

NEW YORK STATE BOARD ON ELECTRIC
GENERATION SITING AND THE ENVIRONMENT

RECOMMENDED DECISION BY
PRESIDING EXAMINERS WALTER T. MOYNIHAN,
RAFAEL A. EPSTEIN, and
ASSOCIATE EXAMINER DANIEL P. O'CONNELL

CASE 99-F-1314 - Application by Consolidated Edison Company of New York, Inc. for a Certificate of Environmental Compatibility and Public Need to Repower its East River Generating Station located in the Borough of Manhattan, New York City.

NOTICE OF SCHEDULE FOR FILING EXCEPTIONS

(Issued June 28, 2001)

Attached is the Recommended Decision of Presiding Examiners Walter T. Moynihan and Rafael A. Epstein and Associate Examiner Daniel P. O'Connell in this proceeding. Briefs on exceptions will be due in hand to the undersigned and all active parties by July 13, 2001 and briefs opposing exceptions will be due in hand to the undersigned and may be mailed to all active parties by July 23, 2001. Twenty-five copies of each brief shall be filed with the Secretary, and a copy shall be served on each party. Each party is limited to a total of 100 pages for the briefs, but the pages may be allocated between the brief on exceptions and the reply brief on exceptions as the party wishes.

(SIGNED)

JANET HAND DEIXLER
Secretary

NEW YORK STATE BOARD ON ELECTRIC
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APPEARANCES: See Appendix A

WALTER T. MOYNIHAN,
RAFAEL A. EPSTEIN, Presiding Examiners, and
DANIEL P. O'CONNELL, Associate Examiner:

I. INTRODUCTION

On June 1, 2000, Consolidated Edison Company of New York, Inc. (Con Edison or the applicant) filed an application for a Certificate of Environmental Compatibility and Public Need, pursuant to Article X of the Public Service Law (PSL), to construct and operate a 360 megawatt (MW) electric generating facility (Project) at the East River Generating Station¹ in Manhattan. In conjunction with this filing, Con Edison submitted to the New York State Department of Environmental Conservation (DEC) an application for a pre-construction Air State Facility permit, a Prevention of Significant Deterioration (PSD) permit, and a proposed modification of the State Pollutant Discharge Elimination System (SPDES) permit for the East River Generating Station to incorporate the Project's operation.

The primary purpose of the Project is to ensure that Con Edison can continue to supply its customers with reliable, reasonably priced steam by replacing the aging Waterside Generating Station (Waterside Station) with new, highly efficient natural gas-fired combined cycle equipment. It is the ancillary electrical output of the Project that requires the submission of the application under PSL Article X. The Project

¹ The East River Generating Station is part of the East River Complex, which also includes the South Steam Station, electrical switchyards, and fuel oil storage facilities.

was not "selected pursuant to an approved procurement process" within the meaning of PSL §164(1).

A pre-application report had been filed with the New York State Department of Public Service (DPS). In response to comments on the pre-application report, Con Edison modified its engineering design to eliminate the Project's need for East River cooling water and to use 100% non-interruptible natural gas. In addition, stipulations regarding the scope of the application were successfully negotiated among Con Edison and the staffs of DPS, DEC and the New York State Department of Health (DOH).

On July 31, 2000, Chairman Helmer informed Con Edison under PSL §165(1) that its application generally complied with the requirements of PSL §164. She also directed Con Edison to provide additional information for specific topics, and fixed August 22, 2000 as the date for the commencement of public hearings. However, Con Edison did not obtain the DEC draft permits until December 15, 2000. An Announcement of Public Comment Period, and Combined Notice of Complete Application, Public Hearing and Issues Conference (the Announcement and Notice), and a Notice of Determination to Issue Prevention of Significant Deterioration (PSD) Permit appeared in DEC's Environmental Notice Bulletin on December 20, 2000.

PSL §165(4) requires that the proceeding on the application, including a decision by the Board on Electric Generating Siting and the Environment (Siting Board), be completed within 12 months of Chairman Helmer's letter, or by July 30, 2001. However, for facilities over 200 MW that have not been selected pursuant to an approved procurement process, the Siting Board may extend the deadline in extraordinary circumstances by no more than six months in order to give consideration to specific issues necessary to develop an adequate record.

The delay in obtaining the DEC's draft permits is an extraordinary circumstance and, inasmuch as the permits must be presented to the Siting Board prior to its decision, the receipt

of such permits is necessary to develop a complete record.² Since Con Edison did not receive its draft permits from the DEC until four and one-half months after the start of the PSL Article X proceeding and, inasmuch as the delay prevented, for all practical purposes, the DEC staff from participating in the PSL Article X proceeding and processing the permits within its 12-month timeframe, it is recommended that the Siting Board avail itself of the extra time to decide this case.

A. Public Hearings and
Written Correspondence

Public statement hearings were held on three days in Manhattan: the first at DPS's office in midtown and the others in a grade school located near the East River Complex. Approximately 120 statements were received at the public statement hearings. In addition, individuals submitted comments in writing. The speakers and writers included political and civic leaders, residents, and workers at the power plants. Some opposed the Project entirely. Others called for implementation of best available technology in the existing East River Complex. It was suggested that the profits from the sale of the midtown Waterside Station be used to pay for the improvements. A few recognize the need for more power and generally supported the Project but also expressed concern about the environment and health of the residents in the neighborhood of the plant.

The January 24, 2001 public statement hearing was scheduled to comply with DEC procedures to obtain public input on the draft permits; over 400 individuals attended the afternoon and evening sessions. The latter session was the most well attended of all the public statement hearings. Before the evening session started, members of the public gathered outside the hearing location for a demonstration and press conference to express their opposition to the proposed facility. They carried posters, some in the shape of skulls, with various statements, in English and Spanish, that expressed their distrust of the

² PSL §172(1).

applicant as well as concerns about the potential adverse impacts associated with the Project. Others at the demonstration also attended the public hearing, and brought their posters with them. Statements on the posters included: "Help"; "Attack of Asthma" (translated from Spanish); "New York DEC Permit Us to Breathe"; "Give us Clean Air"; and "Con Ed, Our Kids Need Clean Air," among others.

During the hearings, government officials called for the postponement of any decisions related to this application until the results of pending energy studies are available. In addition, government officials recommended that decisions related to other pending PSL Article X applications be held in abeyance until a comprehensive assessment of New York City's (City's) electricity needs is undertaken, and a long-range plan to address these needs is developed. These speakers also expressed concern about the burden that the Project and other proposed electric generating facilities would place on the various neighborhoods and communities, which the speakers said include large populations of minority and low-income people. The officials, and other speakers, want alternative sites and technologies considered before the DEC makes any final decisions about the draft environmental permits for the proposed facility at the East River Complex.

Residents and members of various community-based groups characterized Con Edison's proposal as a real estate deal that will provide substantial financial benefits to the applicant at the expense of the health of the residents living near the East River Complex. As alluded to above, the applicant's proposal at the East River Complex is part of a plan to overhaul portions of Con Edison's steam generating system. This process includes decommissioning the Waterside Station, located near the United Nations Headquarters, and expanding the steam generating capacity at the East River Complex. Subsequent to the decommissioning of the Waterside Station, Con Edison proposes to sell that property and other properties it owns in the vicinity of the Waterside Station, which are collectively referred to as the "First Avenue Properties." Speakers want Con

Edison to use the proceeds from the sale of the First Avenue Properties to upgrade all the existing, assertedly antiquated steam generating equipment at the East River Complex as a condition of the Siting Board's certification of the Project.

Many speakers said that Con Edison is not a good neighbor. To illustrate this point, they related their observations about the excessive noise, foul odors, and loud explosions that occur around the clock in the vicinity of the East River Complex. Others explained that whenever they call Con Edison to report these conditions, Con Edison personnel are curt, rude, and indifferent to these concerns. Many people said there are large construction projects underway in the vicinity of the East River Complex, and they are concerned that the applicant has already started to implement its proposed expansion before the review of its pending PSL Article X application and environmental permit applications is complete.

According to some speakers, residents living in the vicinity of the East River Complex have one of the highest rates of asthma in the City. People attribute this high asthma rate to, what they characterize as, excessive particulate emissions from the East River Complex. School nurses, teachers, and the parents of children, who attend the local schools, said that many children are frequently absent from school or cannot fully participate in school activities because of asthma and related respiratory conditions. Teachers said that some children must spend the lunch period using nebulizers to take asthma medications. Some school administrators said they are concerned that asthma-related absences would adversely effect the quality of the education that these children receive. Adult asthma sufferers, who came to the public hearings, stated they must carry their medications with them wherever they go since life-threatening asthma attacks can strike without warning. They stated further that they cannot open the windows to their apartments because their furnishings would quickly become covered with fine black soot.

Speakers were critical of Con Edison's environmental justice analysis, which is a requirement of the PSD application.

In an environmental justice analysis, comparisons are made between the community of concern, which surrounds the air emission source, and a reference community to determine whether the community of concern would be subjected to any disproportionate impacts. In December 2000, the applicant submitted a revised environmental justice analysis. In the revised analysis, the community of concern is defined as the population living within a one-mile radius of the East River Complex. The reference community is the combined population of New York, Kings, and Queens counties.

During the hearings, community representatives said that Con Edison inappropriately revised the environmental justice analysis without seeking their input in violation of applicable Environmental Protection Agency (EPA) guidelines. Others were critical of how Con Edison redefined the community of concern because up to one-third of the area now includes the East River, where no one lives. Some speakers stated that the reference community should be limited to those living near the Waterside Station rather than the combined population of New York, Kings, and Queens counties.

Many speakers said that the January 24, 2001 hearing sessions should not have been held on that day because it is the beginning of Chinese New Year celebrations (Year of the Snake). Speakers claimed that scheduling the public hearings at the beginning of the Chinese New Year was insensitive, and an attempt to limit the participation of Chinese people who reside near the East River Complex. One speaker said that Chinese interpreters should have been present at the hearings to translate the proceedings into Chinese, and to provide those who wanted to express themselves in their "native" or "mother" language with an opportunity to speak at the hearing.

Finally, members from the local boilermakers, steamfitters, and operating engineer unions spoke in favor of the applicant's proposal. They said the proposal is necessary to avoid the electricity shortages currently plaguing California. In response to claims that the union members were selfishly seeking new jobs at the expense of the health of local

residents, the members explained that they currently have plenty of work because they are constantly called to sites, like the East River Complex, to repair the aging electric and steam generating equipment. The workers explained further that the existing facilities are not constructed to modern safety standards, and contain hazardous substances like asbestos. According to the union members, they would prefer to build new, modern facilities, such as the applicant's proposal, than to continue to repair existing, antiquated ones.

By letter dated February 2, 2001, Con Edison responded to various criticisms raised at the public statement hearings. First, the applicant summarized its efforts made throughout the PSL Article X process to address those concerns. Con Edison listed steps it would be willing to undertake to mitigate the impacts of the Project, including elimination of a surface condenser (and therefore use of East River cooling water), the use of non-interruptible natural gas for the Project to reduce air emissions, the potential use of urea conversion technology, which employs non-hazardous dry, granulated urea instead of aqueous ammonia to achieve NOx reductions, and the use of a reverse osmosis water treatment system to eliminate bulk chemical deliveries.

Next, Con Edison addressed concerns raised about existing conditions at the East River Complex. According to the applicant, it has installed an odor neutralizer on the fuel oil tank vents for one tank. The other tanks are out of service but would receive similar installations if tests confirm the system's effectiveness. With respect to the "odor of gas," Con Edison performed a gas detection inspection and found that a City sewer had an obstruction and stagnant sewage released an odor similar to the odorant added to natural gas. The City removed the obstruction and is planning other repairs in the vicinity of the East River Complex.

Con Edison also donated \$5 million to partially fund an Urban Air Quality Program, hired an environmental architectural firm to suggest improvements for the East River Complex, proposed to reduce overall emissions by burning more

natural gas at the East River Complex, agreed to invest \$2 million in new noise reduction equipment, and committed to recommending a portion of the proceeds from the sale of the First Avenue Properties be dedicated to upgrading the East River Complex.

After the public statement hearing, evidentiary hearings were held on seven days in April 2001 in the City. At those hearings, 37 witnesses either testified or had their testimony received with an affidavit adopting the testimony as sworn to in this proceeding. Included among the witnesses were 28 for Con Edison, three for DPS, two for DEC, and four for CB3/EREC. In addition, initial briefs and reply briefs were submitted by the applicant,³ DPS, DEC, City, Westchester County, and Manhattan Community Board No. 3 and the East River Environmental Coalition (CB3/EREC).⁴

B. The Project

Con Edison's proposed Project would be installed in unused space within the existing East River Generating Station and would have a maximum steam output of 3 million pounds per hour (lb/hr) and a nominal electric output of 360 MW.⁵ The

³ Con Edison's position was supported by Catherine Luthin, Executive Director of New York Energy Buyers Forum, and Scott Petersen, Counsel for Owners Committee on Electric Rates, Inc.

⁴ CB3/EREC's position was supported by Hon. Carolyn B. Maloney, Member of the United States House of Representatives, Hon. Nydia M. Velazquez, Member of the United States House of Representatives, Hon. Thomas K. Duane, Member of the New York State Senate, Hon. Martin Connor, Member of the New York State Senate, Hon. Sheldon Silver, Member of the New York State Assembly, Hon. Richard N. Gottfried, Member of the New York State Assembly, Hon. Steven Sanders, Member of the New York State Assembly, Hon. Rosaura Mendez, Democratic District Leader of the 63rd Assembly District, Part B, Hon. Kathryn E. Freed, Member of the Council of the City of New York, and Hon. Eva S. Moskowitz, Member of the Council of the City of New York.

⁵ The design summer dependable maximum net capability rating is 288 MW.

Project consists of two General Electric PG724(FA) combustion turbine generators (CTGs) with dual-fuel capability and two heat-recovery steam generators (HRSGs) with duct burners. The duct burners would be located in the HRSGs, and would be independently fired to add heat to generate additional steam. The use of these duct burners is less efficient and more polluting than the CTGs and HRSGs. Con Edison represents that they will be operated as peaking units, which will have annual capacity factors of approximately 20%. The CTG and HRSG trains, on the other hand, are expected to operate as base load units and have annual capacity factors of approximately 90%.

The exhaust from each turbine train (CTG plus HRSG) would be directed to an existing stack. In addition, one of the existing five million gallon fuel oil storage tanks would be dedicated to the Project and filled with distillate oil to be utilized as fuel for the CTGs on an emergency basis. The existing storage tank would be sufficient to support six days of emergency service at maximum operation of the CTGs.

Con Edison estimates the cost of the Project at \$360 million, including the cost of electric, steam, and gas interconnections.

C. Required Findings of the Siting Board

Pursuant to PSL Article X, the Siting Board may either grant or deny the application as filed, or certify a facility "upon such terms, conditions, limitations or modifications of the construction or operation of the facility as the board may deem appropriate."⁶ In order to grant a certificate to Con Edison in this case, the Siting Board must find:

- That the facility will satisfy electric capacity or other electric system needs and is reasonably consistent with the policies and long-range planning objectives and strategies of the most recent state energy plan.⁷

⁶ PSL §168(2).

⁷ PSL §168(2)(a).

- The nature of the probable environmental impact, specifying predictable adverse and beneficial effects on (a) the normal environment and ecology, (b) public health and safety, (c) aesthetics, scenic, historic, and recreational values, (d) forest and parks, (e) air and water quality, and (f) fish and other marine life and wildlife.⁸
- That the facility minimizes adverse environmental impacts, considering (a) the state of available technology, (b) the nature and economics of reasonable alternatives required to be considered under PSL §164(1)(b), and (c) the interest of the state respecting aesthetics, preservation of historic sites, forest and parks, fish and wildlife, viable agricultural lands, and other pertinent considerations.⁹
- That the facility is compatible with public health and safety.¹⁰
- That the facility will not discharge any effluent in contravention of DEC standards or, where no classification has been made of the receiving waters, that it will not discharge effluent unduly injurious to fish and wildlife, the industrial development of the state, and the public health and public enjoyment of the receiving waters.¹¹
- That the facility will not emit any air pollutants in contravention of applicable air emission control requirements or air quality standards.¹²
- That the facility will control the runoff and leachate from any solid waste disposal facility.¹³
- That the facility will control the disposal of any hazardous waste.¹⁴
- That the facility will operate in compliance with all applicable state and local laws and associated

⁸ PSL §168(2)(b).

⁹ PSL §168(2)(c)(i).

¹⁰ PSL §168(2)(c)(ii).

¹¹ PSL §168(2)(c)(iii).

¹² PSL §168(2)(c)(iv).

¹³ PSL §168(2)(c)(v).

¹⁴ PSL §168(2)(c)(vi).

regulations, except that the Siting Board may refuse to apply specific local laws, ordinances, regulations, or requirements it regards as unduly restrictive.¹⁵

- That the construction and operation of the facility is in the public interest, considering its environmental impact and the reasonable alternatives considered [under PSL §164(1)(b)].¹⁶

As noted above, the Siting Board must find that the proposed facility "will not be in contravention of water quality standards . . . of the department of environmental conservation . . .,"¹⁷ and "will not emit any pollutants to the air that will be in contravention of applicable air emission control requirements or air quality standards."¹⁸ These effluent and air quality standards find their genesis in the federal laws referred to in PSL §168(3).¹⁹

PSL Article X and relevant sections of the Environmental Conservation Law (ECL) recognize that the DEC has been delegated the authority to issue federal effluent and air permits. The DEC is expected to issue these environmental permits in the near future. Therefore, as required by PSL §172(1), the DEC Commissioner should be able to "provide such permits to the [Siting Board] prior to its determination whether or not to issue a certificate."²⁰ Once the DEC Commissioner's requirement is fulfilled, the Siting Board will be able to make

¹⁵ PSL §168(2)(d).

¹⁶ PSL §168(2)(e).

¹⁷ PSL §168(2)(c)(iii).

¹⁸ PSL §168(2)(c)(iv).

¹⁹ These are the federal Clean Air Act, the federal Clean Water Act and the federal Resource Conservation and Recovery Act, and their respective implementing regulations.

²⁰ PSL §172(1).

the findings required by PSL §§168(2)(c)(iii) and (iv), and render a final decision.²¹

D. Summary of the Joint Stipulation

On May 16, 2001, the applicant distributed copies of a Joint Stipulation, which covered 12 topic areas, a list of proposed certificate conditions, a joint exhibit list, a list of acronyms, and two exhibit binders. The Joint Stipulation was signed by Con Edison, DPS Staff, DEC Staff, DOH Staff, the City, Boilermakers Local No. 5, and the General Contractors Association of N.Y., Inc.

CB3/EREC did not sign the stipulation. The two parties acted as a joint intervenor in this proceeding. Community Board No. 3 is an advisory body of appointed local residents, business persons, and others having a significant interest in the area generally bounded by 14th Street, the Bowery, Fulton Street, and the East River, with a population of approximately 155,000. The New York City Charter empowers community boards to, among other activities, "consider the needs of the district . . . advise any public . . . agency . . . with respect to any matter relating to the welfare of the district and its residents . . . review . . . applications and proposals of public agencies and private entities for the use, development or improvement of land . . ." and participate in the scoping and evaluation of environmental reviews.

The East River Environmental Coalition is a non-profit association formed in response to Con Edison's proposed Project. Its goals are to protect the health and the environment of its members and others living in the vicinity of the East River Complex, and to promote conservation and natural beauty. It

²¹ The Siting Board's decision is final irrespective of whether the applicant still needs to obtain related permits. Indeed, in the air quality area, the Siting Board's certificate is part of preconstruction review under the Clean Air Act; and yet the Siting Board must determine in advance of issuing a certificate that the facility will be able to comply with Clean Air Act requirements.

comprises members residing in the communities and buildings that surround the East River Complex including residents of Haven Plaza, Village East Towers, Campos Plaza, Jacob Riis Houses, Stuyvesant Town, and Peter Cooper Village; members of the 12th Street Block Association, 14BC Apartment Corp. (626-636 East 14th Street), and various co-ops and community organizations including Good Old Lower East Side (GOLES), Cooper Square Community Development Association, and Coalition for a District Alternative (CODA); and tenants of private housing tenements from Houston Street to East 20th Street and from the FDR Drive to Second Avenue.

The Joint Stipulation's 12 separate topics include agreements related to: (1) Air Resources; (2) Electric Transmission Facilities; (3) Gas Supply and Transmission; (4) Land Use and Local Laws; (5) Noise; (6) Public Interest; (7) Reasonable Alternatives; (8) Soils, Geology, Seismology and Tsunami Occurrences; (9) Terrestrial Ecology; (10) Traffic; (11) Visual and Cultural Resources and Aesthetics; and (12) Water Resources. Each topic agreement identifies the nature of the probable environmental impacts of the proposed facility, provides a set of proposed certificate conditions related to the topic, and discusses how the proposed certificate conditions will minimize adverse impacts as required by PSL §168. In addition, each topic includes a set of stipulated facts with references to appropriate testimony and exhibits that serve as the evidentiary basis.

In general, the Joint Stipulation addresses all topics identified in PSL §168. The evidentiary record compiled in this proceeding is comprehensive, supports the terms of the Joint Stipulation, and provides a factual basis sufficient for the Siting Board to determine whether the proposed facility should be certificated. The discussion that follows reviews the issues raised by the parties to the proceeding, many of which are covered by the Joint Stipulation. Before discussing each issue, a review of the need for the Project is in order.

As noted above, the Project is primarily a steam system supply option and, therefore, its electrical output is an

ancillary benefit of cogeneration technology. Thus, an understanding of Con Edison's steam system is necessary to demonstrate the need for the Project from a long range energy planning perspective.

Con Edison's steam system is the largest such system in the world. It is comprised of approximately 100 miles of transmission, distribution, and service mains that deliver steam from generating stations to customers. Its service area extends from the southern tip of Manhattan to 96th Street. However, the steam system's load centers and distribution grids are located in two districts: an uptown district, which serves a concentration of large buildings in the midtown area responsible for about 75% of the total demand, and a downtown district, which serves the area at the southern tip of Manhattan. The uptown district is supplied principally by the Waterside Station located at East 38th Street, as well as several other smaller steam generating stations, including the 59th Street Station and the 74th Street Station, among others. The downtown district is primarily supplied by other steam generating stations. The East River Complex is centrally located and therefore supplies both districts.

Con Edison had filed a steam system plan with the DPS that addressed, among other things, the retirement and divestiture of the Waterside Station and the repowering of the East River Generating Station. DPS authorized Con Edison to continue its auction of the Waterside Station along with three nearby parcels (all four are known as the First Avenue Properties) for the purpose of real estate development and to continue the process of obtaining all necessary regulatory approvals for the repowering and addition of electrical capacity at the East River Generating Station to replace the output of the Waterside Station.²²

²² Cases 96-S-1065 and 96-S-1121, Consolidated Edison Company of New York, Inc. - Rates, Order Concerning Phase II Steam Plan Report (issued December 2, 1999), p. 13.

Coupling the generating of electricity with the production of steam significantly increases thermal efficiency. For example, the majority of new electrical generating facilities proposed in the United States would produce no process steam. They are expected to achieve an overall thermal efficiency of approximately 54% to 58%. Con Edison's proposal, which would use the exhaust heat of the turbines to produce steam, would have a thermal efficiency ranging from 85% to 94%. The high-efficiency would result in lower fuel consumption for the total energy (steam and electricity) produced.

In order to deliver the steam from the East River Generating Station to the uptown district, Con Edison proposed to construct a steam main, which would be approximately 30 inches in diameter and sized to accommodate approximately 2.4 million lb/hr of steam. The remaining 0.6 million lb/hr of steam to be produced by the Project would be fed into the existing steam distribution mains through an on-site interconnection. Con Edison is investigating eight alternative routes for its new steam main. All but one would run from the site to First Avenue and East 36th Street. Also, an additional 640-foot reinforcement would be needed on First Avenue from the East 39th Street to East 41st Street for all but one of the alternatives.

The City's water distribution system would also need to be upgraded to provide City water to the Project. The City would design, construct, own, and operate the new mains. Initial indications are that the new water main would be connected to the existing 48-inch City water main on First Avenue and the existing 36-inch main that originates on Avenue A. Roughly 7,500 feet of new main would need to be installed.

II. THE REQUIRED FINDINGS

A. Electrical Facilities

1. Electrical System and Capacity Needs

Adding the electrical generation to the Project, Con Edison claims, would reduce electric production costs and

enhance reliability within the lower Manhattan and in-City electrical load pockets. According to Con Edison, the Waterside Station's dispatch is approximately 600 gigawatt-hours (GWh) of electricity per year. The Project would displace this generation and an additional 1,700 GWh of generation from other plants. Con Edison estimated that, were this generation displaced in the year 2002, the fuel cost savings associated would be approximately \$25 million.

With respect to the lower Manhattan and overall in-City load pockets, the Project would provide a net increase of 288 MW in lower Manhattan and 125 MW in the City. Without the Project, the lower Manhattan load pocket would become deficient by 2005 and the in-City load pocket risks deficiency by 2002. Thus, the Project is needed to augment capacity in the load pocket areas.

The Project would also displace the need for a planned \$29 million reinforcement for the East River 69 kV and East 13th Street 138 kV transmission system.

In addition, Con Edison asserted that the Project would result in an avoidance of the need to maintain the Waterside Station and its associated operating costs and ongoing capital investments. The Project would also allow five of the ten package boilers at the South Steam Station to be placed in "cold storage." The sum of the fuel cost savings and other production cost savings resulting from the Project, according to Con Edison, would amount to \$27 million per year. This figure does not include the estimated net real estate benefits of \$220 million resulting from the sale of the First Avenue Properties. If the real estate benefits were included, the total economic benefits from the Project would average approximately \$45 million per year over 20 years.

For these reasons, we recommend the Siting Board find that the Project would not only be consistent with sound electrical system planning, but also would help minimize the cost of electricity.

2. Consistency With the Objectives
of the State Energy Plan

PSL Article X requires that the Project be consistent with the policies, long-range energy planning, and strategies contained in the most recent (1998) New York State Energy Plan (NYSEP), which include pursuing competition, ensuring fairness, equity, and system reliability, and improving the state's environment and natural resources. According to NYSEP, a new generating facility is consistent with the state's long-range plan for expansion of the electric power system if the new facility contributes to competition in electrical markets.

Construction of the Project should not create adverse market power conditions. Horizontal market power would not be a major concern because Con Edison's total ownership of in-City generation would be only about 700 MW which is less than ten percent of the current level of in-City capacity.

Also, the Project would not give Con Edison vertical market power. The Public Service Commission (PSC) found that "Con Edison's continued ownership of the repowered East River Generating Station should not cause market power concerns, given the utility's position on bidding to-go costs."²³ The "to-go" cost is the cost that would be avoided if the Project were not selected by the New York Independent Steam Operator (NYISO) to produce electricity. Since the Project's operation is dictated by steam system demand, the applicable "to-go" cost for electric generation is likely to be zero at most times. Therefore, Con Edison would not be able to raise the market clearing prices. Furthermore, the applicant has proposed to DPS that the revenues be credited to electric customers. Thus, Con Edison would have no incentive to operate its transmission and distribution in a manner that would benefit the Project to the possible detriment of electric customers.

The addition of the Project would reduce, to a small degree, the concentration of generation ownership within the City and it would reduce the number of hours when there would be

²³ Id., p. 12.

electricity constraints within the City. The Project would also help mitigate possible market power issues associated with other existing generation owners in the City and help develop a fully competitive generation market.

As far as ensuring fairness, equity and reliability is a concern, the development of the Project, coupled with the retirement and sale of the Waterside Station site, would be a means of mitigating the higher electric costs which customers would experience with the continued operation of the Waterside Station. The added generation would contribute toward overall system reliability, and the Project's proposed combustion turbine technology has been proven to operate reliably throughout the industry.

Regarding the environment and natural resources, the Project, Con Edison claims, would produce steam and electricity with greater efficiency than the generation it would displace. The Project would consume 29,800 billion Btu compared to 36,900 billion Btu that the displaced generation would consume. The resulting reduction in statewide fuel consumption for production of steam and electricity is estimated to be 7,300 billion Btu per year. Of course these savings are dependent on the simultaneous production of steam and electricity, the probability of which is discussed more fully infra. In addition, the Project would mitigate potential impacts to the City through the use of existing infrastructure and state-of-the-art natural gas-fired combined-cycle technology.

In conclusion, we recommend that the Siting Board find that the Project would be consistent with NYSEP's objectives to ensure an adequate and continuous supply of safe, dependable, and competitively priced energy for all New Yorkers consistent with public health, safety, and environmental protection needs.

B. Reasonable Alternatives

In its application, Con Edison set forth an evaluation of environmental considerations and costs associated with potential alternatives to steam production. In addition, Con Edison set forth an analysis of alternate sites for the Project.

Each alternative was analyzed in terms of its operational, environmental and economic characteristics.

1. Alternative Steam Production Analysis

Con Edison evaluated the use of conventional boilers, distributed generation, and DSM as alternatives for providing steam generating capacity to replace Waterside Station. The applicant also reviewed a no-action alternative.

a. Conventional Boilers

Conventional boilers are less costly to build than the combustion turbine-based technology used in the Project, but they do not provide any cogeneration benefits. Con Edison determined that it would be feasible to install 12 package boilers at the East River Generating Station with a net steam generating capacity of 2.4 million lb/hr, which is sufficient to replace the Waterside Station's steam capacity. The total cost of such an arrangement is estimated to be \$189 million. The boilers would be dispatched differently from the Project due to their higher heat rate, lower efficiency, and lower capacity (2.4 million lb/hr vs. 3.0 million lb/hr).

The lower capacity of the 12 package boilers would require the generation of steam by other units, which are mostly oil-fired. The steam generation using conventional boilers was estimated to cost \$32 million per year more than Project's. In addition, the lower capacity of the boilers would preclude Con Edison from placing on cold standby five existing boilers at the South Steam Station. Consequently, Con Edison would incur the capital and fixed operation and maintenance expenditures associated with these boilers. Also, since the 12 package boilers would not produce any electricity, the planned electric load pocket reinforcement costs would also be incurred, and additional electric market generation would be required in lieu of the Project's generation. The overall cost of the conventional boiler alternative, including the recovery of investment, was estimated to be approximately \$39 million per year more than that of the Project. Furthermore, the additional

generation would result in additional emissions of nitrogen oxides (NOx) and sulfur dioxide (SO₂).

b. Distributed Generation

Generally speaking, individual distributed generation units are typically rated at 10 to 30 MW. As a potential alternative to the Project, distributed generation would be sited at various points around the steam system. Obviously, it would take a large number of these units installed throughout the system to provide sufficient steam to replace Waterside Station's capacity. The capital cost of current distributed generation technologies is about \$1,000 per kW, exclusive of interconnections and reinforcements, which is similar to the cost of the Project inclusive of its electrical and steam system interconnections. According to Con Edison, it would be challenging to interconnect and control the operation of so many individual generators in Manhattan, and the change in steam send-out patterns could cause a need for steam distribution reinforcements, both of which would render this alternative more expensive than the Project.

c. Demand-Side Management (DSM)

As part of its 1998 steam system plan, Con Edison reported on its studies of the potential for steam peak shaving as a means to displace generation. Those studies concluded that conventional reduction measures could reduce peak demand by 10% to 20%. Even assuming that such measures could produce a 20% load reduction, Con Edison estimates that every one of its steam customers would have to install such measures to displace the need for the Waterside Station. Furthermore, as with the conventional boiler alternative, Con Edison notes that the DSM alternative would provide neither electric generation displacement nor sufficient steam capacity to displace the five boilers at the South Steam Station.

d. No-Action Alternative

If the Project were not constructed, Con Edison maintains it would continue to operate the Waterside Station and would not be able to place five of the South Steam Station's boilers on cold standby. The steam and electric system capital investments that the Project avoids would instead be incurred. Without the Project, steam and electric customers would incur an additional cost of approximately \$45 million per year over the next 20 years and the City and state would experience an additional 1.3 million tons of emissions from power plants.

2. Alternative Site Analysis

Con Edison evaluated four specific steam generation locations that it owns to determine if the proposed cogeneration plant design of the Project could be reasonably accommodated. Physical considerations included space, stack capacity, and oil storage. The Project requires approximately 85,000 square feet of floor area for two CTGs, two HRSGs, and all associated auxiliary equipment. Existing stack capacity was deemed necessary to minimize environmental impacts. According to Con Edison, construction of a new stack would have significant visual, aesthetic, noise, traffic, infrastructure, and neighborhood character impacts. Con Edison recognizes that oil would be used only during natural gas emergencies, but considers it necessary to sustain operations. Thus, Con Edison also evaluated the availability of oil storage infrastructure at each of the four sites.

The costs of interconnections, in some instances (as noted below), were compared to the Project's interconnections costs of \$50 million for steam, \$12 million for electric, \$2 million for gas service and \$46 million for gas system reinforcements.

a. 74th Street Station

This site is located on East 74th Street adjacent to the FDR Drive. The available space at this site is approximately 48,000 square feet, which would not accommodate the Project. In addition, there is no space available outside the facility perimeter for expansion. Stack capacity is also limited and a new stack would have to be constructed to support the Project. Finally, there is insufficient oil storage infrastructure and oil would have to be stored on barges near the site. For these reasons, Con Edison deemed this site unacceptable.

b. 60th Street Station

This site is located on East 60th Street near the FDR Drive. The entire site is approximately 19,000 square feet and there is no room outside the facility perimeter for expansion. Therefore, Con Edison rejected this site as well.

c. 59th Street Station

This site is located near 59th Street and 12th Avenue. The station building has been nominated for designation as a City landmark. There is sufficient room within the existing building to accommodate the Project. The station has one existing stack, which is used to near full capacity. A new stack would need to be constructed to accommodate the Project. This site already uses barges for oil storage and there are three available slips at the facility's dock, which could accommodate a barge containing an emergency supply of oil for the Project. To accommodate the Project, physical modifications to the building would be required including louver installation and an additional stack, which would affect the appearance of the facility.

