8.0 EFFECTS ON THE USE AND CONSERVATION OF ENERGY RESOURCES

Energy consumption will occur during construction and occupancy of the proposed residences. During construction, energy will be used to power equipment and construction vehicles. The dwellings will consume energy for space heating, air conditioning, lighting, household appliances and other electrical devices once occupied.

Proposed Energy Use and Demand

Electricity for the Dockside at Marlborough development will be provided by Central Hudson Gas and Electric. The applicant is also pursuing extension of natural gas from a high pressure natural gas main which traverses the project site - the main is controlled by Central Hudson.

The 137 dwelling units would be inhabited by households that would place demand on various energy sources. In a residential dwelling, energy is consumed for space heating, air-conditioning, water heating, refrigerators, appliances and lighting. According to data published in the *1997 Residential Energy Consumption Survey* (Source: U.S. Department of Energy), approximately 123 million BTUs are consumed per household annually in New York State. Based upon these U.S. Department of Energy estimates, the 137 new households could consume up to 16.85 billion BTU[1] of energy annually. With a greater public awareness of energy consumption and energy efficiency, appliances and heating and cooling equipment have become more energy efficient over the past decade. Furthermore, federal regulatory standards have been enacted to require that appliances and other equipment meet certain minimum energy saving standards to reduce energy usage. Therefore, actual energy use may be less.

Building Design and Materials

Energy conservation is regulated at the state level. The design and plans for residential buildings must comply with the New York State Energy Conservation Construction Code.

The code specifies basic requirements that are mandatory for all residential buildings. Requirements apply to heating and cooling systems, the hot water system, electrical system, material and equipment specifications and, sealing the building envelope.

With regard to the design of building envelopes, the NYS Energy Code requires that:

- insulation R-values and glazing and door U-factors be certified by the National Fenestration Rating Council (NFRC) or by using default values found in tables published in the Code.
- vapor retarders be installed in nonvented framed ceiling, wall, and floor areas.
- insulation levels for walls, roofs, and below-grade walls and glazing areas, and U-factors for windows and skylights meet or exceed minimum efficiency levels.
- air leakage be limited through the building envelope.

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[1] *BTU, or British Thermal Unit, is a unit of heat equal to the amount of heat required to raise one pound of water one degree Fahrenheit at one atmosphere pressure; equivalent to 251.997 calories.*

The NYS Energy Code also requires that water and air cooling and heating mechanical systems and equipment comply with code, and compliance is dependent on the type of mechanicals proposed.

In terms of lighting standards, the NYS Energy Code requires:

- manual or automatic controls or switches that allow occupants to dim lights and turn them on or off when appropriate. The Code identifies control, switching, and wiring requirements that apply to all buildings.
- total connected loads for indoor lighting systems that do not exceed power allowances for a building. The Code demonstrates how to comply with interior-lighting power limits.
- energy-efficient exterior lighting. The Code specifies criteria for complying with exterior-lighting requirements.

The Dockside at Marlborough will comply with the requirements of the NYS Energy Conservation Construction Code.