Chapter 13: Energy

A. INTRODUCTION

This chapter considers the potential for the proposed actions to result in significant adverse energy impacts. As described in Chapter 1, "Project Description," the applicants, the New York City Department of City Planning (DCP) and SJC 33 Owner 2015 LLC, are proposing a series of discretionary actions (the proposed actions) that would facilitate the redevelopment of St. John's Terminal Building at 550 Washington Street (Block 596, Lot 1) (the development site) with a mix of residential and commercial uses, and public open space (the proposed project) in Manhattan Community District 2. 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 project 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 project.

PRINCIPAL CONCLUSIONS

This preliminary analysis finds that the proposed actions would not result in any significant adverse energy impacts. The proposed project is projected to generate demand for approximately 48,357 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 project (the No Action condition) and the future with the proposed project (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 project 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 project would not result in any significant adverse energy impacts.

B. ANALYSIS APPROACH

As described in Chapter 2, "Analytical Framework," in the future with the proposed actions (the With Action condition), the development site is assumed to be redeveloped with one of two development programs: the proposed project or the proposed project with big box retail. In addition, under both of these scenarios, the South Site could contain either hotel or office use. For the purposes of this analysis, the development option that includes big box retail has been considered, as this option includes a higher amount of active space that consumes energy (i.e.,

retail) and less parking area. The commercial energy demand factor applied in this chapter represents both hotel and office uses.

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 2014 (the latest year for which data are available), approximately 56 billion kilowatt hours (KWH), or 192 trillion BTUs were delivered in Con Edison's service area. In addition, Con Edison supplied approximately 155 trillion BTUs of natural gas and approximately 23 billion pounds of steam, which is equivalent to approximately 24 trillion BTUs.[1] Overall, approximately 371 trillion BTUs of energy are consumed within Con Edison's New York City and Westchester County service area annually.

PROJECT SITE ENERGY CONSUMPTION

As described in Chapter 1, "Project Description," the existing St. John's Terminal Building on the development site is largely vacant, while the portion of the building south of West Houston Street is occupied by commercial tenants (office, back office and communications) and is also used as temporary event space (fashion shows, exhibits, etc.). The occupied portion of the building totals approximately 397,894 gross square feet (gsf) of space. For analysis purposes, these uses are assumed to consume energy at the commercial building type rate (216,300 BTU/sf/year) as defined in Table 15-1 of the *CEQR Technical Manual*. Therefore, the existing energy consumption on the development site is 86,064 million BTUs per year.

D. THE FUTURE WITHOUT THE PROPOSED ACTIONS

In the No Action condition, the development site is expected to be redeveloped with a program that does not require any discretionary approvals. On the North Site, the No Action development

[1] Consolidated Edison Annual Report, 2014.

will include hotel, office, and retail uses. The development on the Center and South sites will include office uses, event space, and retail uses. Overall, the No Action development is assumed to include approximately 322,000 gsf of retail uses (including 61,500 gsf of local retail and 260,500 gsf of destination retail), 427,000 gsf of office space, a 285,000-gsf hotel (438 rooms), 50,000 gsf of event space, and approximately 176 accessory parking spaces.

All of the uses introduced by the No Action development (retail, hotel, office, and event space) are assumed to consume energy at the commercial building type rate. With a total of 1,084,000 gsf of commercial space, the energy consumption for the No Action development will be 234,469 million BTUs per year.

E. THE FUTURE WITH THE PROPOSED ACTIONS

The proposed project with big box retail scenario would contain 1,961,200 gsf of space, with 1,334,100 gsf of residential space (1,586 units), approximately 255,000 gsf of retail uses (including a 104,800-gsf big box use), 229,700 gsf of hotel space, 41,400 gsf of event space, and 14,200 sf of publicly accessible open space, as well as cellar-level parking spaces. Including the retail, hotel, and event space, the proposed project would include 526,100 gsf of commercial space, which would consume energy at the commercial building type rate. The residential space would consume energy at a residential building type rate (126,700 BTU/sf/year), the rate for large residential buildings as defined in Table 15-1 of the *CEQR Technical Manual*. Therefore, as shown in **Table 13-1**, the energy consumption for the proposed project including big box retail would be 282,826 million BTUs per year.

Table 13-1
Projected Future Energy Consumption of the Proposed Project

Use	Size (gsf)	Rate (BTUs/sf/year)	Energy Consumption (Million BTUs/Year)
Residential	1,334,100	126,700	169,030
Commercial*	526,100	216,300	113,795
Total Energy Consumption			**282,826**

Notes: sf = square feet.
Totals may not sum due to rounding.
* Includes retail, hotel, and event space.
Source: 2014 *CEQR Technical Manual*, Table 15-1, "Average Annual Whole-Building Energy Use in New York City."

The total incremental energy use between the No Action condition and the With Action condition would be 48,357 million BTUs per year. This calculation was derived by subtracting out the No Action energy consumption on the development site (234,469 million BTUs per year) from the total project energy consumption. Compared with the approximately 371 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 (approximately 0.01 percent of Con Edison's annual consumption). Therefore, the proposed project would not have any significant adverse impacts on energy. ✷