Con Edison also evaluated the cost of interconnections to this site. It determined that approximately 25,300 feet of steam pipe would be required to support the Project. The estimated cost of the new steam piping is approximately \$130 million as compared to \$50 million for the Project at the

East River Generating Station. On the other hand, it was estimated that the cost of electrical interconnections would be approximately \$9 million compared to \$12 million for the East River Generating Station. The estimated cost of gas interconnection is approximately \$20 million. Con Edison did not accept this site for the Project because of the high cost of interconnections and the needed modifications to the existing building.

d. Hudson Avenue Generating Station

This station is located on Hudson Avenue in Brooklyn next to the East River. There is sufficient space available within the buildings to accommodate the Project. There are also three existing stacks not currently in use, which could accommodate the exhaust from the Project. The station also has two 2.7 million-gallon tanks available for distillate oil. A major problem with this site would be the cost of the interconnections. Approximately 27,000 feet of new steam line would be needed, which is estimated to cost approximately \$164 million. For the electrical interconnections, the nearby substation would need to be upgraded and rebuilt and 18,000 feet of transmission line would need to be installed. The cost of the substation work is estimated to be \$49 million and the cost of the new cable is approximately \$38 million. With respect to the gas lines, a total of approximately \$75 million would be needed to install 40,000 feet of new gas line and to reinforce the existing system. Con Edison did not select this site because of the \$181 million incremental capital cost to develop this station.

3. CB3/EREC's Proposed Alternatives

Originally, CB3/EREC maintained that three sites, including Kips Bay, the 74th Street Station, and the 59th Street Station, could be used as alternatives. It later withdrew its support for the 74th Street Station site. According to CB3/EREC, if Con Edison's proposal were modified to use one of these sites in addition to the East River Generating Station,

the overall benefits would likely be comparable to or greater than the benefits of the Project. The table on page 26 compares some of the aspects of the Project with the alternatives.

In all six of CB3/EREC's proposals, the East River Generating Station would house one CTG and HRSG identical to either unit proposed for the Project except that the number of duct burners would be reduced by one-third. This unit's peak output would be 180 MW of electricity and 1,250,000 lb/hr of steam. In addition, as summarized in the table, CB3/EREC would:

- (1) install two 120 MW units at a new facility to be constructed at the company's Kips Bay property (alternative 1); or
- (2) install a single 180 MW unit at a new facility to be constructed at the company's Kips Bay property (alternative 2); or
- (3) install two 180 MW units at the 74th Street Station and retire three existing high-pressure boilers (alternative 3); or
- (4) install two 180 MW units at the 59th Street Station and retire three existing high-pressure boilers (alternative 4); or
- (5) install two 120 MW units at the 59th Street Station and retire three existing high-pressure boilers (alternative 5); or
- (6) install a single 180 MW unit at the 59th Street Station (alternative 6).

In five of the alternatives, CB3/EREC would also retire all ten package boilers (1,100,000 lb/hr) at the South Steam Station. In alternative 2, CB3/EREC would retire only five of the package boilers at the station (550,000 lb/hr) to make up for a shortfall of steam output under this proposal.

Compared to the Project, which would increase the overall steam system installed generating capacity by 100,000 lb/hr, CB3/EREC would reduce the steam system capacity from 200,000 lb/hr up to 1,200,000 lb/hr, depending on the alternative chosen.

Each of CB3/EREC's alternatives will be discussed in terms of steam generation, uptown demand, space requirements, cost, etc.

a. Steam Generation

According to Con Edison, the current level of overall installed steam capacity (13,336,000 lb/hr) is necessary to maintain its current level of reliability. Thus, the applicant asserts it is necessary for the Project's steam generating capacity to be at least equal to the Waterside Station's capacity, which it would replace. In order to achieve additional economic benefits, Con Edison designed the Project's peak steam generating capacity to provide sufficient additional capacity to permit five of the ten South Steam Station's package boilers to be placed on cold standby.

Con Edison claims that the 13,336,000 lb/hr of existing capacity is needed to satisfy its customers' peak requirements (11,980,000 lb/hr for the winter of 2000/01) plus reserve requirements. The shutdown of the Waterside Station and five package boilers decreases the available steam system capacity by 2,900,000 lb/hr and the Project would provide a total of 3,000,000 lb/hr, for a net increase of 100,000 lb/hr. In addition, the applicant claims that the Project is needed to meet its future steam system requirements arising from new real estate development in Manhattan and a determined marketing program. Since the Project is designed to serve the steam system for many years to come, the applicant maintains that the potential for such future load growth must be considered before allowing any reduction in capacity. CB3/EREC challenges Con Edison's forecast of peak requirements.

COMPARISON OF CON EDISON'S PROJECT WITH CB3/EREC'S SIX ALTERNATIVES

	Con Edison's	CB3/EREC's Proposed Alternatives					
	Project	Kips Bay & East River		74th Street & East River	59th Street & East River		
	<u>East River</u>	(1)	(2)	(3)	(4)	(5)	(6)
<u>Electric</u>							
Units	2@180MW	1@180MW 2@120MW	2@180MW	3@180MW	3@180MW	1@180MW 2@120MW	2@180MW
Total	<u>360MW</u>	<u>420MW</u>	<u>360MW</u>	<u>540MW</u>	<u>540MW</u>	<u>420MW</u>	<u>360MW</u>
<u>Steam</u>							
(000 lb/hr)							
Additions	3,000	3,250	2,500	4,250	4,250	3,250	2,750
Retirements	<u>550</u>	<u>1,100</u>	<u>550</u>	<u>2,500</u>	<u>2,100</u>	<u>2,100</u>	<u>1,100</u>
Total	<u>2,450</u>	<u>2,150</u>	<u>1,950</u>	<u>1,750</u>	<u>2,150</u>	<u>1,150</u>	<u>1,650</u>
<u>Uptown District</u>							
<u>Reserve</u>							
(000 lb/hr)							
CB3/EREC Peak ²⁴	1,475 ²⁶	975	225	575	975	(25)	475
Con Edison Peak ²⁵	1,096 ²⁶	596	(154)	196	596	(404)	96
<u>Net Cost</u>							
<u>Per CB3/EREC</u>							
(000,000)							
Absolute	\$70.0	\$65.1	\$69.8	\$45.5	\$53.3	\$51.7	\$ 70.9
Relative	---	\$ 4.9	\$ 0.1	\$24.5	\$16.6	\$18.2	(\$ 0.9)
<u>Net Cost</u>							
<u>Per Con Edison</u>							
(000,000)							
Absolute	\$83.2	\$94.3	\$100.2	\$87.1	\$93.9	\$91.8	\$104.5
Relative	---	(\$11.1)	(\$ 17.0)	(\$ 4.0)	(\$10.8)	(\$ 8.6)	(\$ 21.3)

²⁴ CB3/EREC's peak load for the uptown district is 8,606,000 lb/hr; therefore the minimum 6.0% reserve is 516,000 lb/hr.

²⁵ Con Edison's peak load for the uptown district is 8,985,000 lb/hr; therefore the minimum 6.0% reserve is 539,000 lb/hr.

²⁶ CB3/EREC observes that these figures are overstated by 50,000 lb/hr and should be 1,425,000 and 1,046,000 lb/hr, respectively.

The steam system's peak load is weather sensitive and occurs at the coldest period of the year. Con Edison anticipated that its steam system peak load would be approximately 11,980,000 lb/hr in the winter of 2000/01, assuming design weather conditions of 5.0 degrees Fahrenheit. To forecast peak load, Con Edison employs an equation in which weather is measured by a "weather variable" consisting of the weighted average of the temperature at the peak hour (80 percent weighting) and the average temperature over the preceding 24 hours (20 percent weighting). The steam service territory does not often experience design weather conditions of 5.0 degrees Fahrenheit. In fact, computations using actual temperatures have resulted in a weather variable colder than the 5.0 degrees Fahrenheit in only ten of the past 30 years.

Con Edison forecasts peak load on the basis of usage during the previous winter period, November 1 through March 31. Usage and temperatures for weekends and holidays are excluded because peak loads as a general matter occur on a weekday. Thus, out of the approximately 150 days in the winter period, 95 would comprise the non-holiday weekdays.

Although Con Edison prefers to use as much cold weather data as possible, it does exercise judgement to exclude some data. For example, on a day that was close to 5.0 degrees Fahrenheit, Con Edison measured a drop in steam pressure, which indicates that it was not sending out as much steam as its customers were demanding. Con Edison reasoned that this peak data point should not be used in the regression equation because it would understate customers' demand. For the winter of 1999/00, which forms the basis for the forecast in this case, the regression equation had 76 data points; 19 days were omitted because, in Con Edison's opinion, they seemed inappropriate or anomalous in that they did not reasonably represent the relationship between steam usage and temperature.

The weather variable for the 76 data points ranged from 28 degrees Fahrenheit to 58 degrees Fahrenheit. The steam sendout forecast based on the 1999/00 winter data was approximately 11,920,000 lb/hr at 5.0 degrees Fahrenheit. Con Edison added 60,000 lb/hr to that forecast to take into

consideration load growth expected for the next winter. Thus, the applicant's total steam sendout forecast was 11,980,000 lb/hr. The applicant emphasizes that it is particularly important to be cautious in estimating steam system load because, in contrast to dealing with the electrical distribution grid, excess steam cannot be imported in an emergency.

To convert its steam forecast to steam generating capacity requirements, Con Edison performs steam reliability studies using a multi-area reliability model that incorporates its load forecast, the layout of the steam system's load area, the generating stations, and the transmission and distribution mains connecting them. According to Con Edison, its most recent study confirms that the current level of installed capacity, approximately 13 million lb/hr, is necessary to maintain adequate reliability. The results of the study show that Con Edison can expect approximately one low pressure occurrence every two years.²⁷ Thus, it believes the Project's steam generating capacity is required to replace the Waterside Station's capacity.

The use of a multi-area reliability model increases the reserve requirements above 6%, which Con Edison deems is the minimum reserve margin that it must maintain.

CB3/EREC believes that Con Edison has overstated its current and future peak steam requirements. CB3/EREC submits that Con Edison's objective for the Project, i.e., to replace the Waterside Station's steam generating capacity, is mis-specified. According to CB3/EREC, the necessary objective of the Project (and, therefore, of the alternatives) should be to provide sufficient steam generating capacity to enable Con Edison to retire the Waterside Station without compromising service reliability. Thus, CB3/EREC maintains the new capacity

²⁷ Based on this multi-area reliability model, if CB3/EREC's proposed capacity of 12,165,000 lb/hr were substituted for Con Edison's, the frequency of low pressure occurrences would increase to approximately seven times in two years. (See Exh. 1, Vol. I, Fig. 2-4.)

need not equal that of the Waterside Station, or the steam system need not have the same capacity following the retirement of Waterside Station that it has today. According to CB3/EREC, each of its six alternatives is more than sufficient to meet the applicant's peak system demands for the foreseeable future even though the net steam output of each alternative is less than that of the Project as shown in the table on page 26. CB3/EREC maintains that Con Edison's steam system peak demand for the 2000/01 winter should have been 11,475,000 lb/hr and not 11,980,000 lb/hr as estimated by the applicant.

CB3/EREC challenges the procedure Con Edison used to estimate the 1990/00 winter peak load forecast of 11,920,000 lb/hr. First, inasmuch as the applicant employed only 76 of the 95 non-holiday, weekday observations for its statistical analysis, CB3/EREC argues Con Edison violated a bedrock principle of statistics that unless sampling is random, forecasts are biased.

Next, CB3/EREC notes that Con Edison included an inordinate number of warm weather days and excluded the coldest days. The peak weather variables in Con Edison's sample range from a low of 28.0 degrees Fahrenheit to a high of 58.9 degrees Fahrenheit; and the daily steam peak loads range from a high of 7,900,000 lb/hr to a low of 2,987,000 lb/hr. CB3/EREC observes that Con Edison extrapolated these data to generate a 1999/00 peak load forecast of 11,920,000 lb/hr for the design weather variable of 5.0 degrees Fahrenheit.

The exclusion of the coldest days' data, CB3/EREC explains, creates such a distance between Con Edison's data points and its chosen design conditions that even if the "coefficient" (the sensitivity of peak demand to temperature) had been derived in an unbiased fashion, the peak forecast calculated with this coefficient would not be statistically robust, i.e., its reliability would be questionable.

To forecast a peak load, CB3/EREC developed a trend-line from the annual winter peaks for the previous 10 and 20 years. According to CB3/EREC, its analysis was drawn from peak consumption data that necessarily correspond more closely

to the peak condition being forecast than do Con Edison's non-peak data. Next, it notes that its "time series" analysis captures the steam system's entire recent history, whereas Con Edison's "snapshot" analysis covers only a single year and, thus, is more prone to being confounded by non-recurring events. Finally, CB3/EREC points out that its analysis yields an estimate of historical year-to-year changes in peak loads.

Employing data adjusted to the design weather condition of 5.0 degrees Fahrenheit, CB3/EREC performed four calculations using two different historical periods (1999-2000 and 1980-2000) and two different coefficients for the weather variable (one coefficient is drawn from Con Edison's 1999/00 analysis, the other from its 1996/97 analysis). Using least-squares trend lines, CB3/EREC calculated four forecasts for the 2000/01 winter peak load, ranging from a low of 10,971,000 lb/hr to a high of 11,350,000 lb/hr, and averaging approximately 11,160,000 lb/hr.

In all four calculations, CB3/EREC observed that the least-squares lines slope downward; in other words, Con Edison's weather-adjusted winter peak loads have been declining over time. The two trend-lines that CB3/EREC distilled from 1980-2000 peak load data show that peak demand adjusted for weather has been dropping by an average rate of 68,000 lb/hr each year, while the two trend lines employing the more recent 1990-2000 peak load data decline an average rate of around 125,000 lb/hr each year. CB3/EREC concludes that weather-adjusted peak steam loads declined almost twice as fast in the 1990s when compared to the 1980s. CB3/EREC notes that all four regression analyses are highly statistically significant with t-ratios of between 2.5 and 4. This range, CB3/EREC asserts, denotes confidence levels beyond the 95% threshold for statistical significance.

Absent a confirmed hypothesis explaining the reasons for the decline in weather-adjusted peak loads over the past one to two decades, CB3/EREC cautioned against extrapolating the trend-lines (and the corresponding rates of decline) beyond the present. Thus, CB3/EREC would use 11,160,000 lb/hr to forecast future peak steam loads beyond the 2000/01 winter, but would

temper this statistically derived figure with an allowance of 300,000 lb/hr to reflect not only statistical uncertainty but the absence of a clear explanation for the marked decline that is embodied in the trend-line. This brings CB3/EREC's peak steam forecast to approximately 11,475,000 lb/hr, which would exceed the actual winter peak for all of the past 15 years with the exception of the 1993/94 winter. In that winter, Con Edison experienced an hourly peak steam demand of 12,180,000 lb/hr on the morning of January 20, 1994, which had a low temperature of 0 degrees Fahrenheit, and minus 2 degrees Fahrenheit on the previous day. The temperature on each of these days exceeded Con Edison's design day weather conditions.

To convert its peak load to steam system capacity needs of 12,165,000 lb/hr, CB3/EREC used Con Edison's 6.0% minimum reserve margin. CB3/EREC notes that the applicant's existing steam capacity would be approximately 11,015,000 lb/hr without the Waterside Station.²⁸

CB3/EREC states that its projected shortfall of 1,150,000 lb/hr may be overstated because Con Edison has recently undertaken two programs to replace customers' conventional steam meters with electronic, solid-state meters. Whereas the applicant's existing, conventional "Bailey Meters" and "Shunflo Meters" only provide gross (daily at best) tracking of customer steam purchases, the new "Vortex Meters" would allow Con Edison to measure the amount of steam purchased by customers in "real time." If the applicant were to offer steam rates that reward customers for voluntarily cutting back on peak days, CB3/EREC estimates that 2.8% or 310,000 lb/hr of the peak steam load could be shifted or eliminated. Consequently, Con Edison would then need around 820,000 lb/hr of new steam capacity after retiring the Waterside Station, according to CB3/EREC.

²⁸ Con Edison's existing steam capacity with the Waterside Station is 13,366,000 lb/hr, which is in excess of the 12,700,000 lb/hr needed to meet the minimum 6% reserve margin based on its forecast.

Con Edison argues that not only has CB3/EREC advocated a lower reserve margin, but it goes even further and suggests a new method of load forecasting to justify the lower steam capacity its alternatives would provide. And, the applicant continues, notwithstanding CB3/EREC's presentation on the importance of statistical analyses, regressions, confidence intervals, etc., CB3/EREC chose to use judgment in the forecast of its peak. Specifically, Con Edison points out that CB3/EREC added a factor of 300,000 lb/hr based on "best judgment."²⁹

In the final analysis, Con Edison claims that both it and CB3/EREC rely to some extent on judgment and do not adhere blindly to statistical analysis of all available data. The applicant contends that in weighing the testimony and evidence about steam system capacity planning, its witness's judgment should prevail over that of CB3/EREC's because Con Edison's witness has been its principal steam planner since 1995 and is well versed in the intricacies of the steam system. In addition, this witness's forecast was supported by a DPS Staff witness who has studied the steam system for years.

On the other hand, Con Edison observes that CB3/EREC's witness on this subject matter has no education, training or experience in engineering, steam system planning, emission rates, construction, design, land use and real estate contract matters other than that of an interested and intelligent layman. According to the applicant, this witness's formal education is limited to a B.A. in applied mathematics; he had a brief career, some 30 years ago, as an economist for the City; and from 1975 to the late 1980s, he was a critic of the nuclear and coal-fired electric energy industries. Since that time, Con Edison points out that the witness has devoted most his efforts to transportation issues. Consequently, the applicant argues that the Siting Board must weigh this witness's credentials when it reviews CB3/EREC's evidence proffered with respect to the six alternatives.

²⁹ Tr. 2091.

With respect to CB3/EREC's suggestion that Con Edison adopt a peak shaving pricing mechanism, the applicant claims that the steam system cannot readily employ peak shaving because: (1) customers have no mechanism to learn when their demand might be contributing to a system peak; (2) customers tend not to turn down the heat or otherwise reduce steam use during a cold spell; (3) encouraging customers to fire up their boilers (assuming they have them) rather than rely upon Con Edison's steam during the coldest days of the year would increase low-level emissions and be contrary to the environmental benefits the Project seeks to achieve; and (4) the establishment of a peak shaving mechanism would be more costly than the reduced system capacity charges it might save. Concerning this last point, Con Edison notes that extra steam generating capacity is gained at a very small incremental cost such as by adding another duct burner to the HRSG.

Finally, Con Edison observes that the PSC approved its plan to replace the Waterside Station's capacity in full. Specifically, in its revised steam plan, Con Edison states that its "concept for a repowered plant at East River is [that] the new plant would match Waterside's steam capacity of 2,350 Mlbs/hr,"³⁰ and that the PSC noted that Con Edison's steam plan proposes to "repower East River to replace the steam output of Waterside (2,350,000 lbs/hr)" and ordered Con Edison to "continue the process of obtaining all necessary regulatory approvals for the repowering of the East River steam-electric generating facility to replace the steam output of Waterside."³¹

Although Con Edison recognizes that the Siting Board is empowered to consider alternative locations for that steam generation, or alternative equipment or configurations, the applicant argues that the Siting Board has no jurisdiction to second guess the PSC-approved steam plan by considering

³⁰ Exh. 1, Vol. 2, App. J-2, p. 15.

³¹ Cases 96-S-1065 and 96-S-1121, *supra*, Order Concerning Phase II Steam Plan Report (issued December 2, 1999), pp. 9, 13.

alternatives that cast aside the objective of replacing Waterside Station's steam generating capacity in full. Con Edison reasons that this is not the forum for reviewing that decision, since it is the responsibility of the PSC--not the Siting Board--to oversee Con Edison's long range planning for the steam system, and PSL Article X does not call for the consideration of alternatives that fail to meet such planning objectives.

DPS Staff observes that the instant proceeding presents a never-before-addressed issue as to the scope of the Siting Boards' jurisdiction over non-electric issues. According to DPS Staff, the PSC has primary jurisdiction over Con Edison's steam system,³² and PSL Article X did not change the scope of the PSC's jurisdiction; rather, its purpose is to create a unified process for siting electric generating facilities.³³

It is black letter law, DPS Staff argues, that an administrative agency has only the powers conferred upon it by the legislature and it cannot create its own powers. Applying this basic tenet of administrative law, DPS Staff maintains that the Siting Board's jurisdiction does not extend to the steam issues, which are within the province of the PSC. For this reason, DPS Staff explains, the Siting Board is without jurisdiction to decide issues related to Con Edison's steam system, including the requirements necessary to maintain system reliability and satisfy peak system demands. Therefore, DPS Staff concludes, the Siting Board's inquiry into the need for the Project, as set forth in PSL §164(1)(b), should be limited to those issues that pertain to electric supply, which would include the examination of potential alternatives and electric-related demand-reducing measures, but not an examination of the aforementioned steam supply-related issues. Accordingly, DPS Staff requests that all of the testimony on such issues be stricken as outside the scope of these proceedings.

³² PSL §5(10)(c) and Article 4-A.

³³ Chapter 519 of the Laws of 1992, Governor's Approval Memorandum.

With respect to the jurisdiction of the Siting Board, PSL Article X states that it may not grant a certificate for the construction or operation of a facility unless it first finds and determines: "[t]hat the facility will satisfy additional electric capacity needs or other electric system needs, and that the construction of the facility is reasonably consistent with the policies and long-range energy planning objectives and strategies contained in the most recent state energy plan."³⁴

In §II(A)(2) above titled "Consistency with the Objectives of the State Energy Plan," it was noted that the Project is consistent with NYSEP insofar as it would improve the state's environment and natural resources. As noted in that section, a major advantage of the Project is the high fuel burning efficiency expected from the combined production of electricity and steam. An oversized plant that is not necessary for steam production, but required to run to produce electricity, would burn fuel with a lower efficiency. Obviously, it is important to examine steam plant usage in conjunction with the production of electricity to ensure that the Project satisfies this NYSEP requirement. Thus, we recommend that the Siting Board not conclude that it lacks jurisdiction, but rather weigh the evidence and draw its own conclusions to decide the fate of the application before it.

From a strictly statistical point of view, CB3/EREC raises some valid criticisms of Con Edison's load forecast study including the elimination of data points based on the judgment of the witness, and the extent of the extrapolation of the trend-line from the observed weather variables to the design conditions. However, CB3/EREC's load projection does not cure all of these problems. For example, even though CB3/EREC's study did not eliminate data points, CB3/EREC does not employ an extrapolation of its trend-line to project future load. Rather CB3/EREC truncates the trend-line in 2000/01 and then adds an allowance of 300,000 lb/hr to reflect statistical uncertainty and the absence of a clear explanation of the decline embodied

³⁴ PSL §168(a)(i) and (ii).

in its trend-line. The net result is that Con Edison's and CB3/EREC's load forecasts are both the products of judgment.

The exercise of judgment is carried forward in the estimate of the level of reserve capacity that should be allowed. CB3/EREC advocates using only the minimum 6% steam production reserve. Con Edison claims that more is needed to maintain adequate pressure throughout the system. (Using the applicant's projected steam capacity of 13,366,000 lb/hr, the reserve equates to about 11.6% above Con Edison's forecast of 11,980,000 lb/hr).

Judgment is also exercised in choosing the specific equation and independent variables for the regression analysis. For example, Con Edison chose a weather variable to explain the variation in steam usage and defined its weather variable based on professional judgment. This equation has the benefit of reflecting a cause and effect relationship between the temperature and steam usage, which is generally more desirable than a regression analysis that is based on a mere correlation. CB3/EREC chose a time variable to develop a long term trend in usage, and selected an average value derived from four trend-lines to forecast load. It did not demonstrate a cause and effect relationship between time and usage, nor is one intuitively obvious. CB3/EREC's equations establish only a correlation between time and steam usage.

It is clear that both Con Edison's and CB3/EREC's forecasts are replete with the judgments of the individuals preparing the studies. Consequently, in deciding which study should be given more weight, the credentials of the witnesses are important. CB3/EREC's witness has limited experience with steam systems and has generally been out of the energy field for the past decade. Con Edison's witness has been the company's principal steam planner since 1995. Also important is the fact that the DPS Staff witness, who also has many recent years of experience with Con Edison's steam system, supports the applicant's study. Finally, the PSC, which has jurisdiction over Con Edison's steam system, recently reviewed the applicant's long range plans and concluded that the capacity of

the Waterside Station should be replaced. Thus, we recommend that the Siting Board accept the applicant's projections of peak load forecast, system capacity needs, and impacts of conservation, which would preserve the existing level of reliability. If this recommendation is adopted, all of CB3/EREC's alternatives are unacceptable because they fall short of the needed replacement capacity.

b. CB3/EREC's Proposed Retirement of Steam Plant

With the exception of alternative 2, all of CB3/EREC's alternatives are premised on the retirement of the ten package boiler at the South Steam Station. In addition, two of its 59th Street Station alternatives (alternatives 4 and 5) are premised upon the retirement of high pressure boilers there.³⁵ Con Edison suggests that these retirements constitute a major redesign of the steam system, which is beyond the jurisdiction of the Siting Board.

The South Steam Station is located between East 13th and East 14th Streets, across the street from the East River Generating Station, and it contains ten package boilers, each rated at a maximum steam output of 110,000 lb/hr. This station provides approximately 19% of the steam supplied to the downtown network.³⁶ The steam output of South Steam Station can be fine-tuned by turning individual boilers on or off; consequently, these boilers are ideal peaking units. By contrast, the CTG/HRSG trains that CB3/EREC would install are based on a different technology, which would not have the same performance flexibility and would operate as base load units.

³⁵ Originally, CB3/EREC also proposed retiring the high pressure boilers at the 74th Street Station; however, it later withdrew alternative 3.

³⁶ Although Con Edison intends to place five of the package boilers at the South Steam Station on cold standby, it does not project a decrease in the South Steam Station's annual steam output. That annual output can be maintained because, historically, the station has operated at a 15% annual capacity factor.

According to Con Edison, retirement of the package boilers at the South Steam Station and the high pressure boilers at the 59th Street Station would involve a wholly unwarranted, fundamental redesign of the Con Edison steam system and fail the test of reasonableness on that basis alone.

Con Edison emphasized that any proposal to shut down major steam generating equipment would have to be preceded by an extensive engineering analysis to determine the resulting capacity, reliability, and operability considerations. The back-of-the-envelope calculations that CB3/EREC has presented as to total steam system capacity after unit retirements would, the applicant argues, be the beginning, rather than the end of that assessment.

Furthermore, Con Edison submits that the Siting Board, which was created to decide issues relating to the siting of new "major electric generating facilities," (PSL §160(2)), has no jurisdiction over the South Steam Station or the high pressure boilers CB3/EREC would retire at the 59th Street Station because they are dedicated exclusively to the steam system and do not generate electricity.

Even with respect to the examination of alternatives, the applicant reasons that the Siting Board's jurisdiction is limited to making the necessary finding that the "facility" that has been proposed "minimizes adverse environmental impacts considering . . . such reasonable alternatives as are required to be examined pursuant to [PSL §164(b)]."³⁷ Thus, Con Edison concludes that the Siting Board has the power to examine alternatives to the extent needed to inform its decision on the siting of a proposed electric generating facility and that this authority cannot be stretched to require the pursuit of alternatives that would involve major capital modifications to other facilities in the steam system. If PSL Article X were read otherwise, the applicant contends, the obligation to

³⁷ PSL §168(2)(c); see also PSL §164(b) (providing that an application for an PSL Article X certificate must contain "[a] description and evaluation of reasonable alternative locations to the proposed facility . . .").

consider alternatives would transform the Siting Board from a body charged with specific siting responsibilities for major electric generating facilities into a governmental agency empowered to decommission equipment wherever it sees fit.

In support of its position that the Siting Board does not have such roving authority under the PSL, Con Edison cites E.F.S. Ventures Corp. v. Foster, in which it was held that a reviewing agency may not use the environmental review process to address environmental impacts caused by existing conditions and any mitigation measures imposed must be directed at lessening the significant environmental impacts, if any, of the proposed action.³⁸ The proposed action here, the applicant states, is the Project, and it is this "facility" that must be the focal point of any mitigation measures that the Siting Board may consider. Con Edison interprets this decision to mean that alternatives are to be taken into account in determining that the Project's impacts have been minimized and that existing facilities such as the South Steam Station or the high pressure steam boilers at the 59th Street Station are not fair game for intervenors, or the Siting Board, in this PSL Article X proceeding.

Rather, the applicant argues, the law vests the PSC--not the Siting Board--with the broad and exclusive authority to oversee the Con Edison steam system.³⁹ Pursuant to that jurisdiction, the PSC, in connection with its approval of a settlement agreement that established steam rates for the three-year period ending September 30, 2000, directed Con Edison to file a comprehensive plan that would address the future of the steam system. In compliance with that order, Con Edison submitted a long-range plan with respect to the steam system, which was reviewed and approved, as discussed above, by the PSC.

According to the applicant, it would be entirely inappropriate for the Siting Board to now intrude on the PSC's exercise of its jurisdiction and require, as CB3/EREC has

³⁸ E.F.S. Ventures Corp. v. Foster, 71 NY2d 359, 372, 526 NYS2d 56, 63 (1988).

³⁹ See PSL §§80, 5(2), 5(1)(c).

proposed, a fundamental redesign of the steam system as an appurtenance to the Siting Board's jurisdiction to determine the siting of new major electric generating facilities. In support of its position, Con Edison quotes the statement in the State Environmental Quality Review Act (SEQRA) that its "provisions . . . do not change the jurisdiction between or among state agencies and public corporations."⁴⁰ This principle is applicable with respect to the PSL Article X alternatives analysis through PSL §164.1(b), which states that the alternatives analysis required pursuant to PSL Article X "shall be no more extensive than required under [SEQRA]." Accordingly, the applicant concludes that the Siting Board should not require, pursuant to PSL Article X, consideration of alternatives that would invade the PSC's lawful exercise of its jurisdiction.

It is recommended that Con Edison's position on this matter be accepted. Under PSL §168(2), the Siting Board may: grant or deny the application as filed or ". . . certify the facility upon such terms, conditions, limitations or modifications of the construction or operation of the facility as the [Siting Board] may deem appropriate" (emphasis supplied). Clearly, this section limits the Siting Board's jurisdiction to the facility. However, the Siting Board may consider the proposed alternatives and, if it deems any one of them sufficiently superior to the Project, the Siting Board may deny Con Edison's request for a certificate.

c. Uptown Demand

As noted previously, the uptown district accounts for approximately 75% of the steam system demand. Therefore, the uptown network steam supply capability must deliver, at a minimum, 75% of the peak system forecast. The uptown district obtains its steam supply from two potential sources. One is the steam generators located uptown. The second source is via transmission mains that supply the uptown district from other

⁴⁰ ECL §8-0103(6); 6 NYCRR §617.3(b).

generating sources. If the system configurations proposed in CB3/EREC's six alternatives leave the steam supply capability in the uptown district short of the uptown peak demand and reserve, then the steam system is not "balanced." The implications of not balancing the steam system range from low pressure incidents to overall reduced reliability.

The table on page 26 shows the steam supply reserves that would be available to the uptown district inclusive of the Project and each of the six proposed alternative cases. The uptown steam supply reserve is computed on the basis of the peak uptown network steam demands using each of the forecasts proposed by CB3/EREC and Con Edison. Inasmuch as CB3/EREC did not provide for any main reinforcements associated with the mains serving the East River Complex, it can be seen in the table that proposed alternatives 2, 5 and 6 do not provide adequate steam supply to meet the minimum 6.0% reserve for the uptown network for CB3/EREC's estimate of peak demand (8,606,000 lb/hr = 75% * 11,475,000 lb/hr). Using Con Edison's peak demand (8,985,000 lb/hr = 75% * 11,980,000 lb/hr), alternatives 2, 3, 5 and 6 would not meet the minimum 6.0% reserve for the uptown district. In order to meet the minimum steam system reserve for these cases, a combination of additional steam transmission and/or distribution reinforcements was considered. The costs associated with these reinforcements are discussed below.

The applicant contends that it needs more than the minimum 6.0% reserve to keep the uptown district in balance. As noted above, Con Edison employs a steam system reliability model to calculate its reserve requirements. According to the applicant, none of the alternatives have sufficient reserves to meet the uptown district's projected peak demand without creating a fundamental imbalance in the system even if CB3/EREC's reduced peak loads are accepted as correct. Inasmuch as CB3/EREC did not include a reinforcement of the steam main between the East River Generating Station and the uptown network, Con Edison maintains that the extra steam capacity at the East River Generating Station would be stranded there and unavailable to the uptown network.

Con Edison did not present a study of the steam reserves it deems necessary for the uptown district.⁴¹ In view of this failure to demonstrate the reasonableness of its claim, Con Edison's unsupported assertion that all of the alternatives do not meet its reserve requirements cannot be evaluated. Instead, the following analysis will discuss all the alternatives.

d. Cost Comparison of the Project and the Alternatives

The table on page 26 sets forth CB3/EREC's and Con Edison's annualized net cost estimates of the Project and the six alternatives as presented at the hearing. Con Edison's estimates increase CB3/EREC's figures to take into account eight major adjustments. In its initial brief, CB3/EREC accepted several of the adjustments presented by Con Edison. Each adjustment is discussed below along with one additional adjustment. However, only the numerical values for alternative 4 will be presented as an example; the recommended net value for all the alternatives will be presented at the end of this discussion.

First, Con Edison notes that CB3/EREC used both levelized and current year costs in its estimates. CB3/EREC agrees with this criticism. It is recommended that this correction be accepted. For alternative 4, the corrective adjustment amounts to approximately \$1.4 million.

