

Getting to Zero

Final Report of the Massachusetts Zero Net Energy Buildings Task Force

March 11, 2009

State Demonstration Project Analysis

Project #1: Division of Fisheries and Wildlife Headquarters

Project Location: Westborough

Building Use: Office/light labs

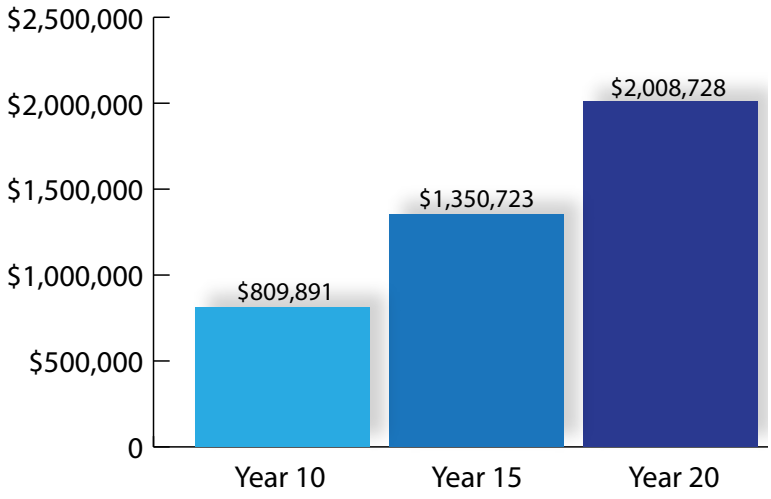
Building Type: Two-story rectangular

Building Size: 34,000 gross square feet

Project Status: The study phase has been extended to June 1, 2009 in order to better understand the ramifications of designing to a zero net energy standard.

The existing building, formerly known as the Overlook Cottage and part of the Lyman School for Boys, is sited at the high point of the campus along the north end of the developed area. The current proposed scheme calls for extensive site work, linking the development to the resources of the adjacent 1,000 acre Management Area; a significant renovation of the existing 13,000 square foot building; and the construction of a new 34,000 square foot building.

Long-Term Energy Costs: DFW Headquarters



The preliminary budgetary analysis (see chart) shows that an efficiently designed building that achieved an energy rating of 75 from the U.S. EPA's ENERGY STAR Target Finder tool would result in an approximate annual energy budget of $67,000 per year. Over 20 years, using a modest 4 percent energy cost increment, the total energy costs could equal more than $2 million. Assuming the strategies employed will be in place for 20 years and cost less than the total energy outlays, the up-front cost of the zero energy component of the project demonstrates a justification of public investment. Additional benefits accrue from more stable energy costs over time and increased savings if energy costs rise at a faster rate than projected.

Many 'green' strategies are being investigated for this project, including:

- mixed mode ventilation schemes incorporating natural ventilation and under floor air distribution
- geo-thermal heat pumps
- high performance building envelope
- storm water collection systems
- onsite photovoltaic power generation