

TESTIMONY - 01-44-CHOKEQBP NYPA - DS - MAR-02.DOC

NEW YORK STATE BOARD ON ELECTRIC
GENERATION SITING AND THE ENVIRONMENT

IN THE MATTER

of the
Application of New York Power Authority for a certificate
of Environmental Compatibility and Public Need to
Construct and Operate a 500 Megawatt Combined Cycle,
Combustion Turbine Electric Generating Facility
in its Existing Charles Poletti Power Project
in Astoria, Borough of Queens.

Case 99-F-1627

**Testimony of
David A. Schlissel
on PM2.5 Issues**

**On behalf of
The Coalition Helping to Organize a Kleaner Environment**

March 13, 2002

1 **Q. Please state your name, position and business address.**

2 A. My name is David A. Schlissel. I am a Senior Consultant at Synapse Energy
3 Economics, Inc, 22 Pearl Street, Cambridge, MA 02139.

4 **Q. On whose behalf are you testifying in this case?**

5 A. I am testifying on behalf of the Coalition Helping to Organize a Kleaner
6 Environment.

7 **Q. Have you testified previously in this proceeding?**

8 A. Yes. I filed Direct Testimony on August 14, 2001 and Surrebuttal Testimony on
9 September 12, 2001.

10 **Q. What is the purpose of this testimony?**

11 A. In its January 24, 2002 Order Concerning Interlocutory Appeals from Article X
12 Issues Ruling, the Siting Board directed the parties to this proceeding to address
13 available and practicable mitigation strategies and control technologies. This
14 testimony discusses the repowering of NYPA's existing Poletti Station as an
15 available and practicable mitigation strategies for reducing emissions of ultra fine
16 particulate matter.

17 **Q. Please describe briefly what is meant by the term repowering.**

18 A. Repowering a generation facility means replacing the plant's old, inefficient and
19 polluting equipment with a newer, combined cycle unit.

20 **Q. Is repowering of existing power plants a common practice?**

21 A. Yes. The repowering of existing power plants is becoming a common practice in
22 the electric industry.

23 **Q. Are other facilities in New York State currently being repowered?**

24 A. The Siting Board already has approved the repowering of Con Edison's East River
25 Plant. Applications to repower the Bethlehem Energy Center and Orion Power
26 Company's Astoria facility are currently pending before the Siting Board.

1 **Q. Would it be possible to increase the capacity of the existing Poletti Station by**
2 **repowering the facility?**

3 A. Yes. Repowering can result in significant increases in a power plant's capacity.
4 For example, Orion Power Holdings Company has determined that repowering
5 will add approximately 562 MW to the capacity of its Astoria Generating Station.
6 In fact, repowering the existing Poletti Station could add the 500 MW additional
7 megawatts of capacity that NYPA is seeking to add through the construction of its
8 proposed new Astoria Project.

9 **Q. What level of generation could be expected from a repowered Poletti**
10 **Station?**

11 A. The output of a repowered Poletti facility would depend on a number of factors --
12 plant heat rates, operating costs, system demands, and which of the other new
13 plants currently being licensed actually are built. NYPA rebuttal witness Jordan
14 has testified that the new, more efficient combined cycle plants currently being
15 built and licensed in New York State can be expected to operate at an average 67
16 percent capacity factor.¹

17 **Q. What environmental benefits could be expected from repowering of the**
18 **existing Poletti Station?**

19 A. In general, repowering can dramatically reduce emissions of pollutants such as
20 NO_x and SO₂ while providing additional capacity and output from a generating
21 facility. For example, Orion Power Company has determined that repowering its
22 Astoria Generating Station could potentially reduce NO_x emissions by 3,000 or
23 more tons per year and SO₂ emissions by perhaps as much as 1,000 tons per year.²

24 Another benefit of repowering would be that the existing Poletti facility has
25 experienced a number of operational problems and has repeatedly violated its air
26 permit requirements. Repowering should reduce the number of such violations.

¹ See Prepared Testimony of Gary Jordan, at page 7, lines 18-21.

² Orion Power Astoria Repowering Project Article X Application, Table 15.3.2-1.

1 **Q. What impact would repowering the existing Poletti Station have on PM2.5**
2 **emissions in the communities in Northwest Queens near the site of the**
3 **proposed NYPA Astoria Project?**

4 A. Mr. Gutman will discuss the specific reductions in PM2.5 emissions that could
5 result from a repowering of the existing Poletti facility. I would only add that a
6 repowered Poletti Station would have a significantly lower heat rate than the
7 existing facility and, consequently, would burn substantially less fuel. This would
8 lower its PM2.5 emissions. In addition, the output from a repowered Poletti
9 facility could be expected to displace generation from older, less efficient and
10 dirtier generating facilities in and around New York City and New York State.
11 Such displacements might further reduce emissions of PM2.5 that affect
12 concentrations in the vicinity of the proposed NYPA Astoria Project.

