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Morris campus marks "greenest" day

Summary: On a cold day in late October, the University of Minnesota, Morris was running strictly on renewable energy platforms with no fossil fuels being burned on the campus. Energy from an additional wind turbine and biofuels increase the likelihood of frequent "green" days on the Morris campus.

(December 16, 2010)-It's uncanny how an off-hand remark can encapsulate the significance of a moment. On a cold day in late October, the University of Minnesota, Morris was running strictly on renewable energy platforms with no fossil fuels being burned on the campus. Wood was being test-fired in the biomass facility, generating more steam than the campus could use. On this particularly windy day, the wind turbine produced 60 percent of the campus's energy. Lowell Rasmussen, vice chancellor for facilities and finance, casually observed that "it must be one of the greenest days in UMM's history."

The data proved him right. Gratifying as the immediate realization was, its predictive value is equally exciting. As the biomass gasifier becomes more efficient—burning a variety of fuel stocks—Rasmussen infers, the majority can be green days, and the coldest days of January could be among the greenest.

Guided by the Carbon Management Tool prepared under the Energy Services Contract (ESCO) with McKinstry, a sustainable design/build/operate/maintain (DBOM) Minnesota company, Morris's green evolution moves full speed ahead toward carbon neutrality by cutting fossil fuel use, conserving resources, and generating renewable power. Although used by other state agencies, Morris's ESCO is the first of its kind in the University of Minnesota system.

But calling the Morris campus "carbon neutral" is a misnomer. Carbon neutrality explicitly means emitting no net carbon dioxide. State requirements, however, Rasmussen clarifies, impact any producer's ability to be completely self-sufficient.

The University adheres to a "Power Purchase" agreement with Otter Tail Power Company, governed by Minnesota statute, whereby an electric utility interconnects with a power-producing customer using certain "clean" fuels. Any unused electricity generated on-site must be sold to the utility. A more accurate term, Rasmussen says, derives from the Morris campus producing more energy than it can use, making it virtually "carbon negative." With a new wind turbine on the horizon, 60 percent of the energy produced will go out onto the grid—all of the energy most likely staying in the Morris area.

Wind Turbine

The reality of a new wind turbine looms close. The University of Minnesota Regents approved a second turbine for the University in mid-November to join the first large-scale wind research turbine at a United States public university. Vestas, the Danish company that supplied the existing turbine located at the West Central Research and Outreach Center, intends to deliver it in December. Groundbreaking is imminent and the turbine should be operational in January 2011.

The new turbine will stand 1,600 feet south of the existing structure and, at 80 meters will be 10 meters taller, delivering 10 percent more power. Real-time production data will be available online and shown on the green kiosk in the Morris campus's Welcome Center, beginning late January or early February 2011.

Biomass Gasification Research and Energy Production Facility

While the facility undergoes a series of important experiments in the process of being commissioned, valuable data collection defines future directions, focusing on "small but significant steps" toward a sustainable fuel supply. This fall, burning wood in the gasifier held steam production continuously for 72 hours. A period of burning corncobs straight from the fields of local farms, known as sustainable crop residue harvesting, ensued, followed by prairie grass blends, and in December corn stover gasification begins. The results aim at an arsenal of densified biofuel options based on converting biomass into hockey puck-sized pellets, increasing storage capacity and heating value.

In essence, the plant is in a "data collection phase," amassing deliverables in fulfillment of a United States Department of Agriculture (USDA) grant and in preparation for other grant applications. Following submission of a required report in March, Rasmussen anticipates a site visit. Data analysis will not only improve the facility's efficiency but could drive the direction of future agricultural biofuels utilization, Rasmussen says.

Particularly when addressing metro area colleagues, Rasmussen enjoys placing Morris "at the geographical center of the state when it comes to wind and biomass." Regardless of its location, Morris's influence as a green leader is certain to keep it prominently on the map.

Through personal and academic discovery, the University of Minnesota, Morris provides opportunities for students to grow intellectually, engage in community, experience environmental stewardship and celebrate diversity. A renewable and sustainable educational experience, Morris prepares graduates for careers, for advanced degrees, for lifelong learning, for work world flexibility in the future, and for global citizenship. Learn more about Morris at morris.umn.edu or call 888-866-3382.