

## **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 Construction 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 modern police-training complex, to be operated by the NYPD, which would consolidate in one-campus facilities for civilians, recruits, and active police officers that are currently spread across the City. The total development size would consist of approximately 2.4 million gross square feet and would include indoor training facilities, classrooms and related support space, an indoor pistol range, a tactical village, an indoor track, a police museum, a visiting police/lecturer lodging facility and 2,000 accessory parking spaces, including an above-grade parking garage consisting of approximately 1,800 spaces and 200 additional at-grade parking spaces which would be located in smaller parking lots and along the Academy’s interior road network (“proposed development”).

## **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, NY Power Authority supplies electricity and Con Edison supplies 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 power 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).<sup>1</sup> 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 *Revised Locational Installed Capacity Requirements Study* for the 2006-2007 capability year, New York City has an existing installed generating capacity of 10,364 MW.<sup>2</sup>

National Grid Energy provides natural gas service to more than 1.1 million customers and operates more than 4,000 miles of gas mains in New York City. The company also owns and operates electrical generating plants on Long Island and within New York City, with a total generating capacity of more than 6,600 MW.

Con Edison's service area in Queens consists of about 108 square miles and includes approximately 2.3 million residents.

## 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. NYISO implemented the Emergency Demand Response and the Day-Ahead Demand Bidding Programs to reduce utility electrical power demand during peak load periods. The New York State 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

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<sup>1</sup> New York Independent System Operator *Summer 2007 Electricity Review*, [www.nyiso.com/](http://www.nyiso.com/)

<sup>2</sup> NYISO *Revised Locational Installed Capacity Requirements Study Covering the New York Control Area For the 2006-2007 Capability Year*, March 28, 2006.

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 local energy generation requirement. 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 the northern portion of the on-site College Point Tow Pound and the vacant strip of City-owned land along College Point Boulevard, do not generate significant energy consumption. However, the existing vehicle service station at the northwest corner of the project site has existing energy consumption. In estimating the existing annual energy consumption at the vehicle service station, the rates provided in Table 3N-1 of the *CEQR Technical Manual* were utilized. One measure of energy is a BTU. One BTU is the quantity of heat required to raise the temperature of one pound of water by one degree Fahrenheit. This unit of measurement is often used to compare consumption of energy from different sources, taking into account how efficiently those sources are converted to energy. Use of BTUs allows for a common unit of measurement for different energy sources (e.g., horsepower, kwh, etc.) and consumption rates (e.g., tons per day, cubic feet per minute, etc.). One kilowatt (kw) is the equivalent of 3,413 BTUs per hour. Based on the rates of the *CEQR Technical Manual*, current annual energy use at the vehicle service station is estimated to be approximately 38,800 million BTUs, as shown in Table 10-1.

**Table 10-1: Existing Energy Consumption on the Project Site**

Existing Use	Sq. Ft. of Use	BTUs / Sq. Ft. / Year	Million BTUs / Year
Tow Pound (Garage)	1,306,800 <sup>1</sup>	27,400	35,806
Other <sup>2</sup> (Vehicle service station)	20,315	145,500	2,996
<b>Total</b>			<b>38,802</b>
<b>Notes:</b> <sup>1</sup> Assumes approximately 30-acres for the northern portion of the Tow Pound. <sup>2</sup> Includes miscellaneous auto uses  <b>Source:</b> Table 3N-1 in the CEQR Technical manual for energy demand rates.			

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

In the future without the Proposed Action, the northern portion of the NYPD's Tow Pound is assumed to be vacant as the Tow Pound would be closed and all vehicle relocated to other NYPD tow pound facilities throughout the City. The vehicle service facility located at 28<sup>th</sup> Avenue and College Point Boulevard could potentially continue in operation should the Academy not be constructed. Further, the vacant strip of land along College Point Boulevard is expected to remain vacant.

## **D. FUTURE WITH THE PROPOSED ACTION (BUILD CONDITION)**

This section discloses the anticipated future demand for energy of the proposed development for the 2014 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 electricity, natural gas and/or fuel oil for its HVAC systems, would create new energy demands at the project site. Electrical services to the proposed Police Academy would be serviced from existing infrastructure. The existing infrastructure would be extended up College Point Boulevard from the existing 27kV service in 31<sup>st</sup> Avenue to provide service for the site. Based on preliminary discussions with Con Edison, a minimum of two primary manholes would be required at the property line. Service would be extended from these manholes into the Site to a substation or multiple transformer vaults.

According to the *CEQR Technical Manual*, all new structures requiring heating and cooling are subject to the New York State Energy Conservation Construction Code (NYS ECC), which reflects state and city energy policy and takes into account any estimated amount of new construction that will occur over time. The NYS ECC 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 NYS ECC, the basic designs would incorporate all required energy conservation measures, including meeting the NYS ECC requirements relating to energy efficiency and combined thermal transmittance. The current version of the NYS ECC is 2007, which was adopted on January 1, 2008.

The proposed development would incorporate measures to achieve Leadership in Energy and Environmental Design (LEED) certification—Silver rating at a minimum as per New York City Local Law 86—with a goal of a higher LEED rating where feasible and practicable. Green building design, or sustainable design, strives to reduce a building's impact on its occupants and the environment. Sustainable design integrates architectural elements and engineering systems to optimize performance of a proposed buildings and their interaction with the environment. 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 construction.

The New York Power Authority (NYPA) would supply electricity for the site. Consolidated Edison would supply gas, which would be used to provide heating, cooling, and lighting to the proposed Academy. 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 138,680 million British Thermal Units (BTUs) per year (see Table 10-2, below). Consolidated Edison and NYPA could supply this energy without disruption to the main distribution system.

**Table 10-2: Estimated Annual Energy Consumption of the Proposed Police Academy Development**

Existing Use	Sq. Ft. of Use <sup>1</sup>	BTUs / Sq. Ft. / Year	Million BTUs / Year
Education <sup>2</sup>	425,300	76,400	32,493
Assembly	315,000	65,300	20,570
Food Service	80,000	113,800	9,104
Lodging	39,000	145,500	5,675
Office	172,300	77,900	13,422
Mercantile and Service <sup>3</sup>	727,752	55,800	40,609
Parking / Loading	613,400	27,400	16,807
<b>TOTAL</b>	<b>1,665,100</b>	<b>--</b>	<b>138,680</b>

**Notes:**  
<sup>1</sup> Square footage is approximate, based on preliminary program analysis.  
<sup>2</sup> Includes the proposed museum use, student support, and library.  
<sup>3</sup> Includes firearms training, tactical village, and central services.

**Source:**  
Table 3N-1 in the *CEQR Technical Manual* for energy demand rates.

## E. CONCLUSION

The improvements in local connections that are necessary to provide these services to the proposed Academy would not adversely impact the local energy system. In addition, the Proposed Action would include a number of energy conservation measures, which would decrease overall energy demand on the Academy site. Therefore, no significant adverse energy impacts are expected from the proposed development.