

960 Franklin Avenue Rezoning EIS

CHAPTER 13: ENERGY

A. INTRODUCTION

New building and alteration projects are subject to the New York City Energy Conservation Code (NYCECC), which comprises the 2010 Energy Conservation Construction Codes of New York State (ECCCNYS) in addition to a series of local laws. Therefore, according to the 2020 *City Environmental Quality Review (CEQR) Technical Manual*, a detailed assessment of energy impacts would be limited to projects that may significantly affect the transmission or generation of energy. Most projects resulting in new construction would not create significant energy impacts, and, as such, do not require a detailed energy assessment. However, a proposed project's operational energy consumption should be estimated.

As described in **Chapter 1, "Project Description,"** the Proposed Actions would facilitate the construction of a two building mixed-use development. For conservative analysis purposes, the reasonable worst-case development scenario (RWCDs) anticipates that the Proposed Development would be comprised of approximately 1,263,039 gsf of residential uses, introducing a total of 1,578 dwelling units, of which 50 percent or 789 dwelling units would be affordable units and 50 percent or 789 dwelling units would be market-rate units. The 789 new and permanent affordable housing units would include the following levels of affordability: 60 percent would accommodate families at or below 80 percent AMI, (474 units, consistent with and exceeding MIH option 2), 20 percent would accommodate families at or below 100 percent AMI (158 units) and 20 percent of the units would accommodate families at or below 120 percent AMI (157 units), helping to address affordable housing goals set forth by the City in *Housing New York: A Five-Borough, Ten-Year Plan*. 474 of the affordable dwelling units would be built pursuant to the MIH program. The Applicant intends, and will be enforced through the Restrictive Declaration, to construct 315 affordable dwelling units. In addition to the residential component, approximately 21,183 gsf of local retail space and approximately 9,678 gsf of community facility space would be provided. Parking for approximately 16 percent of market-rate DUs would be allocated in two separate parking garages on the ground- and cellar-levels of the Proposed Development. Construction of the Proposed Development is expected to be complete with all components fully operational by the end of 2024.

As stated in the *CEQR Technical Manual*, in lieu of a detailed assessment, which is generally limited to projects that may significantly affect the transmission or generation of energy, the amount of energy that would be consumed annually as a result of the day-to-day operation of the buildings and uses resulting from the Proposed Development is disclosed in this chapter.

B. PRINCIPAL CONCLUSIONS

The Proposed Development would not result in a significant adverse impact on energy systems. Development facilitated by the Proposed Actions is expected to create an increased demand on energy systems, including electricity and gas. It is estimated that With-Action development on the Development Site would result in an increase of approximately 114.5 billion British thermal units (BTUs) over No-Action conditions. This increase in annual demand would represent less than 0.1 percent of the City's forecasted future annual energy requirement of 172 trillion BTU for 2024 and, therefore, is not expected to result in

a significant adverse impact on energy systems. Moreover, any new development resulting from the Proposed Actions would be required to comply with the NYCECC, which governs performance requirements of heating, ventilation, and air conditioning (HVAC) systems, as well as the exterior building envelope of new buildings. In compliance with this code, new developments must meet standards for energy conservation, which include requirements relating to energy efficiency and combined thermal transmittance.

C. METHODOLOGY

To assess the Proposed Development'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 Development for 2024, 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.

This chapter calculates the annual energy consumption of the Development Site under existing, No-Action, and With-Action conditions and the net change in energy consumption, which represents the Proposed Development's anticipated energy use.

In accordance with *CEQR Technical Manual* methodology, this chapter uses the *CEQR Technical Manual's* Table 15-1 to estimate annual energy consumption as a result of the Proposed Development. The measure of energy use in this chapter is BTU per sf of building floor area per year.¹

D. EXISTING CONDITIONS

Energy Supply and Transmission

Within New York City, electricity is generated and delivered to most users by Consolidated Edison (Con Edison) as well as a number of independent power companies. Con Edison delivers electricity to all of New York City (except the Rockaway Peninsula in Queens) and most of Westchester County, for a total service area of approximately 660 square miles, comprising a population of more than 9.4 million residents. The electrical energy is supplied from a variety of sources that originate both within and outside New York City. These include non-renewable sources, such as nuclear, 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. New York City's electrical demands are met by a combination of sources, including electricity generated within New York City, at locations across the northeast, and from places as far away as Canada.

