

## 9.0 EFFECTS ON USE AND CONSERVATION OF ENERGY RESOURCES

In the “Guide for Assessing Energy Use and Greenhouse Gas Emissions in an Environmental Impact Statement” (issued July 15, 2009) the NYSDEC Office of Air, Energy, and Climate states, “Global climate change is emerging as one of the most important environmental challenges of our time. There is scientific consensus that human activity is increasing the concentration of [greenhouse gas] in the atmosphere and that this, in turn, is leading to serious climate change. These climate changes will continue to affect the environment and natural resources of the State of New York” (NYSDEC, 2009b). This NYSDEC Guide is intended to identify methods and boundaries for the assessment of energy use, greenhouse gas emissions and mitigation measures in an EIS. Consistent with this requirement, the Guide recognizes that SEQRA can be used to identify and assess climate change impacts, as well as the steps to minimize the emissions of greenhouse gas that cause climate change. Many measures that will minimize emissions of greenhouse gas will also advance other long-established State policy goals, such as energy efficiency and conservation; the use of renewable energy technologies; waste reduction and recycling; and smart and sustainable economic growth.<sup>4</sup>

In response to the threats posed by global climate change, former Governor David Paterson issued Executive Order 24, which establishes a goal to reduce greenhouse gas emissions 80 percent by the year 2050, and includes a goal to meet 45 percent of New York’s electricity needs through improved energy efficiency and clean renewable energy by 2015. Emissions of CO<sub>2</sub> account for an estimated 88 percent of total greenhouse gas emissions in New York State. The overwhelming majority to these emissions, estimated at 250 million tons of CO<sub>2</sub> equivalent per year, result from fuel combustion. Overall, fuel combustion accounts for approximately 88.3% of total greenhouse gas emissions. The Project will help New York reduce CO<sub>2</sub> emissions because operation of the wind facility will generate electricity without emitting CO<sub>2</sub> or any other greenhouse gas pollutant.

In fact, zero-emission wind energy facilities can displace the electricity generated from conventional power plants, thereby potentially reducing the emissions of greenhouse gas pollutants, such as sulfur and nitrogen oxides (acid rain precursors), mercury, and carbon dioxide. Wind energy generation results in reductions in air emissions because of the way the electric power system works. Generally, the most expensive power sources will be “backed down” when there is a

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<sup>4</sup>In addition to the Guide, the NYSDEC is proposing revisions to the Full Environmental Assessment Form (EAF), which would require, in part, a more detailed analysis of a proposed action’s potential impact on air quality. Specifically, the revised EAF would require a relative quantification of greenhouse gas emissions such as carbon dioxide and nitrous oxide.

sufficient source of wind energy available. Wind energy is a preferred power source on an economic basis because the operating costs to run the turbines are so low and there are no fuel costs. Therefore, wind turbines produce power that reduces the need for generation from individual fossil fuel-fired power plants or units, thereby reducing fuel consumption and the resulting air emissions that would have otherwise occurred (Jacobson and High, 2008). The specific types of fossil fuel-fired power units and associated emissions that will be displaced by wind energy generation vary significantly among states and regions of the country. The displaced emissions of CO<sub>2</sub>, NO<sub>x</sub>, SO<sub>2</sub>, and mercury generally will be greater in regions with large amounts of coal-fired generation and lower in areas where natural gas is the primary fuel (such as New England). However, even in New York and New England, where natural gas is a major source of generation, wind energy backs down some generating units fired by coal and residual oil at certain times (GE Energy, 2005).

In addition to the reduction of emissions of greenhouse gas pollutants in New York, the proposed Project will help the State achieve the goals of the 2009 State Energy Plan. (State Energy Planning Board, 2009). State Energy Law §6-104 requires the State Energy Planning Board to adopt a State Energy Plan. The New York State Energy Plan contains a series of policy objectives. Among these objectives is to increase the use of energy systems that enable the State to significantly reduce greenhouse gas emissions while stabilizing energy costs and improving the State's energy independence through development of in-state energy supply resources. The State Energy Plan recognizes that wind energy projects will play a role in fulfilling this objective.

Based on the State Energy Plan, other public benefits of the Project include the following:

- Production and use of in-state energy resources can increase the reliability and security of energy systems, reduce energy costs, and contribute to meeting climate change and environmental objectives.
- To the extent that renewable resources and natural gas are able to displace the use of higher emitting fossil fuels, relying more heavily on these in-state resources will also reduce public health and environmental risks posed by all sectors that produce and use energy.
- By focusing energy investments on in-state opportunities, New York can reduce the amount of dollars “exported” out of the State to pay for energy resources.
- By re-directing those dollars back into the State economy, New York can start to increase its economic competitiveness with other states that are less dependent on energy supply imports to support their local economies.

- Increasing the percentage of energy derived from renewable resources will reduce the net retail price of electricity for all customers.
- Renewable energy contributes to the reduction of energy price volatility in the long-term.

The proposed Project will generate up to 96 MW of electricity without consuming cooling water or emitting pollutants. Assuming that the average house in New York uses approximately 7.2-megawatt hours (MWh) of electric power per year and that the average house in the United States uses approximately 11.2 MWh of electric power per year (U.S. Energy Information Administration, 2009), and assuming the Project generates approximately 30% of its nameplate generating capacity, this is enough power to support between approximately 22,500 and 35,000 homes in New York State (based on the New York and national averages).

In short, the Project will have a positive net benefit to energy use and conservation of energy resources, will help reduce greenhouse gas emissions in the State and will contribute to the goals and objectives of the State Energy Plan.