

A. INTRODUCTION

This chapter considers whether the Proposed Actions would result in significant adverse energy impacts. As described in Chapter 1, “Project Description,” the Proposed Actions would facilitate redevelopment and re-tenanting of Industry City (the Project Area), in the Sunset Park neighborhood of Brooklyn, in Community District (CD) 7, with a mixed-use project containing manufacturing, commercial, retail, hospitality, academic and community facility uses (the Proposed Project). Construction would be finished and Industry City would be occupied by 2027 (the build year).

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. This chapter is analyzed under the Density-Dependent Scenario (the With Action condition), which represents a more conservative program for the purposes of projecting energy demand. Specifically, the Density-Dependent Scenario conservatively assumes additional academic/community facility and additional Innovation Economy uses in place of warehouse uses (which do not have high energy demands), and would therefore have a higher overall energy demand than the other scenarios.

PRINCIPAL CONCLUSIONS

Based on the analysis, the Proposed Project would not result in any significant adverse energy impacts. The Proposed Actions under the Density-Dependent Scenario would generate an incremental demand for approximately 1,215 billion British thermal units (BTUs) of energy per year, a less than one percent increase in overall electricity demand per year. This incremental energy demand represents the total 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 energy demand resulting from 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. METHODOLOGY

To assess the Proposed Project’s 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 Project, 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 Proposed 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 including commercial, industrial, institutional, large residential, and small residential. The consumption rates are expressed in BTU per square foot (sf) of building floor area per year.

C. EXISTING CONDITIONS

ENERGY GENERATION AND DISTRIBUTION

Within New York City, electricity is generated and delivered by Con Edison and 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 and natural gas) 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 (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.

RECENT ENERGY CONSERVATION DIRECTIVES

In December 2009, the New York City Council passed four laws, collectively known as the Greener, Greater Buildings Plan (GGBP), that required energy efficiency upgrades and energy transparency in large existing buildings. Specifically, these laws call for annual benchmarking, energy audits, retro-commissioning, lighting upgrades, and sub-metering of commercial tenant space. Three out of these four laws only affect the City's largest 16,000 properties, both public and private, that compose half of the built area in the City. Through the enactment of one of those

¹ Con Edison Annual Report, 2016.

laws, beginning in 2011, privately owned buildings over 50,000 sf were required to submit reports of energy performance measurements in a process called “benchmarking.” Though buildings of this size represent just 2 percent of the total number of buildings in the City, they are responsible for approximately 45 percent of total energy consumption, making this law both targeted and high-impact. By 2030, these laws are expected to reduce greenhouse gas (GHG) emissions by at least 5 percent citywide.²

As discussed in the “Public Policy” section in Chapter 2, “Land Use, Zoning, and Public Policy,” *OneNYC: The Plan for a Strong and Just City* (OneNYC) is the Mayor’s plan to promote growth, sustainability, resiliency, and equity as the City seeks to address the challenges of climate change with a multifaceted approach. New York City’s long-term comprehensive plan for a sustainable and resilient New York City began as PlaNYC 2030 in 2007, and continues to evolve today as OneNYC. In order to make New York City one of the most sustainable big cities in the world, which is one of the stated goals of OneNYC, the City is working to reduce New York City’s energy consumption and its contribution to climate change. One of the most ambitious goals of OneNYC is to reduce greenhouse gas emissions by 80 percent by 2050, which includes requiring substantial shifts in the City’s power generation system and reduction of the carbon footprint of buildings.

EXISTING DEMAND

As described in Chapter 1, “Project Description,” current uses in the Project Area include retail, event space, Innovation Economy uses, the Brooklyn Nets training facility, and warehousing/storage. There is also more than 1.3 million gross square feet of vacant space. The estimated existing energy demand by type of use was calculated using the applicable consumption rates: industrial use rate (554.3 thousand BTU/sf/year); institutional use rate (250.7 thousand BTU/sf/year), and retail/commercial use rate (216.3 thousand BTU/sf/year), based on Table 15-1 of the *CEQR Technical Manual*. Innovation Economy manufacturing, artisanal, and office uses were all conservatively classified as industrial uses, which have a greater energy demand. The energy demand for warehouse and storage uses, circulation, and vacant space was assumed to be negligible.

The existing energy consumption within the Project Area is approximately 1,175 billion BTUs per year (see **Table 10-1**).

**Table 10-1
Estimated Energy Consumption
Existing Conditions**

Use ¹	Size (gsf)	Use Classification	Rate (thousand BTUs/sf)	Energy Consumption (million BTUs/year)
Retail	71,835	Commercial	216.3	15,538
Event Space	10,000	Commercial	216.3	2,163
Innovation Economy ²	2,085,355	Industrial	554.3	1,140,946
Brooklyn Nets Training Facility	74,824	Commercial	216.3	16,184
Total Energy Consumption ³				1,174,832
Notes:				
¹ The energy demand for warehouse and storage uses, circulation, and vacant space was assumed to be negligible.				
² The energy demand for Innovation Economy uses, including Innovation Economy office space, is conservatively based on the energy consumption factor for industrial uses.				
³ Total 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.”				

