

A. INTRODUCTION

This chapter considers the potential for the proposed projects to result in significant adverse energy impacts. As described in Chapter 1, “Project Description,” the proposed actions comprise separate minor modifications to the existing Two Bridges Large Scale Residential Development (LSRD) to allow for the development of three new mixed-use buildings within the Two Bridges LSRD. The three project sites—Sites 4 (4A/4B), 5, and 6A—are located in the Lower East Side neighborhood of Manhattan in Community District (CD) 3, within the boundaries of the former Two Bridges Urban Renewal Area (TBURA). In total, the proposed projects would result in approximately 2,527,727 gross square feet (gsf) of residential use (approximately 2,775 dwelling units [DUs]), 10,858 gsf of retail use, 17,028 gsf of community facility use, and new and altered publicly accessible and private open space.

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 projects 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 projects would not result in any significant adverse energy impacts. The proposed projects are projected to generate an incremental demand for approximately 326,881 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 projects (the No Action condition) and the future with the proposed projects (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 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 projects for 2021, 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 projects' 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 project sites 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 2016 (the latest year for which data are available), 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.

¹ Consolidated Edison Annual Report, 2016.

PROJECT SITES ENERGY CONSUMPTION

As described in Chapter 1, “Project Description,” the project sites are currently occupied by 1,053 DUs, 13,599 sf of retail space (a portion of which is currently un-tenanted), 27,552 sf of community facility space, 80,020 sf of private open space, and 152 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 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 13-1**, the existing energy consumption on the project sites is approximately 163,329 million BTUs per year.

Table 13-1
Existing Annual Energy Consumption for the Project Sites

Use	Size (gsf)	Average Annual Energy Rate (Million BTUs/sf)	Energy Consumption (Million BTUs/Year)
Large Residential (>4 family)	1,211,370	126.7	153,481
Retail	13,599	216.3	2,941
Community Facility	27,552	250.7	6,907
Total Energy Consumption			163,329
Notes: sf = square feet. Totals may not sum due to rounding. Source: 2014 <i>CEQR Technical Manual</i> , Table 15-1, “Average Annual Whole-Building Energy Use in New York City.”			

D. FUTURE WITHOUT THE PROPOSED PROJECTS

For the future without the proposed projects (the No Action condition), it is assumed that the project sites would continue in their existing conditions, including the Rutgers Slip Open Space on Site 5 remaining private open space. The existing retail in the 235 Cherry Street building (Lot 76) on Site 4 (4A/4B) would be re-tenanted. No new development would occur on the project sites. Therefore, as detailed in **Table 13-2**, the energy consumption for the No Action condition is assumed to be the same as in existing conditions.

Table 13-2
No Action Annual Energy Consumption for the Project Sites

Use	Size (gsf)	Average Annual Energy Rate (Million BTUs/sf)	Energy Consumption (Million BTUs/Year)
Large Residential (>4 family)	1,211,370	126.7	153,481
Retail	13,599	216.3	2,941
Community Facility	27,552	250.7	6,907
Total Energy Consumption			163,329
Notes: sf = square feet. Totals may not sum due to rounding. Source: 2014 <i>CEQR Technical Manual</i> , Table 15-1, “Average Annual Whole-Building Energy Use in New York City.”			

E. FUTURE WITH THE PROPOSED PROJECTS

As detailed in Chapter 1, “Project Description,” it is anticipated that in the With Action condition, the proposed projects would introduce approximately 2,775 new residential units, 10,858 sf of additional retail space, and 17,028 sf of additional community facility space to the project sites in comparison to the No Action condition. Therefore, as shown in **Table 13-3**, the total energy consumption on the project sites (including the proposed uses to remain) would be 488,426 million BTUs per year. The total incremental energy use between the No Action condition and the With Action condition would be 326,881 million BTUs per year. This calculation was derived by subtracting out the Existing/No Action energy consumption on the project sites (163,329 million BTUs per year) from the With Action energy consumption on the project sites (488,426 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 (approximately 0.09 percent of Con Edison’s annual consumption). Therefore, the proposed projects would not have any significant adverse impacts on energy.

Table 13-3
Projected Energy Consumption in the Future with the Proposed Projects

Use	Size (gsf)	Average Annual Energy Rate (Million BTUs/sf)	Energy Consumption (Million BTUs/Year)
Residential (<i>New</i>)	2,527,727	126,700	320,263
Residential (<i>Remaining</i>)	1,211,370		153,480
Retail (<i>New</i>)	10,858	216,300	2,349
Retail (<i>Remaining</i>)	13,599		2,941
Community Facility (<i>New</i>)	17,028	250,700	4,269
Community Facility (<i>Remaining</i>)	27,552		6,907
Total Energy Consumption			488,426
Incremental Energy Consumption over No Action			326,881
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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