13 **Q. Has NYPA studied the repowering of the existing Poletti Station?**

14 A. Yes. NYPA has examined repowering of the existing Poletti facility in a number
15 of studies during the 1990s. For example, NYPA's Systems Operations
16 Engineering department issued a "Poletti Repowering Study" in June 1993.³ This
17 study examined repowering the existing facility with the addition of HRSG
18 equipment (Heat Recovery Steam Generators) and increasing its capacity to as
19 much as 1,350 MW. The June 1993 Study concluded that "repowering Poletti
20 would greatly benefit NYPA by upgrading the plant into one of the most efficient
21 facilities with a life expectancy of a new plant. [with repowering] It becomes one
22 of the least costly in city additions to electric generation."⁴ The June 1993 study
23 also concluded that the among the benefits of repowering were:

- 24 • ease of construction
- 25 • heat rate improvement -- a repowered 1,350 MW plant would use
- 26 approximately the same amount of fuel as the existing 860 MW facility.

³ A copy of this 1993 Study was provided in NYPA's response to CHOKE Interrogatory

⁴ Ibid., in Section 16.0, Conclusions.

- 1 • A drastic reduction in NO_x emissions.
- 2 • Overall plant reliability would be greatly improved -- "For all practical
- 3 purposes there will be no time when the plant availability would be
- 4 "zero.""
- 5 • Reductions in operation and maintenance costs per KW-output could be
- 6 expected.⁵

7 The 1993 Study examined in great detail the engineering and construction work

8 that would required for the repowering. It found that a "great number" of the

9 existing plant components could be utilized in the repowered facility.⁶

10 Unfortunately, NYPA decided not to pursue this repowering.

11 **Q. Did NYPA consequently re-examine whether to repower the existing Poletti**

12 **Station?**

13 A. It appears that NYPA reconsidered repowering the existing Poletti Station in a

14 series of economic studies in 1997 and 1998. In these studies, NYPA considered

15 a number of scenarios, one of which was repowering the existing Poletti facility

16 with three gas turbine/HRSG modules (GE Frame 7 F or equivalent).⁷ This

17 repowering would have increased the facility's capacity by 504 MW.

18 However, instead of repowering, NYPA chose to leave the existing Poletti facility

19 as it was then configured and build the new stand-alone NYPA Astoria Project.

20 **Q. Is NYPA currently considering retiring the existing Poletti Station?**

21 A. Several recent NYPA documents have discussed the necessity of retiring the

22 existing Poletti Station in the year 2008. One of these mentioned that Poletti

23 might have to be retired "due to environmental considerations."⁸

⁵ Ibid., at pages 4 and 5.

⁶ Ibid., at page 6.

⁷ January 1998 Poletti Repowering Study, provided in NYPA's response to Interrogatory CHOKE 59.

⁸ Undated Poletti Task Force Findings, provided in NYPA's response to Interrogatory CHOKE 109.

1 **Q. Is NYPA currently considering the repowering of the existing Poletti Station?**

2 A. Yes. NYPA's Article X Application discusses the fact that NYPA has evaluated
3 the feasibility of repowering the existing Poletti facility with a nominal 750 MW
4 combined cycle facility in conjunction with its proposed 500 MW Astoria
5 Project.⁹ The existing Poletti facility would then be retired when the new 750
6 MW combined cycle plant is completed. Internal NYPA documents suggest a
7 projected 2006 in-service date for the new facility and the retirement of the
8 existing Poletti Station.¹⁰ However, NYPA appears unwilling to commit to this
9 repowering.¹¹

10 **Q. Based on your review of NYPA's studies, do you believe that repowering the**
11 **existing Poletti Station is a feasible strategy for mitigating PM2.5 emissions**
12 **from the proposed NYPA Astoria Project?**

13 A. Yes. The NYPA studies that I have reviewed make it clear that repowering the
14 existing Poletti Station with new combined-cycle equipment would significantly
15 reduce PM2.5 emissions in the communities near the proposed site of the NYPA
16 Astoria Project and, therefore, would be a feasible and effective mitigation
17 strategy.

18 **Q. Does this complete your testimony?**

19 A. Yes.

20

⁹ NYPA Article X Application, at pages 15-4 and 15-5.

¹⁰ *Poletti Expansion Cost and Wholesale Market Price Study-Status Report, Financial Planning Group, August 22, 2000*, a copy of which was provided in NYPA's response to Interrogatory CHOKE 109.

¹¹ NYPA Article X Application, at page 15-5.