Second, the applicant observes that CB3/EREC did not include the cost of necessary steam and electrical system reinforcements in its estimates. Con Edison points out that the steam reinforcements would be required for all of the alternatives except alternative 1. Con Edison estimates the cost of steam reinforcement at approximately \$25 million, which translates into approximately a \$3 million annualized

⁴¹ None of the alternatives would provide sufficient reserves to meet the existing reserve margin of 10.5% or 946,000 lb/hr using Con Edison forecasts. Using CB3/EREC's forecast, alternatives 1 and 4 would have sufficient reserve margins.

adjustment. CB3/EREC generally accepts this adjustment; however, it notes that alternatives 1 and 4 would not require any steam reinforcements and alternative 6 comes close enough to Con Edison's 6.0% reserve criterion that peak shaving rather than steam main reinforcement can be implemented to maintain reliability. CB3/EREC further states that Con Edison's adjustment may be overstated for alternatives 2 and 5 because the necessary steam reinforcements may be accomplished without undertaking the ambitious program that Con Edison has designed.

In light of the fact that alternatives 1 and 4 would provide the uptown district with the minimum reserve margin, CB3/EREC's position on alternative 4 should be accepted for the sake of argument. If the Siting Board found these alternatives viable, then the record might need to be reopened to obtain information on the actual reserve margin and steam main reinforcement needed. All of the other alternatives fail to meet the minimum reserve requirement. Thus, their costs should be adjusted to include the steam main reinforcement.

Third, Con Edison notes that CB3/EREC neglected to include the costs associated with the additional design work involved in developing the Project at more than one location. According to Con Edison, these engineering and design costs could range from \$10 million to \$20 million per site. Using the midpoint of this range and applying the applicant's 12.07% levelized carrying charge, CB3/EREC estimated that Con Edison added \$1.8 million to each of the alternatives. According to CB3/EREC, the capital costs of its alternatives were based on a proration of Con Edison's estimate of the Project's capital costs, which includes engineering and design costs. Inasmuch as CB3/EREC's method of estimating costs inherently includes design costs, it is recommended that no further adjustment be accepted.

Fourth, Con Edison believes that CB3/EREC underestimated the cost of using the Kips Bay property in alternatives 1 and 2. According to CB3/EREC, the applicant increased its estimates by \$2 million and \$1.6 million, respectively, to fully reflect the sales value of the parcel and the forfeiture of an \$8.3 million cash deposit that Con Edison

would incur pursuant to its contract. CB3/EREC did not challenge these changes and reflected them in its revised cost estimates. This cost increase does not affect alternative 4.

Fifth, the applicant contends that CB3/EREC has overestimated the production of steam and electricity from the additional CTG and HRSG units; however, Con Edison does not identify a dollar amount for this adjustment. CB3/EREC agrees that the additional units are base load in nature and may produce more steam than is necessary to satisfy demand. Inasmuch as CB3/EREC does not challenge this adjustment, it should be accepted; the dollar amount of the adjustment is incorporated in the Con Edison adjustment.

Sixth, according to Con Edison, CB3/EREC overestimated the operation and maintenance savings associated with retiring existing high-pressure and package boilers. For the package boilers, CB3/EREC accepts the applicant's adjustment of \$800,000. For the high-pressure boilers, CB3/EREC does not agree that the entire "common plant" operation and maintenance expense for the 59th Street Station would remain as an expense item as suggested by Con Edison. For alternatives 4 and 5, CB3/EREC assumed that half of the common operation and maintenance costs could be avoided if the high-pressure boilers were retired. It estimates the savings to be approximately \$1.6 million. Despite the fact that CB3/EREC's adjustment is a very rough estimate, it should be accepted because Con Edison has not justified its position, i.e., that there would be no savings associated with the retirement of the high-pressure boilers.

Seventh, Con Edison claims that CB3/EREC neglected to adjust for changes in system capacity, and proposes an adjustment that reverses the retirement of the appropriate number of the South Steam Station boilers. The actual dollar amounts of the adjustments were not specified. CB3/EREC contends that no adjustments are warranted if its peak forecast is accepted because there would be sufficient capacity to satisfy the steam load. CB3/EREC points out that it had eliminated \$3 million for retiring five more package boilers at the South Steam Station.

For alternative 4, there appears to be sufficient uptown district reserve even though CB3/EREC proposes retiring five additional package boilers at the South Steam Station. In order to test the economic viability of alternative 4, it is recommended that the net cost reflect the retirement of the additional five package boilers. Thus, CB3/EREC should receive the benefit of the doubt with respect to the substitution of its base load CTG for the package boiler peaking units.

Eighth, Con Edison added \$4 million to the cost of each of the alternatives to capture the loss in net present value associated with an assumed 30-month delay in conveying the Waterside Station property to the purchasers. Although CB3/EREC does not question the presumption of 30 months at \$4 million, it does not believe that this cost should be included in the analysis. According to CB3/EREC, the applicant could have moved along parallel tracks by investigating, analyzing, and seeking licenses for the supplemental sites proffered by CB3/EREC.

Certainly a 30-month delay would generate additional costs that should be accounted for in weighing the reasonableness of the alternatives. If Con Edison were required to seek licenses for all the alternatives presented in this case, as CB3/EREC suggests, it would incur substantial costs that could be considered part of the Project costs. PSL Article X sets forth a more reasonable approach in that it allows the applicant to file its case and gives intervenors the opportunity and funding to present their cases.

Lastly, Con Edison notes that in each instance where CB3/EREC proposes the installation of a 120 MW CTG, that unit would be less efficient, burn more fuel, and emit more pollution than the 180 MW units proposed in the Project. Con Edison estimates that CB3/EREC's proposed units would burn approximately 4.5% more fuel, thereby increasing emissions by a like amount and costing an additional \$2 million annually for fuel. This adjustment is not reflected in Con Edison's net costs set forth in the table on page 26. CB3/EREC accepts this adjustment.

If the above recommended cost adjustments were accepted, alternative 4 would still suffer a minimum \$1.4 million cost disadvantage when compared to the Project. The other alternatives would also generate losses when compared to the Project: alternative 1 would show a \$8.3 million loss; alternative 2, a \$13.7 million loss; alternative 5, a \$5.7 million loss; and alternative 6, a \$16.5 million loss.⁴²

These cost disadvantages could substantially worsen if the delay caused by a rejection of the Project prompted the parties to relinquish the contract for the sale of the First Avenue Properties.

The applicant notes that the 30-month delay in the Waterside Station retirement that would result from pursuit of any of CB3/EREC's alternatives would, at the very least, put off the closing for the First Avenue Properties, thereby delaying Con Edison's receipt of the sales proceeds and consequent benefits to ratepayers and the environment. More importantly, the applicant notes that the delay would also pose a threat to its ability to close the transaction at all with respect to the First Avenue Properties, which could deny ratepayers benefits of between \$122 million and \$181 million.

In addition, no costs were included by CB3/EREC for decommissioning and dismantling the high pressure boilers at the 59th Street Station. Thus, the net losses for alternatives 4 and 5 would be greater. No dollar estimate for these additional costs was presented.

Con Edison had objected to consideration of CB3/EREC's post-record adjustments. While extra-record material is usually excluded, CB3/EREC's adjustments were considered for the sake of argument. Even with these adjustments, none of the alternatives show a cost advantage over the Project.

e. Site Specific Concerns

In addition to the system-wide issues with respect to steam output, uptown reserve margins and costs, Con Edison

⁴² Alternative 3 was withdrawn by CB3/EREC.

raised a number of concerns as to the specific sites chosen by CB3/EREC for its alternatives. Those sites include Kips Bay, the 74th Street Station, and the 59th Street Station. Con Edison raised concerns about available space, the construction of new plant and stacks and the character of the neighborhood, access for delivery of equipment, etc.

Regarding available space, the applicant updated its general arrangement drawings in rebuttal testimony to show that the floor space required for the Project is approximately 85,000 square feet. After reviewing Con Edison's rebuttal testimony, CB3/EREC concedes that the space at the 74th Street Station (48,000 square feet) would be insufficient to install two complete combustion turbine trains without removing the existing three high-pressure boilers. In light of the cost burden associated with dismantling these boilers and the time delay to bring the new units into service, CB3/EREC withdrew its support for alternative 3. Thus, this alternative will not be considered further. The remainder of this discussion will address the Kips Bay and 59th Street Station sites, and set forth a recommendation concerning the proposed alternatives.

i. Kips Bay Site

CB3/EREC claims that two units of production equivalent to those of the Project could be placed at the Kips Bay site within a 280 foot by 140 foot boundary (39,200 square feet). The footprint submitted by CB3/EREC does not show many of the Project components, such as the demineralized storage tanks, containing a two hour peak load storage capacity; the raw water storage tank; the water treatment equipment, which requires approximately 31,000 square feet for the Project at East River Generating Station; the step-up transformers, which require approximately 3,200 square feet of floor space; and the ammonia generation and storage systems. CB3/EREC explained that it placed the components such as the CTGs and related HSGRs on the ground floor to comply with manufacturers' requirements. The other components, CB3/EREC notes, could be placed on a second floor. CB3/EREC's floor plan sets forth a rearrangement

of items contained in Con Edison's general arrangement drawing. CB3/EREC did not undertake an engineering analysis to see whether the equipment could be operated in its rearranged configuration.

Con Edison explains that the Kips Bay parcel, which no longer has a steam generating station on it, contains approximately 68,804 square feet. However, only 29,284 square feet are zoned M3-2, which permits electrical and steam generating use. The remaining 39,520 square feet of the Kips Bay Parcel are zoned M1-5, which permits residential and/or commercial uses.

According to the applicant, it would be impossible to squeeze either of CB3/EREC's Kips Bay alternatives into the 29,284 square feet zoned for such use. Consequently, pursuit of either of these alternatives would require Con Edison to seek a variance to build a portion of the power plant in an area of a lot that is not zoned for such purposes. The applicant believes that the chances of obtaining a use variance are extremely remote.

Con Edison notes that it would need to obtain use variances from the New York City Board of Standards and Appeals, which must make each of the following findings as set forth in §72-21 of the Zoning Resolution of the City of New York:

- (a) that there are unique physical conditions, including irregularity, narrowness or shallowness of lot size or shape, or exceptional topographical or other physical conditions peculiar to and inherent in the particular zoning lot, and that, as a result of such unique physical conditions, practical difficulties or unnecessary hardship arise in complying strictly with the use or bulk provisions of the Resolution; and that the alleged practical difficulties or unnecessary hardship are not due to circumstances created generally by the strict application of such provisions in the neighborhood or district in which the zoning lot is located;

- (b) that because of such physical conditions there is no reasonable possibility that the development of the zoning lot in strict conformity with the provisions of this Resolution will bring a reasonable return, and that the grant of a variance is therefore necessary to enable the owner to realize a reasonable return from such zoning lot; . . . [and]
- (c) that the variance, if granted, will not alter the essential character of the neighborhood or district in which the zoning lot is located; will not substantially impair the appropriate use or development of adjacent property; and will not be detrimental to the public welfare . . .

Con Edison believes it could not obtain a use variance for either of CB3/EREC's Kips Bay power plant proposals. Based upon the above-quoted statutory language the applicant asserts that, as to finding (a), there are no "unique physical conditions": the Kips Bay property is a full square block in size, and the eastern portion that is zoned for heavy manufacturing use is a cleanly shaped rectangle. As to finding (b), Con Edison claims it would be hard pressed to argue that the present zoning classification of the Kips Bay property would deprive it of all "reasonable" economic return. To the contrary, Con Edison has been able to sell the property to a real estate developer under its current zoning for a minimum sale price of \$50 million. With respect to finding (c), the applicant asserts that a new power plant with a 560 foot stack at this location would have a detrimental effect on the commercial and residential character of the surrounding neighborhood and would be inconsistent with current land use and zoning policies in the area: there are residential towers and recreational areas adjacent to the Kips Bay property.

Con Edison maintains that well before its application was prepared the Kips Bay parcel was eliminated as a reasonable or available alternative. In fact, the applicant observes that the PSC order authorizing the submittal of the instant

PSL Article X application also authorized Con Edison to proceed with the sale of Kips Bay, along with various other properties.⁴³

Inasmuch as the PSC has exercised its powers under the PSL to authorize the auction of the Waterside Station, Kips Bay and the two other First Avenue properties to ensure the economic viability of the steam system, Con Edison argues that it would be inappropriate for the Siting Board to now find Kips Bay to be a reasonable and available alternative to replace Waterside Station.

According to the applicant, it is the PSC--not the Siting Board--that has jurisdiction over the disposition of steam system real property, and the PSC is currently exercising that jurisdiction in the PSL §70 proceeding concerning the sale of the First Avenue properties. For the Siting Board to now find that Kips Bay would be a preferable site to replace Waterside Station's steam generating capacity would, Con Edison contends, interfere with the exercise of the PSC's jurisdiction in that pending proceeding. Such interference, Con Edison reasons, is beyond the scope of the environmental review process as it has been established in the State of New York, *i.e.*, SEQRA (and thus PSL Article X as well, in light of its cross-reference to SEQRA) provides that its "provisions . . . do not change the jurisdiction between or among state agencies and public corporations."⁴⁴

Finally, Con Edison points out that it entered into a binding contract for the sale of the Kips Bay site, together with three other First Avenue Properties including the Waterside Station site, pursuant to the PSC approved steam plan. Although Con Edison has not yet transferred title to Kips Bay, it notes that failure to convey the property under the terms of the sale agreement would constitute a default entitling the purchaser to the remedy of specific performance.⁴⁵ In addition,

⁴³ Cases 96-S-1065 and 96-S-1121, Order Concerning Phase II Steam Plan Report (issued December 2, 1999), mimeo p. 9.

⁴⁴ ECL §8-0103(6); 6 NYCRR §617.3(b).

⁴⁵ See Exh. 22 - Sale Agreement §§22.3, 22.4(b), p. 50.

the sale agreement obligates Con Edison to take "all actions necessary or appropriate to obtain PSC approval" of the sale of Kips Bay and the other First Avenue Properties, pursuant to §70 of the PSL, and to use "best efforts for such purpose."⁴⁶

In addition, the applicant explains that the sale agreement provides the purchaser with an option to cancel the entire agreement for the sale of the First Avenue properties in the event Con Edison fails to convey title to any of the properties as required under the terms of the sale agreement. Such a contract termination would result in the loss of hundreds of millions of dollars in proceeds and the loss of substantial benefits to ratepayers.⁴⁷ Moreover, if Kips Bay were ultimately selected as a more appropriate location for the Project, Con Edison fears that the other elements of the transaction would be at risk, because it would be hard pressed to deliver the Waterside Station site by the deadline set forth in the contract.

CB3/EREC responds that Con Edison's arguments concerning a use variance do not stand up to scrutiny. As far as finding (a) is concerned, CB3/EREC maintains that the portion zoned M3-2 is narrow enough to be a unique physical condition inherent in the zoning lot that renders it inadequate for the use contemplated. With regard to paragraph (b), CB3/EREC claims that although Con Edison can sell the lot for a minimum price without rezoning, the sale would still be subject to future payments upon rezoning; that is, the sale would not be for a development in conformity with the current zoning. Finally, CB3/EREC explains that paragraph (c) can be complied with because the City zoned all of the Kips Bay block for manufacturing and did not rezone it when the properties to the north and south were rezoned from manufacturing to residential/commercial.

⁴⁶ See Exh. 22 - Sale Agreement §§6.4, 6.5, p. 24.

⁴⁷ See Exh. 22 - Sale Agreement §22.4(a), p. 50.

Not only did the City Planning Commission retain manufacturing zoning on the Kips Bay site, CB3/EREC asserts, but it limited the height of the residential buildings it permitted on the adjacent properties so that they would not interfere with Con Edison's ability to re-activate the Kips Bay Station or to construct a new power plant. Thus, CB3/EREC concludes the City Planning Commission affirmed its view that the Kips Bay property could properly house a power plant and that residential and commercial uses on adjacent properties are not incompatible with a power plant.

As to the visual compatibility of a new power plant on the Kips Bay site with residential buildings, CB3/EREC observes that an existing Con Edison substation across 36th Street from the Kips Bay site is hardly noticeable and that Con Edison, itself, gave an example of how certain features of a power plant, such as louvered air vents, "can be designed to be inconspicuous."

The cost considerations of not transferring title to the Kips Bay parcel as proposed by CB3/EREC were considered supra.

ii. 59th Street Station Site

Con Edison states that there is sufficient space in the 59th Station to accommodate the Project.

The applicant describes the area around the 59th Street Station as a residential and commercial neighborhood. Specifically, it notes that immediately to the west of 12th Avenue--north of the site and extending down to 59th Street--is an area where the Hudson River Park, a notable riverfront public open space, is being constructed by the State of New York. Just north of the station is an area known as Riverside South, a major residential and commercial development that has received planning approval from the City and which involves the construction of a number of high rise towers.

Because of the setting of the 59th Street Station in relation to neighboring buildings and uses, Con Edison anticipates that construction-related impacts, including those

associated with the new stack that CB3/EREC would have Con Edison build at this station, would be substantially greater than at the East River Generating Station.

All of CB3/EREC alternatives for the 59th Street Station involve the construction of a new 560-foot stack. Con Edison performed an assessment of the visual impacts of the new stack, which established that it would be visible from a number of vantage points, including the new park along the Hudson River and the site of the Riverside South high rise residential units. The stack would also be visible to those east of the station who look towards the Hudson River. According to the applicant, the new stack would emphasize the industrial nature of the 59th Street Station, which is otherwise surrounded by non-industrial uses.

At the East River Generating Station, the applicant notes, the Project would not involve construction of a new stack; and the installation of the Project-related equipment would be at the eastern end of that station, which is buffered from the neighborhood by the FDR Drive on the east, the Con Edison property and workout facility on the north, the balance of the station on the west, and the South Steam Station on the south.

As a separate consideration, the applicant emphasizes that the intricate brickwork façade of the 59th Street Station building has been nominated for designation as a City landmark. This matter is of concern because the external louvers that would need to be installed in connection with re-location of the Project to the 59th Street Station may require alterations to that façade.

According to Con Edison, whether it would be permitted to alter the façade of the 59th Street Station, and the length of time required to clear the necessary regulatory hurdles, are issues that CB3/EREC failed to analyze in proposing these alternatives to the Project.

CB3/EREC does not agree that a tall stack inherently causes a negative visual impact. It notes that during the City Planning Commission hearings on Lincoln West, which is close to

the 59th Street Station, not a single objection was raised to the proposed tall stack on visual or any other grounds. According to CB3/EREC, the City Planning Commission approval of the Lincoln West project was predicated on the agreement between the developer and Con Edison to construct a new 500-foot tall stack.⁴⁸

Furthermore, CB3/EREC argues it is unlikely that the Landmark Preservation Commission would ever designate the building as a landmark. According to CB3/EREC:(1) the Landmark Preservation Commission is understandably reluctant to interfere with ongoing operations in an industrial building; (2) the building's exterior has been altered by the addition of truck entrances; and, (3) the removal of six of the original brick stacks and the addition of an approximately 500-foot stack has altered the overall appearance of the building. In any case, CB3/EREC observes that the nomination of the 59th Street Station occurred at least 19 years ago and was never acted upon by the Landmarks Preservation Commission.

f. Subpart 231-2.4 Alternative Analysis

With its application, Con Edison provided an "Environmental and Social Benefits Analysis," as required by 6 NYCRR §231-2.4(a)(2)(ii).⁴⁹ Pursuant to this regulation, the applicant must:

submit an analysis of alternative sites, sizes, production processes and environmental control techniques which demonstrates that benefits of the proposed source project or proposed major facility significantly outweigh the environmental and social costs imposed as a result of its

⁴⁸ New York City Planning Commission Report on item C 820927 ZMM, July 19, 1982.

⁴⁹ Exh. 1, Vol. I, App. L-F.

location, construction or modification within New York State.⁵⁰

Based on CB3/EREC's offer of proof at the pre-hearing conference, an issue was joined about whether the requisite analysis was adequate.⁵¹

Referring to the examiners' ruling, DEC Staff argues that the scope of the issue should be limited only to alternative sites.⁵² Although the focus of this discussion will be with respect to the alternative sites, an analysis of alternative sizes is subsumed in the previous discussion concerning CB3/EREC's proposed alternatives. In addition, a discussion about alternative environmental controls is presented in the following section concerning air resources. Finally, we note there was no issue about alternative production processes.

DEC witness Leon Sedefian stated there is no federal or state guidance for interpreting this regulation.⁵³ Absent any guidance, DEC Staff contends that the standard of review for its assessment of the applicant's §231-2.4 alternative analysis is whether DEC Staff's determination is reasonable and consistent with the agency's statutory mandate.⁵⁴ Citing case law,⁵⁵ DEC

⁵⁰ This state regulation is based on the federal requirement outlined in §173(a)(5) of the federal Clean Air Act (42 USC §7503(a)(5)). The language in §231-2.4(a)(2)(ii) is virtually identical to §173(a)(5). The former regulation adds the phrase "within New York State."

⁵¹ Case 99-F-1314, Issues Ruling and Procedural Ruling (issued March 15, 2001), pp. 22-25.

⁵² DEC Staff's Initial Brief, p. 9, which refers to Case 99-F-1314, Issues Ruling and Procedural Ruling (issued March 15, 2001), p. 23.

⁵³ Tr. 1531; DEC Staff's Initial Brief, p. 9. DEC Staff also cites, In Re: Campo Landfill Project, Campo Band Indian Reservation, NSR Appeal No. 95-1, June 19, 1996.

Staff asserts that deference should be give to its determination because the DEC has expertise in, and is responsible for, implementing this regulation, and DEC Staff has construed the terms of §231-2.4(a)(2)(ii) in a rational manner.⁵⁶ The DEC Staff contends that the application materials presented and evaluated various alternatives, and their respective environmental and social costs, and that the DEC Staff's assessment of the requisite analysis is consistent with DEC Staff's review of similar applications.⁵⁷

The courts apply the standard of review proposed by DEC Staff when reviewing final administrative decisions. When, as here, the administrative review process is not complete, the standard of review proposed by DEC Staff does not apply. In resolving factual disputes, however, the administrative fact finder and decision maker may defer to agency staff given the staff's experience and expertise.

i. Benefits and Environmental
and Social Costs

According to DEC Staff, the appropriate starting point is to determine whether the Project would provide a net air quality benefit consistent with the criteria in §231-2.9(d).⁵⁸ DEC Staff contends that Con Edison has demonstrated that the Project would provide a benefit, and that CB3/EREC has not made

⁵⁴ DEC Staff's Initial Brief, p. 9.

⁵⁵ Howard v. Wyman, 28 NY2d 434; New York Life Insurance Co. v. State Tax Commission, 436 NYS2d 380 (NYAD 3rd Dept., 1981); New York Public Interest Group, Inc. v. Williams, 511 NYS2d 864 (NYAD 1st Dept., 1997); Flacke v. Onondaga Landfill System, 69 NY2d 355 (1987); Seymour v. NYSDEC, 591 NYS2d 593 (NYAD 3rd Dept., 1992); State v. Sour Mountain Realty, 703 NYS2d 854 (1999).

⁵⁶ DEC Staff's Initial Brief, pp. 11-12.

⁵⁷ DEC Staff's Initial Brief, p. 9 citing Tr. 1531-1532.

⁵⁸ DEC Staff's Initial Brief, p. 10.

a similar demonstration with respect to its proposed alternatives.⁵⁹

In addition, DEC Staff contends that an additional benefit of the proposed emission source is the applicant's plan to use the existing East River Generating Station. DEC Staff concludes that this benefit significantly outweighs the environmental and social costs associated with constructing a new facility,⁶⁰ like the Kips Bay alternatives proposed by CB3/EREC.

The applicant also asserts that the benefits of the proposed facility significantly outweigh its environmental and social costs.⁶¹ In its initial brief, the applicant includes a list of what it asserts are the many benefits associated with the Project.⁶² According to the applicant, the benefits include, among others, that:

1. The proposal would result in the decommissioning of the Waterside Station and that the steam and electric generating equipment there would be replaced with more efficient and less polluting equipment at the East River Generating Station;
2. There would be a concomitant reduction in air emissions with the retirement of the Waterside Station as well as with the displacement of other steam generating equipment at other Con Edison facilities including boilers at the East River Complex;
3. The anticipated reductions in air emissions from Con Edison's other facilities would reduce secondary particulate matter precursors;⁶³

⁵⁹ DEC Staff's Initial Brief, p. 10.

⁶⁰ DEC Staff's Initial Brief, p. 11.

⁶¹ Applicant's Initial Brief, p. 36; Applicant's Reply Brief, p. 2.

⁶² Applicant's Initial Brief, pp. 37-39.

⁶³ The process of secondary particulate matter formation is discussed below in conjunction with the SCONox issue.

4. The proposal would replace existing steam and electric generating capacity with more reliable equipment in the Manhattan load pocket;
5. Con Edison's ratepayers would benefit from the sale of the First Avenue Properties after the Waterside Station is decommissioned; and
6. There would be socio-economic benefits associated with the construction and operation of the proposed facility and the decommissioning of the Waterside Station.

With respect to potential environmental and social costs, the applicant points out that the predicted concentrations of the criteria pollutants from the proposed facility would be less than the significant impact levels outlined in the applicable federal regulations.⁶⁴ Like DEC Staff, the applicant argues that a net air quality benefit would result, if the Project is certificated. Finally, the applicant contends that the predicted concentrations of non-criteria pollutants would be less than the applicable benchmark concentrations.⁶⁵

CB3/EREC does not expressly challenge the potential benefits identified above for the Project. The intervenor, however, asserts there are significant environmental and social costs. In its initial brief, CB3/EREC provides census data about minority populations and household incomes in the 10009 ZIP code area,⁶⁶ where the East River Complex is located. CB3/EREC argues that its case concerning alternatives is incomplete because it was precluded from presenting "health indices of the populations" from this ZIP code area.⁶⁷ In

⁶⁴ Significant impact levels are discussed in the air resources section of the recommended decision with respect to the gradual plume rise issue.

⁶⁵ Applicant's Initial Brief, p. 40.

⁶⁶ CB3/EREC's Initial Brief, pp. 33-35.

⁶⁷ CB3/EREC's Initial Brief, p. 36.

addition, CB3/EREC contends that the population living in the 10009 ZIP code area would be disproportionately and adversely impacted by the emissions from the Project compared to other populations living in the ZIP code areas around the Waterside Station, the 60th Street Station, the 74th Street Station, and the 59th Street Station.⁶⁸

In their respective reply briefs, the other parties object to the census data and other information presented for the first time in CB3/EREC's initial brief. The parties argue that this information should be excluded because it relates to environmental justice and potential health impacts from exposure to particulates that are up to 2.5 microns in diameter (PM_{2.5}), which were not adjudicated.⁶⁹

The new information provided in CB3/EREC's initial and reply briefs does not conform to the examiners' rulings concerning the §231-2.4(a)(2)(ii) alternatives issue. In the issues ruling, the examiners held that the requisite alternatives analysis does not require an environmental justice analysis consistent with EPA guidelines or contemplate an equivalent type of analysis.⁷⁰ No party appealed this ruling. Therefore, it was inappropriate for CB3/EREC to present the census data in its initial brief.

During the hearing, Examiner O'Connell ruled further that the meaning of the term, "social costs," as it is used in §231-2.4(a)(2)(ii) was not intended to include potential health impacts because the national ambient air quality standards are health-based standards.⁷¹ Although CB3/EREC objects to being precluded from presenting information related to "health indices

⁶⁸ CB3/EREC's Initial Brief, pp. 36-38.

⁶⁹ Applicant's Reply Brief, pp. 4-8; DPS Staff's Reply Brief; DEC Staff's Reply Brief, pp. 3-5; and DOH Staff's Letter in lieu of Reply Brief, dated June 1, 2001.

⁷⁰ Case 99-F-1314, Issues Ruling and Procedural Ruling (issued March 15, 2001), p. 37.

⁷¹ Tr. 1527-1528.

of the populations," the intervenor's objection does not include any legal argument for including this information, given the associate examiner's ruling.

DEC Staff and applicant correctly point out that a significant benefit of Con Edison's proposal is the net air quality benefit, which is required pursuant to §231-2.9(d),⁷² and which demonstrates that the predicted emissions from the Project would not exceed the significant impact levels outlined in Table 1 at §231-2.11.⁷³ However, it is important to note that a net air quality benefit demonstration is only required when a proposed emission source would be located in a designated non-attainment area for either particulates that are up to 10 microns in diameter (PM₁₀) or carbon monoxide (CO). Consequently, all cases that require a §231-2.4(a)(2)(ii) analysis may not require a net air quality benefit demonstration pursuant to §231-2.9(d).

ii. Administrative Decisions

DEC Staff cites two EPA determinations concerning the alternative analysis required by §173(a)(5) of the federal Clean Air Act.⁷⁴ As explained above, the wording of the state regulation is nearly identical to this federal provision. Therefore, these federal administrative decisions provide useful guidance.

In Campo, the project sponsor proposed to construct a landfill on an Indian Reservation, which would be located over a sole-source aquifer that serves an extensive area surrounding the reservation in the United States and Mexico. The petitioner

⁷² The requirement for a net air quality demonstration is discussed in more detail in the air resources section.

⁷³ Exh. 1, Vol. III, App. L, §L6.3.3, and Exh. 50.

⁷⁴ In Re: Campo Landfill Project, Campo Band Indian Reservation, NSR Appeal No. 95-1, June 19, 1996 (1996 WL 344522 (EPA)), and Matter of Operating Permit, Formaldehyde Plant, Borden Chemical, Inc., Case No. 6-01-1, Administrator's Ruling, December 12, 2000.

in Campo objected to EPA Region IX's alternatives analysis because no off-reservation sites were considered. However, the EPA Environmental Appeals Board held that a consideration of sites off the reservation would not be consistent with the purpose of the project, which was to provide an economic development opportunity for the Campo Band. DEC Staff asserts that like the petitioners in Campo, CB3/EREC did not show how the purpose of the Project could be realized at an alternative site.⁷⁵

In its reply brief, CB3/EREC contends that DEC has misinterpreted the Campo matter.⁷⁶ According to CB3/EREC, DEC Staff has incorrectly asserted that the anticipated benefits are dependent upon locating the proposed electric and steam generating equipment at the East River Generating Station. CB3/EREC asserts, however, that the anticipated benefits are not site dependent. Consequently, CB3/EREC argues that the proposed steam and electric generating equipment can be either divided between the East River Complex and another Con Edison steam station, or located at sites other than the East River Generating Station.⁷⁷

Referring to Campo, the applicant contends that the alternatives presented by CB3/EREC are not consistent with the purposes of the proposed facility. Accordingly, the applicant concludes that the intervenor's proposed alternatives are not consistent with the analysis required by 6 NYCRR §231-2.4(a)(2)(ii).⁷⁸

Contrary to CB3/EREC's assertion, the anticipated benefits are site dependent. With respect to CB3/EREC's proposed alternatives, the detailed discussion provided above identifies significant system-wide issues associated with steam

⁷⁵ DEC Staff's Initial Brief, p. 13.

⁷⁶ CB3/EREC's Reply Brief, p. 24.

⁷⁷ CB3/EREC's Reply Brief, p. 24.

⁷⁸ Applicant's Initial Brief, pp. 44-45; Applicant's Reply Brief, pp. 8-9, 16.

output, uptown reserve margins, and costs. In addition, there are numerous site specific concerns that the intervenor has not adequately addressed, which show that the proposed alternative sites are not preferable to the proposed site. Based on the principle in Campo, that alternatives must be consistent with the purpose of a project, we conclude that CB3/EREC did not show how the purpose of the Project could be realized at an alternative site.

In Borden, the EPA Administrator found that a three part test developed by the Louisiana Department of Environmental Quality was consistent with the alternative assessment required by §173(a)(5). The three part test outlined in Borden consists of the following elements:

1. Whether the potential and real adverse environmental effects of the proposed project have been avoided to the maximum extent possible;
2. Whether a cost benefit analysis of the environmental impact costs balanced against the social and economic benefits of the project demonstrate that the latter outweighs the former; and
3. Whether there are alternative projects or alternative sites or mitigating measures which would offer more protection to the environment than the proposed project without unduly curtailing the non-environmental benefits to the extent applicable.

In its initial brief, DEC Staff applies each element of the three part test to the Project, and concludes that the applicant's proposal would satisfy them.⁷⁹ Though the applicant does not dispute DEC Staff's analysis, it notes that neither §173(a)(5) of the federal Clean Air Act nor 6 NYCRR §231-2.4(a)(2)(ii) requires or otherwise incorporates the three part test outlined in Borden.⁸⁰

⁷⁹ DEC Staff's Initial Brief, pp. 14-16.

⁸⁰ Applicant's Reply Brief, p. 3, footnote 2.

CB3/EREC finds the three part test in Borden to be consistent with the analysis required by 6 NYCRR §231-2.4(a)(2)(ii), but contends that the DEC Staff misapplied the test to the Project.⁸¹ With respect to the first element, CB3/EREC acknowledges that the current ambient air quality standard for particulate matter is not an issue for adjudication, but argues that the current standard is not protective of public health since the EPA is in the process of revising it.⁸² CB3/EREC concludes that the potential adverse impacts have not been avoided to the maximum extent practicable since taller stacks at the Project would lower the predicted concentrations of particulate matter in the vicinity of the East River Generating Station.⁸³

With respect to the second element of the Borden test, CB3/EREC contends that DEC Staff inappropriately characterized potential environmental costs as social costs. To CB3/EREC, a significant social cost is imposing the entire burden of the potential adverse environmental impacts from the proposed facility on the community surrounding the East River Complex. According to CB3/EREC, the majority of the residents of this community are minorities with low incomes.⁸⁴

CB3/EREC contends further that DEC Staff failed to apply the third element of the Borden test properly because the DEC Staff failed to consider the cumulative impacts of the proposed facility. Referring to exhibits marked for

⁸¹ CB3/EREC's Reply Brief, pp. 24-25.

⁸² CB3/EREC's Reply Brief, P. 25.

⁸³ CB3/EREC's Reply Brief, p. 25, citing its Initial Brief at pp. 40-42.

