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History of Hull's wind project

Leaving aside the long-ago history (historic manuscripts refer to the tip of the Hull peninsula as "**Windmill Point**" as far back as the mid 1820s), -- this project's history is based on the work of townspeople in the early 1980s. The town installed a 40KW turbine on an 80-foot tower adjacent to Hull's High School, now sited on that same historic point of land jutting out into Boston Harbor. The funds came from the Mass. Department of Energy Resources. The windmill's cost was \$78,000.

By spring of 1985 the windmill (some prefer the more precise term wind turbine) was producing energy. It produced a respectable total in its lifetime, between then and early March of 1997 when a windstorm damaged it beyond repair. The failure was due to a malfunction of its blade-tip brakes that 70 mph winds (this is a speed no longer threatening to today's windmills) were able to do it critical damage. This specific failure was in part due to the school's staff not being able to keep up with the regular maintenance schedule for the brake mechanisms.

A report in 1996 showed that the machine in its final three years of production, -- when it was no longer performing at its best -- reduced the school's electric bills by over 28%. In dollar terms this was a savings of \$21,200 to the town. A DOER report had indicated that over its lifetime the windmill had saved the town nearly \$70,000. It was well known in the community that **John MacLeod** of the Light Department had worked beyond the call of duty to enhance the turbine's value to the town, both economically and educationally. He had strong support in this from **Mr. Don Newton**.

These two men have continued to support windpower in Hull to the present day, MacLeod being the present Operations Manager of the Light Plant and Newton remaining an outside consultant, for wind energy and other system issues. By fall of 1997 a group of citizens led by **Malcolm Brown** and a group of teachers at the High School led by **Anne Marcks**, held meetings to plan what is now called

"re-powering" the site. This planning was incorporated into the curriculum of Mrs. Marcks's senior physics class, and had good support from both the school and from Hull Municipal Light Plant, now under the management of Mr. MacLeod.

The school staff were not able, however, to take on the extra work involved in researching the project. This was in part due to the rapidly evolving development of windpower technology at the end of the 1990s. In late 1998 a new group of citizens eager to see the project go forward formed themselves into **C.A.R.E. (Citizens for Alternative Renewable Energy)**, selected officers **Malcolm Brown** and **Andrew Stern**, and went to Hull Light to urge them to take the project on.

The plan was to work in collaboration with **UMass Amherst's Renewable Energy Research Laboratory**, and its director, **Professor James Manwell**. Prof. Manwell, along with his colleagues consults regularly for the Mass. Department of Energy Resources on windpower and other renewable's.

By fall of 1999 Manwell's team, with substantial assistance from the state DOER, completed a full engineering report. This included wind-resource assessments, discussions of regulatory issues, noise-level tabulations, projected economic viability under various brands, presentation of computer-generated photo simulations of various possible sites. It also analyzed the economics of various models of hardware. In the case of the noise levels, field studies were carried out to make sure the parcel of town-owned land adjacent to the school's athletic field was not too close to inhabited structures to meet applicable standards. Geo-technical studies were also conducted to give fuller detail to any future RFP for a turbine. Much care and attention went into these engineering studies, because of their potential to guide future projects in Massachusetts, especially in coastal communities. Care was taken to make it function as a template for others towns or agencies who might plan similar projects. The report was to be "transportable", re-applicable elsewhere. Some further time was also invested to add a sensitivity analysis, highlighting which of the factors within the analysis -- if they turned out not to be as predicted -- would impact the conclusions most.

By summer of 2000, and after a number of news reports on the project had appeared, in the Hull Times, the Tiny Town Gazette, the Patriot-Ledger and the Boston Globe, Hull Light ran an information campaign to notify townspeople of a public meeting for June 16 2000 at the High School. Mr. MacLeod, along with members of the Light Board, experts from Mass. Municipal Wholesale Electric Companies (MMWEC), the Renewable Energy Lab at UMass, as well as the Town Manager the town historian and a representative from C.A.R.E., led the presentation. They also fielded questions from the public and responded to fellow panelists. The meeting's response being on the whole strongly positive, it was announced that the light department would go ahead and put out a Request for Proposals.

Meantime Mr. MacLeod applied for the various required approvals from zoning and regulatory bodies, for the parcel of land owned by the town where the tower was to be sited.

By January of 2001 the RFP was formally put out, and by March of 2001 several bids had arrived. One windturbine manufacturer from Denmark and another from Germany sent representatives to Windmill Point for site visits.

In April of 2001 the bid of the American subsidiary of **Vestas**, a Danish company, was accepted. They had bid their most popular model, the **V47**, with a rotor-diameter of 47 meters, and a hub-height of 50 meters, **rated power of 660 KW**. The turnkey contract price was **\$698,699.00** net of the standard set of supplemental spare parts. The life-expectancy of the equipment is 20 years. We later found out that more than 1,100 of this same model of Vestas turbine were sold in the USA during calendar 2001, up from a total of 4 sold here in calendar 1997.

Contract negotiations followed. These went on for several months, during which time it became clear that here too Hull was taking on a task that had repercussions well beyond the borders of Hull. As in the state-sponsored engineering study, Hull's case was being looked at as a "first" in the Commonwealth, and its contract should double as a template for other similar projects still in the planning stages, or not yet even on the horizon. Two issues on which detailed discussions were needed were (1) under which state's statutes (California or Massachusetts) the contract should be written.

Citizens for Alternative Renewable Energy

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