A. INTRODUCTION

This chapter describes the potential effects of the Proposed Project on energy consumption. The 2010 *City Environmental Quality Review (CEQR) Technical Manual* recommends performing a detailed assessment of energy impacts for projects that could significantly affect the transmission or generation of energy. All new structures requiring heating and cooling must conform to the *New York City Energy Conservation Code*, which reflects state and city energy policy. Any action that would result in new construction or substantial renovation of buildings, such as the Proposed Project, would not create adverse impacts, and therefore would not require a detailed energy assessment. Because the Proposed Project would not trigger any of the *CEQR Technical Manual* thresholds, this chapter simply discloses the Proposed Project's energy consumption.

B. PRINCIPAL CONCLUSIONS

There would be no potential for significant adverse impacts on energy because the Proposed Project would not significantly affect the transmission or generation of energy. Upon completion, the Proposed Project would comply with the *New York City Energy Conservation Construction Code*. In compliance with the code, the basic designs of all buildings would incorporate the required energy conservation measures, including meeting the code's requirements relating to energy efficiency and combined thermal transmittance.

C. EXISTING CONDITIONS

ENERGY PROVIDER

Con Edison delivers electricity to all of New York City (except the Rockaway area in Queens) and almost all of Westchester County. The electricity is generated by Con Edison and a number of independent power companies. In 2008 (the latest year for which data are available), annual electricity usage totaled approximately 58 billion kilowatt-hours (KWH), or 199 trillion British Thermal Units (BTUs) in Con Edison's delivery area. In addition, Con Edison supplied approximately 112 trillion BTUs of natural gas and approximately 24 billion pounds of steam, which is equivalent to approximately 24 trillion BTUs. Overall, approximately 335 trillion BTUs of energy are consumed within its New York City and Westchester County service area.[1]

[1] Con Edison of New York, *Annual Report*, year ending December 31, 2008.

RECENT ENERGY CONSERVATION DIRECTIVES

In 2001, New York State began implementing measures to address the increasing electrical power capacity needs of the New York City region. New York State Governor's Executive Order No. 111 (EO 111) was introduced in June 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 other utilities have implemented programs to encourage businesses to reduce energy usage and increase energy efficiency. In addition to the energy conservation techniques, in accordance with the EO 111, the New York Power Authority (NYPA) constructed for emergency power generation 11 new, 44-megawatt (MW), natural gas-fired, simple-cycle turbine-generating units, 10 of which are located within New York City.

For 2010-2011, 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. For 2011–2012, NYSRC recommends that a minimum of 81 percent of the city's peak load be provided by sources within the City. Presently, there is sufficient capacity within the city to meet this 81 percent local energy generation requirement.[1] However, as the energy demand increases over time, additional in-city generation would be needed to satisfy this requirement.

The New York Independent System Operator (NYISO), which manages the safety and reliability of the state's electric transmission system, reported in September 2010 that the state's wholesale electric power system will continue to meet accepted reliability standards through 2020. According to the NYISO's *2010 Reliability Needs Assessment*, the accepted reliability standards will be met because there are two new proposed generating plants totaling 1,060 MW and because there is lower energy demand forecasted since a) the 2009 recession reduced the peak demand forecast for 2011 by 1,400 MW, reducing the projections of peak load in subsequent years; and since b) statewide energy efficiency programs seek to lower energy consumption on the electric system by 15 percent, resulting in energy savings of 13,040 GWh by 2018 and 13,684 GWh by 2020.[2] Because of the existing supply and the addition of the new proposed generating plants, it is expected that an adequate generating capacity, which would exceed projected demands, would be available in the New York City metropolitan area through the Proposed Project's 2030 analysis year.

EXISTING DEMAND

Rates provided in the *CEQR Technical Manual* were used to estimate the existing annual energy consumption on the Island. The measure of energy used in the analysis is BTUs per year. One BTU is the quantity of heat required to raise the temperature of one pound of water one Fahrenheit degree. According to the *CEQR Technical Manual*, this unit of measure can be used to compare consumption of energy from different sources (e.g., gasoline, hydroelectric power,

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[1] New York State Reliability Council, *New York Control Area Installed Capacity Requirements for the Period May 2011 through April 2012*, December 10, 2010.