⁸⁴ CB3/EREC's Reply Brief, pp. 25-26.

identification as 49 and 60,⁸⁵ CB3/EREC asserts that the concentration of particulate matter would increase at eight of ten elevated receptors near the East River Generating Station, if the Project is constructed.⁸⁶ CB3/EREC argues that the potential cumulative impacts from the Project should be emphasized rather than the potential net air quality benefit advocated by DEC Staff.⁸⁷ If cumulative impacts are considered, CB3/EREC argues that its alternatives would distribute any potential environmental and health impacts between two locations rather than concentrating them at one location.⁸⁸

The applicant's assertion concerning the applicability of the Borden test is correct. Like Campo, the analysis in Borden, nevertheless, provides useful guidance in interpreting 6 NYCRR §231-2.4(a)(2)(ii). The wording of the Louisiana regulation, like the New York regulation, is nearly identical to 42 USC §75.3(a)(5).⁸⁹

CB3/EREC's contention that DEC Staff has misapplied the elements outlined in the Borden matter is without merit. With respect to the first element in Borden, CB3/EREC raises two objections. The first relates to whether the current national ambient air quality standard for PM₁₀ is protective of public health given the proposed PM_{2.5} standard. The second concerns stack height. The issues ruling identified potential health

⁸⁵ Exhibit 49 is the applicant's Supplemental Environmental Justice Evaluation, dated December 2000. Exhibit 60 is entitled, *Air Quality Impacts of the Proposed ERRP*, dated March 28, 2001. Exhibit 60 was offered as part of Mr. Gutman's direct testimony. These exhibits are not part of the evidentiary record of this proceeding. (Tr. 1444, 1577-1580 (Exh. 49); Tr. 1647-1665 (Exh. 60))

⁸⁶ CB3/EREC's Reply Brief, p. 26.

⁸⁷ CB3/EREC's Reply Brief, p. 28.

⁸⁸ CB3/EREC's Reply Brief, pp. 27-28.

⁸⁹ See, Borden, p. 36, footnote 35.

effects from exposure to PM_{2.5} as a PSL Article X issue,⁹⁰ but after reviewing appeals, the Siting Board struck this issue.⁹¹ The DEC associate examiner excluded the proposed issue concerning stack height,⁹² and the DEC Commissioner affirmed this ruling.⁹³ Therefore, information presented in CB3/EREC's initial and reply briefs concerning these topics will not be considered.

Although the EPA is in the process of revising the standard for particulate matter, its implementation will be some time into the future. At present, there is not sufficient information to determine which areas of the state would be in attainment and would be in non-attainment. In addition, the state has not had an opportunity to develop an implementation plan to bring into attainment any yet to be determined non-attainment areas. In the meantime, the Project would be required to comply with the current standard, which was intended to be protective of the public health when it was promulgated.

Consequently, CB3/EREC identifies no legal basis to require compliance with an air quality standard that has yet to be implemented. Based on the conditions in the revised draft Air State Facility permit,⁹⁴ the predicted concentrations of the criteria pollutants would not exceed the applicable significant impact levels at ground level and elevated receptors.⁹⁵

Accordingly, we conclude that the potential and real adverse

⁹⁰ Case 99-F-1314, Issues Ruling and Procedural Ruling (issued March 15, 2001), pp. 40-41.

⁹¹ Case 99-F-1314, Order Concerning Interlocutory Appeals (issued June 22, 2001), p. 30.

⁹² Case 99-F-1314, Issues Ruling and Procedural Ruling (issued March 15, 2001), pp. 15-18.

⁹³ Matter of Applications for permits by Con Edison (East River), Commissioner's Interim Decision, June 4, 2001 (DEC Application No. 2-6206-12/21), p. 8.

⁹⁴ Stipulation Exh. 37.

⁹⁵ See the discussion concerning the gradual plume rise option below.

environmental effects from Con Edison's Project would be avoided to the maximum extent possible.

With respect to the second element of the Borden test, the foregoing discussion demonstrates that CB3/EREC's proposed alternatives would not be able to supply enough steam to satisfy the applicant's capacity requirements for its overall steam system, and that all of the alternatives would be more costly than the Project if the intervenor's proposed alternatives were reinforced with mains to transport additional steam uptown. In contrast, the applicant's proposal would avoid the social costs associated with the intervenor's proposed alternatives while minimizing potential environmental impacts to the maximum extent possible.

Regarding the third element, CB3/EREC's reliance on the documents marked for identification as exhibits 49 and 60 is misplaced. Both exhibits are not part of the evidentiary record, and therefore cannot be relied upon. The applicant, however, did undertake a cumulative impact analysis, and that information is part of the record.⁹⁶ Contrary to CB3/EREC's arguments in reliance on the other exhibits, this cumulative analysis shows that with respect to PM₁₀, the maximum cumulative 24-hour concentrations are approximately two-thirds of the national ambient air quality standards at ground-level and elevated receptors.⁹⁷ As far as the Project is concerned, the applicant has shown there would be a net air quality benefit, and that the cumulative impacts of the Project would not exceed the 24-hour air quality standard for PM₁₀. We conclude that CB3/EREC's assertion with respect to the third element of the Borden test is not correct.

⁹⁶ Exh. 14 entitled, *Cumulative Impact Air Quality Analysis Under the New York City Environmental Review Technical Manual, April 2001*.

⁹⁷ Exh. 14, §4.0, and Tables 4-1 and 4-2.

4. Conclusion with Respect To Alternatives

Pursuant to PSL §168(2)(e), the Siting Board must determine that the Project is in the public interest after reasonable alternatives are examined pursuant to PSL §164(1)(b), which requires an evaluation of the comparative advantages and disadvantages of each location. DPS Staff cites Citizens for the Hudson Valley v. Siting Board⁹⁸ for the principle that the inquiry is not whether any such alternatives exist, but whether any alternative is preferable to the selected site.

It is clear from the previous discussions that none of the alternatives would be able to supply enough steam to satisfy the applicant's forecasted capacity requirements for its overall steam system. In addition, only alternatives 1 and 4 would be able to supply the minimum needs of the uptown district. If the other alternatives were reinforced with mains to transport additional steam to the uptown area and the other recommended cost adjustments are included, each of the alternatives would be more costly than the Project.

As far as the specific sites are concerned, the Kips Bay parcel is encumbered with zoning restrictions and a pending sale. Either of these concerns, even without the other, would compel the conclusion that the Kips Bay site is unsuitable. Thus, it is recommended that this site not be considered a reasonable alternative. Consequently, alternatives 1 and 2 should not be accepted.

The site at the 59th Street Station appears much more viable; it has sufficient space to house the Project, but would need a new stack. The East River Generating Station could house the Project without construction of a new stack. The neighborhood surrounding the 59th Street Station contains a number of nearby residential buildings. The area around the East River Generating Station also contains residential buildings although they are a little farther away. Finally, mere nomination for landmark status should not preclude

⁹⁸ Citizens for the Hudson Valley v. NYS Bd. on Electric Generation Siting and the Environment, __ AD3d __ (3d Dep't 2001).

consideration of the 59th Street Station, especially in view of the alterations that have already been made to the building. From a site specific point of view, the 59th Street Station has the disadvantages of requiring a new stack and of being closer to residential buildings when compared to the Project.

Consistent with the requirements outlined in 6 NYCRR 231-2.4(a)(2)(ii), the applicant presented an analysis that considers alternatives. In contrast, CB3/EREC has not demonstrated that its proposed alternatives would provide benefits similar to the applicant's Project. In addition, CB3/EREC's proposed alternatives would not be consistent with the purpose of the Project, as discussed in detail above. For these reasons, it is recommended that the DEC Commissioner conclude the following. First, the Commissioner should conclude that the applicant has complied with the requirements outlined in 6 NYCRR §231-2.4(a)(2)(ii). Second, the Commissioner should conclude that the potential benefits of the Project proposal significantly outweigh its potential environmental and social costs.

For the reasons set forth above it is also recommended that the Siting Board find that none of the alternatives be deemed preferable to the Project or its location at the East River Generating Station. Consequently, we recommend that they be rejected.

C. Air Quality

Under PSL Article X, the Siting Board must make findings specifically with regard to the impact of construction and operation of the facility on air resources.⁹⁹ These findings subsume compliance primarily with the federal Clean Air Act, and

⁹⁹ Applicable here are the required findings on the nature of the probable "adverse and beneficial effects" on "...air ... quality..." (§168(2)(b)); that the facility "is compatible with public health and safety" (§168(2)(c)(ii)); and that the facility would "not emit any pollutants to the air that will be in contravention of applicable air emission control requirements or air quality standards" (§168(2)(c)(iv)).

ECL Article 19, as well as their respective implementing regulations.

The federal Clean Air Act and ECL Article 19 identify four criteria air pollutants: NO_x, CO, SO₂, and PM₁₀. Federal and state ambient air quality standards, which are health-based, exist for each of these criteria air pollutants. Additionally, New York has ambient air quality standards for beryllium,¹⁰⁰ and fluorides,¹⁰¹ although they are not regulated pursuant to the federal Clean Air Act.

There is also a federal ambient air quality standard for ground level ozone. Though generally not emitted from stacks, ozone is created through the interaction of NO_x and volatile organic compounds (VOCs) in the presence of sunlight and warm summertime temperatures. Consequently, the concentrations of its precursors (i.e., NO_x and VOCs) are regulated.

The review of air emission sources, such as the applicant's proposed electric generating facility, is divided into two permit programs: (1) the Prevention of Significant Deterioration (PSD), and (2) New Source Review for non-attainment areas.¹⁰² The applicability of the two programs depends on whether the ambient air quality standards are currently being met for the criteria pollutants at a given location.¹⁰³

¹⁰⁰6 NYCRR Subpart 257-9.

¹⁰¹6 NYCRR Subpart 257-8.

¹⁰²NYS Department of Environmental Conservation (DEC) Air Guide-12, (6/14/90). The state regulations for the New Source Review are 6 NYCRR Subpart 231-2, and are entitled, *Requirements for Emission Units Subject to the Regulation On or After November 15, 1992*.

¹⁰³Although the ambient air quality standards are the same throughout the state, the actual air quality varies across New York. This variability is illustrated in Appendix I of DEC Air Guide-12. Air Guide-12 is in the process of being revised to reflect the current status of attainment areas in New York.

The PSD program applies to criteria pollutants at locations where there is attainment. At these locations, the actual concentrations of the criteria pollutants do not exceed the ambient air quality standards.

The New Source Review, however, applies to criteria pollutants at locations where there is non-attainment. There, the actual concentrations for some, or all, of the criteria air pollutants exceed the ambient air quality standards.

It is possible, at any particular location, to have some criteria pollutants that are in attainment (PSD), while others are not in attainment (New Source Review in Non-Attainment). Consequently, both review programs could apply to a proposed facility. Such is the case here.

1. PSD Review

The PSD program is a pre-construction review of any new or modified air emission source to ensure that air quality is not degraded beyond established increments.¹⁰⁴ The first step in determining whether a PSD review of a new or modified source is necessary is to compare the project-related emission increases with the PSD significance thresholds. These thresholds are provided in the regulations.¹⁰⁵

With respect to the Project, the emission increases for lead (Pb), SO₂, and sulfuric acid (H₂SO₄) are below the PSD significance thresholds.¹⁰⁶ Therefore, the Project is not subject to PSD review for Pb, SO₂, and sulfuric acid (H₂SO₄), and no further consideration of any changes in contemporaneous

¹⁰⁴There are three classes of increments (42 USC §§7470-7479 and 40 CFR §52.21(c)). The classifications determine the amount of air quality degradation that will be allowed from new or modified air emission sources. Class I provides for the smallest allowable degradations. Generally, Class I increments apply to national parks. The Class II increments apply to the site of the proposed facility. The last group of PSD increments are identified as Class III.

¹⁰⁵40 CFR §52.21(c).

¹⁰⁶Exh. 1, Vol. III, App. L, §L3.6.1.1.

emissions of these criteria pollutants that may be associated with the Project is necessary. With respect to NOx emissions, however, there would be a Project-related increase above the PSD significance threshold.¹⁰⁷ Therefore, the PSD review for the proposed facility applies only to emissions of NOx.¹⁰⁸

Emissions regulated under the PSD program require the use of best available control technology (BACT) to prevent exceedances of the established PSD emission increments. BACT reflects the most effective air pollution control equipment currently in use, and considers factors like availability and cost. BACT is applied on a case-by-case basis.

EPA has authorized DEC to administer the federal PSD criteria outlined in 40 CFR §52.21.¹⁰⁹ No state regulations exist, however, that adopt or incorporate the regulatory criteria outlined in 40 CFR §52.21 into a PSD program for New York.

To demonstrate compliance with the federal PSD requirements, the applicant performed an air modeling study to predict the potential air quality impacts from the combustion turbines and the duct burners at the proposed facility.¹¹⁰ The approved air modeling protocol relied on the SCREEN3 model and

¹⁰⁷Exh. 1, Vol. III, App. L, §L3.6.1.1. For NOx, the PSD significance threshold is 40 tons/year (40 CFR §52.21(c)).

¹⁰⁸As explained further below, NOx emissions are also regulated as a precursor to ozone. Since New York County, where the proposed facility would be located, is in severe non-attainment for ozone, NOx emissions would be regulated by the more stringent lowest achievable emissions rate (LAER) standard.

¹⁰⁹Section 200.10(a) of 6 NYCRR allows DEC to conduct the federal PSD review. The legal authority to promulgate Part 200 comes from ECL Articles 1, 3, and 19.

¹¹⁰The modeling protocol was developed in consultation with DEC Staff and the applicant's air resources consultants. A copy of the air modeling protocol entitled, *Air Dispersion Modeling Protocol*, is part of the application materials. (Exh. 1, Vol. III, App. L-C).

the Industrial Source Complex Short-Term (ISCST3) model to simulate emission interactions with simple, intermediate, and complex terrain.¹¹¹ The air modeling included consideration of ground-level receptors and elevated (or flagpole) receptors. The predicted concentrations at both ground level and elevated receptors for various time intervals were then compared to the ambient air quality standards and the established PSD increments. The results of the air modeling show that the predicted emission concentrations from the proposed facility at both ground-level and elevated receptors would be less than the significant impact levels outlined in the federal regulations.¹¹²

The applicant's air modeling analysis includes an assessment of potential impacts to PSD Class I areas. This assessment considers the long range transport of emissions from the proposed facility. National parks and other areas of natural, scenic, recreational or historic value are typically identified as PSD Class I areas.

The closest Class I area to the applicant's proposal is the Brigantine National Wilderness Area, which is located in southeastern New Jersey about 150 kilometers (km)¹¹³ south of the East River Complex.¹¹⁴ Since this area is farther than 100 km, the applicant's review was limited to a screening level visibility analysis consistent with EPA guidelines.¹¹⁵ Though

¹¹¹Simple terrain refers to the terrain that is lower than the proposed height of the stack. Intermediate terrain relates to elevations in terrain that are between the height of the stack and the top of the plume. Complex terrain refers to the terrain that would be higher than the height of the stack.

¹¹²Exh. 1, Vol. III, App. L, §L6.3, Tables L6-8, L6-9 and L6-10. Significant impact levels (SILs) for the various criteria pollutants are found at 40 CFR §51.165(b)(2).

¹¹³(150km)(0.62 miles/km) = 93.0 miles.

¹¹⁴Exh. 1, Vol. III, App. L, §L3.6.2.3.

¹¹⁵Exh. 1, Vol. III, App. L, §L3.6.2.5. The EPA guidelines are entitled, *Workbook for Plume Visual Impact Screening and Analysis* (EPA-454/R-92-023, October 1992).

not required by federal regulations, the applicant also evaluated two Class II areas where visibility is important. Those two areas were: (1) High Tor State Park, which is about 52 km north of the proposed facility, and (2) Harriman State Park, which is about 60 km north of the proposed facility.¹¹⁶ The results of the modeling show that the visibility impairment parameters for the Brigantine would be well below the significant impact criteria. In addition, the parameter values for High Tor and Harriman State Parks would be below the detection thresholds.¹¹⁷

Since DEC essentially acts as an agent for EPA, and because EPA has identified DEC as the only agent in New York State that may administer the federal PSD program, DEC has retained subject matter jurisdiction over Con Edison's PSD permit application. If the applicant receives a final PSD permit from DEC, the Siting Board may reasonably conclude that air emissions from the proposed facility that are regulated pursuant to the PSD program, would minimize potential adverse environmental impacts.¹¹⁸

As provided for by 40 CFR Part 124, DEC Staff prepared a Notice of Determination to issue a PSD permit. DEC Staff also prepared a draft PSD permit and fact sheet for public review and comment. Based on public comments, DEC Staff subsequently revised the draft PSD permit, which is identified in the Joint Stipulations as Stipulation Exhibit 36.

DPS Staff and the applicant contend that the Joint Stipulation resolves any outstanding issues related to the PSD requirements, and that the Joint Stipulation is sufficient for

¹¹⁶Exh. 1, Vol. III, App. L, §L6.4.2.

¹¹⁷Exh. 1, Vol. III, App. L, §L6.4.2.1, and §L6.4.2.2.

¹¹⁸PSL §170(1). Case 97-F-1563, Athens Generating Company, L.P., Opinion and Order Granting Certificate of Environmental Compatibility and Public Need (issued June 15, 2000), pp. 105 and 108. Case 97-F-0558, Heritage Power, L.L.C., Opinion and Order Granting Certificate of Environmental Compatibility and Public Need (issued January 19, 2001), pp. 7-9.

the DEC Commissioner to rely upon in issuing the final PSD permit for the proposal.¹¹⁹ According to DEC Staff, the PSD permit will be issued separately from the Air State Facility and SPDES permits.¹²⁰ We note that CB3/EREC's initial and reply briefs do not comment further about the terms and conditions of the draft PSD permit for the Project.

2. Environmental Justice

On February 11, 1994, President Clinton issued Executive Order 12898 entitled, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*. The order directed federal agencies to determine whether an agency's programs, policies, and activities disproportionately affect either the health of minority and low-income populations, or their environment. The order further directed federal agencies to develop environmental justice strategies that avoid these disproportionate effects by promoting nondiscrimination, as well as by increasing public participation in matters related to human health and the environment.

By letter dated March 28, 2000, US EPA Region 2 Staff informed DEC Staff that all future applications for PSD permits must include an environmental justice analysis. With the application materials filed in May 2000, Con Edison included an environmental justice analysis,¹²¹ which was based on EPA guidance.¹²² Subsequently, the applicant filed a supplemental environmental justice evaluation in December 2000¹²³ based on additional EPA guidance.¹²⁴

¹¹⁹DPS Staff's Initial Brief, p. 7; Applicant's Initial Brief, p. 54.

¹²⁰DEC Staff's Initial Brief, p. 3, footnote 1.

¹²¹Exh. 1, Vol. III, App. L, §7.0.

¹²²EPA-Region 2, *Draft Interim Policy on Identifying Environmental Justice Areas* (Revised June 1999).

¹²³Stipulation Exh. 3-S10.

The applicant maintains that the environmental justice standards apply to the DEC permitting program, as a whole, and not separately to each permit application, such as the captioned matter. Con Edison argues that a disparate impact case must be built upon identified decision making criteria that have a discriminatory impact, and not on a single project or permit decision.¹²⁵

The Project would not pose a significant environmental burden on the local community, for the following reasons.¹²⁶ First, emissions from the proposed facility are below regulatory thresholds, and benchmark concentrations. As a result, a significant impact area does not exist. Second, the Project, other mitigation proposed at the East River Complex, and the retirement of the Waterside Station would provide a net reduction in the concentrations of SO₂, VOCs, NO_x, CO, and PM₁₀ emissions. Third, if the Project is certificated, ambient concentrations of SO₂, PM₁₀ and NO₂ near the site of the proposed facility would be the same or less than other areas in the City based on ambient air quality data collected at the DEC monitoring station located near the East River Complex.

We recommend that the DEC Commissioner issue the PSD permit identified in the Joint Stipulation as Stipulation Exhibit 36. If the DEC Commissioner issues the PSD permit, the Siting Board may conclude that the operation of the Project pursuant to its PSD air permit, which authorizes emissions of fixed concentration of criteria pollutants, would comply with

¹²⁴US EPA Region 2, *Interim Environmental Justice Policy*, December 2000.

¹²⁵Applicant's Initial Brief, p. 55, footnote 13.

¹²⁶Joint Stipulation, p. 13, which references Exh. 1, Vol. I, §5.6 and App. A (Slack and Pfeffer); Exh. 1, Vol. III, App. L; Stipulation Exh. 3-S10 and 34.

the national and state ambient air quality standards and PSD increments for criteria pollutants.¹²⁷

3. New Source Review

A review of new or modified air emission sources is necessary when a new or modified source will emit criteria air pollutants and the ambient concentrations of those criteria air pollutants exceed the ambient air quality standards.¹²⁸ A new source review is necessary here because the proposed facility would be located in a severe ozone non-attainment area. As explained above, air emission sources generally do not emit ozone. Rather, emission sources emit NOx and VOCs, which are ozone precursors. In addition, New York County has been designated a non-attainment area for CO, and PM₁₀.¹²⁹

The regulatory criteria for new or modified emission sources in non-attainment areas are outlined in 6 NYCRR Subpart 231-2. As explained above, DEC administers the federal PSD regulations on behalf of EPA. With respect to non-attainment, however, 6 NYCRR Part 231-2 is a federally approved state program.

There are three important components to New York State's non-attainment program outlined in 6 NYCRR Subpart 231-2. First, offsets of the criteria pollutants that would exceed the ambient air quality standards are necessary for those criteria pollutants not in attainment.¹³⁰ With respect to the Project, offsets for NOx and VOCs, as ozone precursors, are

¹²⁷See, Proposed Certificate Conditions I.B, II.A, II.D, III.A; Stipulation Exh. 36.

¹²⁸6 NYCRR §231-2.2 (Applicability).

¹²⁹DEC Air Guide-12, App. I.

¹³⁰As provided for by 6 NYCRR §231-2.6, DEC reviews proposed offsets, and after an opportunity for public review and comment (6 NYCRR §231-2.10), certifies them as emission reduction credits (ERCs).

necessary. The ratio of the offsets is 1.3 to 1.¹³¹ Offsets for CO and PM₁₀ are also necessary. The ratios for these offsets are 1 to 1 for PM₁₀, and 1 to 1 for CO.¹³² The applicant has obtained all the necessary offsets for the Project, and DEC has certified the offsets as emission reduction credits consistent with the requirements outlined in 6 NYCRR Subpart 231-2.¹³³

Second, 6 NYCRR §231-2.9(d) requires a modeling analysis that demonstrates a "net air quality benefit" of the emission offsets because New York County is a non-attainment area for CO and PM₁₀. DEC has developed guidance¹³⁴ based on two regulatory criteria. The first criterion is whether the net impacts from the proposed source, minus the offset source impacts, provide a benefit, on balance, in the area affected by the proposed source.¹³⁵ The second criterion is whether the net impacts are below the applicable significance levels outlined in Table 1 at §231-2.11.¹³⁶

According to the guidance,¹³⁷ net impacts should be calculated using the maximum allowable emission rate for the proposed source and the average actual emission rate for the offsetting source based on the last two years of representative operations data. Consistent with the DEC guidance, the affected area in this case included the area surrounding the East River

¹³¹6 NYCRR §231-2.12, Table 2 (Severe). Con Edison has obtained 193.0 tons of emission reduction credits for NOx, and 222.1 tons of emission reduction credits for VOCs (Stipulation Exh. 35, 46 and 54).

¹³²6 NYCRR §231-2.13, Table 3. Con Edison has obtained 120.3 tons of emission reduction credits for CO, and 109.4 tons of emission reduction credits for PM₁₀ (Exh. 35, 46 and 54).

¹³³Stipulation Exh. 35.

¹³⁴DEC Air Guide 26 (Revised 12/9/96), App. D.

¹³⁵6 NYCRR §231-2.9(d)(2)(i).

¹³⁶6 NYCRR §231-2.9(d)(2)(ii).

¹³⁷DEC Air Guide 26 (Revised 12/9/96), App. D.

Generating Station as well as areas around the offset sources (i.e., Waterside Station, and 59th Street Station).¹³⁸

The regulations require that the net air quality benefit must be achieved "on balance." This means that the net impacts must be less than zero mainly over the portion of the affected area that would be most affected by the proposed source. However, the net impacts need not be less than zero at all receptors, nor over a majority of the total set of receptors.¹³⁹ In addition to the net benefit analysis, the net impacts must be less than the significance levels in Table 1 at §231-2.11.¹⁴⁰

As required by the regulations, the applicant conducted a net air quality benefit analysis. The results show that the net impact of the Project on predicted emissions of PM₁₀ and CO compared with the emission offsets for these criteria pollutants would provide a net benefit, on balance, in the area affected by the proposal. In addition, the predicted emissions do not exceed the significant impact levels outlined in Table 1 at §231-2.11.¹⁴¹

Third, the appropriate pollution control technology for criteria pollutants that are not in attainment is the lowest achievable emissions rate (LAER).¹⁴² Since the Project would be located in a severe ozone non-attainment area, emissions of NOx and VOCs, as ozone precursors, must be controlled by LAER. In addition, PM₁₀ and CO emissions must also be controlled by LAER. LAER is the most stringent emission limitation.

The pre-construction review required by 6 NYCRR Subpart 231-2 has been incorporated into the PSL Article X review process. Pursuant to 6 NYCRR Part 201-6, Con Edison

¹³⁸Exh. 1, Vol. III, App. L, §L6.3.3, and Exh. 50.

¹³⁹DEC Air Guide 26 (Revised 12/9/96), Appendix D.

¹⁴⁰6 NYCRR §231-2.9(b)(2)(ii).

¹⁴¹Exh. 1, Vol. III, App. L, §L6.3.3, and Exh. 50.

¹⁴²Definition provided at 6 NYCRR §200.1(ak).

opted to obtain a pre-construction air permit authorizing the construction and operation of the Project pursuant to 6 NYCRR Subpart 201-6.1. Pursuant to the requirements of ECL Article 19, and 6 NYCRR Part 201 (Permits and Registrations) and 6 NYCRR Subpart 231-2 (Requirements for Emission Units Subject to the Regulation on or after November 15, 1992),¹⁴³ the applicant filed a complete application with the DEC for this pre-construction air emissions permit.

After reviewing the permit application, DEC Staff prepared an Announcement of Public Comment Period and Combined Notice of Complete Application, Public Hearing and Issues Conference dated December 15, 2000.¹⁴⁴ DEC Staff also prepared a draft pre-construction permit (draft Air State Facility permit), and a fact sheet for public review and comment. During the adjudicatory hearing, DEC Staff revised the draft Air State Facility permit. The revised draft Air State Facility permit is included as an exhibit to the Joint Stipulation, and is identified as Stipulation Exhibit 37.

CB3/EREC proposed substantive and significant issues about the draft Air State Facility permit, which were the subject of adjudication.¹⁴⁵ These issues concerning the gradual plume rise option and the alternative control techniques are discussed below.

¹⁴³These requirements relate to the new source review.

¹⁴⁴A copy of the December 15, 2000 Announcement and Notice appeared in the DEC's *Environmental Notice Bulletin* on December 20, 2000. The Applicant duly published the Announcement and Notice in the *New York Times*, the *New York Daily News*, and the *New York Post* on December 21, 2001.

¹⁴⁵Case 99-F-1314, Issues Ruling and Procedural Ruling (issued March 15, 2001), pp. 19-21 (Gradual Plume Rise Option), pp. 22-25 (Alternative Configurations), and pp. 25-31 (Alternative Control Techniques). The issue concerning Alternative Configurations is discussed above. The DEC Commissioner's Interim Decision, *supra*, and the Siting Board's consideration of interlocutory appeals (Case 99-F-1314, Order Concerning Interlocutory Appeals (issued June 22, 2001)), did not disturb the examiners' rulings with respect to these three issues.

a. Gradual Plume Rise Option

Con Edison's approved air modeling protocol for the Project included an analysis of the potential adverse impacts from emissions on elevated (or flagpole) receptors. Part of this evaluation required the applicant to include the "gradual plume rise" option for downwashing stacks.¹⁴⁶ This option was included because the height of the four emission stacks at the East River Complex are less than that called for by good engineering practice (GEP).¹⁴⁷ Under these circumstances, as plumes are emitted from the stacks, they may impact receptors at, or near, the tops of nearby tall buildings during the "gradual" rise of the plumes before the plumes reach their final height.¹⁴⁸

At the pre-hearing conference, CB3/EREC asserted,¹⁴⁹ and the applicant agreed,¹⁵⁰ that none of Con Edison's reported modeling results reflected a consideration of the gradual plume rise option. At the hearing, however, DEC witness Leon Sedefian testified that the applicant used the gradual plume rise option for all of the modeling related to the new source review,¹⁵¹ as well as for some of the modeling required for the PSD analyses.¹⁵²

Nevertheless, the modeling had to be repeated after Con Edison discovered that some of the original input data concerning the heights and base elevations of the buildings included in the initial elevated receptor analyses were

¹⁴⁶Exh. 1, Vol. III, App. L, §L6.2.7 and App. L-C, §4.5.4.

¹⁴⁷Exh. 56.

¹⁴⁸Tr. 1457.

¹⁴⁹PSD comment letter from CB3/EREC dated February 2, 2001, pp. 14 and 15; 2/23/01 Tr. 29-33.

¹⁵⁰2/23/01 Tr. 69-70.

¹⁵¹6 NYCRR Subpart 231-2.

¹⁵²Tr. 1457; DEC Staff's Initial Brief, p. 19.

incorrect.¹⁵³ To verify the heights and base elevations of the relevant buildings, the applicant retained a surveyor.¹⁵⁴ The elevated receptor modeling was repeated with the revised data, and Con Edison reported the results to DEC Staff in memoranda identified in the hearing record as Exhibits 51 and 52. DEC Staff performed a limited independent review of the applicant's modeling data to verify the results provided in Exhibits 51 and 52.¹⁵⁵

With respect to the gradual plume rise option, Exhibits 51 and 52 address four topics concerning potential impacts of emissions from the Project on elevated receptors. The first topic addresses the potential impacts during the four-hour distillate oil test. The second relates to net potential impacts from NO₂ emissions. The third concerns the significant impact analysis required by 6 NYCRR Subpart 231-2 for Stack 2.¹⁵⁶ The fourth topic relates to minimizing potential impacts from PM₁₀ on elevated receptors.¹⁵⁷

The modeling results are compared to "significant impact levels" (SILs).¹⁵⁸ Each criteria pollutant has a corresponding SIL, which is used to establish a significant impact area for an air emission source. Additional analysis is not required if the modeling results show that maximum predicted concentrations of a particular criteria pollutant would not exceed its associated SIL.

¹⁵³Tr. 1398-1399, 1413; Exh. 52 (relates to buildings in the vicinity of the East River Complex), and Exh. 56 (relates to buildings in the vicinity of the Waterside Station).

¹⁵⁴Exh. 52.

¹⁵⁵Tr. 1460.

¹⁵⁶Exh. 52.

¹⁵⁷Exh. 51.

¹⁵⁸40 CFR §51.165(b)(2).

Although the proposed facility would burn distillate oil only during emergencies,¹⁵⁹ the applicant must show that using distillate oil would not result in a violation of short-term ambient air quality standards. Periodically,¹⁶⁰ Con Edison would be required to undertake tests where oil would be burned for four hours. If the Project is approved, the duct burners in the first CTG and HRSG train (ERRP No. 1) and the second (ERRP No. 2) would be off-line during these test periods. The applicant modeled only ERRP No. 2 because this combustion train vents to Stack 2, which has a greater potential for downwash effects compared to Stack 1.¹⁶¹

The original results of the modeling were presented in the application materials at Table L6-10,¹⁶² and showed that anticipated short-term concentrations¹⁶³ would be less than the SILs.¹⁶⁴ The results of the revised analysis also show that anticipated short-term concentrations would be less than the SILs.¹⁶⁵

Using the gradual plume rise option, the applicant re-analyzed the net potential impacts from NO₂ emissions on elevated receptors. For modeling purposes, the applicant assumed that 100% of the total annual NO_x emissions would be converted to NO₂. If the resulting predicted NO₂ concentrations exceeded the annual

¹⁵⁹Exh. 1, Vol. I, §3.2.5.4; Exh. 58 (revised draft Air State Facility Permit, Conditions 6, 110 and 114), and Stipulation Exh. 37.

¹⁶⁰Exh. 58 (revised draft Air State Facility permit, Conditions 50, Item 50.2, and 114); Stipulation Exh. 37.

¹⁶¹Exh. 1, Vol. III, App. L, §6.3.1.3, and Table L6-10.

¹⁶²Exh. 1, Vol. III, App. L.

¹⁶³Three-hr and 24-hr SO₂; 24-hr PM₁₀.

¹⁶⁴The 3-hr SIL for SO₂ is 25 micrograms/cubic meter (µg/m³), and the 24-hr SIL for SO₂ is 5 µg/m³. The 24-hr SIL for PM₁₀ is 5 µg/m³. (See, 40 CFR §51.165(b)(2).)

¹⁶⁵Exh. 52.

SIL for NO₂,¹⁶⁶ then the applicant would assume a 75% conversion factor, as required by DEC Air Guide-26. Con Edison would then compare this result to the SIL for NO₂.¹⁶⁷ A review of ambient monitoring data gathered by DEC at the Mabel Dean Bacon site shows (1.3 km north-northwest of the East River Complex) that the ratios of NO₂ to NO_x for 1997 and 1998 were 0.54 and 0.47, respectively. Based on these monitoring data, which show that the actual conversion of NO_x to NO₂ is about 50%, the applicant concluded that the default conversion factors (i.e., 100% and 75%) were conservative.¹⁶⁸

Before the applicant verified building heights and elevations, the maximum predicted net annual NO₂ concentration was 1.29 micrograms per cubic meter (µg/m³). This predicted concentration would occur at the top of the building located at 205-211 Avenue C, across from Haven Plaza North. Since this concentration exceeded the annual SIL of 1 µg/m³ for NO₂, the applicant assumed, using DEC guidelines, a 75% conversion of NO_x to NO₂. This resulted in a maximum net annual NO₂ concentration of 0.97 µg/m³. Had Con Edison used a conversion rate that was more consistent with the air monitoring data from the Mabel Dean Bacon site, then the maximum predicted net NO₂ concentration would be less than the SIL.¹⁶⁹

Assuming 100% conversion of NO_x to NO₂, the results of the revised analysis show that the net annual NO₂ concentration would be 1.31 µg/m³ at the west building of Haven Plaza South. Assuming 75% conversion of NO_x to NO₂, the net annual NO₂ concentration would be 0.98 µg/m³ at the same location.¹⁷⁰

¹⁶⁶The annual SIL for NO₂ is 1 µg/m³.

