16.0 ENERGY

16.1 INTRODUCTION

This chapter describes the effects that the Proposed Action may have on the use and conservation of energy, in accordance with the *CEQR Technical Manual*. An analysis of energy "focuses on an action's consumption of energy, and where relevant, any effects on the transmission of energy that could result from the action." Heating, electricity, fossil fuels, hydroelectric power, wood, solid waste and other combustible materials are often the sources used in analyzing energy consumption.

The Proposed Action would involve the construction and operation of a new DSNY Garage that would provide a base of operations for three existing DSNY Garages. In addition to the provision of parking, the new garage would include office and administrative space for DSNY personnel and operations, as well as truck washing and fueling. To support the new garage operations, a salt shed would be constructed at the site of the existing MN 1 Garage. This new facility would serve to replace the one currently located at Gansevoort /Pier 52. The new garage would be constructed with energy saving features in accordance with "Green Building" objectives and utilize natural gas or distributed steam for heating and hot water. The garage relocations would result in a net reduction in travel by collection trucks of approximately 9,000 miles annually, compared to the Future No Build condition with a corresponding savings in fuel consumption. Using *CEQR Technical Manual* guidance, the Proposed Action is not one that would consume large amounts of energy or affect the City or regional energy transmission system. Therefore, a detailed energy analysis is not warranted.

The enclosed new garage space would be larger than the individual garage buildings currently housing the three district garages. Therefore, a modest increase in lighting and heating, ventilation and air conditioning average consumption is expected, compared with existing conditions. However, the Future Without the Proposed Action condition projects a commercial building on the proposed garage site with its own energy demands, and therefore the Future Build condition would not significantly adversely affect energy use or supply.

16.2 METHODOLOGY

The study area for the analysis of energy is generally bounded by West Houston Street to the north, Canal Street to the south, West Street/Route 9A to the west and Greenwich Street to the east. Information regarding the energy infrastructure was obtained from Consolidated Edison Company of New York, Inc. (Con Ed).

16.3 EXISTING CONDITIONS

Con Ed and other energy transmission companies supply New York City and most of Westchester County with electricity. Con Ed and several independent power companies generate electricity. Because of the deregulation of the energy market, Con Ed has sold many of its power generating facilities and is now primarily a distributor of energy. In Manhattan, Con Ed distributes natural gas as well. KeySpan Delivery Services provide natural gas to residents of Brooklyn, Queens and Staten Island (as well as Nassau and Suffolk Counties).

The New York Independent System Operator (NYISO) manages the safety and reliability of the state's electric transmission system. In March 2003 NYISO estimated that 2,000 to 3,000 megawatts (MW) of generating capacity must be located in New York City as part of the overall state demand of 5,000 to 7,000 MW (MTA and NYCDCP, November, 2004). Plants capable of generating up to 1,000 MW are under construction. All of the proposed plants were expected to be completed and operating in 2006. Therefore, it is also expected that an adequate generating capacity would be available in New York City (and the surrounding metropolitan area) through the Proposed Action build year of 2012 and beyond (MTA and NYCDCP, November, 2004).

Near the MN 1 Garage site electric lines are located beneath West Street/Route 9A, Canal Street, Spring Street and Washington Street. Four lines carrying between 1,200 and 1,600 volts of electricity provide service to the garage site from a service box at the intersection of West Street/Route 9A and Spring Street. Additional service boxes are also present along Canal Street and Spring Street. Natural gas service lines are located along West Street, Washington Street and a portion of Spring Street. Natural gas is supplied to the existing MN 1 Garage via the service line in Spring Street.

Near the UPS Equipment Staging Lot electric service lines are located in West Street, West Houston Street, Washington Street and Spring Street. Electric service lines originating at King Street and connecting to West Street are located beneath the site. One service box is located along West Street and another one along Spring Street that contains two lines that each provide between 160 to 210 volts of electricity to the site. There are two additional lines located along Washington Street that provide between 160 to 220 volts of electricity to the site from a nearby service box. Additional service boxes are present along Washington Street, West Street and Spring Street. Natural gas is located beneath West Street, Washington Street and a portion of Spring Street. There is no gas service line directly into the UPS Equipment Staging Lot at the current time.

The existing MN 1, 2 and 5 Garages together comprise a total of about 44,200 sq ft of space; personnel spaces amount to about 14,860 sq ft. Using a rate of 77,900 BTUs/sq ft/year for the personnel (office) space and a rate of 27,400 BTUs/sq ft/year for the garage, it is estimated that these facilities use about 2,369 million BTUs/year (27,400 BTUs/sq ft/year for parking garages as referenced in Table 3N-1 of the *CEQR Technical Manual*; 77,900 BTUs/sq ft/year for commercial space also in Table 3N-1). A BTU is the quantity of heat required to raise the temperature of one pound of water from 60° to 61°F at a constant pressure of one atmosphere. Gansevoort/Pier 52 facilities (MN 2 and 5) are heated by natural gas and electricity while MN 1 is heated by fuel oil.