Con Edison provides the electrical power transmission for the City through a series of area and transmission substations. 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

¹ One BTU is the quantity of heat required to raise one pound of water by one degree Fahrenheit.

street “grid.” Within the grid, voltage is further reduced for delivery to customers. Each area substation serves one or more distinct geographic areas, called “networks,” which are isolated from the rest of the local distribution system. The purpose of the networks is that if one substation goes out of service, the problem would be localized to that network area and would not spread to other parts of the City. Substations are designed to have sufficient capacity for the network to grow.

Con Edison currently has 62 area distribution substations and various distribution facilities located throughout New York City and Westchester County. As of the end of 2017, Con Edison’s distribution system had a transformer capacity of 31,767 mega volt ampere (MVA), with 37,020 miles of overhead distribution lines and 97,564 miles of underground distribution lines. The underground distribution lines represent the longest underground electric delivery system in the country. Con Edison’s electric generating facilities consist of plants located in Manhattan with an aggregate capacity of 732 megawatts (MW). Natural gas is also delivered to Con Edison customers through an estimated 4,395 miles of mains and 371,236 service lines; 1,062 thousand dekatherms (MDt) of natural gas at a property in Astoria, Queens of which a maximum of about 240 MDt can be withdrawn per day. The company has about 1,226 MDt of additional natural gas storage capacity at a field in upstate New York. Lastly, Con Edison generates steam at one steam-electric generating station and five steam-only generating stations, which is distributed through approximately 104 miles of transmission, distribution, and service piping.²

In 2017 (the latest year for which data is available), annual electricity usage in Con Edison’s service area totaled approximately 55.3 billion kilowatt hours (KWH), or 188.7 trillion BTU.³ In addition, Con Edison supplied approximately 161.9 trillion BTU of natural gas and approximately 23.3 trillion BTU of steam in 2017.⁴

According to the Con Edison *2017 Annual Report*, the peak electrical demand for New York City in Summer 2017 was 12,321 MW, which occurred on July 20, 2017. Con Edison forecasts an average annual growth of the peak electric demand in its service area over the next five years to be approximately 0.1 percent per year. Con Edison’s peak gas and steam demand occur during the winter heating season; the peak day demand for gas during the winter of 2017/2018 occurred on January 6, 2018, when the demand reached 1,410 MDt, while the one-hour peak day demand for steam during the winter of 2017/2018 occurred on January 5, 2018, when the demand reached 7.9 million pounds (MMlb) per hour. Con Edison forecasts an average annual growth of the peak natural gas demand over the next five years to be approximately 1.2 percent per year and an annual decrease in steam peak demand over the next five years of approximately 0.5 percent per year. Con Edison is required by North American Electric Reliability Corporation (NERC), Northeast Power Coordinating Council (NPCC), and New York State Reliability Council (NYSRC) rules to maintain its transmission system so that the two worst (non-simultaneous) contingencies will not result in equipment loading that exceeds the designated emergency rating of that equipment, will not result in the loss of any customer service, and, following corrective actions, will not result in equipment loading that exceeds the designated normal rating of that equipment.

Recent Energy Conservation Directives

In December 2009, the 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

² Con Edison, *2017 Annual Report*.

³ The Con Edison service area includes electricity to all of New York City (except the Rockaway Peninsula in Queens) and most of Westchester County; gas to Manhattan, the Bronx, northern Queens, and most of Westchester; and steam from the Battery to 96th Street in Manhattan.

⁴ Con Edison, *2017 Annual Report*.