¹⁶⁷Exh. 1, Vol. III, App. L, §L6.2.7, and App. L-C, §4.5.4.

¹⁶⁸Exh. 1, Vol. III, App. L, §L6.2.7.

¹⁶⁹Ibid., §L6.3.2.2.

¹⁷⁰Exh. 52. As explained above, the 75% conversion factor is about 25% greater than what has actually been measured at the Mabel Dean Bacon monitoring site.

For elevated receptors, the applicant used the gradual plume rise option as part of the significant impact analysis required by 6 NYCRR Subpart 231-2 for Stack 2. The initial results showed that the predicted concentrations would be well below the applicable SILs for PM₁₀ and CO.¹⁷¹ The revised analysis for Stack 2 provides similar results. For example, the 1-hr SIL for CO is 2000 µg/m³, and the predicted concentration is 11.10 µg/m³. In addition, the 24-hr SIL for PM₁₀ is 5 µg/m³, and the predicted concentration is 3.67 µg/m³.¹⁷²

To minimize potential adverse environmental impacts pursuant to PSL §168(2)(c) and 6 NYCRR Subpart 200.6, DEC Staff directed Con Edison to provide a showing that the combined impacts of ERRP1 and ERRP2 would not significantly contribute to the non-attainment status of PM₁₀ and CO.¹⁷³ Although the CTGs would be used to generate electricity, the heat from the combustion process would be directed to the HRSGs to generate steam for Con Edison's steam distribution system. The applicant proposes to install duct burners, which would burn only natural gas, to increase the steam output from the HRSGs. The applicant evaluated several cases to determine whether operations of the duct burners should be limited to ensure that potential PM₁₀ emissions from the proposed facility would be less than the SIL at elevated receptors.¹⁷⁴

The applicant modeled several different cases. In the first case, it assumed that both sets of CTGs and duct burners would be firing natural gas at full load for 24 hours. The modeling results for this case predicted that PM₁₀ concentrations would exceed the 24-hr SIL of 5 µg/m³.¹⁷⁵

¹⁷¹Exh. 1, Vol. III, App. L, §L6.3.3.1.

¹⁷²Exh. 52.

¹⁷³Tr. 1458, and Exh. 51.

¹⁷⁴The 24-hr SIL for PM₁₀ is 5 µg/m³, and the annual SIL is 1 µg/m³.

¹⁷⁵Exh. 51, Table 1. The maximum predicted concentrations range from 4.49 µg/m³ to 6.02 µg/m³.

The next two cases modeled the following operating conditions. First, the CTG and duct burner for ERRP1 were modeled at full load with the CTG for ERRP2 at full load but its duct burner off-line. Second, the CTG for ERRP1 was modeled at full load with its duct burner offline, while the CTG and duct burner for ERRP2 were at full load. Under these conditions, the predicted maximum 24-hr concentrations of PM₁₀ were 4.16 µg/m³ and 4.69 µg/m³, respectively.¹⁷⁶ These results are less than the 24-hr PM₁₀ SIL of 5 µg/m³.

The applicant modeled the case where ERRP1 and the South Steam Station are operating simultaneously. At present, emissions from the South Steam Station are vented through Stack 1. If the proposal is approved, Con Edison would use Stack 1 to vent the emissions from the South Steam Station as well as the emissions from ERRP1. For this case, the applicant assumed that future operations at the South Steam Station would be the same as baseline operations.¹⁷⁷ The maximum predicted 24-hr PM₁₀ concentration for this case is 4.89 µg/m³, which is less than the 24-hr SIL.¹⁷⁸

For the next set of cases, the applicant used temperature-specific source data with both CTGs operating at 100% load while varying loads on both duct burners from full (i.e., 100%) to 50%. Con Edison also assumed that the South Steam Station would be off-line. These operating conditions were modeled to determine how long, and at what load capacity, both duct burners could be operated simultaneously within a block 24-hour period without exceeding the 24-hr SIL for PM₁₀ at elevated receptors. The reason for including the temperature-specific source data was to evaluate operating conditions that could be expected during the peak steam season (i.e., November 1

¹⁷⁶Exh. 51.

¹⁷⁷Exh. 51. Baseline operations are based on 85th percentile of 1997-1999 daily firing rates (Exh. 1, Vol. III, App. L, Table L6-2).

¹⁷⁸Exh. 51.

through March 31) and the off-peak steam season (i.e., April 1 through October 31).¹⁷⁹

During the peak steam season, the modeling shows that the duct burners could operate for 19 hours before exceeding the 24-hr SIL for PM₁₀. If the duct burners are operated at 75% capacity, or less, during the peak steam season, the maximum predicted PM₁₀ concentrations would not exceed the 24-hr SIL. During the off-peak steam season, the modeling shows that the duct burners could operate for 14 hours before exceeding the 24-hr SIL for PM₁₀. If the duct burners are operated at 75% capacity, the modeling shows that the duct burners could operate for 20 hours before exceeding the 24-hr SIL for PM₁₀. Finally, if the duct burners are operated at 50% capacity, then the maximum predicted concentrations would not exceed the 24-hr SIL for PM₁₀.¹⁸⁰

Based on these modeling results, the applicant developed three permit conditions that would limit the use of the duct burners.¹⁸¹ DEC Staff incorporated these conditions into the revised draft Air State Facility permit,¹⁸² and the applicant has accepted them.¹⁸³ The proposed conditions are:

- During the period between November 1 and March 31, the maximum amount of natural gas firing in each unit's duct burners shall be limited to 20,100 Btu per day on a block 24-hour basis (midnight to midnight) when both duct burners are operated during any portion of the block 24-hour period.
- During the period between April 1 and October 31, the maximum amount of natural gas firing in each unit's duct burners shall be limited to 15,500 Btu per day on a block

¹⁷⁹Id.

¹⁸⁰Exh. 51, Table 4.

¹⁸¹Exh. 51.

¹⁸²Exh. 58 and 59; Stipulation Exh. 37; DEC Staff's Initial Brief, p. 19.

¹⁸³Applicant's Initial Brief, p. 50.

24-hour basis (midnight to midnight) when both duct burners are operated during any portion of the block 24-hour period.

- There shall be no limitation placed on natural gas firing in each unit's duct burners during block 24-hour periods when only one unit's duct burner is operating.

Although DEC Staff and the applicant favor the incorporation of these conditions into the revised draft Air State Facility permit, CB3/EREC does not. CB3/EREC contends that the proposed conditions are not sufficiently restrictive to keep the potential maximum PM₁₀ concentrations below the 24-hr SIL at elevated receptors.¹⁸⁴ The testimony offered by CB3/EREC witness Daniel Gutman presented two criticisms of the applicant's gradual plume rise analysis.

First, Mr. Gutman said the applicant's analysis does not properly account for two phenomena, which are "enhanced entrainment" and "descending streamlines."¹⁸⁵ According to Mr. Gutman, enhanced entrainment limits plume rise because building wakes can mix cool air into a plume.¹⁸⁶ Descending streamlines may occur when an emission point is on the leeward side of a structure that can create a cavity (i.e., a near-wake) or a far-wake. Under these conditions, the height to which a plume could rise may be limited by the wake effect.¹⁸⁷ Mr. Gutman concludes that both phenomena can prevent a plume from rising, which could therefore increase emission concentrations around tall buildings.¹⁸⁸

Mr. Gutman stated that the EPA recently proposed a revision to the Guideline on Air Quality models, which includes

¹⁸⁴Tr. 2682. CB3/EREC's Initial and Reply Briefs are silent about this issue.

¹⁸⁵Tr. 2681.

¹⁸⁶Id.

¹⁸⁷Tr. 2681-2682; Tr. 1410; Exh. 14, Fig. E-2.

¹⁸⁸Tr. 2682.

the ISC-PRIME¹⁸⁹ model as the new standard model for stationary sources.¹⁹⁰ Mr. Gutman testified that the ISC-PRIME model accounts for enhanced entrainment and descending streamlines. Mr. Gutman used the ISC-PRIME model to verify whether the proposed conditions that would limit the use of the duct burners are sufficient to ensure that PM₁₀ concentrations at elevated receptors would be less than the 24-hr SIL. According to Mr. Gutman, the ISC-PRIME model shows that "without operating restrictions the 24-hr concentration on nearby buildings from the ERRP and the South Steam Station would be over 7 µg/m³."¹⁹¹

Mr. Gutman's second criticism about the results of the applicant's gradual plume rise analysis relate to assumptions about the South Steam Station. Rather than base its analysis on the maximum daily firing rate, Mr. Gutman stated that the applicant used daily firing rates at the 85th percentile for the period from 1997 to 1999. Mr. Gutman testified that during 1997-1999, the applicant actually operated the South Steam Station at the maximum fuel firing rate, and that the resulting PM₁₀ emissions at that rate were 50% higher than the emission rates predicted by the applicant's gradual plume rise analysis. Mr. Gutman concludes that if the applicant's analysis used the maximum fuel firing rate, then the maximum predicted PM₁₀ concentrations would be 8.69 µg/m³, which exceeds the 24-hr SIL of 5 µg/m³.¹⁹²

Witnesses for DEC Staff and the applicant responded to Mr. Gutman's criticisms. With respect to the ISC-PRIME model, DEC Staff does not support its use at present. According to DEC Staff witness Leon Sedefian, EPA has proposed replacing the ISC3/SCREEN3 downwash models with the ISC-PRIME model, and

¹⁸⁹PRIME stands for Plume Rise Model Enhancements. A discussion about the development of the model is found in Exh. 14, App. A.

¹⁹⁰Tr. 2682, which refers to 65 FR 21506, April 21, 2000.

¹⁹¹Tr. 2682.

¹⁹²Tr. 2683.

notice of this proposed revision appeared in the *Federal Register* on May 19, 2000. To date, however, EPA has not finalized the revisions to the Modeling Guidelines.¹⁹³ During his testimony, Mr. Sedefian noted that the applicant wanted to use the ISC-PRIME model as part of its analysis, but the DEC Staff did not authorize its use given its current "non-regulatory nature."¹⁹⁴ For the same reason, Mr. Sedefian concludes that the results of Mr. Gutman's gradual plume rise analysis, which are based on the ISC-PRIME model, are "questionable."¹⁹⁵

With his rebuttal testimony, Con Edison's witness James Slack includes a report entitled, *Cumulative Impact Air Quality Analysis under the New York City Environmental Review Technical Manual*, dated April 2001.¹⁹⁶ In Appendix E to the April 2001 report, Mr. Slack compares the Industrial Source Complex Model (ISCST3)¹⁹⁷ to the ISC-PRIME model. Mr. Slack then reports the results of his analysis using the ISC-PRIME model, and compares those results with the results obtained using the ISCST3 model.¹⁹⁸

With respect to the applicant's proposal, the primary disadvantage of the ISCST3 model is that it tends to exclude receptors that are located very close to the emission point source. The ISCST3 requires a minimum horizontal separation distance between the emission point source and a receptor, and

¹⁹³Tr. 1464; Applicant's Initial Brief, p. 51.

¹⁹⁴Tr. 1464.

¹⁹⁵Id.

¹⁹⁶Tr. 1353. The April 2001 report is identified in the hearing record as Exh. 14.

¹⁹⁷The approved air modeling protocol required the applicant to use ISCST3 - Version 99155 as the screening and refined model for elevated receptors (Exh. 1, Vol. III, App. L-C, §4.2.5 and §4.4).

¹⁹⁸Tr. 1393-1394, 1416-1419; Exh. 14, App. E.

this separation distance tends to be within the cavity zone. The ISCST3 can simulate concentrations in the wake region and further downwind from the emission point source, however. Unlike the ISCST3 model, the ISC-PRIME model can assess impacts within the cavity zone.¹⁹⁹

The applicant's approved air modeling protocol describes the ground-level receptor grid, and includes a list of ground-level and elevated receptors.²⁰⁰ The applicant's consultants identified all the receptors that the ISCST3 model "excluded" due to their proximity to the point sources.²⁰¹ For Stacks 1 and 2, which would be the emission points for Con Edison's proposal, the ISCST3 model did not exclude any elevated receptors.²⁰² The ISCST3 model, however, did exclude elevated receptors with respect to Stacks 3 and 4,²⁰³ but the emissions from Stacks 3 and 4 are not the subject of these proceedings.

The applicant then repeated the analysis using the ISC-PRIME model, and compared those results with the results obtained using the ISCST3 model. In contrast to Mr. Gutman's testimony, the results presented in Table E-3 show that for each stack and averaging time, the predicted concentrations using the ISCST3 model are higher than the predicted concentrations using the ISC-PRIME model.²⁰⁴

With respect to the applicant's gradual plume rise analysis, the issue is whether the proposed permit conditions that would limit the use of the duct burners are sufficient to prevent concentrations of PM₁₀ emissions from exceeding 5 µg/m³

¹⁹⁹Exh. 14, App. E.

²⁰⁰Exh. 1, Vol. III, App. L-C, §4.5.3, Fig. 4-2 and 4-3, and Table 4-6.

²⁰¹The emission point sources are Stacks 1, 2, 3, and 4 at the East River Complex.

²⁰²Exh. 14, App. E, Table E-2.

²⁰³Id.

²⁰⁴Id.

at elevated receptors during a block 24-hour period.²⁰⁵ For the reasons discussed below, Mr. Gutman's criticisms concerning the proposed permit conditions are unfounded.

The principal defect is Mr. Gutman's reliance on the ISC-PRIME model. It has already been determined that the applicant's air modeling protocol is not at issue in these proceedings.²⁰⁶ DEC Staff approved the applicant's air modeling protocol,²⁰⁷ and significant deference should be afforded that determination given DEC Staff's substantial expertise and experience in developing such protocols and in reviewing the modeling results. The approved air modeling protocol required Con Edison to use the ISCST3 model, not the ISC-PRIME model. Therefore, CB3/EREC's reliance on the ISC-PRIME model makes it impossible to compare the one result reported by Mr. Gutman²⁰⁸ with those obtained by the applicant in any meaningful way.

Concerning Mr. Gutman's second criticism, CB3/EREC's reliance on one event corresponding to the maximum fuel firing rate at the South Steam Station during 1997-1999 is not consistent with the regulatory requirements for determining the baseline period. A definition of the term, "baseline period," is found at 6 NYCRR §231-2.1(b)(1). The baseline period is used as "a reference point in quantifying a creditable . . . project emission potential."²⁰⁹ A determination of the baseline emission rate is a significant element of the new source review in non-attainment areas. Because CB3/EREC's modeling result is based

²⁰⁵The proposed permit conditions are identified as conditions 110.1 and 110.2 in Exh. 59; Stipulation Exh. 37.

²⁰⁶Case 99-F-1314, Issues Ruling and Procedural Ruling (issued March 15, 2001), p. 19. CB3/EREC did not appeal from this ruling.

²⁰⁷Exh. 1, Vol. III, App. L-C, Letter dated May 30, 2000 from R. Benas, DEC Project Manager to J. Riback, Esq., Associate Counsel, Consolidated Edison.

²⁰⁸8.69 $\mu\text{g}/\text{m}^3$ (Tr. 2683).

²⁰⁹6 NYCRR §231-2.1(b)(1).

on one maximum event, it is not representative of normal source operations. Accordingly, this result²¹⁰ should be assigned little weight.

The applicant's comparison of the ISCST3 model and the ISC-PRIME model, and the multiple results of the ISC-PRIME modeling analysis provide very noteworthy insights. First, significant weight should be assigned to the fact that the ISCST3 analysis did not "exclude" any elevated receptors for Stacks 1 and 2. Since all of the receptors were included in the analysis with respect to Stacks 1 and 2, none of the elevated receptors are in the cavity zone for these stacks.²¹¹ Therefore, the phenomena of "enhanced entrainment" and "descending streamlines" at elevated receptors, which are of concern to Mr. Gutman, would not occur for Stacks 1 and 2.

In addition, the results presented in Table E-3²¹² show that for each stack, the predicted concentrations using the ISCST3 model are higher than those obtained by using the ISC-PRIME model. The comparison is meaningful here because an ISCST3 modeling result and its corresponding ISC-PRIME modeling result are provided for each "excluded" receptor. Mr. Gutman's testimony, however, presents one result without an explanation about the assumptions considered. Given the results presented in Table E-3, an inference can be reasonably made that, with respect to this proposal, the ISCST3 results are more conservative (i.e., would predict higher concentrations) than those obtained with the ISC-PRIME model.

Based on the foregoing discussion, we conclude that the proposed permit conditions, which would limit the use of the duct burners at the Project would prevent PM₁₀ emissions from exceeding the 24-hr significant impact level of 5 µg/m³ on elevated receptors. Accordingly, we recommend that the DEC

²¹⁰8.69 µg/m³ (Tr. 2683).

²¹¹These results are consistent with the results associated with the applicant's cavity analysis (See, Exh. 1, Vol. III, Appendix L-C, §4.3.2 and App. E.1).

²¹²Exh. 14, App. E.

Commissioner incorporate the proposed permit conditions into the revised draft Air State Facility permit.

b. Alternative Control Techniques (SCONOx)

An adjudicable issue is whether SCONOx technology, rather than selective catalytic reduction (SCR) technology, should be implemented at the Project to control NOx emissions and to reduce the potential for secondary particulate formation related to "ammonia slip." A resolution of this issue requires an interpretation of the term, "lowest achievable emission rate" (LAER).

The various forms of NOx are regulated as a criteria pollutant pursuant to the federal Clean Air Act. The ambient concentration of NOx in the City's metropolitan area does not exceed the applicable national ambient air quality standard. NOx emissions, however, are precursors to ozone, and the metropolitan area is designated a severe ozone non-attainment area.²¹³ Consequently, a control technology that will result in LAER must be used.²¹⁴

Control technologies are divided into two basic categories: "front-end" and "back-end" controls. As a front-end control technology, the applicant proposes to use dry low-NOx combustors. These combustors limit the peak flame temperature and excess oxygen, and thereby reduce NOx formation by lowering the combustion temperature and limiting the amount of oxygen that can combine with either atmospheric nitrogen, or nitrogen in the fuel.²¹⁵

In addition, the applicant proposes to use SCR as a back-end control technology. Before the air emissions are vented, they are mixed with aqueous ammonia. In the presence of a catalyst, NOx emissions combine with the ammonia to form

²¹³DEC Air Guide-12.

²¹⁴The term, "LAER," is defined at 6 NYCRR 200.1(ak). LAER is the most stringent emission limitation and must be implemented for criteria pollutants that are not in attainment.

²¹⁵Exh. 1, Vol. III, App. L, §L5.2.

nitrogen gas (N₂) and water.²¹⁶ Con Edison contends that its proposed control technology, which includes dry low-NOx burners, the SCR catalyst, and the CO catalyst, meets the applicable LAER requirement.²¹⁷

CB3/EREC objects, however, to the applicant's proposal to use SCR technology to control NOx emissions. According to CB3/EREC, excess ammonia, referred to as ammonia slip, from the SCR unit can combine with sulfuric and nitric acid aerosols, and create ammonium salts, which are particulates. To avoid the potential formation of secondary particulate matter, CB3/EREC proposes the use of SCONox, rather than SCR technology. Unlike SCR, SCONox does not require ammonia.

In support of the position it asserted at the pre-hearing conference,²¹⁸ CB3/EREC offered S. Elwood Halterman, Jr. as an expert about SCONox technology.²¹⁹ Mr. Halterman is a chemical engineer with over 30 years' experience in evaluating air quality impacts.²²⁰

The applicant offered two expert witnesses. Stephen A. Kurtz is the technical manager for the Project. Mr. Kurtz is a mechanical engineer, and has worked for Con Edison in various capacities since 1980.²²¹ According to the applicant, Mr. Kurtz's testimony shows that using SCONox technology for the Project would adversely affect the reliability of Con Edison's steam system, and that installing, operating and maintaining SCONox equipment at the East River

²¹⁶Id.

²¹⁷Applicant's Initial Brief, p. 22.

²¹⁸CB3/EREC's Initial and Reply Briefs do not include any additional arguments about the implementation of SCONox technology at the Project, or at its alternative sites.

²¹⁹Exh. 41 (CB3/EREC's Petition for Full Party Status), pp. 23-25.

²²⁰Tr. 1118.

²²¹Tr. 308.

Generating Station would not be "technically feasible."²²² This view is shared by DPS Staff.²²³

The applicant also offered the expert testimony of Greg Yarwood, who has a Ph.D. in Chemistry. Dr. Yarwood is a Senior Consultant at ENVIRON Corporation, Novato, California. His area of expertise is atmospheric chemistry.²²⁴ According to the applicant, Dr. Yarwood's testimony demonstrates that overall concentrations of secondary particulate matter would be reduced by retiring the Waterside Station and by constructing the Project.²²⁵

DPS Staff offered the expert testimony of Matthew F. Cinadr, who is a power systems operations specialist in the DPS Office of Electricity and Environment. Mr. Cinadr is a mechanical engineer with over 30 years' experience reviewing power systems and electric generating facilities.²²⁶ Mr. Cinadr, who has worked for DPS since 1982,²²⁷ testified about the reliability of the SCONox technology.²²⁸ DPS Staff contends that CB3/EREC did not demonstrate that SCONox would be a viable emission control technology option, and further asserts that SCR would minimize adverse environmental impacts to the maximum extent practicable.²²⁹

DEC Staff offered the expert testimony of Leon Sedefian. Mr. Sedefian has worked as an air pollution

²²²Tr. 324-325; Applicant's Initial Brief, pp. 26-32, and 32-36.

²²³Tr. 1064; DPS Staff's Initial Brief, pp. 16-17.

²²⁴Tr. 1008.

²²⁵Applicant's Initial Brief, pp. 22-26.

²²⁶Tr. 1055.

²²⁷Tr. 1057.

²²⁸Id.

²²⁹DPS Staff's Initial Brief, p. 18.

meteorologist in the DEC Division of Air Resources since 1985.²³⁰ Mr. Sedefian's testimony addresses the question of whether PM₁₀ emissions from the Project should be reduced further by using an alternative pollution control technology.²³¹ DEC Staff argues there is not sufficient evidence in the hearing record to require the applicant to change from SCR technology to SCONox technology.²³²

The following circumstances were considered in evaluating the hearing record about this issue. CB3/EREC proffered Mr. Halterman at the pre-hearing conference as an expert who was going to provide comprehensive testimony about the advantages of SCONox technology, and detailed opinions concerning its implementation, operation, and maintenance at the Project.²³³ He did not.

In addition, CB3/EREC witness Kaiser Aziz offered alternative design configurations that CB3/EREC asserts could be implemented at the Kips Bay site, and the applicant's existing 74th Street Station.²³⁴ Messrs. Aziz and Halterman hold positions of vice-president and senior vice-president, respectively, at Enviro-Sciences, Inc., in Spring, Texas.²³⁵ It is significant to note, that Mr. Aziz's designs include SCR technology, but not SCONox technology.²³⁶ The inconsistency between the witnesses' presentations diminishes the value of their testimony in these proceedings.

²³⁰Tr. 1456.

²³¹Tr. 1461.

²³²DEC Staff's Initial Brief, p. 24.

²³³Exh. 41, pp. 23-25.

²³⁴Exh. 44 and 45. In its Initial Brief (pp. 18-19), CB3/EREC withdraws from consideration its proposed 74th Street Station alternative.

²³⁵Tr. 2505 and Tr. 1118.

²³⁶Exh. 44 and 45; Tr. 1233, 1264.

i. Achieved in Practice

The hearing record identifies three proposed electric generating facilities in California, at various stages in the approval process concerning the use of SCONOx. The proposed facilities are the La Paloma Generating Project, the Otay Mesa Generating Project, and the Nueva Azalea Power Plant Project.²³⁷ Each proposal is discussed briefly below.

In an order dated October 6, 1999, the California Energy Resources Conservation and Development Commission approved the La Paloma Generating Company's application for a certificate. The La Paloma proposal is a 1048 MW natural gas-fired, combined-cycle power plant, which would be located in the Town of McKittrick, Kern County, California. The proposed La Paloma facility would consist of four CTGs and four HRSGs, organized into four separate power trains.²³⁸

To reduce NOx emissions, the order requires the La Paloma applicant to use dry low-NOx combustors as a front-end control technology for all four CTG units, and SCR as a back-end control technology on three of the four HRSGs. On the fourth HRSG, the order allows the La Paloma applicant to use either SCR technology, or SCONOx technology. The order states further that a final decision to use the SCONOx technology will not be made until after the La Paloma applicant completes the "commercial availability determination,"²³⁹ the results of which were not offered for this hearing record. Finally, the order acknowledges that if the La Paloma applicant chooses to use SCONOx technology on one of the four proposed HRSGs, then the La Paloma facility would be the first to use the SCONOx technology on a project of this size.²⁴⁰

²³⁷Tr. 1119-1120.

²³⁸Exh. 40. Docket No. 98-AFC-2, Matter of Application for Certification of the La Paloma Generating Project, Commission Adoption Order, dated October 6, 1999.

²³⁹Id.

²⁴⁰Id.

In a proposed decision dated March 2001, the Otay Mesa Certification Committee recommended approval of the certificate requested by the Otay Mesa Generating Company. The proposed Otay Mesa project is a 510 MW natural gas-fired, combined-cycle power plant, which would be located in Otay Mesa, San Diego County, California. There would be two CTGs, two HRSGs, and a steam turbine generator that may be shared between the two power trains. The current design calls for dry low-NOx combustors. To reduce NOx emissions further, the proposed decision recommends that the Otay Mesa applicant be allowed to use either SCR or SCONox technology.²⁴¹

According to the proposed decision, the Otay Mesa applicant believes that SCONox is a feasible alternative to SCR. The proposed decision acknowledges, however, that SCONox has been demonstrated only on smaller turbines, and will need to be "scaled-up" for the proposed Otay Mesa facility. Draft conditions provide the Otay Mesa applicant with a six-month optimization period for the SCONox system. If SCONox technology is not available, then the Otay Mesa applicant would use SCR as the preferred back-end technology to control NOx emissions.²⁴²

The proposed Nueva Azalea Power Plant²⁴³ would be a nominal 550 MW, natural gas-fired combined cycle power plant located in the City of South Gate, California. It would consist of two power trains. On March 12, 2001, the Nueva Azalea applicant requested that the review of its proposal by the California Energy Commission be suspended, however.²⁴⁴ There is

²⁴¹Exh. 39. Docket No. 99-AFC-5, Matter of Application for Certification of the Otay Mesa Generating Project, Presiding Member's Proposed Decision, dated March 2001.

²⁴²Id.

²⁴³California Energy Commission Docket No. 00-AFC-3. The Nueva Azalea Power Plant project was formerly called the Sunlaw Cogeneration Partners I.

²⁴⁴Exh. 43.

no additional information about this proposal in the hearing record.

Mr. Halterman's testimony also identified two other proposed power plants in California where he stated that the EPA denied approvals because the project sponsors "improperly rejected SCONox."²⁴⁵ These proposals are known as the Elk Hills and Three Mountains facilities. Referring to the California Energy Commission's web site, however, Con Edison argues that SCONox technology is not yet available for the proposed Elk Hills and Three Mountains facilities.²⁴⁶

Pursuant to 6 NYCRR §200.1(ak), LAER is:

The most stringent emission limitation achieved in practice, or which can reasonably be expected to occur in practice for a category of emission sources taking into consideration each air contaminant which must be controlled. In no event shall the application of this term permit a proposed new source or modification to emit any air contaminant in excess of the amount permitted under any applicable emission standard established under 6 NYCRR or 40 CFR.

Based on the La Paloma order and the Otay Mesa proposed decision, the use of SCONox technology at facilities like the Project has not been achieved in practice. To date, SCONox has been used on smaller turbines as noted above,²⁴⁷ but not on the F-class turbines proposed for the facilities in California, and for Con Edison's Project.²⁴⁸

²⁴⁵Tr. 1120.

²⁴⁶Applicant's Initial Brief, pp. 30-31.

²⁴⁷Exh. 39 and 40.

²⁴⁸For the East River Generating Station, the applicant proposes GE Frame 7FA [PG 7241(FA)] turbines (Exh. 1, Vol. I, §3.2.3.1). At the proposed La Paloma facility, the project sponsor expects to use ABB Model GT 24 turbines (Exh. 40). The sponsor for the Otay Mesa facility will choose an F-class turbine (Exh. 39).

ii. Expected to Occur in Practice

Since SCONOx technology has not been used for F-class turbines, the issue becomes whether the use of SCONOx can reasonably be expected to occur in practice. To be reasonably expected to occur in practice, the applicant argues that the control technology must be technically feasible for that source.²⁴⁹ Con Edison contends further that EPA guidance states that LAER may be determined on a source-specific basis, since "unusual circumstances" associated with an emission source may allow for a different level of control than would generally be required for a given category of emission sources.²⁵⁰

The evidence concerning the technical feasibility of the SCONOx equipment can be divided between two categories. The first category relates to the performance reliability of the SCONOx equipment. The second relates to the size of the SCONOx equipment and whether there is sufficient space in the East River Generating Station to accommodate it.

a. Performance Reliability

Con Edison studied the performance reliability of the SCONOx equipment by visiting the Genetics and the Sunlaw (or Federal) facilities, which use SCONOx to control NOx emissions.²⁵¹ A critical operational concern that Con Edison's representatives observed at the Genetics facility was the ineffectiveness of the SCONOx system after distillate oil is used. When exposed to sulfur compounds, the SCONOx system does not return to its design-based performance. The only way to restore the system is to "wash" the catalyst. Even when natural gas is used, the catalyst at the Genetics facility must be

²⁴⁹Applicant's Initial Brief, p. 19.

²⁵⁰Id., pp. 21-22.

²⁵¹Tr. 329-330; Exh. 4; Applicant's Initial Brief, p. 26.

washed every six weeks to restore the design-based performance.²⁵²

According to Mr. Kurtz, adaptations of the SCONox technology at the Genetics and Sunlaw facilities have not been adequately addressed and verified through operational experience.²⁵³ For example, components of the SCONox catalyst at the Sunlaw facility are separated from each other by louvers, which are 15 feet long. When the louvers are closed, those sections of the SCONox catalyst can be regenerated by washing. Mr. Kurtz reported that the linkages and drivers for the louver system have maintenance problems due to the hot temperature of the flue gases.²⁵⁴ Given the maintenance problems with the louver system at the Sunlaw facility, Mr. Kurtz is concerned about the reliability of a louver system that could be required at the Project where the length of the louvers would have to be at least 30 feet long.²⁵⁵

In addition, the applicant conferred with Vogt-NEM, the manufacturer of the HRSG units proposed to be installed at the East River Generating Station. According to Mr. Kurtz, Vogt-NEM has serious reservations about providing performance and emission guarantees for the HRSGs if SCONox technology is required.²⁵⁶ During his cross-examination, Mr. Halterman stated that he would not use a piece of equipment if the manufacturer would not provide a performance guarantee.²⁵⁷

Nevertheless, Mr. Halterman maintained that the SCONox technology is a "proven process at the Genetics and Sunlaw

²⁵²Exh. 4.

²⁵³Tr. 331.

²⁵⁴Tr. 331-332.

²⁵⁵Tr. 332; Exh. 4.

²⁵⁶Tr. 333; Exh. 5.

²⁵⁷Tr. 1124-1125.

facilities,"²⁵⁸ and offered opinions about how the applicant could address the operation and maintenance concerns outlined above.²⁵⁹ The basis for Mr. Halterman's opinions are discussions with personnel at the Genetics and the Sunlaw facilities, and with a representative from ALSTOM Power.²⁶⁰ These are the same personnel with whom Con Edison's representatives conferred, but unlike Mr. Halterman, the applicant's representatives actually went to these facilities. In addition, Mr. Halterman did not know what adaptations to the SCONOX technology would be required for the Project, and whether any required adaptations would actually work.²⁶¹ Given Mr. Halterman's lack of first-hand knowledge about the SCONOX equipment and its operations at the Genetics and the Sunlaw facilities, as well as his uncertainty about what adaptations to the pollution control technology may be required at the Project, little weight is assigned to Mr. Halterman's opinions.

Based on the applicant's evaluation of the Genetics and the Sunlaw facilities, Mr. Kurtz opined that the untested nature of the SCONOX technology in large power plants, on a scale similar to the three proposals in California and the Project, raises a serious performance reliability concern for the applicant.²⁶² Mr. Cinadr offered a similar opinion.²⁶³ According to Mr. Kurtz, the units proposed for the East River Generating Station must be available continuously to maintain the reliability of Con Edison's steam system.²⁶⁴ For example, Con Edison would lose 25-30% of its steam generating capacity if

²⁵⁸Tr. 1206.

²⁵⁹Tr. 1120-1121.

²⁶⁰Id.

²⁶¹Tr. 1163; 1166-1169.

²⁶²Tr. 325.

²⁶³Tr. 1057, 1058, 1062.

²⁶⁴Tr. 325, 331.

the Project were to be shut down due to the failure of the SCONOx technology.²⁶⁵

To determine the reasonableness of expecting that implementation of the SCONOx technology would result in the most stringent emission limitation, we find that its performance reliability is a relevant factor. Based on experiences at the Genetics and Sunlaw facilities, and Vogt-NEM's reservations about providing performance and emission guarantees, the SCONOx technology advocated by CB3/EREC for the Project is not reliable. Accordingly, we conclude that its implementation at the proposed facility cannot reasonably be expected to result in the most stringent emission limitation.

b. Space Constraints

Aside from its unreliability, Mr. Kurtz explained that Con Edison does not consider installation of the SCONOx technology to be technically feasible, due to space constraints at the East River Generating Station.²⁶⁶ Based on discussions with the SCONOx manufacturer, the applicant estimated that about 2,950 ft³ of catalyst would be required for each proposed CTG/HRSG unit at the East River Generating Station.²⁶⁷ But a 2,950 ft³ SCONOx unit would create excessive backpressure which would exceed the backpressure design of the CTG, and cause that unit to shut down, according to Mr. Kurtz.²⁶⁸

Mr. Kurtz acknowledged that difficulties with excessive backpressure drops could be addressed by increasing

²⁶⁵Tr. 1063. Mr. Cinadr also expressed concern about the reliability of the city's installed capacity for electric generation (Tr. 1064).

