

PUBLIC SAFETY ANSWERING CENTER II CHAPTER 11: ENERGY

A. INTRODUCTION

This chapter describes the effects that the Proposed Action may have on energy consumption. The proposed public facility development resulting from the Proposed Action would create new energy demands. The potential for impacts on these services is discussed below. As discussed in this chapter, although the proposed development would create new demands on energy, the additional demand is not expected to overburden the energy generation, transmission and distribution systems and would not be large enough to constitute significant adverse impacts on these services. All new structures requiring heating and cooling are subject to the New York State Energy Conservation Code, which reflects state and City energy policy. Therefore, actions that would result in new construction would not create adverse energy impacts, and would not require a detailed energy assessment.

As discussed in Chapter 1, “Project Description,” the Proposed Action would facilitate the construction of a new emergency communications center, the Public Safety Answering Center II (“PSAC II”), on a largely unimproved 8.75-acre site in the northeastern Bronx. The proposed development would be a parallel operation to the existing PSAC I in Downtown Brooklyn, which would augment and create redundancy within the City’s emergency communications infrastructures. It also would house command control center operations for the New York City Police Department (NYPD) and the Fire Department of New York City (FDNY). The proposed development would consist of a new approximately 640,000 gsf building with up to 14 levels above grade (350 feet with an elevation of 374 feet) plus a cellar level and a 500-space above-grade accessory parking garage with three levels and a green roof. The Proposed Action would also amend the City Map to establish an existing private roadway (Industrial Street) as a public street (Marconi Street) that would extend north of Waters Place to the southern border of the proposed development site.

B. EXISTING CONDITIONS

The Energy Supply System

Consolidated Edison (Con Edison), along with other transmission companies, delivers electricity to New York City and almost all of Westchester County. The electricity is generated by a number of independent power companies as well as Con Edison. For the Project Site and its vicinity, Con Edison supplies electricity and natural gas.

The New York Power Authority (NYPA) is the governing authority responsible for overseeing power distribution across the state. The recent deregulation of the energy market across New York State has led to the transition of formerly government-regulated utilities to independently owned energy

generators. As a result, Con Edison has sold many of its power generating facilities and is now primarily involved in energy distribution.

Electrical energy in New York City is supplied from a variety of sources that originate both within and outside the City. These sources include non-renewable sources such as oil, natural gas, and coal fuel, and renewable sources such as hydroelectric, and, to a much lesser extent, biomass fuels, solar, and wind power. New York City's electrical demands are met by a combination of sources including electricity generated within New York City, at locations across the Northeast, and from places as far away as Canada. Once electrical energy is generated as high voltage electrical power, a transmission grid conveys this power to New York City for distribution. An interconnected high voltage power grid extending across New York State and the Northeast allows for power to be imported from other regions, as demand requires. Substations located throughout New York City convert high-voltage electrical to low-voltage electrical power for distribution to end users. Annual electric usage reaches almost 55 billion kilowatt hours (KWH) in Con Edison's overall service area. This is equivalent to approximately 188 trillion British Thermal Units (BTUs) and does not include the energy content in natural gas, steam, and other energy sources used in the City. A total of an estimated 50 billion kilowatt hours (KWH) or 170.75 trillion British Thermal Units (BTUs) of electricity are consumed in the City annually.

According to the New York Independent System Operator (NYISO) *Summer 2007 Electricity* report, the peak electrical demand for New York City in Summer 2007 was 11,100 megawatts (MW).¹ Typically, electricity generated within the City is sufficient to satisfy demand. However, during the summer peak demand period, the transmission grid across the Northeast must supplement needed electricity. Con Edison's distribution grid has a finite capacity and during heavy demand periods, the transmission grid is strained. As a result, there is an ongoing service and distribution improvement program for Con Edison infrastructure, which upgrades localized areas that are continually high demand zones. Electricity required for these local "hot" zones is supplied by other zones in New York City, or from sources elsewhere within the larger grid, if necessary.

Con Edison distributes power throughout the City. Transmission substations receive electricity from the regional high voltage transmission system and reduce the voltage to a level that can be delivered to area substations. Area substations further reduce the voltage to a level that can be delivered to the distribution system, or street "grid." Within the grid, voltage is further reduced for delivery to customers. Each area substation serves one or more distinct geographic areas, called networks, which are isolated from the rest of the local distribution system. The purpose of the networks is that if one substation goes out of service the problem can be isolated to that network and not spread to other parts of the City. Substations are designed to have sufficient capacity for the network to grow. A number of power plants are located in the five boroughs, providing electric generation resources to New York City. According to NYISO's *Locational Installed Capacity Requirements Study* for the 2005-2006 capability year, New York City has an existing installed generating capacity of 9,887 MW.²

Con Edison's service area in the Bronx consists of about 41 square miles and includes approximately 387,155 residential and commercial electric customers and 297,161 residential and commercial gas customers.

¹ New York Independent System Operator *Summer 2007 Electricity Review*, www.nyiso.com/

² NYISO *Locational Installed Capacity Requirements Study Covering the New York Control Area For the 2005-2006 Capability Year*, March 23, 2005.