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 comprise half the built area in the City. Through the enactment of one of those 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 two 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 five percent citywide.⁵

The City has also taken steps to enable private property owners to install renewable energy systems on their buildings. In 2012, the New York City Planning Commission (CPC) approved the "Zone Green" proposal to amend the City's zoning resolution to more flexibly allow rooftop solar and wind facilities, as well as better insulation.

Existing Demand

As described in **Chapter 1, "Project Description,"** the 120,209 sf (approximately 2.76-acre) Development Site is partially vacant and also includes the Morris J. Golombeck, Inc. Importers spice company ("Golombeck"). Golombeck has operated on the northern portion of the Development Site (lots 41 and 46) from approximately 1955 to present as a spice warehouse, processing and distribution facility. The northern portion of the Development Site contains several multi-story buildings totaling 107,744 gsf, including an office building, a former boiler building, as well as buildings which contain spice warehousing and spice processing uses. As such, existing energy demand is limited to the Golombeck facility. As presented in **Table 13-1**, this existing facility has an existing annual energy demand of approximately 23.3 billion BTUs.

TABLE 13-1
Existing Annual Energy Consumption for the Development Site

Use	Floor Area (gsf)	Average Annual Energy Use Rate (MBTU/sf) ¹	Existing Annual Energy Use (MBTU)
Spice Warehouse and Distribution Facility ²	107,744	216.3	23,305,027 (23.3 billion BTU)

Notes:

¹ From Table 15-1 of the *CEQR Technical Manual*. MBTU = one thousand BTU.

² Due to the low energy requirements of the spice factory (predominantly processing, drying, sorting and storage), the energy rates for a commercial use were assumed.

E. THE FUTURE WITHOUT THE PROPOSED ACTIONS (NO-ACTION CONDITION)

Energy Supply and Transmission

The Long-Range Transmission Plan: 2017-2027, issued by Con Edison in October 2017, laid out the plan for the Con Edison transmission system, based on a detailed evaluation of transmission load areas over a ten-year period. As outlined in *The Long-Range Transmission Plan: 2017-2027*, Con Edison anticipated peak demand in the New York City and Westchester County service area to increase to approximately

⁵ PlaNYC, adopted in 2007 and updated in April 2011; Energy Chapter, page 107.

13,860 MW by 2027, which represents a 4.2 percent increase over the estimated peak demand of approximately 13,300 MW for 2018.⁶

No-Action Demand

As outlined in **Chapter 1, “Project Description,”** in the 2024 future without the Proposed Actions, it is expected that no changes to zoning would occur at the Development Site. It is anticipated that an as-of-right residential development would be constructed on the Development Site (lots 41, 46, 63 and 66) in two phases pursuant to the existing R6A zoning under future No-Action conditions. The R6A zoning district permits 3.0 FAR with a maximum base height of 60 feet and a maximum building height of 70 feet. The No-Action development would include a total of approximately 414,607 gsf (approximately 356,190 zsf) of residential uses with approximately 518 market rate condominiums (assuming an average dwelling unit size of approximately 800 gsf per unit). Approximately 259 parking spaces would be provided, which is the equivalent of 50 percent of the building’s market-rate dwelling units as required by the site’s R6A zoning. As such, the Development Site would continue to generate approximately 52.5 billion BTUs of annual energy demand (refer to **Table 13-2**).

TABLE 13-2
No-Action Annual Energy Consumption for the Development Site

Use	Floor Area (gsf)	Average Annual Energy Use Rate (MBTU/sf) ¹	Existing Annual Energy Use (MBTU)
Residential (>4 family)	414,607	126.7	52,530,707 (52.5 billion BTU)

Notes:

¹ From Table 15-1 of the *CEQR Technical Manual*. MBTU = one thousand BTU.

According to the New York Independent System Operator’s (NYISO’s) *2017 Load & Capacity Data* report, accounting for the impacts of energy efficiency programs, building, codes, and appliance efficiency standards, as well as solar photovoltaics (PV) and distributed energy generation (DEG), annual energy requirements for 2024 are forecasted at approximately 156,800 Gigawatt hours (GWh) (or 535 trillion BTU). Of this forecasted annual energy demand, 50,373 GWh (or 172 trillion BTU) is expected to come from Zone J (New York City). The anticipated 52.5 billion BTU increase in annual energy consumption due to anticipated development on the Developments Site under the 2024 No-Action condition therefore represents approximately 0.001 percent of New York City’s forecasted future total annual energy demand.

