MILWAUKEE AREA TECHNICAL COLLEGE

SUSTAINABLITITY WEBSITE

WIND GENERATION

Milwaukee Area technical College has a 90KW wind generator on its Mequon Campus. This generator was an idea of Dr. George Stone (MATC Liberal Arts Faculty Member) in 2003. With perseverance and the help of Dr Dan Burrell (Associate Provost), Al Evinrude (Construction Serviced), worked out a host of issues with the City of Mequon, WE Energies, Focus on Energy, Various vendors to see the idea become a reality in November 2008. The wind generator is connected to the Mequon Heating and Air Conditioning (HVAC) System. Day or night when there is sufficient wind the generator begins to turn. In the head of the unit there are actually two (2) different generators. In light wind there is insufficient energy to turn the larger 90kWh generator. Instead the smaller kWh generator is engaged. As the wind picks up there is a transmission similar to that in your car, which allows the generator to shift to the larger generator.

The unit MATC has erected was not new, but rather a refurbished unit that was recovered from a large western wind farm. The unit became excess when the wind farm upgraded to larger units. This is another example of how MATC recycles and uses recycled materials.

Wind Turbine Gets the Green Light

MEQUON, Wis. (Aug. 29, 2006) – The Mequon Planning Commission has unanimously approved construction of a wind turbine at Milwaukee Area Technical College's Mequon Campus, 5555 W. Highland Road. MATC officials said they were confident about fulfilling the commission's construction and maintenance requirements. The 160-foot tall unit is part of the Renewable Energy Technology Education Center (RETEC) initiative designed to educate students and the public about renewable energy technologies.

RETEC will become a teaching facility for five degree, diploma and apprenticeship programs at the Mequon Campus: Automotive Technology, Electrical Apprentice, Environmental and Pollution Control, Landscape Horticulture and Interior Design. It eventually will involve 13 training programs across the college. MATC's wind tower project is the largest to be undertaken by a Wisconsin technical college.

"We are extremely pleased and grateful to the Planning Commission for their support of our efforts to become leaders and educators in the field of renewable energies," said John Stilp, interim campus vice president. "The building of the wind turbine is an essential part of the energy center because it will be a great teaching tool and a visual reminder to everyone about the need to begin using sustainable alternatives to fossil fuels. It will also directly provide about 8 percent of the campus' electricity, so it will save taxpayer dollars."

Construction is expected to begin this fall at a location adjacent to the south end of the campus building. The 90-kilowatt, V-17 turbine is a remanufactured unit made in Denmark by Vestas, the world's largest manufacturer of turbines. It will not feed electricity to We Energies but will supply power directly to the Mequon Campus. The wind tower cost about $150,000, with about $57,000 coming from a grant from the Wisconsin Energy Conservation Corporation. The college expects to recoup its investment within eight years or less at current energy prices.

The turbine will top a 132-foot tapered lattice tower, similar in height to but slimmer than nearby power line support towers. The turbine blades are 14 feet long, sweeping a diameter of 28 feet. According to data from the manufacturer and MATC studies, it generates a sound level of about 44 decibels at its base – no louder than an average conversation. It will not be lit at night, other than what might be required by the FAA.

As a separate demonstration and educational piece, RETEC also will include two 1-kilowatt solar cell panel arrays, one that can be manually reoriented, and the other that automatically tracks the sun on its daily and seasonal travels. Electricity from the panels will be used to electrolyze water to produce hydrogen for a fuel cell generator. The panels already are in place and will be connected in the next several weeks by Seventh Generation Energy Systems, Inc., the company also hired to install the turbine.

RETEC is part of a college-wide green campus initiative, emphasizing energy conservation and sustainable sources. The new Center for Energy and Advanced Manufacturing, being built at the Oak Creek Campus, will promote energy-efficient industrial facilities. A proposed expansion of the West Allis Campus will have a turf layer on top – a “green roof.” To learn more about RETEC and the wind tower, please call John Stilp, (262) 238-2276.