Energy Initiatives

In 2001, New York State began taking measures to address the increasing electrical power capacity needs of the metropolitan New York City region. The Governor's Executive Order No. 111 (EO 111) was introduced in June of 2001, directing state agencies, state authorities, and other affected entities to address energy efficiency, renewable energy, green building practices, and alternate fuel vehicles. EO 111 identified the New York State Energy Research and Development Authority (NYSERDA) as the organization responsible for coordinating and assisting agencies and other affected entities with their responsibilities. NYSERDA and the utilities have implemented programs to encourage businesses to reduce energy usage and increase energy efficiency. In addition to the energy conservation techniques, NYPA constructed 11 new 44-MW, natural gas-fired, simple cycle turbine generating units, 10 of which are located within New York City, for emergency power generation (the other facility is on Long Island).

The independent, non-profit New York State Reliability Council (NYSRC) has determined that a minimum of 80 percent of the City's peak load must be provided by generating sources within the City to maintain compliance with the criteria established by the regional and national reliability councils. Currently, there is sufficient capacity within the City to meet this 80 percent goal. However, as energy demand increases over time, additional in-City generation may be needed.

Existing Demand at the Project Site

Existing uses at the site, including surface accessory parking lots and vacant land, do not generate significant energy consumption.

C. FUTURE WITHOUT THE PROPOSED ACTION (NO-BUILD CONDITIONS)

In the future without the Proposed Action, no changes in energy consumption are anticipated at the Project Site. The Project Site would continue to function in its present capacity in the No-Build condition.

D. FUTURE WITH THE PROPOSED ACTION (BUILD CONDITIONS)

This section discloses the anticipated future demand for energy of the proposed development for the 2012 build year. The energy assessment applies *CEQR Technical Manual* methodology, using square footage figures of the proposed office building and accessory garage structure.

The proposed development, which would use natural gas and/or fuel oil for its HVAC systems, would create new energy demands at the Project Site. If possible, electrical services to the proposed PSAC II development would be fed from separate utility grids. Emergency generators to supply power during an electrical blackout would also be established on the Project Site, which are expected to use diesel fuel. These emergency generators would consume minor amounts of energy.

According to the *CEQR Technical Manual*, all new structures requiring heating and cooling are subject to the New York State Energy Conservation Code, which reflects state and city energy policy

and takes into account any estimated amount of new construction that will occur over time. This Code governs performance requirements of heating, ventilation, and air-conditioning systems, as well as the exterior building envelope. The Code, instituted on January 1, 1979, pursuant to Article Eleven of the Energy Law of the State of New York, requires that new and recycled buildings (both public and private) must be designed to ensure adequate thermal resistance to heat loss and infiltration. In addition, it provides requirements for the design and selection of mechanical, electrical, and illumination systems. In compliance with the Code, the basic designs would incorporate all required energy conservation measures, including meeting the Code's requirements relating to energy efficiency and combined thermal transmittance.

The proposed development would also incorporate measures to achieve Leadership in Energy and Environmental Design (LEED) certification—at a minimum—, with a goal of a higher LEED Silver certification where feasible and practicable. The LEED rating system, developed by the non-profit U.S. Green Building Council, is a standard ensuring a high degree of environmental stewardship, considering energy efficiency, minimization of waste sent to landfills, and other sustainability best practices in building design and operation.

Electricity and gas would be supplied by Consolidated Edison, which would be used to provide heating, cooling, and lighting to the proposed development. Based on energy use index averages from standard reference tables provided in Table 3N-1 of the *CEQR Technical Manual*, the long-term operation of the proposed development is expected to consume about 84.5 billion British Thermal Units (BTUs) per year (see Table 13-1). Consolidated Edison could supply this energy without disruption to the main distribution system. Therefore, there would not be any significant adverse energy impacts from the proposed development.

TABLE 11-1
Estimated Annual Energy Consumption of the Proposed PSAC II Development

Use	Gross Square Footage	CEQR Consumption Rate	Annual Energy Use (BTUs) ¹
Office	640,000 gsf	125,000 BTUs/sf/year ²	80,000,000,000
Parking Garage	163,000 gsf	27,400 BTUs/sf/year	4,466,200,000
TOTAL	803,000 gsf³		84,466,200,000

Notes:

¹ 1 KW is equivalent to 3,413 BTUs per hour

² This analysis conservatively uses the data processing energy use index average of 125,000 BTUs/sf/year as compared to the office energy use index average of 77,900 BTUs/sf/year.

³ Includes parking gross square footage.

Source: *CEQR Technical Manual*, Table 3N-1

E. CONCLUSION

The proposed PSAC II development would create new energy demands at the Project Site. All new structures would be required to comply with the New York State Conservation Construction Code. In compliance with the Code, the basic design would incorporate all required energy conservation measures, including meeting the Code's requirements relating to energy efficiency and combined thermal transmittance. The proposed development would also incorporate measures to achieve LEED certification—at a minimum—, with a goal of a higher LEED Silver certification where feasible and practicable. The LEED rating system, developed by the non-profit U.S. Green Building Council, is a standard ensuring a high degree of environmental stewardship, considering energy efficiency,

minimization of waste sent to landfills, and other sustainability best practices in building design and operation.

Electricity and gas would be supplied by Consolidated Edison and if possible, would be fed to the proposed development from two separate utility grids. Emergency generators would also be established on the proposed development site to supply power during an electrical blackout, which would consume minor amounts of energy. The long-term operation of the proposed PSAC II development is expected to consume about 84.5 billion British Thermal Units (BTUs) per year. Consolidated Edison could supply this energy without disruption to the main distribution system. Therefore, there would not be any significant adverse energy impacts from the proposed development.