²⁶⁶Tr. 324.

²⁶⁷Exh. 4. Though not expressly stated, it can be inferred from the exhibit that the estimated area of the catalyst unit would apply to one CTG/HRSG power train. ALSTOM Power is the exclusive SCONOx licensee and system vendor for large power plant applications (Tr. 324).

²⁶⁸Tr. 324, 334, 336.

the size of the SCONOx unit,²⁶⁹ and ALSTOM provided a preliminary design that addresses this concern.²⁷⁰ Given the current dimensions of the East River Generating Station, however, the dimensions of the SCONOx unit cannot be increased.²⁷¹ To accept a larger SCONOx unit, Mr. Kurtz said that the East River Generating Station would require significant structural modifications, which may not be technically feasible in his opinion.²⁷²

Moreover, the SCONOx unit must be optimally located in the CTG/HRSG power train to operate as efficiently as possible. Given the proposed size of the SCONOx unit and the existing space constraints, however, putting the SCONOx unit in the optimal location at the East River Generating Station may not be possible, according to Mr. Kurtz. If the SCONOx unit is placed too close to the HRSG unit, Mr. Kurtz said there could be thermal damage or degradation to the SCONOx unit.²⁷³ ALSTOM maintains, however, that the catalyst can be operated at temperatures in excess of 700 degrees Fahrenheit.²⁷⁴

The applicant asserts that a lack of space at the East River Generating Station to accommodate the SCONOx equipment constitutes an "unusual circumstance" and a basis for not requiring SCONOx as LAER for the proposed facility.²⁷⁵ The question of whether a lack of space to accommodate a particular pollution control technology would constitute an unusual

²⁶⁹Tr. 325. Increasing the dimensions of the SCONOx unit decreases the backpressure drop.

²⁷⁰Exh. 10.

²⁷¹Tr. 325, 334.

²⁷²Tr. 335; Exh. 9.

²⁷³Tr. 324-325.

²⁷⁴Exh. 10. The typical operation range is 300 degrees Fahrenheit to 700 degrees Fahrenheit.

²⁷⁵Applicant's Initial Brief, p. 36.

circumstance that would permit the use of an alternative control technology does not need to be reached here. For F-class turbines, such as those proposed for the East River Generating Station, we have already determined that SCONOx technology would not be reliable, and at this time cannot reasonably be expected to result in the most stringent emission limitation.

However, we note, that, on the one hand, Mr. Kurtz testified with 99.9% certainty that there is no engineering-based solution that would permit the installation of the SCONOx equipment for the Project.²⁷⁶ On the other hand, Mr. Kurtz also testified that as the Project evolved, various engineering questions arose, which needed to be addressed.²⁷⁷

iii. Formation of Secondary
Particulate Matter

During his testimony, Mr. Sedefian observed that this issue is really about redefining LAER for PM₁₀.²⁷⁸ CB3/EREC and its expert witness, Mr. Halterman, favor SCONOx technology over SCR technology because the former process does not emit ammonia, which can contribute to the formation of secondary particulate matter.²⁷⁹ The intervenor's petition for full party status stated that Mr. Halterman would "provide calculations about the amount of fine particulate matter likely to be produced in the atmosphere due to the ammonia slip" from the Project.²⁸⁰ Yet, Mr. Halterman acknowledged that he did not undertake the analysis proposed in CB3/EREC's petition for full party status,²⁸¹ and that the potential impacts that he did report²⁸²

²⁷⁶Tr. 1317-1318; Applicant's Initial Brief, p. 35.

²⁷⁷Tr. 386-389.

²⁷⁸Tr. 1462.

²⁷⁹Tr., p. 1121.

²⁸⁰Exh. 41, pp. 24-25.

²⁸¹Tr., p. 1184.

are based on "arbitrary" assumptions.²⁸³ Consequently, Mr. Halterman's unsubstantiated opinions concerning this topic are not convincing, and are assigned little weight.

On the other hand, Dr. Yarwood undertook an extensive analysis on behalf of the applicant.²⁸⁴ Based on actual air monitoring data, and the draft permit condition that limits ammonia emissions to 5 parts per million by volume, dry (ppmvd) @15% O₂,²⁸⁵ Dr. Yarwood actually calculated the amount of secondary particulate matter that may be produced from ammonia slip. These calculations reasonably predict that the total amount of secondary particulate matter from the Project would be about 150 TPY.²⁸⁶ Dr. Yarwood explained further that with the retirement of the Waterside Station, there would be a net decrease in the concentrations of emissions of SO₂, NO_x and VOCs,²⁸⁷ which can interact with ammonia to form secondary particulate matter. Since a net decrease in the concentrations of these criteria pollutants would result from the retirement of the Waterside Station, Dr. Yarwood estimated that the concentration of secondary particulate matter in New York County would be reduced by 897 TPY.²⁸⁸

Nothing in the record impeaches Dr. Yarwood's testimony or the results of his analysis. Consequently, we find his testimony to be reliable and assign it significant weight.

²⁸²Tr. 1105, 1122. According to Mr. Halterman, ammonia slip from the Project could contribute 759 TPY of secondary particulate matter.

²⁸³Tr. 1177.

²⁸⁴Exh. 38.

²⁸⁵Tr. 1009; Stipulation Exh. 36 and 37.

²⁸⁶Tr. 1010; Exh. 38.

²⁸⁷Tr. 1010.

²⁸⁸Tr. 1011; Exh. 38.

DEC witness Sedefian opined that additional technology, like SCONOx, should not be required for the Project to control potential PM₁₀ emissions. He based his opinion on the following. First, Mr. Sedefian observed that the predicted PM₁₀ emissions from the applicant's proposal would be less than the corresponding 24-hour SIL.²⁸⁹ To underscore the significance of this observation, Mr. Sedefian pointed out that: (1) the 24-hour SIL for PM₁₀, which is 5 µg/m³, is only 3% of the applicable 24-hour national ambient air quality standard (i.e., 150 µg/m³), and (2) national ambient air quality standards are set to protect public health.²⁹⁰

In addition, Mr. Sedefian noted that if the Project is permitted, there would be a net improvement in air quality in the non-attainment area, as required by 6 NYCRR §231-2.9.²⁹¹ Referring to figures in Exhibit 50,²⁹² Mr. Sedefian stated there is a clear, predicted improvement in potential 24-hour and annual PM₁₀ impacts at ground-level receptors located near the Project, and throughout the non-attainment area. In addition, there would be an improvement in air quality with respect to elevated receptors, though not as extensive as compared to ground-level receptors.²⁹³

With respect to the latter point, CB3/EREC argues that the figures in Exhibit 50 show that the air quality in areas located south and west of the East River Complex would not benefit from the Project. According to CB3/EREC, the areas surrounding the Waterside Station would reap the benefits of the proposal.²⁹⁴

²⁸⁹Tr. 1462.

²⁹⁰Id.

²⁹¹Id.

²⁹²Exh. 50, Fig. L6-11 and L6-12.

²⁹³Tr. 1462; Exh. 50, Fig. L6-13 and L6-14.

²⁹⁴CB3/EREC's Initial Brief, pp. 33-35. CB3/EREC offered this argument within the context of a social cost.

DEC Staff objects, however, to CB3/EREC's argument on two grounds. First, DEC Staff asserts that the argument relates to an environmental justice issue, which was excluded from the proceedings. Second, DEC Staff contends that Exhibit 50 demonstrates there would be, on balance, an overall net air quality benefit to both the surrounding community and the non-attainment area (i.e., New York County).²⁹⁵

In its initial brief, the applicant presents additional arguments about this point. First, the applicant contends that Dr. Yarwood's testimony demonstrates that overall concentrations of secondary particulate matter would be reduced by retiring the Waterside Station and by constructing the Project.²⁹⁶ Irrespective of the results from Dr. Yarwood's analysis, the applicant contends further that any secondary particulate matter that may form in the atmosphere after emissions have been vented from the stack is not regulated pursuant to 6 NYCRR Subpart 231-2²⁹⁷ because it cannot be reliably measured.²⁹⁸ Therefore, an alternative form of LAER technology cannot be required to control potential PM₁₀ emissions from the proposed facility.

For the reasons stated above, we find that the use of SCONOx equipment as a pollution control technology at facilities like the Project has not been achieved in practice and cannot reasonably be expected to occur in practice. This determination applies equally to the control of NOx emissions and PM₁₀ emissions. Therefore, we cannot predict that concentration of PM₁₀ emissions from the Project would be reduced further by requiring the installation of SCONOx technology.

Clarification of the applicant's contention about the regulation of secondary particulate matter is necessary,

²⁹⁵DEC Staff's Initial Brief, pp. 5-6.

²⁹⁶Applicant's Initial Brief, pp. 22-26.

²⁹⁷Id., p. 18.

²⁹⁸Id., p. 24, citing 55 Fed. Reg. 14246, 14246 (April 17, 1990).

however. Con Edison correctly states, that secondary particulate matter that may form after the combustion process, but before emissions are vented from the stack to the atmosphere, are regulated as PM₁₀.²⁹⁹ The draft PSD and revised draft Air State Facility permits limit PM₁₀ emissions, and require continuous emissions monitoring to verify that the emission limits are met.³⁰⁰ In addition, the draft PSD and revised Air State Facility permits limit emissions of ammonia,³⁰¹ NO_x, SO₂ and H₂SO₄, which are, as Dr. Yarwood explained, precursors to some types of secondary particulate matter.³⁰²

We concur with the applicant's argument that secondary particulate matter, which may form after emissions from the proposed facility leave the stack that subsequently interact with substances in the atmosphere, is not regulated pursuant to 6 NYCRR Subpart 231-2. Nevertheless, air monitoring stations collect data about ambient particulate concentrations, and other criteria pollutants, to determine whether ambient air quality standards are being met.

We find that CB3/EREC's criticisms of Mr. Sedefian's testimony, mischaracterize the results presented in Exhibit 50. The unrefuted results of Dr. Yarwood's analysis support Mr. Sedefian's opinions and the analysis presented in Exhibit 50 concerning the net air quality benefit associated with the retirement of the Waterside Station and the construction of the Project.

²⁹⁹Id., p. 23, footnote 8.

³⁰⁰Stipulation Exh. 36 and 37.

³⁰¹Ammonia emissions are limited to 5.0 ppmvd @ 15% O₂. Compare Exhibits 39 (p. 122) and 40 (p. 93, footnote 30), which limit ammonia emissions at the proposed California power plants to 10.0 ppmvd @ 15% O₂.

³⁰²Stipulation Exh. 36 and 37. As explained above, the regulation of ozone is conducted in an analogous manner. Although emission sources typically do not emit ozone, its precursors (i.e., NO_x and VOCs) are regulated.

iv. Conclusions

The use of SCONox technology at facilities like the Project has not been achieved in practice. In addition, the SCONox technology cannot be reliably "scaled-up" for use on the F-class turbines proposed here. Therefore, the implementation of SCONox technology at the Project could reasonably be expected to result in the most stringent emission limitation. This determination applies equally to the control of NOx emissions and PM₁₀ emissions.

Additional controls to limit predicted PM₁₀ emissions from the Project are not necessary. The predicted PM₁₀ emissions would be less than the 24-hour SIL, which is 5 µg/m³. For particulates, the SIL is 3% of the 24-hour national ambient air quality standard of 150 µg/m³, which is a health-based standard. In addition, the Project, in conjunction with the retirement of the Waterside Station, would result in a net improvement of the air quality in the non-attainment area, as required by 6 NYCRR §231-2.9.

Therefore, we conclude that the proposed air pollution control technology for the Project, which includes the use of non-interruptible natural gas, dry low-NOx burners, an SCR catalyst, and a CO catalyst, would meet the LAER requirement. We recommend that the DEC Commissioner conclude the same.

4. Title V (6 NYCRR Subpart 201-6)

The 1990 Amendments to the federal Clean Air Act include Title V.³⁰³ The permit program outlined in Title V is in addition to the previously established pre-construction permit requirements.³⁰⁴ In New York State, that DEC administers a

³⁰³42 USC §§7661-7661f.

³⁰⁴These include the federal PSD review (40 CFR §52.21) and the state's Requirements for Emission Units Subject to the Regulation on or After November 15, 1992 (6 NYCRR Subpart 231-2).

federally approved state program, and has retained jurisdiction with respect to major electric generating facilities.³⁰⁵

A Title V permit is required to operate either a major stationary emission source, or a major modification to an existing major source.³⁰⁶ Subpart 201-6 requires owners and/or operators to submit complete Title V applications to DEC within one year after commencing operations at new facilities.³⁰⁷ Upon review of a complete application, DEC typically would issue a Title V permit to an applicant, which would incorporate all the conditions and requirements developed during the federal PSD review and the state's new source review for non-attainment. These conditions and requirements would include continuous emissions monitoring, recordkeeping, and reporting. As explained further below, the Title V permit also incorporates the necessary conditions and requirements associated with acid deposition.³⁰⁸

The application materials explain that Con Edison filed its initial Title V permit application for the East River Complex with DEC on June 6, 1997, and filed supplemental information on November 19, 1997. As of the date of this recommended decision, the DEC Staff has not prepared a draft Title V permit. If the proposed facility obtains its Air State Facility permit from DEC and a certificate from the Siting Board, the DEC Staff may require additional information from the applicant concerning the pending Title V permit application.³⁰⁹

³⁰⁵6 NYCRR Subpart 201-6 (Title V Facility Permits); see also PSL §172(1) and ECL §19-0305(2)(j).

³⁰⁶6 NYCRR §201-6.1(a).

³⁰⁷6 NYCRR §201-6.3(a)(2).

³⁰⁸42 USC §§7651-7651o; 6 NYCRR §201-6.3(d)(11) and §201-6.6(b).

³⁰⁹Exh. 1, Vol. I, §6.2.1.6.

5. Title IV (Acid Rain)

Title IV of the federal Clean Air Act³¹⁰ establishes a national permit program to reduce the adverse effects of acid deposition³¹¹ through reductions in annual emissions of sulfur dioxide.³¹² In addition to setting a national emissions cap on the amount of SO₂ emitted, Title IV established an emissions trading system.³¹³

The federal acid rain program is implemented in New York State by DEC through the Title V operating permit program.³¹⁴ As explained in the previous section, Con Edison has already filed its Title V permit application for the East River Complex with DEC. If DEC issues a Title V permit for the East River Complex, which would include the Project, DEC would also include an SO₂ allowance allocation, and requirements for monitoring, recordkeeping, and reporting.³¹⁵

6. Construction Activity Impacts

The applicant's construction activities must not violate the state and federal ambient air quality standards. Potential sources related to construction include fugitive dust, and vehicle emissions. The applicant has agreed to minimize fugitive dust from construction activities.³¹⁶ In addition, the applicant has agreed to obtain all necessary construction

³¹⁰42 USC §§7651-7651o.

³¹¹Acid deposition occurs when SO₂ and NO_x emissions are transformed in the atmosphere into acids, and are then returned to the earth in precipitation or in dry deposition, often hundreds of miles from the point of emission.

³¹²42 USC §7651(b).

³¹³Id.

³¹⁴6 NYCRR §201-6.3(d)(11); §201-6.6(b).

³¹⁵See, Exh. 1, Vol. I, §6.2.1.8, and Stipulation Exh. 27.

³¹⁶Proposed Certificate Condition VI.D.

approvals from City agencies.³¹⁷ Approvals obtained from City agencies may impose additional conditions to ensure that applicable ambient air quality standards are met.

7. Accidental Releases

To control NOx emissions, the applicant proposes, and we recommend, the use of an SCR system. Aqueous ammonia would be used as a chemical reagent in the SCR system. According to the Joint Stipulations, Con Edison is undecided about whether to store aqueous ammonia on site, or generate it from urea. According to the Joint Stipulations, the concentration of aqueous ammonia stored on site may not exceed 20%.³¹⁸ If the applicant chooses to store aqueous ammonia on site and the amount is more than "de minimis," then 42 USC §7412(r)³¹⁹ requires the applicant to assess the potential impact of a deleterious release.³²⁰

8. Non-criteria Pollutants

The combustion of natural gas in the CTGs and the duct burners would result in the emission of certain compounds for which neither EPA nor DEC has promulgated emission standards. These compounds include ammonia, formaldehyde and other trace products of incomplete combustion, and trace metals contained in the fuel. Absent any emission standards, DEC Air Guide-1 provides guidance to control these potentially toxic ambient air contaminants. Accordingly, the applicant conducted an air quality impact analysis of air toxic compounds to determine whether the potential emissions would result in unacceptable human exposure and health risk. The predicted short-term and

³¹⁷Proposed Certificate Condition VI.C.

³¹⁸Joint Stipulation, p. 9.

³¹⁹Implementing regulations at 40 CFR Part 68 (Chemical Accident Prevention Provisions).

³²⁰See, Proposed Certificate Condition III.E.

annual concentrations were compared to the short-term guideline concentrations (SGCs), and the annual guideline concentrations (AGCs) outlined in Appendix C of DEC Air Guide-1.

In addition, DOH has developed risk-based air concentrations (RBACs).³²¹ There are two types of RBACs. The first one is used to evaluate non-cancer effects. The second concentration is used to evaluate cancer effects.³²² The application materials include a list of compounds and their respective SGCs, AGCs, and RBACs.³²³

The results of the applicant's analysis are presented in Stipulation Exhibit 34.³²⁴ The predicted concentrations of all non-criteria pollutants, at ground level and elevated receptors, from the Project are well below short-term and long-term benchmark concentrations.³²⁵

This analysis also includes a cumulative impact analysis for the proposed facility together with existing boilers at the East River Complex. The results are as follows.³²⁶ First, the predicted concentrations of all non-criteria pollutants at ground level and elevated receptors would be below short-term benchmark concentrations. Second, the predicted concentrations of all non-criteria pollutants at ground level receptors would be less than long-term benchmark concentrations. Third, the predicted concentrations of all non-

³²¹Exh. 1, Vol. I, §6.2.1.9.

³²²These effects are associated with an incremental lifetime risk of one-in-one-million and are based on a constant 70-year exposure duration (Stipulation Exh. 34, p. S1-11).

³²³Exh. 1, Vol. I, Table 6-7.

³²⁴Stipulation Exhibit 34 is entitled, *Non-Criteria Contaminant Emission Modeling Analysis and Health Risk Evaluation*, Revised February 8, 2001.

³²⁵*Id.*, Table 3-2 (Ground-Level Receptors) and Table 3-3 (Elevated Receptors).

³²⁶*Id.*, Table 3-4 (Ground-Level Receptors) and Table 3-5 (Elevated Receptors).

criteria pollutants, except nickel, at elevated receptors would be less than the long-term benchmark concentrations. For nickel, the evaluation shows that the potential health risk would be less than one-in-one-million.³²⁷

9. City Air Pollution Control Code

Title 24, Chapters 1 and 2 of the City's Administrative Code apply to the applicant's proposal.³²⁸ At the request of the New York City Department of Environmental Protection (NYCDEP), the applicant conducted a cumulative impact air quality analysis of stationary sources. The applicant, with NYCDEP's approval, relied on the guidance outlined in the City Environmental Quality Review Technical Manual.³²⁹

According to the Joint Stipulation, the City has reviewed the applicant's cumulative impact analysis as well as other application materials, and has concluded that the proposed facility would meet the City's Air Code.³³⁰ The City supports construction of the Project. Pursuant to PSL §172(1), the City has asked the Siting Board to delegate authority to the City to enforce the City's Air Code, and as necessary, issue related local permits or approvals.³³¹ The other signatories to the Joint Stipulation support the City's delegation request.³³² We recommend that the Siting Board grant this request.

³²⁷Tr. 1347-1348.

³²⁸Exh. 1, Vol. I, §6.2.1.10.

³²⁹Exh. 14. The applicant's analysis is identified in the hearing record as Exhibit 14, and in the Joint Stipulation as Stipulation Exhibit 48.

³³⁰Joint Stipulation, p. 8.

³³¹City of New York's Post-Hearing Statement, pp. 2, 4-5.

³³²Joint Stipulation, p. 17.

10. Emission Reduction Proposal

By letter dated November 21, 2000, the applicant proposed to reduce aggregate air emissions at the East River Complex by voluntarily installing operational enhancements, and equipment upgrades, as well as by increasing gas burning on Units Nos. 6 and 7. The applicant predicts that aggregate emissions at the East River Complex would be reduced by 8% if the Project is built, the Waterside Station is retired, and the proposed voluntary mitigation measures outlined in the November 21, 2000 letter are implemented.³³³ As part of the Joint Stipulation, the applicant has agreed to a proposed certificate condition that would require Con Edison to implement these measures.³³⁴

In addition, the Joint Stipulation states that the applicant will install induced flue gas recirculation (IFGR) equipment for Unit No. 7 at the East River Complex and limit the use of fuel oil in Unit No. 7 from April through October so that 90% of the fuel used by that unit, on a heating value basis, would on average be natural gas during that period.³³⁵ Finally, the applicant has agreed to use "best efforts" to use natural gas rather than fuel oil at existing Units Nos. 6 and 7 at the East River Complex from November through March to the extent the use of natural gas is consistent with Con Edison's obligation to ratepayers to generate steam and electricity in a reliable and economic manner.³³⁶

Although the signatories to the Joint Stipulations support the implementation of these measures, CB3/EREC and elected political officials do not.³³⁷ According to the elected

³³³Stipulation Exh. 4.

³³⁴Proposed Certificate Condition III.B.

³³⁵Joint Stipulation, p. 9; Proposed Certificate Condition III.C.

³³⁶Joint Stipulation, p. 9; Proposed Certificate Condition III.D.

³³⁷CB/EREC's Reply Brief, p. 30; elected officials' letters listed in footnote 4, supra.

officials, the applicant is required to install the IFGR equipment pursuant to the terms of a consent order. They argue that this requirement should not be considered mitigation for the Project. They argue further that the Siting Board should not rely on the air quality benefits that may result from installing the IFGR equipment at the East River Complex when making the requisite PSL §168 findings about whether the Project would minimize adverse environmental impacts.

In its reply, DPS Staff argues that installation of the IFGR equipment at the East River Complex is not part of the mitigation for the Project. According to DPS Staff, the Joint Stipulation is intended to be comprehensive in scope, and discuss many issues associated with the proposal. DPS Staff contends that the applicant has made substantial concessions that would benefit the state, the City and the community around the Project site. According to DPS, CB3/EREC's and the elected officials' objections do not provide a sufficient legal basis to reject the Joint Stipulation.³³⁸

The applicant notes that the terms of the consent order were not secret and that its witnesses testified about it.³³⁹ According to Con Edison, the measures outlined in the November 21, 2000 letter, i.e., the installation of the IFGR equipment at the East River Complex, and the commitment to burn more natural gas than fuel oil with respect to Unit No. 7, are part of applicant's public outreach effort. The applicant contends further that it is appropriate to incorporate these measures into the Joint Stipulation, and the Siting Board should consider them in making the requisite findings outlined in PSL Article X.³⁴⁰

Con Edison has agreed to implement the measures outlined in the November 21, 2000 letter.³⁴¹ They relate to

³³⁸DPS Staff's Reply Brief, p.7.

³³⁹Applicant's Reply Brief, p. 24, which refers to Tr. 318.

³⁴⁰Applicant's Reply Brief, pp. 24-25.

³⁴¹Stipulation Exh. 4.

current operations at the East River Complex, exclusive of the Project, and are not the subject of the referenced DEC consent order. Some of these measures are an attempt to respond to concerns expressed by the community and CB3/EREC. When CB3/EREC found the scope of these proposed measures to be inadequate, as in the case of Con Edison's proposal to burn natural gas year-round for certain boilers, CB3/EREC proposed the implementation of these measures as adjudicable issues.³⁴²

Therefore, we find that the objections concerning the measures outlined in the November 21, 2000 letter have no merit. Although the intervening parties may want the applicant to do more, they do not cite, and we have not found, any legal authority that would require Con Edison to do more. Moreover, objections about requiring the applicant to install IFGR equipment on Unit No. 7 as a certificate condition when it is already required pursuant to the terms of a DEC consent order is not a sufficient basis to deny the requested environmental permits and certificate for the Project.

11. Conclusions and Recommendations

With respect to air quality, the record includes an exhaustive review of the potential air quality impacts from the Project and alternative pollution control technologies. As conditioned by the draft Air State Facility permit, the predicted emission concentrations of criteria pollutants from the Project would be less than the SILs with respect to ground-level and elevated receptors. As a result, the Project would not cause or contribute to a violation of the national ambient air quality standards. In addition, the predicted emission concentrations of criteria pollutants from the applicant's proposal are less than three percent of the applicable PSD increment for NO₂, and accordingly would meet all applicable PSD requirements. Accordingly, we recommend that the DEC Commissioner issue the PSD and Air State Facility permits as drafted.

³⁴²Exh. 41, pp. 14-16.

The record further demonstrates that the Project would minimize adverse environmental impacts considering the interest of the state as required by PSL §168(2)(c)(i), and that the Project is compatible with the public health and safety pursuant to PSL §168(2)(c)(ii). The record further demonstrates that the Project would not emit any pollutants in contravention of applicable air emission control requirements or air quality standards as required by PSL §168(2)(c)(iv). Finally, pursuant to PSL §168(2)(d), the Project is designed to operate in compliance with applicable state and local laws and regulations concerning the environment, and public health and safety.

D. Water Resources

The topics discussed in this section of the recommended decision were not the subject of the adjudicatory hearing, but are addressed in the Joint Stipulation. Nevertheless, under PSL Article X, the Siting Board must make findings specifically with regard to the impacts of construction and operation of the facility on water resources and aquatic wildlife.³⁴³ Generally, these findings subsume compliance with a number of federal, state, and local laws and regulations. The discussion that follows includes several sections beginning with a description of the Project's water needs, and the wastewater streams that would be generated.

The second section relates to the wastewater that would be discharged from the proposed facility. Storm water and

³⁴³Applicable here are the required findings on the nature of the probable "adverse and beneficial effects" on ". . . water quality, fish, and other marine life," (PSL §168(2)(b)); and the required finding that the facility "minimizes adverse environmental impacts, considering the state of available technology . . . with respect to . . . fish and wildlife . . . and other pertinent considerations" (PSL §168(2)(c)(i)), and "will not discharge any effluent that will be in contravention of the standards adopted by [DEC], or in case no classification has been made of the receiving waters associated with the facility, will not discharge any effluent that will be unduly injurious to the propagation and protection of fish and wildlife, . . ." (PSL §168(2)(c)(iii)).

operational wastewater discharges are regulated pursuant to the federal Clean Water Act (CWA) and ECL Article 17, Title 8, as well as an array of federal and state regulations.

The third section discusses consistency with the New York Coastal Zone Management Program and the New York City Local Revitalization Program policies. The fourth section discusses the mitigation of potential impacts associated with storing chemicals and other materials on the site. Finally, potential impacts to aquatic resources, including freshwater wetlands, are examined.

1. Process Water Requirements and Wastewater

The Project will use municipal water supplied by NYCDEP, Bureau of Water and Sewer Operations, to meet plant water needs for steam production and other uses.³⁴⁴ NYCDEP has selected the Croton Reservoir system as the water supply source for the Project, and is in the process of developing plans and specifications for the installation of new, or the replacement of existing, water supply mains serving the East River Complex. According to NYCDEP, it can provide the necessary water at peak demand without adversely affecting the local community.³⁴⁵ On average the proposed facility would use about 4,000 gallons per minute (gpm), and a maximum amount of 8,300 gpm.³⁴⁶ The Project would not require cooling water from the East River.³⁴⁷

The East River Complex currently uses potable water from the municipal water supply system from an existing water supply line. Sanitary wastewater and part of the storm water from the East River Complex are discharged to the City's combined sewer system. No significant increase in potable water

³⁴⁴Exh. 1, Vol. I, §3.2.6.

³⁴⁵Exh. 1, Vol. I, §3.2.6.; Vol. II, App. E-3B.

³⁴⁶Exh. 1, Vol. I, §3.2.6, §3.6, §5.1.3, §6.1.3.4, §6.15.1, §6.15.5, Table 3-5, App. A; Exh. 1, Vol. II, App. E-3A, E-3B; Stipulation Exh. 18 Nos. 384-388.

³⁴⁷Exh. 1, Vol. I, §3.2.6.

usage or sanitary wastewater discharge excluding process water is planned in connection with the Project.³⁴⁸

Most of the wastewater streams generated at the East River Complex are discharged to the East River via the South Tunnel. In the current SPDES permit,³⁴⁹ the South Tunnel is identified as Outfall 001. The major wastewater streams from the proposed Project would be multimedia filter backwash, reverse osmosis discharge,³⁵⁰ electrodeionization (EDI)³⁵¹ discharge, HRSG blowdown, chemical feed/sampling water, and service water from operation and maintenance activities.³⁵²

Process water taken from the municipal water supply would be filtered to trap suspended solids, and thereby prevent the reverse osmosis membrane from becoming fouled. Filter backwash³⁵³ would consist of water used in the periodic cleaning of the multimedia filters in the demineralized water system. The filter backwash would be treated using sedimentation and/or filtration prior to discharge to the East River via the South Tunnel.³⁵⁴

After filtration, the process water would be deionized using reverse osmosis and EDI. The EDI system would generate a

³⁴⁸Exh. 1, Vol. I, §3.2.7, §6.1.3.2, §6.1.4, App. A.

³⁴⁹As part of its PSL Article X Application for a Certificate, Con Edison filed a request with DEC to modify its existing SPDES permit (Exh. 1, Vol. II, App. E).

³⁵⁰The term, "reverse osmosis reject" is also used in the application materials, and is understood to mean the reverse osmosis discharge. Exh. 1, Vol. II, App. E-1, Attachment 5.

³⁵¹The EDI system removes ions from the water with ion exchange membranes, ion exchange resin, and a DC electric current. The electric current regenerates the resin bed continuously, which obviates periodic chemical regeneration.

³⁵²Exh. 1, Vol. I, Table 3-7.

³⁵³Stipulation Exh. 38, Outfall 001G.

³⁵⁴Exh. 1, Vol. I, §3.2.7.1.

reject stream that contains the impurities removed from the water. Since the water in the reject stream would be of a higher quality compared to the feedwater from the pretreatment system, the reject water from the EDI can be fed back into the process directly ahead of the reverse osmosis units, thereby eliminating a waste stream.³⁵⁵ Now that EDI has been added to the purification process, it is not clear from the stipulation whether there would be a discharge associated with the reverse osmosis process as described in the application materials.³⁵⁶

Blowdown³⁵⁷ from the HRSGs would consist of water released from the HRSGs to prevent the build-up of constituents that would deposit on the inside surface of the boiler tube and reduce the heat transfer. The total HRSG blowdown from the two units would range from 24 to 56 gpm on a continuous basis, which would be approximately one percent of the HRSG feedwater.³⁵⁸

Service water would consist of water used for various plant operation and maintenance activities. For current operations in the East River Generating Station, service water and chemical feed/sampling water are discharged to an existing trench and then pumped to an oil/water separator for treatment before being discharged to the South Tunnel. If the Project is certificated, the applicant would enlarge, as necessary, the current oil/water separator system in the station to accommodate additional service water discharges, which would be discharged to the East River via the South Tunnel.³⁵⁹ All discharges from

³⁵⁵Joint Stipulation, p. 90.

³⁵⁶Exh. 1, Vol. I, §3.2.7.1. According to the draft SPDES permit dated May 2001 (Stipulation Exh. 38, page 9 of 12), the reverse osmosis wastewater would be discharged via Outfall 001F. There is no Outfall identified in the draft SPDES permit for the EDI wastewater, presumably because it would be recirculated.

³⁵⁷Stipulation Exh. 38, Outfall 001H.

³⁵⁸Exh. 1, Vol. I, §3.2.7.1.

³⁵⁹Stipulation Exh. 38, Outfall 001C.

the new oil/water separator would be treated to meet a 15 milligram per liter effluent limit for oil and grease.³⁶⁰

At the East River Complex, stormwater is managed in two ways. A portion of the stormwater from the East River Complex is conveyed to the NYCDEP sewer system on East 14th and East 15th Streets. The balance of the stormwater is treated on site, and regulated pursuant to the terms of the East River Complex's SPDES permit. Stormwater from the fuel oil offloading dock is, and would continue to be drained to the East River. Runoff from the fuel oil storage facility, adjacent to the South Steam Station is, and would continue to be, conveyed via a trench drain system to an oil/water separator, which is different from the oil/water separator identified in the preceding paragraph. After treatment, stormwater from the fuel oil storage facility would be discharged to the East River via the South Tunnel.³⁶¹ The East River Complex has developed and implemented a Stormwater Pollution Prevention (SPP) plan to reduce exposure of source materials to stormwater.³⁶²

The Project would generate low volume wastewater streams on an infrequent basis. These low volume wastewater streams would not be discharged from the facility. Rather, the low volume wastewater would be collected and stored on site until it is transported off-site for treatment and disposal at a facility authorized by NYSDEC to accept such wastes.³⁶³ The low

³⁶⁰Exh. 1, Vol. I, §3.2.7.1, §6.1.3.3, §7.2.6, App. A; Exh. 1, Vol. II, App. E-1.

³⁶¹Stipulation Exh. 38, Outfall 001E.

³⁶²Exh. 1, Vol. I, §3.2.7.2.

