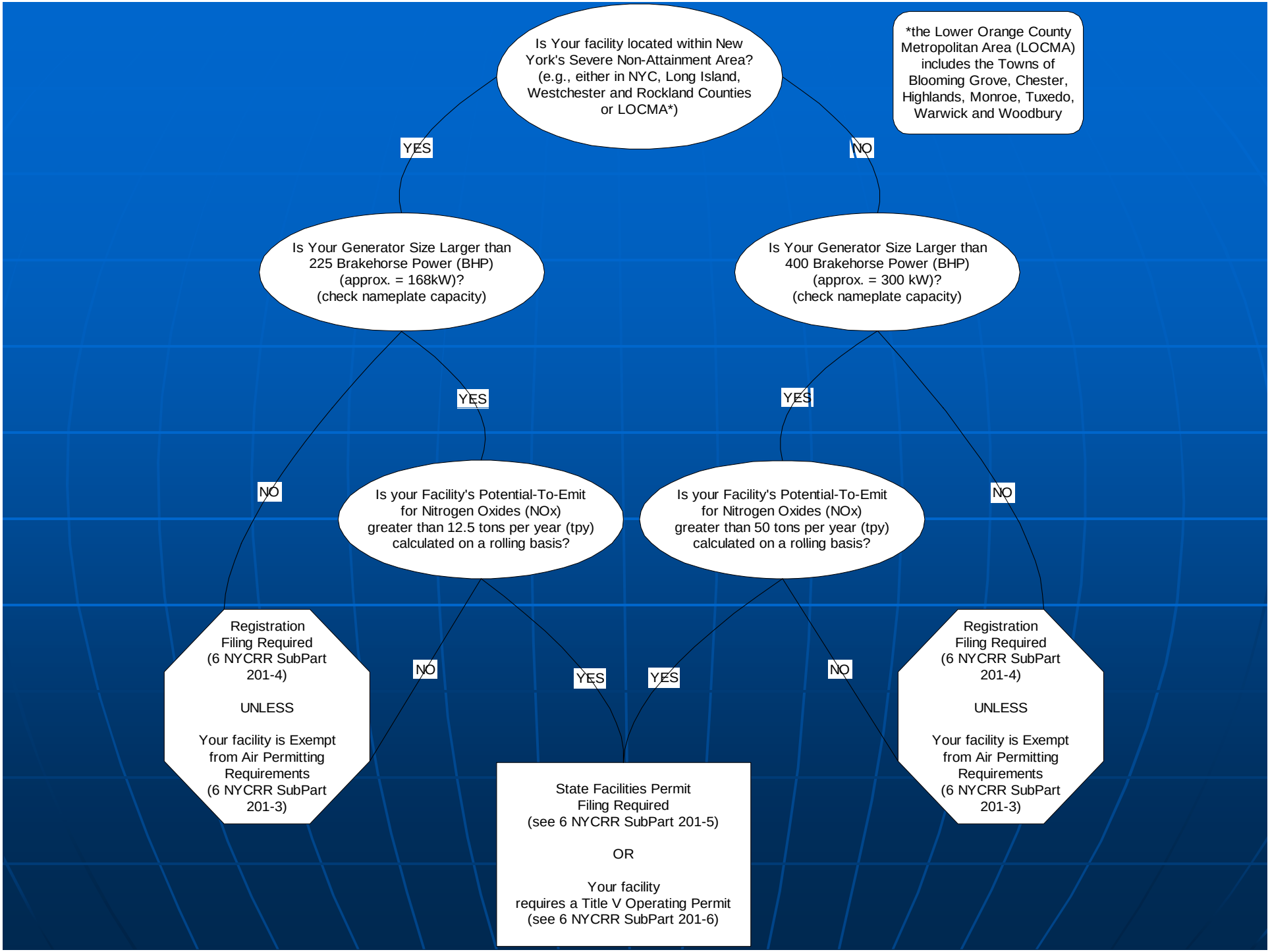


FIGURE 4. ALLOWABLE MICROTURBINE SIZE REMAINING BELOW THE 12.5 TON PER YEAR THRESHOLD: BASED ON VARIOUS EMISSIONS RATES (in Lbs/MWH)



OVERVIEW OF SMALL GENERATOR AIR PERMITTING


Is Your facility located within New York's Severe Non-Attainment Area? (e.g., either in 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
YES
NO
Is Your Generator Size Larger than 225 Brakehorse Power (BHP) (approx. = 168kW)? (check nameplate capacity)
Is Your Generator Size Larger than 400 Brakehorse Power (BHP) (approx. = 300 kW)? (check nameplate capacity)
YES
YES
NO
Is your Facility's Potential-To-Emit for Nitrogen Oxides (NOx) greater than 12.5 tons per year (tpy) calculated on a rolling basis?
Is your Facility's Potential-To-Emit for Nitrogen Oxides (NOx) greater than 50 tons per year (tpy) calculated on a rolling basis?
NO
Registration Filing Required (6 NYCRR SubPart 201-4)
UNLESS
Your facility is Exempt from Air Permitting Requirements (6 NYCRR SubPart 201-3)
NO
YES
YES
NO
Registration Filing Required (6 NYCRR SubPart 201-4)
UNLESS
Your facility is Exempt from Air Permitting Requirements (6 NYCRR SubPart 201-3)
State Facilities Permit Filing Required (see 6 NYCRR SubPart 201-5)
OR
Your facility requires a Title V Operating Permit (see 6 NYCRR SubPart 201-6)

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.

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]

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

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 – Fuel Storage	Go to Fire Codes and On-site (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 in order to eliminate downdraft the chimney /stack height must be minimum of 3' above highest building within 10' of a CHP unit for low temperature exhaust (600° F or less) and 10' above highest point within 20' for medium temperature exhaust (between 600° F and 1,000° degree F). Details can be found in the New York City Building Code, Title 27, Chapter 1; Subchapters 14 & 15.Subchapter 15, Article Two at §27-859 defines the regulations for Chimney Heights and Locations for low-temperature and medium temperature chimneys. SOURCE: http://www.nyc.gov/html/dob/pdf/bc27s15.pdf

- 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.

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

WHERE IS THE ONLINE GUIDEBOOK AVAILABLE?

* At the Northeast Regional CHP Application Center website www.northeastchp.org

* At Pace Univ. Energy Project site www.law.pace.edu/energy/news_events.html

* www.nesnora.com/pace

The Guide can be downloaded to a .PDF file, or utilized online by proceeding through hotlinks and bookmarks.

The Print version directs users to their specific area of interest in the same way that the hotlinks take the user to the correct spot in the online Guide. For example, if your answer is Downstate/Microturbine, the printed Guide sends you to pg. 15

Lessons Learned

- Regulations are sometimes arcane and even contradictory; the process of the Guidebook development was educational for many of the regulators
- DG/CHP applications bring together various stakeholders and regulatory bodies that don't otherwise need to communicate; the industry is still in development in addressing this
    - Participate
      Communicate
      Comment

Closing Comments

The Regulatory Landscape is in Flux

- ✓New DG Rulemaking Underway at DEC
- ✓Changes in NYC Building Code at DOB to conform with IBC Model Codes
- ✓ Dept of Buildings has established an Advisory Committee on Sustainability to examine issues an updated code should address

PARTICIPATE COMMUNICATE COMMENT