F. THE FUTURE WITH THE PROPOSED ACTIONS (WITH-ACTION CONDITION)

Energy Supply and Transmission

As noted under “The Future without the Proposed Actions (No-Action Condition),” Con Edison routinely evaluates its electric transmission system and regularly updates their long-term plans to meet the forecasted demand on that system. Moreover, development resulting from the Proposed Actions and other developments planned in this service area would occur over time and Con Edison would have

⁶ Source: Consolidated Edison.

sufficient advance notice of such development to incorporate them in their long-term plans. Therefore, the Proposed Actions would not adversely affect the electric transmission system serving the area.

With-Action Demand

As described in **Chapter 1, "Project Description,"** for conservative analysis purposes, the RWCDs anticipates that the Proposed Development would be comprised of approximately 1,369,314 gsf (1,151,671 zsf). The Proposed Development would comprise 1,263,039 gsf of residential uses, introducing a total of 1,578 dwelling units, of which 50 percent or 789 dwelling units would be affordable units and 50 percent or 789 dwelling units would be market-rate units. An average unit size of 800 gsf per unit is assumed for all dwelling units. It is anticipated that 60 percent would accommodate families at or below 80 percent AMI, (474 units, consistent with and exceeding MIH option 2), 20 percent would accommodate families at or below 100 percent AMI (158 units) and 20 percent of the units would accommodate families at or below 120 percent AMI (157 units). In addition to the residential component, approximately 21,183 gsf of local retail space and approximately 9,678 gsf of community facility space would be provided. It is anticipated that the community facility would need to be a daycare facility to avoid an adverse impact; as such, the RD will specify that daycare space would be ~~offered to the DOE provided as a project component related to the environment (PCRE).~~ Approximately 75,414 gsf (parking spaces for approximately 16 percent of all market-rate DUs) would be allocated for parking on the ground- and cellar-levels of the Proposed Development in two separate garages.

Table 13-3 presents the With-Action land uses anticipated on the Development Site in the future with the Proposed Development, as well as their associated annual energy demands. As indicated in **Table 13-3**, it is estimated that energy demand from the Development Site would total 167.0 billion BTUs of energy annually. This represents an increase of approximately 114.5 billion BTUs over No-Action conditions. This increase in annual demand would represent less than 0.001 percent of the City's forecasted annual energy requirement of 172 trillion BTU for 2024 and, therefore, is not expected to result in a significant adverse impact on energy systems.

TABLE 13-3
With-Action Annual Energy Consumption for the Development Site

Use	Floor Area (gsf)	Average Annual Energy Use Rate (MBTU/sf) ¹	With-Action Annual Energy Use (MBTU)	Incremental Annual Energy Use (MBTU) over No-Action Conditions
Commercial	21,183	216.3	4,581,883	4,581,883
Institutional	9,678	250.7	2,426,275	2,426,275
Large Residential (>4 Family)	1,263,039 (1,578 DUs)	126.7	160,027,041	107,496,334
Total			167,035,199 (167.0 billion BTU)	114,504,492 (114.5 billion BTU)

Notes:

¹ From Table 15-1 of the *CEQR Technical Manual*. MBTU = one thousand BTU.

It should be noted that the estimated energy consumption presented in **Table 13-3** conservatively does not account for any energy efficiency measures that may be implemented by the Project Sponsor. Additionally, the Proposed Development would be required to comply with the NYCECC, which governs performance requirements of HVAC systems, as well as the exterior building envelope of new buildings. In compliance with this code, new developments must meet standards for energy conservation, which include requirements relating to energy efficiency and combined thermal transmittance. In addition,

should there be a voluntary utilization of higher performance standard designs on the Development Site, then there would be a reduction in the energy load forecasted in **Table 13-3**.

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