³⁶³There is no proposed certificate condition that expressly requires the applicant to handle the anticipated low volume wastewater streams in this manner. However, Additional Requirement No. 1 on page 7 of 12 of the May 2001 draft SPDES permit (Stipulation Exh. 38) prohibits the discharge of evaporator blowdown, and boiler and metal cleaning wastewater to surface waters.

volume wastewater streams would result from cleaning the CTGs, HRSGs, and the reverse osmosis and the EDI membranes.³⁶⁴

2. The Federal Clean Water Act and ECL Article 17

The purpose of the CWA³⁶⁵ is to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters."³⁶⁶ To accomplish this goal, the CWA authorizes the development of national water quality standards and establishes a permit program referred to as the National Pollutant Discharge Elimination System (NPDES) program. The EPA administers the NPDES permit program. This permit program regulates the daily wastewater discharges from a facility, as well as stormwater discharges that may result during the construction and from subsequent operations at a facility.

The CWA also provides for the delegation of the national permit program to the states.³⁶⁷ Since 1975, New York State has had a federally approved permit program, established pursuant to ECL Article 17, Title 8,³⁶⁸ to control wastewater and storm water discharges to the state's surface and groundwaters. DEC administers the SPDES program, consistent with the requirements of the CWA.³⁶⁹

A number of state and federal regulations apply to the wastewater discharges from the proposed facility. The following discussion identifies and briefly summarizes the applicable regulations.

³⁶⁴Exh. 1, Vol. I, §3.2.7.1 and Table 3-8, App. A.

³⁶⁵33 USC §§1251 to 1387, formally known as the Federal Water Pollution Control Act (FWPCA).

³⁶⁶33 USC §1251(a).

³⁶⁷33 USC §1342(b); 40 CFR Part 123.

³⁶⁸Water Pollution Control - State Pollutant Discharge Elimination System (SPDES).

³⁶⁹The regulations that implement the SPDES program are 6 NYCRR Parts 750-758.

First, there are regulations relating to the classification of the receiving water body. As authorized by ECL §17-0301, DEC has classified the state's water bodies based on their best usage and the degree of purity. The classifications are defined in 6 NYCRR Part 701 (Classifications - Surface Water and Groundwaters).³⁷⁰ According to the draft SPDES permit, the East River is a Class SD saline surface water body.³⁷¹

Second, there are state regulations prescribing the water quality standards, which are set forth in 6 NYCRR Part 703 (Surface Water and Groundwater Quality Standards and Groundwater Effluent Standards). The applicability of these standards depends on the classification of the receiving water body.³⁷²

Third, the concentration of pollutants in wastewater discharges must comply with the effluent limitations outlined in 6 NYCRR §754.1. Effluent limitations are different from water quality standards. As explained above, water quality standards relate to the existing concentration of a parameter in a given water body with a specified classification. Effluent limitations, however, limit the concentration of a pollutant at the point of discharge.

Most effluent limitations are set forth in federal regulations. The applicable effluent limitations for the

³⁷⁰The classification of each stream, lake and all other surface water bodies in the state, arranged by drainage basin, is presented in 6 NYCRR Parts 899-941.

³⁷¹Stipulation Exh. 38.

³⁷²Water quality standards relate to parameters that may include, color, turbidity, temperature, and pH, as well as the concentration of individual chemicals that may be present in water. Each parameter has a unique water quality standard that specifies the maximum amount, or concentration, of that parameter that may be present in a water body given its classification.

Project are outlined in 40 CFR Part 423 (Steam Electric Power Generating Point Source Category).³⁷³

Fourth, the applicable criteria governing the thermal discharge from the proposed facility are outlined in 6 NYCRR Part 704. Pursuant to §704.1, all thermal discharges must ensure the protection and propagation of a balanced, indigenous population of shellfish, fish, and wildlife in and on the water body.³⁷⁴

a. The SPDES Permit (Stipulation Exhibit 38)

Recent amendments to PSL Article X,³⁷⁵ and to ECL §17-0701(8) and §17-0823 clarify the DEC's authority to issue SPDES permits for new electric generating facilities. In correspondence with the EPA,³⁷⁶ DEC explained that adherence to the uniform procedures outlined in ECL Article 70 is fully consistent with the mandates of both PSL Article X and DEC's SPDES authorization from EPA. With respect to processing SPDES permit applications for major electric generating facilities, DEC will rely primarily on the uniform procedures,³⁷⁷ and would use the procedures outlined in PSL Article X only when those procedures are consistent with the procedural requirements of

³⁷³For new electric generating facilities, 40 CFR §423.15 limits the pH of the discharge to a range of 6.0-9.0 (§423.15(a)), prohibits the discharge of PCBs (§423.15(b)), sets effluent limits for total suspended solids (TSS) as well as oil and grease (§423.15(c)), limits the discharge of 126 priority pollutants that may be added for cooling tower maintenance (§423.15(j)(1)), and limits the amount of free available chlorine and total residual chlorine that may be discharged (§423.15(j)(2)). See, Exh. 1, Vol. II, App. E-2.

³⁷⁴Stipulation Exh. 38, Additional Requirements No. 7, p. 7.

³⁷⁵PSL §172(1).

³⁷⁶Letter dated February 25, 2000 from former DEC Commissioner Cahill to US EPA Region 2 Administrator Fox.

³⁷⁷ECL Article 70, and 6 NYCRR Parts 621 and 624.

DEC's federally delegated SPDES program.³⁷⁸ EPA has determined that the recent amendments to PSL Article X and to provisions of ECL Article 17 are a "non-substantial revision" to the federally approved DEC SPDES permitting program.³⁷⁹

Con Edison filed a request with DEC to modify the existing SPDES permit for the East River Complex. The purpose of the modification is to include the expected wastewater discharges from the Project, as outlined in the preceding section. Consistent with the procedural requirements outlined in 6 NYCRR Parts 750-758, DEC Staff reviewed the requested modification, and subsequently prepared a fact sheet and draft conditions for public review and comment.³⁸⁰

Con Edison has accepted the additional terms and conditions of the draft SPDES permit that are associated with the expected discharges from the Project.³⁸¹ The intervenors neither objected nor proposed any issues for adjudication about the draft SPDES conditions. Consequently, the scope of the adjudicatory hearing did not include any substantive and significant issues about the terms and conditions of the draft SPDES modification.³⁸²

The draft SPDES conditions related to the Project are consistent with the applicable state and federal regulations that control wastewater discharges. The DEC Commissioner should conclude the same, and authorize the proposed modification to the applicant's current SPDES permit. If the DEC Commissioner

³⁷⁸See PSL §167(1)(a) and §172(1).

³⁷⁹Letter dated September 29, 2000 from EPA Region 2 Administrator Fox to former DEC Commissioner Cahill.

³⁸⁰DEC Staff supports the issuance of the draft SPDES permit which is identified as Stipulation Exhibit 38 (DEC Staff's Initial Brief, pp. 3 and 6). Also see, DPS Staff's Initial Brief, p. 7.

³⁸¹Applicant's Initial Brief, pp. 56-57.

³⁸²Case 99-F-1314, Issues Ruling and Procedural Ruling (issued March 15, 2001), pp 7-8.

adopts these recommendations, then the Siting Board may conclude that the operation of the East River Complex, pursuant to the terms and conditions of its modified SPDES permit, would ensure that the Project will operate in compliance with all applicable effluent limitations and will not adversely impact current water quality standards, as required by PSL §168(2)(c)(iii).³⁸³

b. Stormwater Management

As explained above, the East River Complex consists of a group of existing facilities. At present, stormwater from the site is managed in two ways. Some stormwater is directed to the municipal combined sewer system where water is treated at the publicly owned treatment works (POTW). As discussed above, the balance of the stormwater runoff from the site is regulated pursuant to the East River Complex's existing SPDES permit.

Construction of the Project would occur primarily within the existing East River Generating Station, and the Project would not require significant earth disturbance for equipment installation. In addition, construction of the Project would not add any new impervious areas or change the existing permeable areas in and around the East River Complex. The applicant's current best management practices, which are required under the City's Sewer Use Regulations, would be updated, as necessary, to minimize the potential for stormwater contamination during construction. Therefore, potential stormwater discharges during the construction of the Project would have no adverse impact on the East River or the POTW.³⁸⁴ Subsequently, when operations at the Project commence, stormwater would continue to be managed as it is currently. As a result, potential stormwater discharges from the site during the operation of the Project would not have any adverse impact on the POTW or the East River.³⁸⁵

³⁸³Exh. 1, Vol. I, §8.2, §10.1.8, and §10.1.9; Stipulation Exh. 38; Proposed Certificate Condition XIII.A.

³⁸⁴Exh. 1, Vol. I, §6.1.2.1.

³⁸⁵Exh. 1, Vol. I, §3.2.7.2, §6.1.3.1, §7.6.3, App. A.

3. Coastal Zone Management

The Project would be located near the shore of the East River and within the state's designated coastal area.³⁸⁶ The federal Coastal Zone Management Act³⁸⁷ of 1972 encourages states to develop and implement coastal management programs (CMPs). In response to the action taken by the federal government, New York State passed the Waterfront Revitalization of Coastal Areas and Inland Waterways Act.³⁸⁸ Executive Law Article 42 and its implementing regulations³⁸⁹ outline the state's coastal management policies,³⁹⁰ which are based on a federally approved CMP.³⁹¹ The state's policies have been developed with an interest in revitalizing waterfront areas and accommodating the needs of population growth and economic development, while preserving, enhancing and protecting the state's coastal and inland waterway resources.³⁹²

Actions directly undertaken by state agencies that would be located in the coastal area must be consistent with the state's coastal policies. As a result, each state agency must make its own determination regarding the consistency of its actions with either state coastal policies or an approved Local Waterfront Revitalization Program (LWRP).³⁹³ The City has an

³⁸⁶NYS Executive Law Article 42, §911(1).

³⁸⁷16 USCA §1451-§1465. Implementing regulations at 15 CFR 930 (Federal Consistency with Approved Coastal Management Programs).

³⁸⁸Executive Law Article 42, §§910-922.

³⁸⁹19 NYCRR Part 600.

³⁹⁰Executive Law §912.

³⁹¹The federal government approved New York State's coastal management program in 1982.

³⁹²Executive Law §910, §912(1).

³⁹³The statute also encourages municipalities to develop LWRPs, which are reviewed and approved by the NYS Department of State, Division of Coastal Resources (Executive Law §915).

approved LWRP referred to as the NYC Local Waterfront Revitalization Program. It was adopted in 1982, and revised in 1999.³⁹⁴ Consequently, the Siting Board must determine whether the proposal would be consistent with the approved LWRP.³⁹⁵

The application materials include a review of each of the City's coastal policies.³⁹⁶ Based on that review, we conclude that the Project supports and facilitates commercial redevelopment.³⁹⁷ The applicant's proposal also supports water-dependent and industrial uses in the City coastal areas.³⁹⁸ In addition, a number of the coastal policies relate to environmental matters and are deemed satisfied by environmental law compliance.³⁹⁹ A review of the applicant's analysis concerning the remainder of the coastal policies shows that the Project would be consistent with the City's approved LWRP. The Siting Board should conclude the same, and issue a state consistency determination with the requested certificate.

4. Storage of Chemicals and Other Materials

Certificate conditions have been proposed to avoid the potential adverse impacts from an accidental release of chemicals and other materials that may be stored on the site.⁴⁰⁰ According to the Joint Stipulation, all chemical storage areas will be located indoors. The applicant has agreed to comply

³⁹⁴Exh. 1, Vol. I, §5.3.2.2.

³⁹⁵Executive Law §919(1).

³⁹⁶Exh. 1, Vol. I, §6.11, Table 6-36.

³⁹⁷Exh. 1, Vol. I, §6.7.1, Table 6-36 (Policy 1), App. A; Stipulation Exh. 10, Tables 1 and 2.

³⁹⁸Exh. 1, Vol. I, §6.7.1, Table 6-36 (Policy 2), App. A; Stipulation Exh. 10, Tables 1 and 2.

³⁹⁹Exh. 1, Vol. I, §6.7.1, Table 6-36 (Policy 5), App. A; Stipulation Exh. 10, Tables 1 and 2.

⁴⁰⁰Proposed Certificate Conditions XIII.D, XIII.E, and XIII.F.

with all local, state, and federal chemical and waste-storage, use and handling regulations.⁴⁰¹ In addition, the applicant will update its Spill Prevention Control and Countermeasures (SPCC) and Storm Water Pollution Prevention (SWPP) plans, as necessary, to ensure there are no adverse impacts to ground or surface waters.⁴⁰² Based on the record developed, and the proposed certificate conditions, the Siting Board may conclude that the applicant's SPCC, Chemical Spill Prevention Plan,⁴⁰³ and SWPP will serve to protect water quality as required pursuant to the CWA and ECL Article 17.

5. Potential Impacts to Aquatic Resources,
Including Freshwater Wetlands

Pursuant to ECL Article 24,⁴⁰⁴ certain activities in, and adjacent to, freshwater wetlands are regulated. ECL §24-0301(1) provides the DEC Commissioner with the authority to map freshwater wetlands that are 12.4 acres in size or larger, as well as those that are less than 12.4 acres if they are of unusual local importance. No DEC regulated freshwater wetlands are in the vicinity of the East River Complex; therefore, none would be impacted by the Project.⁴⁰⁵

As explained above, NYCDEP would supply process water to the Project, which therefore, would not require any water from the East River. Consequently, no new water source would be necessary for the Project.⁴⁰⁶ As a result, any potential adverse impacts to aquatic resources typically associated with developing a new water source would be avoided.

⁴⁰¹Exh. 1, Vol. I, §6.12, §6.13, and App. A; Proposed Certificate Conditions XIII.E; Applicant's Initial Brief, pp. 65-66.

⁴⁰²Exh. 1, Vol. I, §3.2.7.2, §6.1.2, §6.1.4.2; Proposed Certificate Conditions XIII.F.

⁴⁰³See, 6 NYCRR §598.1.

⁴⁰⁴The implementing regulations are 6 NYCRR Parts 663 and 664.

⁴⁰⁵Exh. 1, Vol. I, §6.10.

⁴⁰⁶Exh. 1, Vol. I, §3.2.6, §5.1.3, §6.1.3.4, §7.4.

The terms and conditions of the modified SPDES permit would regulate the wastewater discharges and ensure that water quality standards would be maintained. In addition, stormwater would be appropriately managed at the site by either discharging runoff to the municipal sewer system for treatment, or pre-treating runoff on-site before its discharge. Finally, certificate conditions have been proposed to avoid the potential adverse impacts from an accidental release of chemicals and other materials that may be stored on the site. Therefore, the Siting Board may conclude, based on the record, that the Project would minimize potential impacts to aquatic resources.

6. Conclusions

With respect to surface water resources, coastal resources, and aquatic resources, including freshwater wetlands, the record demonstrates that the Project would minimize adverse environmental impacts considering the interest of the state as required by PSL §168(2)(c)(i), and that the Project is compatible with the public health and safety pursuant to PSL §168(2)(c)(ii). The record demonstrates further that the Project would neither contravene any applicable water quality standards nor be inconsistent with applicable regulations of the DEC, as required by PSL §168(2)(c)(iii). Finally, pursuant to PSL §168(2)(d), the Project is designed to operate in compliance with applicable state and local laws and regulations related to water and aquatic resources, as well as public health and safety. The Siting Board should conclude the same.

E. Other Environmental Issues

1. Terrestrial Biology

The topics discussed in this section were not the subject of the adjudicatory hearing, but are addressed in the Joint Stipulation. This section considers the potential environmental impacts associated with the construction of the Project on plants and wildlife. The discussion identifies the

applicable legal requirements and ecological resources, and lastly discusses the potential impacts to plants and wildlife.⁴⁰⁷

a. Legal Requirements

Under PSL Article X, the Siting Board must make findings specifically with regard to the impact of construction and operation of the proposed facility on the environment, ecology and wildlife.⁴⁰⁸ These findings subsume compliance with applicable state and federal laws and regulations related to the protection of: (1) threatened or endangered plant and wildlife species,⁴⁰⁹ (2) freshwater wetlands, and (3) coastal resources.⁴¹⁰

The federal Endangered Species Act protects certain species of plants and wildlife. ECL §11-0535 enables New York State to enforce the endangered and threatened species lists maintained by the US Secretary of the Interior, as well as New York State's lists set forth in 6 NYCRR §182.6. A list of protected plants is provided in 6 NYCRR §193.3. Since there are no endangered or threatened species at the site of the Project, there would be no related impact.⁴¹¹

⁴⁰⁷Also see, Applicant's Initial Brief, pp. 60-61.

⁴⁰⁸Applicable here are the required findings on the nature of the probable "adverse and beneficial effects on the normal environment and ecology, . . . and wildlife" (§168(2)(b)); and that the facility "minimizes adverse environmental impacts . . . with respect to . . . wildlife . . ." (§168(2)(c)(i)). More detail about the resources that must be evaluated is provided at 16 NYCRR §1001.3(b).

⁴⁰⁹16 USC §§1531-1544 (U.S. Endangered Species Act), ECL §9-1503 (Removal of Protected Plants), ECL §11-0535 (Endangered and Threatened Species), and implementing regulations outlined, respectively, in 50 CFR Part 17 (Endangered and Threatened Wildlife and Plants), 6 NYCRR Part 193 (Trees and Plants), and 6 NYCRR Part 182 (Endangered and Threatened Species of Fish and Wildlife; Species of Special Concern).

⁴¹⁰Freshwater wetlands and compliance with the federally approved state coastal management plan are discussed in the water resources section of this recommended decision.

⁴¹¹Exh. 1, Vol. I, §5.9.1, §6.10, and App. A.

b. Ecological Resources

The record contains an evaluation of likely Project-related impacts on existing ecological resources within the area of the site. The equipment installation and operation of the proposed facility would be primarily in the existing East River Generating Station, and therefore, would not have an impact on terrestrial resources.⁴¹² During construction, laydown areas, temporary storage sites and the installation of interconnects would generally take place indoors or along already paved areas like city streets and sidewalks.

As described in the application materials,⁴¹³ these laydown areas could include: (1) the northern half of East 14th Street from Avenue C to the FDR Drive, (2) half of the sidewalk on East 14th Street from Avenue C to the FDR Drive, (3) the south sidewalk and south parking lane on East 15th Street, and (4) half of the west sidewalk on Avenue D from East 14th Street to East 13th Street. The on-site laydown area is about 1.5 to 1.7 acres. Remote locations that may serve as temporary laydown areas may include, but are not limited to, Con Edison's Astoria Complex in Queens, the Waterside Station in Manhattan, and Con Edison's Hudson Avenue Generating Station in Brooklyn. Including the previously identified sites, the total available laydown area is about four to five acres.⁴¹⁴

Existing vegetation, such as trees planted along city streets and sidewalks, would be protected during the construction, operation and maintenance of the proposed facility.⁴¹⁵ If construction or maintenance activities require gas or steam mains to be installed through any public park, the New York City Department of Parks & Recreation (NYCDPR) would

⁴¹²Exh. 1, Vol. I, §5.9, §6.10, and App. A.

⁴¹³Exh. 1, Vol. I, § 6.4.3.5.

⁴¹⁴Exh. 1, Vol. I, §5.9, §6.10, and App. A.

⁴¹⁵Exh.1, Vol. I, §5.9, §6.10, and §6.15.1.9; Proposed Certificate Condition X.B; Applicant's Initial Brief, p. 60.

impose conditions on construction approvals to mitigate any potential adverse impacts to the park. In addition, NYCDPR would require the applicant to restore all affected areas to their pre-existing conditions.⁴¹⁶ With respect to potential impacts to the streets and sidewalks outside the borders of parks, the New York City Department of Transportation would impose conditions on construction approvals, and would similarly require all affected areas to be fully restored to their pre-existing condition after the work is completed.

c. Conclusions

Based on the foregoing, the Project would not have any adverse ecological impacts because it would not disturb wetlands, wildlife habitats, forests, or other natural areas. In addition, the proposed facility would not adversely impact any endangered or threatened plant or animal species. Therefore, the Siting Board may conclude that the Project would minimize adverse environmental impacts considering the interest of the state with respect to forest, parks and wildlife in compliance with PSL §168(2)(c)(i).

Furthermore, the construction and operation of the Project would have no adverse impacts on resources regulated by state and local laws that protect biological resources and vegetation, such as the Fish and Wildlife Law, the Natural Heritage Program, the Listing of Protected Plants, and the federal Endangered Species Act. Pursuant to PSL § 168(2)(d), the Siting Board may conclude, therefore, that the Project would comply with applicable state and local environmental laws and regulations.

2. Soils, Geology, Seismology and Agricultural Lands

Section 5.10 of the application materials describe the existing characteristics of geology and seismology of the site, and evaluates the potential impacts and design considerations

⁴¹⁶Exh. 1, Vol. I, §10.1.6; Proposed Certificate Condition X.A.

associated with those characteristics.⁴¹⁷ Although geological and other earth resource characteristics do not generally trigger specific regulatory measures, the Siting Board is required to find whether the Project would minimize environmental impacts with respect to soils, geology and seismology.⁴¹⁸ These topics are addressed in the Joint Stipulation.

The Project site is described as "Urban Land," which means that at least 85% of the surface is covered with asphalt, concrete, or other impervious building materials.⁴¹⁹ The bedrock type consists primarily of mica schist, a historically-stable bedrock, and meets the criteria for S₁ Type materials, as defined by the City's Building Code.⁴²⁰ The surficial geology of the site consists of glacial till.⁴²¹ The site of the proposed facility is located within Seismic Zone 2A of the Uniform Building Code's seismic classification system, which uses a range from 1 to 4 where zone 4 has the most seismicity.⁴²² Certificate conditions have been proposed in the stipulation that would require the Project to comply with local building codes.⁴²³

Finally, a tsunami is considered to be a low risk phenomenon along the east coast of the United States. The

⁴¹⁷Exh. 1, Vol. I, §5.10.

⁴¹⁸PSL §168(2)(b), and 16 NYCRR §1001.3(b). This section of the PSL also requires the Siting Board to find that the proposal would minimize potential adverse impacts to viable agricultural lands. Viable agricultural lands are not located in the vicinity of the Project site (Applicant's Initial Brief, p. 61).

⁴¹⁹Exh. 1, Vol. I, §5.10.4.

⁴²⁰Exh. 1, Vol. I, §5.10.2, App. A.

⁴²¹Exh. 1, Vol. I, §5.10.3.

⁴²²Exh. 1, Vol. I, §5.10.5.2, §6.9.1, and App. A.

⁴²³Proposed Certificate Conditions IX.A, and IX.B.

elevation of the site is about 10 feet above sea level, and is located along a protected portion of the East River, which is several miles in-land from the exposed shoreline that would more likely be impacted by a tsunami.⁴²⁴

The application materials and exhibits submitted with the Joint Stipulation include an evaluation of potential impacts on soils, geology and seismology near the Project site. The soil conditions are described in the application materials, and will permit the construction of the Project.⁴²⁵ The bedrock and surficial geological conditions of the site are sufficiently stable for the installation of the proposed equipment and operation of the Project.⁴²⁶ In addition, the record shows that the site is not subjected to active seismic conditions that would make the building site unsuitable.⁴²⁷

As conditioned, the Project would minimize adverse environmental impacts and would be compatible with public health and safety as required by PSL §168(2)(c)(ii). In addition, the record shows that the Project is designed to operate in compliance with applicable state and local laws and regulations concerning the environment, and public health and safety as required by PSL §168(2)(d). The Siting Board should conclude the same.

3. Land Use and Local Laws

a. Introduction

The Project would be located in the East River Generating Station on Manhattan's Lower East Side. The East River Generating Station, in turn, is part of the applicant's East River Complex, which occupies about 3.5 acres bounded by 13th and 15th Streets, Avenue C, and the FDR Drive. In addition to the East River Generating Station, the East River Complex

⁴²⁴Exh. 1, Vol. I, §6.9.2 and App. A.

⁴²⁵Exh. 1, Vol. I, §5.10.4.

⁴²⁶Exh. 1, Vol. I, §5.10.2, §5.10.3, §6.9, and App. A.

⁴²⁷Exh. 1, Vol. I, §5.10.5.2, §6.9.1, and App. A.

comprises the South Steam Station, a substation, a switchyard, and three large oil storage tanks. Immediately north of the East River Complex are recreational fields maintained by Con Edison, and a parking area for Con Edison's vehicle fleet.⁴²⁸

The predominant land use within a half mile of the Project site is medium- to high-density residential. About 20,000 residents occupy 110 six- to 13-story apartment buildings in four major complexes (Stuyvesant Town, Peter Cooper Village, Jacob Riis Houses, and Lillian Wald Houses). Other residential uses in the immediate radius include additional low- and high-rise apartment houses south of the site. Commercial development tends to consist of small shops and restaurants on Avenue C south of the site and on 14th Street, serving the nearby residential communities. Also within the half-mile radius are five public schools and various houses of worship. Immediately beyond the half-mile range are Beth Israel Medical Center, a Veterans Administration hospital, and Bellevue Medical Center.

Open space in the immediate area amounts to less than one acre per 1,000 population, as compared with Manhattan's overall average of 1.77 acre per 1,000 population. The applicant estimates that its recreational fields on the north edge of the East River Complex are used by several thousand members of about 200 sport teams maintained by local organizations. Major parks are the 58-acre East River Park, south of the East River Generating Station and adjoining the East River, and the 10.5-acre Tompkins Square Park west of the site. Additional recreational areas or facilities are dispersed through the apartment complexes and elsewhere in the neighborhood.⁴²⁹

b. Local Laws and Regulations

The Project as proposed would operate consistently with all relevant local laws and regulations concerning zoning

⁴²⁸Exh. 1, Vol. I, §5.3.

⁴²⁹Exh. 1, Vol. I, §5.3.1.1.

and other land use requirements.⁴³⁰ The applicable zoning requirements are satisfied because the Project would cause no relevant change in the characteristics or use of the existing East River Generating Station, in which the Project would be housed.⁴³¹ As for other municipal provisions governing aspects of construction (e.g., parking design standards, setbacks, wharfage, etc.), the applicant proposes to undertake compliance with all such requirements as a condition of its certificate.⁴³² Construction of the Project also would require some 30 local permits identified in the application.⁴³³

We recommend that the Siting Board condition the certificate accordingly. Moreover, given that the applicant must therefore comply with local requirements, the Siting Board should exercise its authority under PSL §172.1 to authorize issuance of the necessary permits by the municipal agencies concerned.⁴³⁴

c. Conclusions

With respect to land uses, the record demonstrates that the Project would minimize adverse environmental impacts considering the interest of the state as required by PSL §168(2)(c)(i), and that the proposed facility is compatible with the public health and safety pursuant to PSL §168(2)(c)(ii). The record further demonstrates that, pursuant to PSL §168(2)(d), the proposed facility is designed to operate in compliance with applicable state and local laws.

⁴³⁰Joint Stipulation, p. 36.

⁴³¹Exh. 1, Vol. I, §8.3.1.

⁴³²Exh. 1, Vol. I, §8.3; Joint Stipulation, pp. 32-33.

⁴³³Exh. 1, Vol. I, Tables 8-2 through 8-6.

⁴³⁴Exh. 1, Vol. I, §8.3; Joint Stipulation, pp. 34, 101.

4. Visual and Cultural Resources, and Aesthetics

PSL Article X requires the Siting Board to find that the proposed facility "minimizes adverse environmental impacts, considering the state of available technology, . . . , the interest of the state with respect to aesthetics, preservation of historic sites, . . . , and other pertinent considerations."⁴³⁵ In addition, the Parks, Recreation and Historic Preservation Law (PRHPL) includes provisions relating to approval of a private facility by a state agency, "if it appears that any aspect of the project may or will cause any change, beneficial or adverse, in the quality of any historic, architectural, archaeological, or cultural property that is listed on the national register of historic places or property listed on the state register, or is determined to be eligible to be listed on the state register by the commissioner [of Parks, Recreation, and Historic Preservation.]"⁴³⁶ The Project's potential impacts visually and upon historic, architectural, archeological and cultural resources, and the proposed mitigation measures, are as follows.

a. Potential Visual Impacts

The external changes to the East River Generating Station as a result of the Project would include installation of four louvered vents on the north side of the existing building. The visual impact of the additional venting would be rendered negligible by painting the louvers to blend with the building's present color.⁴³⁷

The other visual change would involve the appearance of condensed water plumes emitted from the four existing stacks. At present, such plumes form at the exits of Stacks 1, 3, and 4 under certain atmospheric conditions. Because the Project would add a new turbine train to Stacks 1 and 2, it would cause a

⁴³⁵PSL §168(2)(c)(i).

⁴³⁶PRHPL §14.09.

⁴³⁷Exh. 1, Vol. 1, §6.8.1.

plume to be emitted from Stack 2 and probably would increase the frequency and size of the Stack 1 plume.

The record shows the likely visual effect from six perspectives in the vicinity of the East River Complex, and from a far field perspective.⁴³⁸ This comprehensive visual assessment supports the conclusion that the additional plume formation would cause only minimal visual impact.⁴³⁹ The additional plume volumes would be of the same general character as the plumes currently emitted from the East River Generating Station and would be similar to other visible water vapor plumes emitted from sources along the East River and throughout the City.⁴⁴⁰ Moreover, the visual impact should be deemed mitigated insofar as the site proposed is one where condensed water plumes already are being generated, and insofar as the Project would use dry combustion (rather than water or steam injection) for NOx control.⁴⁴¹

b. Potential Impacts on Cultural Resources

The application includes an evaluation of the Project's likely effects on historic, architectural, and archeological resources.⁴⁴² The record shows that any such impact would be minimal.⁴⁴³ The East River Generating Station is not landmarked or listed on a historic registry, and probably lacks the historic or architectural distinction that would

⁴³⁸Exh. 1, Vol. I, §6.2.3.4, 6.8 & Vol. 2, App. D and H; Joint Stipulation, p. 81.

⁴³⁹Exh. 1, Vol. I, §§5.8, 7.8, and 10.1.3 and Figure 3.3; Vol. 2, App. H; Joint Stipulation, pp. 81-83.

⁴⁴⁰Exh. 1, Vol. I, §§5.8, and 6.8 and App. A; Joint Stipulation pp. 81-83.

⁴⁴¹Exh. 1, Vol. I, §6.8.3.

⁴⁴²Exh. 1, Vol. I, §§5.6, 6.5, and 10.1.4; Joint Stipulation, pp. 80-81.

⁴⁴³Exh. Vol. I, §§5.6, 6.5, 6.15.1.5, and 10.1.4; Joint Stipulation, pp. 85-87; Stipulation Exh. 39.

render it eligible for such designations.⁴⁴⁴ Moreover, as a proposed condition of the certificate, Con Edison would obtain expert opinion as to any potential archaeological resources at off-site locations affected by the Project and would develop mitigation measures accordingly in consultation with PRHPL.

c. Conclusion

We recommend a finding by the Siting Board that the Project's potential visual and cultural impacts, mitigated as described above, are minimal and would comply with the requirements of PSL Article X and other applicable laws and regulations.

F. Public Health and Safety and Public Interest Issues

1. Traffic Impacts

The application includes an evaluation of the Project's impact on traffic in a study area selected as the location where any such effect would be most concentrated. The study area was a traffic grid comprising the five intersections on 14th Street from First Avenue to Avenue D; the intersections of 13th Street with Avenues C and D; and the intersection of 15th Street with Avenue C. The study included analysis of vehicular traffic capacity at these eight intersections, as well as pedestrian traffic volumes, parking availability, public transportation service, and traffic safety issues.⁴⁴⁵

Regarding the effect of operating the Project as proposed, the application shows that there would be no adverse impact; the Project-related increase in the East River Generating Station work force is less than the threshold that would necessitate a quantified traffic study under applicable City guidelines.⁴⁴⁶ The application also includes an assessment

⁴⁴⁴Exh. 1, Vol. I, §5.6; Joint Stipulation, pp. 82-83.

⁴⁴⁵Exh. 1, Vol. I, §5.5, Vol. 4, S3 §5.5; Joint Stipulation, pp. 69-72.

⁴⁴⁶Exh. 1, Vol. I, §6.4.4 and App. A; Vol. 4, S3 §6.4.4 and S8; Joint Stipulation, pp. 78-79.

of traffic effects due to Project-related construction.⁴⁴⁷ It shows that the traffic impacts of construction would be only minimal and temporary.⁴⁴⁸

The record demonstrates that the Project would minimize any adverse environmental impacts associated with Project-related traffic as required by PSL §168(2)(c)(ii). We recommend that the Siting Board find accordingly.

2. Noise

The application includes an assessment of the Project's noise impacts. The analysis was designed to identify any receptor sites where continuous sound levels attributable to the existing East River Complex exceed the limit imposed by City regulations (55 A-scale decibels or dBA). Such locations were determined to be the intersection of 13th Street and Avenue D, near St. Emeric's Church; and the rooftop of Stuyvesant Town Building 245, taken to represent the noise level experienced on upper apartment floors near the plant.⁴⁴⁹

A proposed certificate condition would require the applicant to implement measures to ensure that operation of the Project would comply with Title 24, Chapter 2 of the New York City Administrative Code (the Noise Code) at all locations, and demonstrate compliance with Noise Code standards in post-certification filings with the Siting Board under 16 NYCRR Part 1003.⁴⁵⁰ The proposed certificate conditions also would require measures to mitigate noise impacts during construction in

⁴⁴⁷Exh. 1, Vol. I, §6.4.3 and App. A; Vol. 4, S3 §6.4.3 and S8.

⁴⁴⁸Exh. 1, Vol. I, §6.4.3, 6.4.8, 7.9, and 10.1.10; Vol. 4, S3 §6.4.8; Joint Stipulation, pp. 76-78.

⁴⁴⁹Exh. 1, Vol. I, §§5.4, 6.3, 6.3, 7.7, and 10.1.10; and App. A; Vol. 2, App. F; Joint Stipulation, pp. 37-40.