² PlaNYC, adopted in 2007 and updated in April 2011; Energy Chapter, page 107

D. THE FUTURE WITHOUT THE PROPOSED ACTIONS

For the future without the Proposed Project (the No Action condition), it is conservatively assumed that the existing structures would remain with uses similar to or the same as existing uses. Further, it is estimated that there would be a ten percent increase in Innovation Economy uses based on current leasing rates and the tenant roster. It is further assumed that some of the currently vacant space would be re-occupied by storage and/or warehousing or Innovation Economy uses. The estimated energy demand under the No Action condition was calculated by the use category and the applicable consumption rates used for the existing conditions, as described above (see **Table 10-2**). The anticipated changes in use would result in a total demand of 1,302 billion BTU/year, or an increase of approximately 127 million BTU/year from existing conditions.

**Table 10-2
Projected Energy Demand
No Action Condition**

Use ¹	Size (gsf)	Use Classification	Rate (thousand BTUs/sf/yr)	Energy Consumption (million BTUs/year)
Retail	200,000	Commercial	216.3	43,260
Event Space	10,000	Commercial	216.3	2,163
Innovation Economy ²	2,238,276	Industrial	554.3	1,240,676
Brooklyn Nets Training Facility	74,824	Commercial	216.3	16,184
Total Energy Demand ³				1,302,284
Notes:				
¹ The energy demand for warehouse and storage uses, circulation, and vacant space was assumed to be negligible.				
² The energy demand for Innovation Economy uses, including Innovation Economy office space, is conservatively based on the energy consumption factor for industrial uses.				
³ Total 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. THE FUTURE WITH THE PROPOSED ACTIONS

As detailed in Chapter 1, "Project Description," the Proposed Actions would facilitate re-tenanting of a substantial portion of the approximately 5.3 million square feet (sf) of existing structure and the development of 1.45 million sf in new construction buildings or enlargements of existing structures. As shown in **Table 10-3**, the total energy demand with the Proposed Project, under the Density-Dependent Scenario, would be approximately 2,517 billion BTUs per year. The total increase in energy demand between the No Action condition and the With Action condition would be approximately 1,215 billion BTUs per year. This increase was calculated by subtracting the No Action energy demand (1,302 billion BTUs per year) from the With Action energy consumption (2,517 billion BTUs per year).

Table 10-3
Projected Energy Demand
With Action Condition (Density-Dependent Scenario)

Use ¹	Size (gsf)	Use Classification	Rate (thousand BTUs/sf/yr)	Energy Consumption (million BTUs/year)
Retail	900,000	Commercial	216.3	194,670
Event Space	43,003	Commercial	216.3	9,302
Innovation Economy ²	3,747,656	Industrial	554.3	2,077,326
Brooklyn Nets Training Facility	74,824	Commercial	216.3	16,184
Hotel	287,000	Commercial	216.3	62,078
Academic	627,674	Institutional	250.7	157,358
Total Energy Demand³				2,516,918
Notes:				
¹ The energy demand for warehouse and storage uses, circulation, and vacant space was assumed to be negligible.				
² The energy demand for Innovation Economy uses, including Innovation Economy office space, is conservatively based on the energy consumption factor for industrial uses.				
³ Total 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."				

This incremental increase in energy demand would be negligible when compared to the current overall demand within Con Edison's New York City and Westchester County service area. In addition, according to the New York Independent Systems Operator's (NYISO) 2017 *Load and Capacity Data* report, annual state electricity requirements for 2027³ are forecast at approximately 154,971 Gigawatt hours (GWh) (or 528 trillion BTUs). Of this forecast annual electricity demand, 50,612 GWh (or 172 trillion BTUs) is expected to come from Zone J, which includes Brooklyn. With the Proposed Project, the anticipated 1,215 billion BTU incremental increase in annual energy demand (including both electricity and onsite fuel use for heating and other systems) as compared with the No Action scenario represents less than one percent of the forecast annual electric energy demand for Zone J. Therefore, the Proposed Actions are not expected to result in a significant adverse impact on energy systems.

Additionally, the Applicant has invested \$25 million in energy infrastructure upgrades, increasing electricity reliability and reducing Industry City's carbon footprint. These upgrades include actions such as the modernizing of antiquated transmission and distribution infrastructure. Other measures like LED lighting in Industry City's common areas, window replacements, and cool roofs are all designed to reduce the forecasted energy load shown in **Table 10-3**.

In addition, it should be noted that a portion of the With Action energy consumption would come from new development; however, the Proposed Actions would also facilitate the re-tenanting of a substantial portion of the existing Industry City structures. Because these areas would be re-tenanted and not developed with new buildings, they would not represent an entirely new energy demand within the Project Area. The range of options available for additional energy-efficiency

³ NYISO's 2017 *Load and Capacity Data* report forecast annual energy requirements up until the year 2027, the proposed build year of the Proposed Actions. Therefore, the forecast energy requirements for 2027 were used as the basis of the No Action and With Action scenarios.

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improvements of existing buildings may also be more limited than the measures that could be implemented as part of the proposed new development.

Based on the above information, no significant adverse energy impacts would result from the Proposed Actions. *