Chapter 12: 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 proposed actions include zoning map and text amendments, a large-scale special permit pursuant to ZR Section 74-743, a parking reduction special permit pursuant to ZR Section 74-533, and an authorization pursuant to ZR Section 25-631(f)(2) to permit the proposed curb cuts. The rezoning area is located in the Central Harlem neighborhood of Manhattan in Community District (CD) 10. In total, the proposed actions would result in approximately 1,488,758 gross square feet (gsf) of new residential use (approximately 1,711 dwelling units [DUs]), 39,845 gsf of new retail use, 15,055 gsf of new community facility use, and new private open space within the rezoning area.

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 project.

PRINCIPAL CONCLUSIONS

This preliminary analysis finds that the proposed actions would not result in any significant adverse energy impacts. The proposed project and the development on the projected future development site are projected to generate an incremental demand for approximately 201,018 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 actions 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 actions would not result in any significant adverse energy impacts.

B. METHODOLOGY

To assess the potential impact of the proposed projects 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 project for 2026, using energy consumption rates for typical land uses provided in Table 15-1 of the *CEQR Technical Manual*; and
- Assesses the effects of this incremental energy demand on the local distribution system and regional energy supplies.

This chapter calculates the annual energy consumption of the project sites under existing, No Action, and With Action conditions and the net change in energy consumption, which represents the proposed actions' anticipated energy use. The measure of energy used in this chapter is BTU per square foot (sf) of building floor area per year. The assumptions utilized in calculating energy consumption for the existing conditions were also applied to the rezoning area under the No Action and With Action conditions.

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 2017 (the latest year for which data are available), approximately 55.3 billion kilowatt hours (KWH), or 189 trillion BTUs of electricity were delivered in Con Edison's service area. In addition, Con Edison supplied approximately 162 trillion BTUs of natural gas and approximately 19.4 billion pounds of steam, which is equivalent to approximately 23 trillion BTUs.[1] Overall, approximately 381 trillion BTUs of energy are consumed within Con Edison's New York City and Westchester County service area annually.

REZONING AREA ENERGY CONSUMPTION

As described in Chapter 1, "Project Description," the rezoning area is currently occupied by 1,716 DUs, 77,835 sf of retail space, 73,059 sf of community facility space, and 478 accessory parking spaces. For analysis purposes, the retail uses are assumed to consume energy at the commercial building type rate (216,300 BTUs/sf/year); the community facility uses are assumed

[1] Consolidated Edison Annual Report, 2017.

to consume energy at the institutional building type rate (250,700 BTUs/sf/year); and the residential uses are assumed to consume energy at the large residential (4+ family) building type rate (126,700 BTUs/sf/year), as defined in Table 15-1 of the *CEQR Technical Manual.* Therefore, as detailed in **Table 12-1**, the existing energy consumption within the rezoning area is approximately 224,603 million BTUs per year.

Table 12-1
Existing Annual Energy Consumption for the Rezoning Area

Use	Size (gsf)	Average Annual Energy Rate (Million BTUs/sf)	Energy Consumption (Million BTUs/Year)
Large Residential (>4 family)	1,495,274	126.7	189,451
Retail	77,835	216.3	16,836
Community Facility	73,059	250.7	18,316
		Total Energy Consumption	***224,603***

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

D. FUTURE WITHOUT THE PROPOSED PROJECT

For the purposes of a conservative analysis, it is assumed that the rezoning area would continue in its current condition in the No Action scenario (both 2026 and 2023), with the exception that currently vacant retail space on the proposed development site would likely be re-tenanted depending upon market conditions. While it has been reported that the Metropolitan AME Church could be redeveloped independent of the proposed actions, the No Action scenario will assume that the projected future development site would continue in its current condition. No new development would occur within the rezoning area. Therefore, as detailed in **Table 13-2**, the energy consumption for the No Action condition is assumed to be slightly higher than in existing conditions.

Table 12-2
No Action Annual Energy Consumption for the Rezoning Area

Use	Size (gsf)	Average Annual Energy Rate (Million BTUs/sf)	Energy Consumption (Million BTUs/Year)
Large Residential (>4 family)	1,495,274	126.7	189,451
Retail	95,655	216.3	20,690
Community Facility	73,059	250.7	18,316
		Total Energy Consumption	***228,457***

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

E. FUTURE WITH THE PROPOSED PROJECT

As detailed in Chapter 1, "Project Description," it is anticipated that in the With Action condition, the proposed actions would result in the development of approximately 1,711 new

residential units, 39,845 sf of additional retail space, and 15,055 sf of additional community facility space to the rezoning area in comparison to the No Action condition. Therefore, as shown in **Table 12-3**, the total energy consumption within the rezoning area (including the existing uses to remain) would be 429,476 million BTUs per year. The total incremental energy use between the No Action condition and the With Action condition would be 201,018 million BTUs per year. This calculation was derived by subtracting out the No Action energy consumption within the rezoning area (228,457 million BTUs per year) from the With Action energy consumption within the rezoning area (429,476 million BTUs per year). Compared with the approximately 381 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 12-3
Projected Energy Consumption in the Future with the Proposed Project

Use	Size (gsf)	Average Annual Energy Rate (Million BTUs/sf)	Energy Consumption (Million BTUs/Year)
Residential *(New)*	1,488,758	126,700	188,626
Residential *(Remaining)*	1,495,274		189,451
Retail *(With Action)*	135,500	216,300	29,309
Retail *(No Action)*	95,655		20,690
Community Facility *(New)*	15,055	250,700	3,774
Community Facility *(Remaining)*	73,059		18,316
Total Energy Consumption			***429,476***
Incremental Energy Consumption over No Action			***201,018***

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

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