⁴⁵⁰The Siting Board has determined that a demonstration of compliance with Noise Code standards would satisfy the evidentiary requirements of PSL Article X with respect to this issue. Case 99-F-1314, Order Concerning Interlocutory Appeals (issued June 22, 2001), p. 21.

accordance with the Noise Code, and to address the local community's concerns about currently existing noise levels at the East River Generating Station. Nineteen specific measures, designed to mitigate existing or Project-related noise, would be adopted as conditions of certification. They affect a broad array of sources, such as exhaust vents, exhaust valves, pagers, circuit breakers, and vehicle alarms; and they specify the use and location of various proposed silencing materials and devices.⁴⁵¹

With the implementation of these proposed certificate conditions, the Siting Board should conclude that potential noise impacts related to the Project's construction and operation would be minimized as required by PSL §168(2)(b) and §168(2)(c)(i). In addition, the Siting Board should conclude that the applicant's proposal is compatible with public health and safety pursuant to PSL §168(2)(c)(ii).

3. Electric and Gas Transmission

The Project would utilize Con Edison's existing transmission and distribution system for the electrical output of the station. One CTG would be connected to the existing East River 69 kV substation located on the site. The other CTG would be connected to the East 13th Street 138 kV substation, which is located across the street from the East River Generating Station. Approximately 1000 feet of feeder cables would be needed to make the connection through existing or proposed underground concrete ducts. In addition, an extension of the upper deck of the East 13th Street substation would be required to accommodate the connection of the new feeders.

Although the Project's maximum design gas requirement is 145,200 dekatherms (Dth) per day, a portion of the maximum capacity would be held in reserve. The expected daily gas requirement is approximately 120,000 Dth. Over the past several years, Con Edison has purchased non-interruptible interstate gas transportation capacity totaling approximately 90,000 Dth/day

⁴⁵¹Joint Stipulation, pp. 40-44, 46, 102-04.

during the winter season to supply the Waterside Station and its other steam generating plants. In addition, the applicant, through its agent, has executed contracts, each for 30,000 Dth/day of long-term non-interruptible interstate gas transportation capacity, from the Transcontinental Gas Pipeline Market-Link project and the Iroquois Eastchester Expansion project, for a total of 60,000 Dth/day. The Iroquois project is not expected to be in service until late 2002. Nonetheless, the Market-Link project, along with the currently available seasonal firm capacity, would provide Con Edison with sufficient non-interruptible interstate capacity to meet the Project's expected daily needs.

To deliver the gas from the transmission system to the Project, Con Edison would need to upgrade its distribution system and install a service line, etc. To upgrade its gas distribution system in Manhattan, Con Edison proposes installing a 20-inch gas main from West 74th Street and 11th Avenue to the site, a distance of approximately 28,000 feet. This reinforcement is being considered under Con Edison's existing franchise authority and is not part of the Project.

The proposed gas interconnection for the Project consists of a new 16-inch diameter service line, new meter and regulating facilities, gas filtering and scrubbing facilities, and on-site compression capability. The new service line would run approximately 25 feet and tie into an existing gas distribution main located on East 14th Street.

Con Edison has committed to construct the Project's electrical transmission facilities, gas service line and distribution system reinforcement in compliance with applicable local, state, and federal safety regulations.⁴⁵² Thus, it is recommended that the Siting Board find that the Project's electric and gas interconnections would minimize adverse impacts and would be compatible with public health and safety in compliance with PSC §168(2)(b) and (c)(i) and (ii).

⁴⁵²Joint Stipulation, pp. 23, 27.

4. Overall Public Interest Assessment

The Siting Board must find that construction and operation of the Project would serve the public interest, considering among other things the proposal's potential environmental impacts.⁴⁵³ The signatories to the Joint Stipulation assert that the Project would be in the public interest. We agree, and recommend that the Siting Board find likewise. Our reasons, elaborated in detail throughout this recommended decision, may be summarized as follows.

With regard to environmental effects, the Project's overall benefits significantly outweigh any potential environmental and social costs, especially when adverse environmental impacts are mitigated in accordance with the proposed certificate conditions. Air quality, in particular, would be enhanced insofar as the Project would supplant the Waterside Station and other less environmentally benign in-City generation with a gas-fueled plant using advanced emission control technology, which would directly improve the City's air quality overall. Moreover, the applicant's proposals are designed to reduce overall emissions of criteria pollutants, as compared with current levels, at the East River Complex itself.

Another public benefit offered by the Project is that it will maintain the viability of the steam system. Reliance on steam favorably affects the City's air quality indirectly, because of steam's advantages over more environmentally damaging alternatives. Moreover, the Project is consistent with NYSEP because it would operate more efficiently than other alternatives, improve the reliability and abundance of the electric supply, and encourage competition in the electric generation market.

Viewed from a City-wide perspective, the Project would mitigate adverse environmental effects by situating the new generating capacity within an existing plant already zoned for heavy industrial use. The surrounding community would benefit not only from the proposed reduction in noise levels at the East

⁴⁵³PSL §168(2)(e).

River Complex, but also ancillary improvements through a \$0.5 million expenditure for a recreational open space and \$3.0 million worth of other initiatives to reduce overall emissions, enhance nearby health facilities, and provide an expanded East River Esplanade and other neighborhood amenities.

CB3/EREC argues that measures designed to improve conditions in the East 14th Street neighborhood cannot properly be counted among the Project's affirmative benefits, because similar results could be achieved elsewhere in the City at CB3/EREC's proposed alternative sites if the Siting Board found them preferable to the East River Complex. In fact, however, the benefits at issue are real; and they cannot be achieved elsewhere, because, regardless of potential local benefits, the alternatives proposed by CB3/EREC should be rejected for other reasons discussed above.

A related issue is Westchester County's objection that the proposed \$3.0 million investment in neighborhood amenities would be contrary to the public interest, because the cost assertedly might be imposed on utility customers throughout Con Edison's territory despite the local character of the benefits. Westchester County infers such ratemaking treatment from the provision, in the Joint Stipulation, asking the Siting Board to find that the neighborhood amenities are part of the Project's prudently incurred costs.⁴⁵⁴ In response, the City argues that the \$3.0 million is minor in relation to total Project costs, and is a necessary element of a generating facility which, in turn, will benefit all customers. We recommend that the Siting Board find the \$3.0 million to be a significant public benefit for purposes of its determination under PSL Article X; but that the Siting Board not reach the arguments presented by Westchester County and City, as they are rate issues to be determined by the PSC under PSL provisions other than PSL Article X.

We conclude, therefore, that the construction and operation of the Project is in the public interest, considering

⁴⁵⁴Joint Stipulation, p. 34.

the proposal's potential environmental impacts. We recommend that the Siting Board find likewise.

III. SUMMARY AND CONCLUSIONS

In §I(C) entitled "Required Findings of the Siting Board," we outlined the findings that PSL Article X requires the Siting Board to make before it can grant a certificate. We summarize these findings here.

A. Need Requirement

Pursuant to PSL §168(2)(a)(i) the Siting Board must find that "the facility will satisfy additional electric capacity needs or other electric system needs, and . . . that the construction of the facility is reasonably consistent with the policies and long-range energy planning objectives and strategies contained in the most recent state energy plan."

We conclude that the Project is needed to augment electrical capacity in the lower Manhattan and in-City load pockets, help mitigate the high cost of electricity and steam, and produce electricity and steam with greater efficiency than the generation it would displace.

B. Environmental Impacts

PSL §168(2)(b) requires the Siting Board to identify the nature of the proposed facility's probable environmental impacts. We conclude that this record contains a complete review of the likely adverse and beneficial effects in all of the areas of concern listed in that section of PSL Article X. With respect of each such concern, moreover, we conclude that with the implementation of the mitigation proposals accepted by the applicant, and recommended herein, the Project minimizes environmental impacts as contemplated in §168(2)(c)(i).

In reaching the determinations regarding how the Project would minimize environmental impacts, the Siting Board is required to consider the state of available technology, and New York State's interests pertaining to aesthetics, the preservation of forests and parks, fish and wildlife, viable

agricultural lands, and other pertinent considerations. With respect to each aspect of the Project's probable impacts, we conclude that both the range of available and feasible approaches to mitigating those impacts, as well as the state laws respecting aesthetics, historic preservation, and resource preservation, have been thoroughly considered.

Based on the foregoing analysis, we also conclude the Siting Board may find that the Project is compatible with public health and safety (§168(2)(c)(ii)), will not discharge effluents in contravention of standards adopted by DEC (§168(2)(c)(iii)), and will not emit air pollutants in contravention of applicable air emission control requirements or air quality standards (§169(2)(c)(iv)). There are no solid waste management or hazardous waste disposal facilities associated with the Project.

As we have also discussed, the Siting Board issues all state-level permits required for the construction and operation of the proposed facility, except for permits required pursuant to the federal Clean Air Act and Clean Water Act. Pursuant to the recent amendments to PSL Article X and the ECL, the DEC must make final determinations about the requested environmental permits. Therefore, the Siting Board must await receipt of the permits before making the requisite findings required under §168(2)(c)(iii) and (iv), and issuing its final decision and a certificate.

As further discussed, we find that the Project is designed to operate in compliance with applicable state and local laws and regulations (§168(2)(d)), and that its construction and operation will be in the public interest (§168(2)(e)).

C. Conclusion

As discussed above, once the Siting Board receives the DEC issued permits, we conclude that it can make all of the findings it is required to make pursuant to PSL Article X in order to grant a Certificate of Environmental Compatibility and Public Need to the applicant, subject to terms and conditions listed in Appendix B to the recommended decision. We recommend

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that the application, so conditioned, be granted. The Siting Board should grant other necessary state approvals to the extent it is authorized to do so by PSL Article X.

June 28, 2001
WTM/RAE/DPO:yrs

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PROPOSED CERTIFICATE CONDITIONS

I. Project Authorization

- A. The Certificate Holder is authorized to construct and operate the Project, as described in the Application, except as waived, modified or supplemented by this Certificate or other permits.
- B. The Certificate Holder is responsible for obtaining a State Pollutant Discharge Elimination System ("SPDES") permit modification approval under the Clean Water Act ("CWA"), a Prevention of Significant Deterioration ("PSD") permit under the Clean Air Act ("CAA"), a State Air Facility permit, and other approvals and permits as specified in the Application.
- C. The Project shall be designed to operate and be operated in compliance with all applicable federal and state laws and regulations. Subject to the Board's ongoing jurisdiction, the Project shall be designed to operate and be operated in compliance with all applicable local laws and regulations.
- D. The Certificate Holder is authorized to connect the Project facilities to the Con Edison gas distribution system main located at East 13th Street and Avenue D.
- E. The Certificate Holder is authorized to construct electric transmission facilities and interconnect those facilities **from** the Project to Con Edison's existing 13th Street 138 kV substation and East River 69 kV substation.
- F. The Certificate Holder is authorized to connect the Project facilities to the Con Edison steam distribution system main on First Avenue in the vicinity of the Project.

II. General Conditions

- A. The Project and/or its site shall be constructed, operated and maintained as set forth in the Application and other submissions, and as indicated by the Certificate Holder in stipulations and agreements during this proceeding, except as these may be waived, modified or supplemented by the Board, and except as set forth in conditions contained in the SPDES, State Air Facility and PSD Permits issued by the New York State Department of Environmental Conservation ("NYSDEC").
- B. The Certificate Holder shall submit a schedule of all plans, filings and other submissions to the Board as may be required by these Certificate Conditions, and to the extent practicable, shall coordinate the schedule for submitting Compliance

Filings with the relevant state agencies having jurisdiction over such Compliance Filings.

- C. The Certificate Holder shall submit a Compliance Filing consistent with Part 1003 of the Article X regulations. A “licensing package” is defined herein as a component of the Compliance Filing and includes all plans or other submissions required-by these Certificate Conditions. Licensing packages may be submitted individually or on a combined basis. All filings shall be served on all active parties that have advised the Board of their desire to receive a copy of such filings.
- D. Operation of the Project shall be in accordance with the SPDES, PSD and State Air Facility Permits.
- E. These Certificate Conditions shall be made contract requirements for the construction contractors as applicable.
- F. Appropriate construction personnel shall be trained in the environmental compliance matters.

III. Air Resources

- A. The Certificate Holder shall operate the Project pursuant to the air permits issued by NYSDEC under Article 19 (6 NYCRR Part 201-6) and the PSD program (40 C.F.R. §§ 52.21 and 124).
- B. The Certificate Holder shall implement the measures identified in its letter dated November 21, 2000 to reduce projected emissions from existing sources at the East River Generating Complex (the “Complex”), namely (i) boiler tuning and control enhancements for existing Units Nos. 6 and 7; (ii) pressure part refurbishment and burner upgrades for the South Steam Station; (iii) Unit No. 6 condenser replacement and (iv) limiting use of fuel oil in Unit No. 6 during April-October so that 90 percent of the fuel combusted in Unit No. 6, on a heating value basis, will on average be natural gas during that period, based upon a three season averaging period.
- C. The Certificate Holder shall install induced flue gas recirculation equipment (“IFGR”) for Unit No. 7 at the Complex and limit the use of fuel oil in Unit No. 7 during April-October so that 90 percent of the fuel combusted in Unit No. 7, on a heating value basis, will on average be natural gas during that period.
- D. The Certificate Holder shall use best efforts to use natural gas rather than fuel oil at existing Units Nos. 6 and 7 at the Complex during the months of November through March to the extent that such use of natural gas is consistent with its

obligation to ratepayers to generate steam and electricity in a reliable and economic manner.

- E. If the Certificate Holder decides to store, rather than generate, aqueous ammonia on site, the Certificate Holder may store aqueous ammonia (with an ammonia concentration of less than 20%) at the Complex in connection with the Project. If the Certificate Holder stores more than a *de minimis* amount of aqueous ammonia at the Complex in connection with the Project, it shall conduct an analysis of potential off-site consequences of an accidental release of any such aqueous ammonia and take any necessary mitigating measures with regard to such storage. If the Certificate Holder generates ammonia at the Complex and, consequently, does not store more than a *de minimis* amount of aqueous ammonia in connection with the Project, such an analysis will not be required.

IV. Electric Transmission Facilities

- A. The Certificate Holder will take remedial measures to ensure that adverse electrical impacts are minimized by upgrading sixteen circuit breakers at the East River and East 13th Street substations, replacing thirty-three circuit breaker timers at the East 13th Street substation, implementing mitigation fault measures at other Con Edison transmission substations, as appropriate, and developing a comprehensive plan to resolve the **overduty** conditions caused by the cumulative fault contributions from various interconnection projects.
- B. The Certificate Holder shall design, engineer and construct (or fund the construction of) the transmission interconnection such that its operation will comply with the “Interim Guidelines on Limits of Exposure to 50/60 Hz Electric and Magnetic Fields,” of the Non-Ionizing Radiation Committee of the International Radiation Protection Association.
- C. The Certificate Holder is authorized to construct and shall design, engineer, and construct transmission facilities as provided in the System Reliability Impact Study (“SRIS”) approved by the New York Transmission Planning and Advisory Subcommittee (“TPAS”), the New York Independent System Operator (“NYISO”) Operating Committee, and the NYISO 2001 Transmission Reliability Assessment Study (“TRAS”), and in accordance with the applicable and published planning and design standards and best engineering practice of NYISO, Con Edison, the New York State Reliability Council (“NYSRC”), Northeast Power Coordinating Council (“NPCC”), North American Electric Reliability Council (“NERC”), and North American Electric Reliability Organization (“NAERO”), and successor organizations depending upon where the facilities are to be built and which standards and practices are applicable. Specific requirements shall be those required by the NYISO Operating Committee and TPAS in the approved SRIS and by any interconnection or facilities modification agreements.

- D. The Certificate Holder shall operate the Project in accordance with the approved tariffs and applicable rules and protocols of Con Edison, NYISO, NYSRC, NPCC, NERC, and NAERO, and successor organizations. The Certificate Holder reserves the right to seek subsequent review of any specific operational orders at the NYISO, New York State Public Service Commission (“NYSPSC”), the Federal Energy Regulatory Commission, or in any other appropriate forum. The Certificate Holder agrees to obey the system operator at the NYISO and the Con Edison operator or their successor.
- E. The Certificate Holder shall design, engineer, and construct the transmission interconnection such that its operation shall comply with the electromagnetic field (“EM,“) standards established by the NYSPSC in Opinion No. 78- 13 (issued in June 19, 1978) and the Statement of Interim Policy on Magnetic Fields of Major Electric Transmission Facilities (issued September 11, 1990), respectively.
- F. The Certificate Holder agrees to comply with Con Edison, NYISO, NPCC, NYSRC, NERC and successors reliability criteria. If it fails to meet the reliability criteria at any time, it shall notify the NYISO in accordance with NYISO requirements and shall simultaneously provide the Commission with a copy of the NYISO notice.
- G. The Certificate Holder shall file a copy of the following documents with the Board and the NYSPSC: (1) the SRIS approved by the NYISO Operating Committee; (2) any requirements imposed by the NYSRC; and (3) all facilities agreements and interconnection agreements with Con Edison and successor Transmission Owners.

V. Gas Supply

- A. In constructing the Distribution System Reinforcement and Service Line, the Certificate Holder will comply with all State and local laws and secure all required street excavation permits to minimize any adverse environmental impacts.
- B. Once the exact route of the Distribution System Reinforcement is determined, the Certificate Holder will identify all historic resources that could be impacted by the new gas main and take appropriate steps in order to minimize any such impacts.
- C. The Certificate Holder will obtain sufficient non-interruptible interstate transportation capacity to satisfy the Project’s needs throughout the year. The capacity will be obtained through a combination of long term, annual, and seasonal (winter) contracts, supplemented, as necessary, by short-term capacity purchases.

- D. In order to provide non-interruptible transportation of gas from the citygate to the Project, an interdepartmental gas transportation agreement will be made between Con Edison Gas Operations and its Steam Business Unit.

VI. Land Use & Local Laws

- A. The Project shall be constructed principally within the existing East River Generating Station.
- B. The Certificate Holder shall make efforts to work with The City of New York to expedite any actions required in connection with the Project that would impact the Stuyvesant Cove Master Plan.
- C. Subject to the Board's ongoing jurisdiction, the Certificate Holder shall seek the regulatory permits and approvals specified in the Application from the relevant New York City agencies pertaining to the construction work for or operation of the Project.
- D. The Certificate Holder shall minimize fugitive dust from construction.
- E. As part of the reasonable and prudent cost of obtaining approval for and implementing the Project, the Certificate Holder shall, subject to receipt of all necessary governmental approvals for the Project:
 - 1. Provide funding to The City of New York in the amount of \$500,000 towards the cost of widening the East River Esplanade in the vicinity of the Project, and
 - 2. Provide funding to the New York City Economic Development Corporation in the amount of an additional **\$2,500,000** at the time commercial operation commences to assist the local community in the development and implementation of projects such as local air quality improvement, health improvement, or amenities programs in the vicinity of the Complex. **After** consultation with appropriate local officials, and in coordination with The City of New York, the Certificate Holder will identify projects within the local area to be funded under the program. The Certificate Holder will provide funding, out of the funds provided for in this paragraph, for scoreboards for the ball fields located immediately north of the East River Generating Station.
- F. The Certificate Holder will fund the purchase of ornamental and/or screen plantings for placement around the East River Generating Station consistent with New York City guidelines. Such plantings are to be cared for under the Vegetative Maintenance Plan described in Section **XII.D** of the Certificate

Conditions. The purchase costs of such plantings will not be chargeable to the ratepayers under the Certificate Holder's rate plans.

VII. Noise

- A. The Certificate Holder will implement the following capital improvements or equivalent attenuating measures to ensure that Complex noise levels comply with the limits set forth in Title 24, Chapter 2 of the New York City Administrative Code as it exists as of the date the Joint Stipulations were submitted to the Board (the "Noise Code"):
1. Install acoustical lagging on Unit Nos. 6 and 7 exhaust plenums on the Station rooftop.
 2. Install acoustical curtains or acoustical treatment of existing louvers on the south wall of the 13th floor.
 3. Enclose the gas veranda.
- B. In furtherance of its efforts to address the local community's concerns about existing noise **from** the Complex, the Certificate Holder will implement a noise reduction program that would include the following capital improvements, operational changes, or equivalent attenuating measures:
1. Attenuate the exhaust of the two Unit No. 6 "self-sustaining*" auxiliary steam system safety valves, the Unit No. 7 start-up safety valves and the South Steam Station deaerator safety valve.
 2. Prohibit operation of paging system operation between 7 PM to 8 AM except in the event of exigency.
 3. Prohibit testing of circuit breaker between 7 PM to 8 AM except in the event of exigency.
 4. Minimize use of backup beeping alarms after 6 PM by dispatching trucks **from** East 16th Street.
 5. Conduct routine maintenance survey to **identify** noise sources in need of mitigation.
 6. Upgrade twelve breakers at the East River Substation and four circuit breakers at the East 13th Street Substation by **modifying** the design from compressed air actuated to SF, insulated design.

7. Restrict the shutdown and startup of Unit No. 7 to daytime hours when on steam **sendout** mode of operation, except as needed to maintain system reliability.
 8. Conduct a noise survey of the 69 kV yard at the northwest corner of the Complex and perform an analysis of the need for attenuating measures, and, if necessary, implement corrective measures that are economical and technically feasible.
- C. The Certificate Holder will incorporate a variety of noise attenuating measures into the Project design in order to ensure that during Project operation sound levels at the property line of receptors are within the night-time limit of 45 dBA, and, therefore, will not cause any adverse noise impacts, as follows:
1. Design acoustical treatments into the noise sources or materials of building construction.
 2. To meet the noise limitations at Murphy Park and Stuyvesant Town, use either an inlet air silencer system, or twelve-inch acoustical louvers or equivalent attenuating measures to attenuate sound emanating from the Project Unit No. 1 CTG air inlet system, along the north wall, that is emitted to the outdoors through the proposed wall louvers.
 3. Mitigate noise from the Project Unit No. 2 CTG air inlet system, located on the north and west gallery building walls, by using an air inlet silencer system or equivalent attenuating measures.
 4. Reduce indoor noise that is emitted through the roof ventilator and that propagates to south receptors by closing the south facing vents. The vents facing to the north may remain open without acoustic treatment. Alternatively, four of the six south facing roof vents may be opened if 12-inch acoustic louvers are placed over them.
 5. To meet the noise limitations at Jacob Riis Houses and St. Emeric's Church, reduce sound that is transmitted through the south wall by replacing or sealing the openings for the existing single pane windows, which comprise about 50 percent of the wall's surface area. The majority of the window openings will be sealed. If double pane windows are installed, then windows can be retained for a surface area equal to 10 percent of the wall's total surface area. Alternatively, if single pane windows are retained, then their surface area will be limited to 5 percent of the total surface area of the wall.
 6. Mitigate transformer noise at the northwest corner of the electrical gallery building, if required, by installing a barrier wall on the north side of the

new Project Unit No. 2 generator step-up transformer. The wall will be positioned 4 feet north of the transformer, and will extend 3 feet above the top of the transformer. The top will be open for ventilation. To prevent sound from passing through the barrier, the barrier walls will have no openings, and will be constructed of material such as hollow core cinder block with a sound transmission class rating of 23 or greater.

7. HRSG exhaust stack noise is already reduced by attenuation from the exhaust ducts and stack walls and by directing the exhaust noise upwards. However, untreated stack noise will be further mitigated, if required, with **breeching** insulation or an equivalent measure.
 8. Perform street excavation work in accordance with New York City Department of Transportation (“NYCDOT”) requirements.
- D. The Certificate Holder will carry on construction activities outside the walls of the East River Generating Station building between the hours of 7 a.m. and 6 p.m. (the “Daytime”), as required by Section 24-227 of the Noise Code. Construction activities may be conducted within the interior of the building during other hours, except that during such periods the Certificate Holder shall not conduct or allow to be conducted activities that will cause noise considered excessive under City standards at nearby sensitive receptors, including, but not limited to, heavy rigging operations, debris loading or removal or hauling by trucks, jack hammering, external wall removal or reinstallation, or louver installation. Delivery of oversized equipment such as the combustion gas turbines, heat recovery steam generators, boiler drum and step up transformers will be during night time hours as mandated by and in coordination with NYCDOT. Otherwise, deliveries related to construction activities shall take place during the Daytime.
- E. After commercial startup, the Certificate Holder will perform mid-field octave band sound pressure level measurements of the Project while it operates under typical load to verify conformance with design goals. The specifications for the testing protocol will be set forth in a Compliance Filing prior to testing.
- F. The Certificate Holder will prepare a technical analysis to determine whether operationally and technically feasible measures are available to: (i) seal all or most of the window openings in the south wall of the East River Generating Station other than those specified in Section VII of the Certificate Conditions; and (ii) further reduce noise levels from the south wall of the East River Generating Station. The Certificate holder will make a pre-operation Compliance Filing detailing the analysis and study undertaken and the measures performed in accordance with such study.

VIII. Public Interest

- A. The Certificate Holder will maintain access to each commercial or residential establishment during the period of construction, and will maintain pedestrian traffic to the extent practicable through the construction area.
- B. The Certificate Holder will stage construction so that no single area is affected for a prolonged period, and will, as set forth in Sections VII and XI of the Certificate Conditions, coordinate closely with and adhere to conditions imposed by the NYCDOT and the New York City Department of Buildings with respect to the hours of construction.
- C. The Certificate Holder will restrict materials storage locations, and will periodically change the locations of workout trailers during construction to limit possible impacts.
- D. The Certificate Holder has agreed to provide funding to widen the East River Esplanade and to assist the local community in the development and implementation of projects such as local air quality improvement, health improvement, or amenities programs as set forth in Section VI.E of the Certificate Conditions.
- E. The Certificate Holder will develop a Community Liaison Program in consultation with interested parties in the vicinity of the Complex. The Certificate Holder will submit a written description of the Community Liaison Program to the Board as a preconstruction compliance filing, and the Certificate Holder will implement the Program upon its approval by the Board. The Community Liaison Program will continue for the duration of the Project, (except as may otherwise be allowed by the Board as provided herein). The Certificate holder shall implement this program for no less than five years, and may thereafter seek permission from the Commission to terminate the program. The Community Liaison Program will include the following:
 - 1. Con Edison will provide the name, e-mail address, and company phone number of a single Point-of-Contact (PC) at Con Edison who will respond to reasonable community inquiries concerning plant construction and operation;
 - 2. Three representatives will be selected upon the recommendation of Community Boards 3 and 6, in consultation with appropriate local officials, (the “Community Representatives”) and the Certificate Holder will make a good faith effort to address promptly complaints raised by such Community Representatives with respect to construction at or operation of the East River Generating Station. Such problems may include odor, noise or other

“nuisance” impacts associated with the day-to-day operation of the East River Generating Station.

3. The PC will escort Community Representatives to inspect plant construction and operation at reasonable times, upon request. Requests for meetings or plant inspections will be made to the PC.
4. The Certificate Holder shall maintain a Community Issues Resolution **Log** that: (i) tabulates complaints raised with respect to plant construction or operation expressed by the community and resolutions thereof implemented by the Certificate Holder; and (ii) details community outreach activities conducted by the Certificate Holder. This log will be available for inspection at the East River Generating Station during all Con Edison business hours by members of the public and their representatives, and by the NYSPSC or other State agencies or The City of New York, upon request.

IX. Soils, Geology, Seismology and Tsunami Occurrence

- A. The Project will be designed and constructed to withstand the expected effects of a seismic event in accordance with the New York City Building Code for regions identified as Seismic Zone 2A.
- B. The Project will be designed and constructed to ensure that the Project can withstand the expected effects of a seismic event with an effective zero period peak acceleration of **0.15g** in S, Type materials, as defined by the New York City Building Code.

X. Terrestrial Ecology

- A. Any work conducted in connection with the installation of gas or steam mains through any public park or public street shall be conducted in accordance with conditions imposed by NYCDOT and NYCDPR to mitigate any temporary adverse impacts to the park or street and to fully restore any affected areas to their pre-existing condition after the work is completed.
- B. The Certificate Holder shall submit a Vegetative Maintenance Plan in connection with the Facilities Management Program as provided in Section **XII.D** of the Certificate Conditions.
- C. The Certificate Holder shall minimize the amount of fugitive dust that will occur during construction through the application of dust minimization techniques as set

forth in the Application. Any dust palliatives that are used by the Certificate Holder in controlling fugitive dust will be approved by NYSDEC.

XI. Traffic

- A. The Certificate Holder, through consultation with the community liaison appointed pursuant to Section VIII.E of the Certificate Conditions, will monitor the effects of construction on parking conditions in the area. Based on the information received **from** such consultation, the Certificate Holder will consider and, as appropriate, implement various options to reduce the number of vehicle trips to the Project site, such as the use of shuttle buses for construction workers and East River Generating Station personnel.
- B. The Certificate Holder will make special efforts to maintain pedestrian access to recreational fields adjacent to the Project site across East 15th Street.
- C. The Certificate Holder will mitigate potential traffic impacts during Project construction in one or more of the following ways:
 - 1. requesting the NYCDOT to perform minor retiming of traffic signals at the westbound East 14th Street approach at First Avenue during the 2:00 to 3:00 PM peak hour, by subtracting two seconds of green time from the northbound phase and adding it to the east/westbound phase, and at the northbound left turn movement of Avenue C at East 14th Street, by subtracting two seconds of green time from the east/westbound phase and adding it to the north/southbound phase;
 - 2. providing incentives to encourage more construction workers to use public transportation; or
 - 3. staggering the shift times of some workers.
- D. The Certificate Holder will minimize traffic impacts during construction of the interconnection lines as follows:
 - 1. potential traffic disruptions will be considered during the planning of the work;
 - 2. interconnection routes and construction methods will be selected to limit the width of construction activity within the street to minimize interference with traffic lanes;
 - 3. road plates will be used to keep streets open where possible during periods when construction within excavated trenches is not being performed;

4. the physical limits of work areas will be arranged to minimize congestion related to construction by utilizing smaller work areas and allowing suitable buffer zones between work areas;
 5. hours of work in time-sensitive zones, such as hospital areas, will be limited; and
 6. it will adhere to conditions imposed by the NYCDOT in connection with the issuance of a street opening permit.
- E. The Certificate Holder will coordinate closely with the New York State Department of Transportation (“NYSDOT”) and the NYCDOT with respect to the closure of the FDR Drive for delivery of the **CTGs** and related equipment, and will comply with all applicable regulations regarding the timing and duration of such closure. Unless otherwise allowed by the NYSDOT or NYCDOT, no closures of the FDR Drive will occur during morning or evening peak traffic hours. If the interconnection requires the placement of ducts across 14th Street, the Certificate Holder will minimize **traffic** impacts during construction of the interconnection lines as provided in Section **XI.D** of the Certificate Conditions.

XII. Visual and Cultural Resources & Aesthetics

- A. The Certificate Holder shall design and paint the louvered openings to be incorporated into the north side of the east section of the East River Generating Station in an aesthetically pleasing manner that will visually blend with the existing East River Generating Station facade. To the extent the wall openings required for facility construction are larger than the louvered openings, the affected facade areas will be restored, if feasible, to their original appearance. The Certificate Holder will match brick and facade color, texture and appearance to closely approximate the original appearance and minimize any aesthetic discontinuity.
- B. The Certificate Holder shall design the Project’s **CTGs** to use dry low-nitrogen oxides combustion technology, as opposed to water or steam injection, for **NOx** control while burning natural gas. Water injection will only be used for **NOx** control while burning distillate oil for 16 hours per year for testing and in the case of emergency.
- C. Upon designation of the street locations for interconnection lines, the Certificate Holder shall determine in consultation with an archeologist the potential for the presence of archeological resources at such locations. The Certificate Holder in consultation with an archeologist and historian will delineate areas of potential effect to assess potential impacts of this construction on any identified archeological and architectural resources. Appropriate precautions will be taken

during construction in the vicinity of any designated historic landmarks and eligible structures to preserve and protect them. If historically significant or archeological resources are identified, mitigation measures would be developed in consultation with SHPO. The Certificate Holder shall submit a “Plan and Procedures for Identifying and Responding to Unanticipated Discoveries of Cultural Resources Associated with the Project” in a preconstruction compliance filing, and the Certificate Holder will implement such Plan upon its approval by the Board.

D. The Certificate Holder shall develop and implement a Facility Maintenance Program to assure that the area located between East 13th and East 15th Streets, from the FDR Drive to Avenue C, including the East River Generating Station and certain ancillary features, structures and land owned by the Certificate Holder (the “Complex Area”) is maintained in a clean and groomed condition. The Facility Maintenance Program with respect to the Complex Area identified above shall include the following:

1. Periodic inspection of outside infrastructure and grounds.
2. Facades will be cleaned, repainted or replaced if age, weathering or material decay warrant such treatment.
3. All fencing will be kept plumb, in a clean, well maintained condition.
4. Paved areas will be kept in a clean, repaired condition.
5. All lawn areas will be mowed weekly during the spring and early summer and as needed during the later part of the growing season.
6. All ornamental or screen plantings will be properly cared for and all dead or dying plantings will be removed and replaced in accordance with the Vegetative Maintenance Plan.
7. All fugitive trash or debris will be collected and removed from the Station Area and disposed of properly.
8. Snow and ice on surrounding sidewalks will be removed.

The Facility Maintenance Program and Vegetative Maintenance Plan shall be filed with the NYSPSC within six months prior to commencing commercial operations at the Facility.

XIII. Water Resources

- A. The Project will require modification of the SPDES permit issued by NYSDEC under Article 17 (6 NYCRR Part 750) for the discharge of wastewater and will operate in accordance with the effluent limitations imposed thereunder.
- B. The Project will be designed and implemented so as not to adversely affect the POTW and will allow the POTW to continue to accept the discharge of stormwater and sanitary wastes from the Station (including the Project).
- C. The design of the Project will limit its water intake to an average of approximately 4,000 gpm and maximum of approximately 8,300 gpm of New York City potable water which will be supplied by the New York City Department of Environmental Protection.
- D. All chemical storage areas will be located indoors. The Certificate Holder will abide by the East River Generating Station's best management practices for stormwater mitigation.
- E. The Certificate Holder will comply with all local, state and federal chemical and waste-storage, use, and handling regulations.
- F. The Certificate Holder will update its Spill Prevention Control and Countermeasures ("SPCC"), CSPP and Storm Water Pollution Prevention Plan ("SWPP") plans where applicable to assure that water quality remains protected as required by the Clean Water Act and the ECL.