16.4 FUTURE WITHOUT THE PROPOSED ACTION (FUTURE NO BUILD)

Under the Future No Build there would be no expected change in the use of energy at the DSNY facilities of interest. The existing DSNY MN 2 and 5 Garages are assumed to remain at Gansevoort/Pier 52 and would operate in the same way as they presently do. The MN 1 Garage would remain at its present location, 553 Canal Street/297 West Street and would operate in the same way.

Overall energy use would increase in the study area with the projected development. It is projected that the existing UPS Equipment Staging Lot would be developed by the year 2012 with a commercial office building of approximately 347,250 sq ft. UPS would be accommodated on the ground level of the site in space that would be neither heated or cooled. Using a rate of 77,900 BTUs/sq ft/year (Table 3N-1 of the *CEQR Technical Manual*), energy use by the commercial facility would be about 27,050 million BTUs annually.

16.5 FUTURE WITH THE PROPOSED ACTION (FUTURE BUILD)

The Proposed Action would co-locate three garages (MN 1, 2 and 5) at a new garage. The MN 1 Garage would be demolished and become a salt shed. DSNY vehicles and equipment would be parked, maintained, washed and refueled at the new garage.

Although the new garage would be about 427,250 net sq ft, only the mechanics and personnel areas and offices would be air conditioned. However, the remainder of the space would require ventilation to maintain acceptable levels of air quality particularly when shifts (and trucks) start and end. The need for adequate ventilation would increase the power needs of the MN 1/2/5 Garage. As an energy saving feature, sensors would be used to detect buildup of carbon monoxide and trigger the HVAC system to supply fresh air and exhaust air from the garage areas as needed.

Applying the energy use rate for commercial office space of 77,900 BTUs/sq ft/year, the 43,564 sq ft of the garage dedicated to that office/personnel function would use about 3,394 million BTUs annually. The electrical energy demands of the ventilation system have not been estimated.

The salt shed would not be heated or cooled and would require intermittent lighting and ventilation, therefore, the annual energy use would be insignificant.

Travel by DSNY trucks would require energy primarily in the form of diesel fuel. DSNY would utilize B5 Biodiesel (5 percent renewable origin) for its trucks. (DSNY is currently testing B20 diesel for its fleet.) The 9,000 mile annual reduction in collection truck vehicle miles traveled would require less fuel than under the Future No Build condition. DSNY sedans under both the Future No Build and the Future Build would be primarily energy efficient gas/electric hybrids, E85 Ethanol vehicles, or other advanced, low emissions models, pursuant to local law.

As noted in the Project Description, the MN 1/2/5 Garage is also proposed to have environmentally friendly design elements to enable it to qualify for LEED Silver certification status under the guidelines of the U.S. Green Buildings Council. LEED aims to promote design and construction of buildings which enhance human health and are environmentally responsible. A building meets such status by amassing sustainability "points" for various design elements in five areas of sustainability: Sustainable Site Development, Water Efficiency, Energy & Atmosphere, Materials & Resources, and Indoor Environmental Quality. The following design elements that are proposed or under consideration include:

- A vegetated "green" roof on 50 percent or more of area, to reduce the "urban heat island" effect, improve stormwater runoff quality, and capture rainwater for use in building systems and operations, while adding habitat.
- Use of previously developed land rather than a "Greenfield" site.
- A construction activity pollution prevention plan.
- Development density.
- Location with access to public transportation.
- Bicycle storage and changing rooms.
- Alternative transportation: low emission and fuel-efficient vehicles.
- Water efficient landscaping.
- Stormwater harvesting for vehicle washing.
- High-efficiency, low water lavatories and urinals.
- High quality indoor air controls and increased ventilation.
- Low-emitting materials, such as carpets in offices, paints, adhesives, and sealants.
- Maximum use of natural daylight and views in regularly occupied spaces.
- Low toxicity cleaning materials.

- Low mercury fluorescent bulbs.
- Energy savings plan for building systems.
- Recyclables management.
- Construction waste recycling measures.
- Use of recycled content in building materials, including steel, other metals, concrete, gypsum board, metal deck.
- High efficiency lighting.

The Proposed Action would not result in a significant adverse impact with respect to energy supply or demand.