Chapter 13: Energy

A. INTRODUCTION

This chapter considers whether the proposed actions would result in significant adverse energy impacts. As described in Chapter 1, "Project Description," and Chapter 2, "Analytical Framework," in the future with the proposed actions (the With Action condition), the Project Area would be redeveloped with two new mixed-use buildings on two project sites (project site A—601 West 29th Street and project site B—606 West 30th Street). The Project Area includes these two project sites as well as an intervening lot (Lot 38), which is not part of either project site but is assumed to be redeveloped for the purposes of environmental review. The two project sites and Lot 38 would be rezoned and included in the Special Hudson River Park District. Overall, it is assumed that the Project Area would contain residential apartments, retail, accessory parking, and potentially a public facility (a Fire Department of the City of New York-Emergency Medical Service [FDNY-EMS] Station).

The 2014 *City Environmental Quality Review (CEQR) Technical Manual* recommends a detailed analysis of energy impacts for projects that could significantly affect the transmission or generation of energy or that cause substantial new consumption of energy. Because the proposed actions would not result in any of these conditions, a detailed assessment of energy impacts is not necessary. Nevertheless, the *CEQR Technical Manual* recommends that a project's energy consumption be calculated and disclosed; therefore, this chapter projects the amount of energy that would be consumed by the proposed projects.

PRINCIPAL CONCLUSIONS

This preliminary analysis finds that the proposed actions would not result in any significant adverse energy impacts. The proposed projects generate an incremental demand for approximately 133,110 million British thermal units (BTUs) of energy per year. This energy demand represents the total incremental increase in energy consumption between the future without the proposed actions (the No Action condition) and the future with the proposed actions (the With Action condition). As explained in the *CEQR Technical Manual*, the incremental demand produced by most projects would not create a significant impact on energy capacity, and detailed assessments are only recommended for projects that may significantly affect the transmission or generation of energy. The proposed projects would generate an incremental increase in energy demand that would be negligible when compared to the overall demand within Consolidated Edison's (Con Edison's) New York City and Westchester County service area. Therefore, the proposed projects would not result in any significant adverse energy impacts.

B. METHODOLOGY

To assess the proposed actions' potential impacts on energy, this chapter:

- Presents data on the existing energy distribution system and estimated energy usage for existing conditions;

- Determines future energy demands without and with the proposed actions, using energy consumption rates for typical land uses provided in the *CEQR Technical Manual*; and
- Assesses the effects of this incremental energy demand on the local distribution system and regional energy supplies.

The project's energy consumption is estimated based on Table 15-1 of the *CEQR Technical Manual*, which provides the average annual energy consumption rates in New York City for various land uses. The measure of energy use in this chapter is BTU per sf of building floor area per year.

C. EXISTING CONDITIONS

ENERGY GENERATION

Within New York City, electricity is generated and delivered to most users by Con Edison, as well as a number of independent power companies. Electrical energy in New York City is drawn from a variety of sources that originate both within and outside the City. These include non-renewable sources (such as oil, natural gas, and coal fuel) and renewable sources (such as hydroelectricity and, to a much lesser extent, biomass fuels, solar power, and wind power). Electricity consumed in New York City is generated in various locations, including sites within New York City, locations across the Northeast, and places as far away as Canada.

Con Edison distributes power throughout New York City and Westchester County. 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 the street "grid." Within the grid, voltage is further reduced for delivery to customers. Each substation serves one or more distinct geographic areas, called networks, which are isolated from the rest of the local distribution system. If service is lost at a specific substation or substations, the network functions to isolate any problems from other parts of the city. Substations are also designed to have sufficient capacity for the network to grow.

In 2016, approximately 57 billion kilowatt hours (KWH), or 194 trillion BTUs of electricity were delivered in Con Edison's service area. In addition, Con Edison supplied approximately 153 trillion BTUs of natural gas and approximately 20 billion pounds of steam, which is equivalent to approximately 21 trillion BTUs.[1] Overall, approximately 368 trillion BTUs of energy are consumed within Con Edison's New York City and Westchester County service area annually.

PROJECT AREA ENERGY CONSUMPTION/EXISTING DEMAND

As described in Chapter 2, "Analytical Framework," in total, the Project Area has 18,521 gross square feet (gsf) of industrial uses and 56,865 gsf of commercial uses. For analysis purposes, the retail uses are assumed to consume energy at the commercial building type rate (216,300 BTU/sf/year) and the industrial uses are assumed to consume energy at the industrial building type rate (554,300 BTU/sf/year), as defined in Table 15-1 of the *CEQR Technical Manual.* Therefore, the existing energy consumption on the Project Area is approximately 22,566 million BTUs per year (see **Table 13-1**).

[1] Con Edison Annual Report, 2016.

Table 13-1
Project Area – Existing Energy Consumption

Use	Size (gsf)	Rate (BTUs/sf/year)	Energy Consumption (Million BTUs/Year)
Commercial	56,865	216,300	12,300
Industrial	18,521	554,300	10,266
		Total Energy Consumption	**22,566**

Note: Totals may not sum due to rounding.
Sources: 2014 *CEQR Technical Manual*, Table 15-1, "Average Annual Whole-Building Energy Use in New York City."

D. FUTURE WITHOUT THE PROPOSED ACTIONS

For the future without the proposed actions (the No Action condition), it is conservatively assumed that the existing structures will remain on the Project Area with uses similar to or the same as existing uses. Further, it is assumed that any improvements to the structures or sites would be minimal. Therefore, the energy consumption for the No Action condition is assumed to be the same as in existing conditions.

E. FUTURE WITH THE PROPOSED ACTIONS

As detailed in Chapter 1, "Project Description," it is assumed that the Project Area, in total, would contain up to 1,242 dwelling units, up to 40,028 gsf of retail, up to 252 parking spaces, and 12,500 gsf for a potential FDNY-EMS Station. As shown in **Table 13-2**, the total energy consumption on the Project Area would be 155,677 million BTUs per year. The total incremental energy use between the No Action condition and the With Action condition would be 133,110 million BTUs per year. This calculation was derived by subtracting out the Existing/No Action energy consumption on the Project Area (22,566 million BTUs per year) from the With Action energy consumption on the Project Area (155,677 million BTUs per year). Compared with the approximately 368 trillion BTUs of energy consumed annually within Con Edison's New York City and Westchester County service area, this incremental increase would be considered a negligible change. Therefore, the proposed projects would not have any significant adverse impacts on energy.

Table 13-2
Project Area – Projected Energy Consumption
With Action Condition

Use	Size (gsf)	Rate (BTUs/sf/year)	Energy Consumption (Million BTUs/Year)
Residential	1,135,636	126,700	143,885
Retail	40,028	216,300	8,658
Community Facility	12,500	250,700	3,134
		Total Energy Consumption	**155,677**
		Incremental Energy Consumption Over	**133,110**

Note: Totals may not sum due to rounding.
Sources: 2014 *CEQR Technical Manual*, Table 15-1, "Average Annual Whole-Building Energy Use in New York City."

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