Renewable Energy Task Force

Status Report on the Potential of Wind Turbines to Generate Electric Power in Longmeadow.

Second only to energy conservation, the generation of electricity directly from the use of wind turbines is reported to be the most cost effective way of reducing electricity bills and reducing the carbon footprint from electrical power generation and use.

One of the issues raised by the Renewable Energy Task Force is that of the potential for generating electricity in Longmeadow by employing wind turbines. Suggestions have been made to locate a number of wind turbines in or adjacent to the Connecticut River and use the prevailing winds running parallel to the river as a source of energy to drive the turbine blades and the electric power generator located in the head of the turbine to generate useful amounts of electricity.

In Massachusetts the towns of Hancock and Hull and the Massachusetts Maritime Academy (MMA) in Buzzards Bay, among others, have installed and operate turbines for electric power generation. The MMA unit has operated quite trouble free since it's installation in June, 2006 and has been the source of only minimal complaints of noise and visual interruptions. The biggest complaint has been the glow of the warning beacon mounted on the hub of the turbine. The Hull installation already has been expanded. To see a wind turbine at a distance drive Route 7 from Pittsfield to Williamstown and look left and up into the hills as you pass Pontoosuc Lake, or drive west down Main Street in Buzzards Bay toward the Academy and watch the horizon.

Some features of the units which I have seen…

> Unit design is graceful. While they are tall and large (the MMA unit is about 171 ft from ground level to the hub of the fan with a blade length of 71ft, it is considered a small unit.) their slim design and slow speed makes them relatively unobtrusive. The MMA unit is adjacent to the Academy football field and it appears that nobody pays any attention to it anymore.
>
> Noise level at 500ft from the base of the Academy unit is less than 50db at the maximum turbine speed, more quiet than the normal conversation in a living room.
>
> Data collected from a number of installations around the country indicate that only two birds per year *might* be destroyed per unit, a level far far less than other hazards to these same creatures.
>
> Maintenance costs appear to be minimal, apparently due to the inherent reliability of the electrical equipment coupled with the low speed of turbine operation. The MMA unit operates at a maximum speed of about 30 rpm.

Properly located, designed and installed it is reported that a payback of about five years can be expected for wind turbines; this means that it takes about five years of reduced electrical purchases to return the money invested in the purchase & installation of a unit; after payback, the cost of electricity generated by the unit is free, except for maintenance

Location of wind turbines is critical. Nominal wind speeds for effective operation must be above 12mph. The Commonwealth of Massachusetts has been mapped for prevailing wind speeds and the Connecticut River valley in the Longmeadow area flunks the test for acceptability for wind turbines in so far as prevailing wind speeds are concerned. For this reason I cannot recommend that we proceed further to explore the possible use of wind power for electricity generation in Longmeadow

RBWojcik

08-26-07

References:

Conversation with Paul O'Keefe, Director of Facilities, and a tour of the wind turbine installation at the Massachusetts Maritime Academy. See website at www.maritime.edu.

Conversation with Anthony Ellis, UMASS professor, regards UMASS' wind energy program (ph 413-545-3916). Commented that a useful wind- to-electricity unit for Pioneer Valley in Longmeadow…"probably not".

Wind Map for Longmeadow