

## **X. ENERGY CONSUMPTION AND CONSERVATION**

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Energy consumption would occur both during the construction and operation of the completed pProject. Construction would result in the consumption of gasoline, diesel fuel, oil and electricity used for the operation and maintenance of construction vehicles and equipment.

Once construction is completed, the pProject would require energy for electricity service, heating, air conditioning and cooking. The Project is expected to generate peak Project electrical demands in the range of 19,000 to 26,000 Kilowatts upon full buildout, with an estimated peak Project natural gas demand in the approximate range of 1,100 to 1,600 Therms. More specific information on the anticipated amount of energy to be used by the Project can be found in Table 2, Project Estimated Energy Consumption – Electrical and Natural Gas Loads found in the Site Utility Report in the Appendix.

Sufficient electric capacity exists in the existing NYSEG power lines along Route 22 to meet the initial Project demands. However, at some time in the future, as loads within the Town of Dover or the Project Site approach the existing, medium-voltage feeders' capacity, NYSEG would be responsible for providing either additional feeders from its existing Dover Substation or by development of a smaller substation to be located on the Project Site in proximity to the existing wastewater treatment plant to meet the existing demand in accordance with its tariff requirements. For additional information, refer to the Site Utility Report located in the Appendix.

Site generated automobile traffic would result in the consumption of fossil fuels. However, given the proximity to the Metro-North train station and the pProject's traditional neighborhood and transit-oriented design, the consumption level of energy is anticipated to be less than that of typical single-family home and commercial developments in Dutchess County.

Both the residential and commercial components of the Project would result in solid waste generation. At full build-out, the residential components would generate an estimated 6.5 tons of solid waste per day, while the commercial components would generate an estimated 0.4 tons of solid waste per day.<sup>1</sup>

The proposed homes would meet or exceed the New York State Energy Conservation Code, which requires the use of energy efficient products in all new and renovated construction. Project components would also include energy conservation measures such as thermal insulation so as to reduce heat loss in the winter and heat gain in the summer, water-saving devices, and efficient windows and appliances.

### Leadership in Energy and Environmental Design (LEED)

The Leadership in Energy and Environmental Design (LEED) Green Building System is a 3<sup>rd</sup>-party certification program developed by the US Green Building Council and used as a rating

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<sup>1</sup> Development Impact Assessment Handbook, The Urban Land Institute, Burchell, Listokin, et al, 1994. Residential solid waste generation was calculated using the standard of 0.00175 tons per resident/day. Commercial solid waste generation was calculated using the standard of .001 tons per employee/day.

system for the design, construction and operation of high performance buildings. The LEED Rating systems were initially produced for new commercial and institutional buildings, but have been expanded in recent years to include homes, and neighborhood development, among others.

LEED is a voluntary rating system that evaluates and encourages green building design. The system was designed in an effort to have a third party, nation-wide rating system to be used to promote and build awareness of sustainable development throughout the building industry. LEED certification is based on a points system that focuses on five key issues:

- Sustainable site development;
- Water savings;
- Energy efficiency;
- Materials selection; and
- Indoor environmental quality.

Since the pProject is still at the conceptual site plan phase, construction documents and details for individual buildings have not yet been prepared to allow for assessment. However, the pProject and homes would be likely to include many of the design features that would produce credits in the LEED for Homes and LEED for Neighborhood Development Pilot rating systems.

*LEED for Neighborhood Development (LEED-ND)*

The LEED for Neighborhood Development system is based on a partnership between the United States Green Building Council (USGBC), the Natural Resource Defense Council and the Congress for the New Urbanism. The LEED-ND rating system is currently in a Pilot program phase. The rating system is built off of the existing LEED program that verifies whether or not a building meets certain “green” criteria.

The LEED for Neighborhood Development Rating System will act as a third party program to verify that a certain development meets “accepted high levels of environmentally responsible, sustainable development.”<sup>2</sup> The rating system is based on four areas: location and linkage; compact and connected neighborhoods; green construction and technology; and innovation and design. Certification comes in four levels: certified, silver, gold and platinum.

To be eligible for certification, the Project must meet certain prerequisites and meet certain requirements. Prerequisites for LEED-ND certification include, but are not limited:

- Wetland and waterbody conservation;
- “Smart” location;
- Compact development; and
- Construction activity pollution prevention.

Credit requirements for certification include:

- Brownfields redevelopment;
- Reduced automobile dependence;

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<sup>2</sup> United States Green Building Council. LEED for Neighborhood Development. <http://www.usgbc.org/DisplayPage.aspx?CMSPageID=148>

- Housing and jobs proximity;
- School proximity;
- Restoration and conservation of wetlands;
- Affordable housing;
- Walkable streets;
- Transit facilities;
- Building reuse and adaptive reuse;
- Reuse of historic buildings;
- Stormwater management; and
- On-site renewable energy resources.

~~For example, o~~On the LEED for Neighborhood Development checklist, the ~~p~~Project would likely qualify for prerequisites and points under smart location, proximity to water and wastewater infrastructure, wetland and water body conservation, floodplain avoidance, brownfield redevelopment, preferred location, reduced automobile dependence, restoration of wetlands, compact development, diversity of uses and housing types, walkable streets, street network, access to surrounding vicinity, public spaces and active public spaces, building reuse, stormwater management, and construction waste management.

The compact project design of the proposed development would result in reduced energy consumption and use compared to a conventional residential subdivision. The Air Quality Report compares the carbon emissions of a conventional subdivision to the proposed compact design of the Project (see Appendix).

On the LEED for homes checklist, it is anticipated that the new residences would likely qualify for a variety of credits under categories including LEED ND site, site stewardship, landscaping, compact development, irrigation systems, indoor water use, environmentally preferable products, and ~~Energy Star~~ENERGY STAR performance, among others.

#### ENERGY STAR

ENERGY STAR is a program formed by the joint partnership of the United States Environmental Protection Agency and the United States Department of Energy. The purpose of this program is to assist in the reduction of energy consumption and energy bills. The program was originally developed as a voluntary labeling program to promote products that would assist in the reduction of greenhouse emissions. Computers and monitors were the products that first implemented the Energy Star designation, and the program has grown to label over 50 product categories for both home and office products.

This Project would be ENERGY STAR compliant by utilizing both products and construction methods approved by the ENERGY STAR program. ENERGY STAR compliant single-family homes use approximately 30 percent less energy than conventionally built homes; ENERGY STAR compliant multi-family units can be anticipated to consume at least 20 percent less energy than those buildings constructed to the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) standards.