

## **8.0 Effects on the Use and Conservation of Energy Resources**

**Comment 8.0-1 (Letter #11, Adam Peterson, Environmental Analyst, New York Department of Environmental Conservation, Division of Environmental Permits, Region 3, July 3, 2009):** Section 8.0 page 1 of the DEIS quantifies the approximate energy usage per household based on 1997 data provided by the US Department of Energy. The provided data indicates that a "typical" development of 497 households would consume approximately 61.13 billion BTU of energy annually. The DEIS goes on to discuss the various energy saving principles to be incorporated in the Patrick Farm Development including the installation of high efficiency lighting fixtures, the use of Solar Domestic Hot Water (SDHW) in the market rate multifamily units to the extent practicable, the consideration of the use of solar or geothermal technology to supplement energy demand within the worker apartments, and the installation of high efficiency insulation.

In response to the information provided the Department offers the following:

1. Per the enclosed "Guide for Assessing Energy use and Greenhouse Gas Emissions in Environmental Impact Statements," energy use should be converted into GHG emissions and represented as tons of carbon dioxide (CO<sup>2</sup>). To convert Btu's to CO<sup>2</sup> emissions utilize the conversion at the following link:  
<http://www.eia.doe.gov/oiaf/1605/coefficients.html>.
2. The DEIS includes data regarding "typical" energy usage of a 497 unit development. However, no attempt is made to quantify the emissions of the proposed development. As this proposal includes the utilization of several energy saving technologies, provide an analysis which quantifies "typical" energy usage and GHG emissions (in tons of CO<sup>2</sup>) compared to anticipated emissions from this development. As the extent to which certain technologies will be utilized (ie. SDHW) is not yet finalized, the analysis should include a range of scenarios addressing various usage levels of energy saving technologies. The analysis should quantify both direct and indirect emission sources as outlined in the enclosed guidance, as applicable to this proposal.
3. The DEIS indicates that SDHW will be installed in two of the first five multi-family buildings constructed, in order to determine the viability of this technology in this region. It is assumed that if this technology is deemed viable, that it will be further utilized within the development. In order to optimize the likelihood that the use of solar energy as a supplemental energy source will be successful the Department believes that solar energy should be pursued as a means of "pre-heating" and that the applicant should utilize a back-up energy source as well. The use of solar as alone energy source will not likely provide a reliable means to heat water given the temperate climate of the locale. In addition, the applicant should utilize the services of certified installers/ engineers when considering building layout and orientation, solar panel sizing, and locating and installing solar technology to ensure proper alignment. This will maximize the likelihood that solar energy will be a viable form of supplemental energy, not only within two of the multi-family structures, but throughout the townhouse portion of the development.

***Response 8.0-1:*** *The DEIS stated that 61.13 BTUs would be a "typical" energy use for a 497 unit development. To quantify the actual emission of the proposed development Tim Miller Associates acquired electric and gas bills for a multi-family dwelling and a single family dwelling to determine qualitative information on BTUs for a single family dwelling and multi-family dwelling. From these electric and gas bills a total of 94.84 billions BTUs or 7,918.8 tons of carbon dioxide (CO<sub>2</sub>) could be consumed for this 497 unit*

*development (86 single family homes and 386 multi-family homes, the 24 apartments were calculated using the multi-family calculations from the energy bills). This calculation does not take into account any energy savings associated with the Solar Domestic Hot Water (SDHW) devices that are to be installed in the market rate multi-family homes. These SDHW devices would be used as a "pre-heating" device to help with the reduction of energy use within the dwellings. If these devices prove that they reduce the cost to the homeowner and the reduction of the energy usage they will be more widely installed throughout the project. It is anticipated that these devices will further reduce the energy use in green house gas emissions from the project.*

**Comment 8.0-2 (Letter #15, Salvatore Corallo, Commission, County of Rockland Department of Planning, July 24, 2009):** On Page 1-4, in the discussion of sustainability in Section 12, the values for total operating energy use per household are indicated for an average single-family lot, an attached townhouse and low-rise apartments. An average single-family lot is considered a higher residential energy use than attached townhouses or low-rise apartments. A comparison of the total operating energy use for the 156 single-family residences allowed under R-40 zoning and the 497 residential units proposed in this mixed-density development should be provided. Even if single-family residences are higher energy users than individual units in multi-family residences, significantly fewer units could be built under the current R-40 zoning. As a result, the proposed rezoning would result in a higher overall consumption of energy resources.

***Response 8.0-2:** Tim Miller Associates acquired annual energy usage information for a single family residence and multi-family residence. As stated above in Response 8.0-1 the 497 unit development would consume 94.84 billion BTUs of energy per year or 7,918.8 tons of CO<sub>2</sub> per year. If 156 single family residences were proposed that development would consume approximately 41.56 BTUs or 3,473.96 tons of CO<sub>2</sub> per year. The increased energy consumption would service a significantly higher population.*

**Comment 8.0-3 (Letter #19, John F. Lange, Senior Associate for Planning, Frederick P. Clark Associates, Inc.):** Sustainability: The scoping outline requires an assessment of the sustainability of the proposed development. The work required for this part should include the descriptions of the efforts made to reduce the energy demands of the proposed development. The provision of wind power, solar power or hydro generation efforts should be considered as well as solar hot water heating and geothermal alternatives. The pending SEQR draft recommendations discuss the need to consider these issues.

For example, the first way to reduce the energy footprint of the development is to minimize the size of the individual structures. According to the initial submission, the smallest townhouse is 3,348 square feet while the largest was 3525 square feet. Revisions to the DEIS indicate a reduction in the size of the market rate townhouses to 3000 square feet and a reduction to 1800 square feet for other units.

The energy consumption /sustainable factors to be evaluated should include:

- Additional insulation and energy efficiency
- Smaller footprints and buildings
- Energy producing or reducing techniques (solar/wind/hydro)
- Water re-use; Water saving devices; water heating efficiencies (solar or instant hot water systems).

The applicant has proposed supplemental solar hot water in the multifamily units and consideration of geothermal heating and cooling in the 24 rental apartments.

The Town has set the tone for these efforts within its own buildings including solar electric for the Town Hall and geothermal heating and cooling of the new public works building.

***Response 8.0-3: Comment noted.***