[2] New York Independent System Operator, *2010 Reliability Needs Assessment*, September 2010.

etc.), taking into consideration how efficiently those sources are converted to energy. Use of this methodology avoids the confusion inherent in comparing different measures of output (e.g., horsepower, kilowatt hours, etc.) and consumption (e.g., tons per day, cubic feet per minute, etc.). As shown in **Table 14-1**, the Island currently uses an estimated 112,873 million BTUs per year for heating, cooling, and electric power.

Table 14-1
Estimated Existing Energy Consumption[1]

Use	Size (Square Feet)	Rate (BTUs/Square Foot/Year)	Consumption (Million BTUs/year)
Commercial[2]	22,180	216,300	4,798
Institutional	431,095	250,700	108,076
		Total Energy Consumption	**112,873**

Notes: [1] 138 vacant buildings (1.9 million square feet) are not included in the estimation of existing energy consumption. Three buildings with mechanical/infrastructure equipment (2,315 square feet) were analyzed as institutional space.
[2] Seasonal concessions accessory to the park and public space such as food/entertainment and bike rental concessions. These uses are assumed as commercial for purposes of energy consumptions rates in the *CEQR Technical Manual*.

Sources: *CEQR Technical Manual*, Table 15-1, "Average Annual Whole-Building Energy Use in New York City."

D. THE FUTURE WITHOUT THE PROPOSED PROJECT

In the future without the Proposed Project, it is expected that no portion of the Proposed Project would be implemented and the Island would continue in its current use and configuration. Energy consumption in the future without the Proposed Project would not be expected to change relative to existing conditions.

In addition, as discussed in Chapter 2, "Analytical Framework," in the future without the Proposed Project, the Trust will undertake several projects to rehabilitate, repair, replace, and upgrade utility infrastructure including upgrading electrical service to the Island and upgrading the distribution system on the Island.

E. PROBABLE IMPACTS OF THE PROPOSED PROJECT

For Phase 1 of the Proposed Project, it is expected that energy consumed by lighting the proposed park and public space enhancements would be minimal and that adequate electrical capacity would be available in the New York City metropolitan area to handle the generated demand from Phase 1. The same is true of the Later Phases-Park and Public Spaces.

Full development of the Proposed Project—cumulatively Phase 1, Later Phases-Park and Public Spaces, and the new development and retenancy of existing structures in the Later Phases-Island Redevelopment—would result in increased energy demands on the Island. As described in Chapter 2, "Framework for Analysis," two development scenarios are being considered for the Later Phases–Island Redevelopment. For purposes of a conservative analysis, this chapter assumes the University/Research Option, since this option would have higher energy demands. As shown in **Table 14-2**, full development of the Proposed Project would create a total demand for 596,100 million BTUs of energy per year.

Table 14-2
Projected Energy Consumption of the Proposed Project

Use	Size (Square Feet)	Rate (BTUs/Square Foot/Year)	Consumption (Million BTUs/year)
Commercial	750,000	216,300	162,225
Institutional	1,200,000	250,700	300,840
Large Residential (>4 family)	1,050,000	126,700	133,035
		Total Energy Consumption	**596,100**

Notes: Maintenance, support, and other (140,000 square feet) were analyzed as institutional space.
Sources: *CEQR Technical Manual*, Table 15-1, "Average Annual Whole-Building Energy Use in New York City."

Compared with conditions in the future without the Proposed Project, net increases with the full development of the Proposed Project would create an incremental energy demand for 483,227 million BTUs per year. Compared with the approximately 335 trillion BTUs of energy consumed annually within Con Edison's New York City and Westchester County service area, this increase would be considered a negligible increment. This additional demand is not expected to overburden the energy generation, transmission, and distribution system and would not result in a significant adverse energy impact.

Upon completion, the Proposed Project would comply with the *New York City Energy Conservation Construction Code Act*. In compliance with this code, the buildings to be constructed must incorporate the required energy conservation measures, including meeting code requirements relating to energy efficiency and combined thermal transmittance. Therefore, as previously stated, no significant adverse energy impacts would result from the Proposed Project.

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