

## **UWO, partners break ground on biodigester at state's largest dairy farm**

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<http://www.uwosh.edu/today/28295/uwo-partners-break-ground-on-biodigester-at-states-largest-dairy-farm/>

It will serve as both a renewable energy plant and a learning and research laboratory. It promises a more sustainable future for the state's evolving dairy industry. And it will prepare new waves of environmental and renewable energy scientists for the workforce, students who hail from the kinds of small, rural Wisconsin communities where similar technology can help responsible farming prosper for generations to come.

On July 9, partners broke ground on the University of Wisconsin Oshkosh's next and largest biodigester, a biogas plant that will include a public education center at Rosendale Dairy, the state's largest dairy farm at more than 8,000 cows south of Pickett.

The \$7 million biogas production facility and "living, learning, renewable-energy laboratory" – funded by the UW Oshkosh Foundation -- will be able to generate 1.4 megawatts of electricity by using Rosendale Dairy's livestock waste to generate, capture and combust methane. While helping dramatically reduce UW Oshkosh's original 2025 target date for carbon neutrality on the campus, the facility will also provide the institution's environmental science, microbiology, sociology and other students an off-campus laboratory to help expand their knowledge and develop career-launching expertise as renewable energy and rural social scientists.

State of Wisconsin and town of Rosendale officials joined the UW Oshkosh Foundation, the UW Oshkosh College of Letters and Science, Rosendale Dairy owner Milk Source, BIOFerm™ Energy Systems and that company's parent, Viessmann Group of Allendorf, Germany, at the July 9 groundbreaking. The new biodigester project follows the UW Oshkosh Foundation's and Viessmann's previous, successful collaborations including launch of the first dry-fermentation (food-and-plant-waste-based) anaerobic biodigester in the western hemisphere on the UW Oshkosh campus in 2011 and startup of the first, small-scale compact (livestock waste) biodigester at a family farm northwest of Oshkosh in 2012.

"This new project is one more demonstration of UW Oshkosh's focus on high-impact educational opportunities for students and service to our state -- preserving Wisconsin's legacy and future prominence in the dairy industry by applying our campus community's knowledge, scientific curiosity, determination and entrepreneurial vision," UW Oshkosh Chancellor Richard Wells said.

"On farms large and small – high-tech and traditional -- our faculty, students and project partners will be using biodigesters as scientific instruments to conduct biosolids research and maximize a largely untapped, renewable energy source," Wells said. "Faculty and students will also be helping private enterprise achieve an economic and ecological balance. That involves an educational experience few other institutions can provide. Not only will we be responsible for managing and maximizing sustainable

energy on the farm, but we will also be producing future environmental and social scientists. This energy facility and research instrument will be as beneficial to Wisconsin as it will be to our graduates.”

UW Oshkosh, Milk Source, BIOFerm and Viessmann Group are also joined by partners Soil Net, Alliant Energy and Infinity Lawn and Garden. The large-scale Rosendale facility will produce seven times more energy than the existing UW Oshkosh dry-fermentation anaerobic biodigester, which went online in 2011.

The Rosendale biodigester will process approximately 240 tons per day of separated solids -- 23 percent total solids will be combined with up to 58,000 gallons per day of liquid manure. The mixture is referred to as the “substrate” for the system. Two cylindrical anaerobic digestion reactors built by Viessmann Group will each have a 1-million-gallon capacity. Methane generated by the digestion process will be combusted in engines on the site. The digester units will produce up to 1.4 megawatts of electricity. That is enough electricity to power the equivalent of approximately 1,200 homes, according to BIOFerm.

It's also estimated to be enough “green” power production to dramatically reduce UW Oshkosh's 2025 carbon neutrality goal by several years. Sale of the energy back to power utilities will help generate carbon credits for the institution, already rated among the greenest in the nation by the Sierra Magazine (the Sierra Club) and The Princeton Review.

“Our UW Oshkosh Foundation and its board of directors are very proud of the entrepreneurial path we have blazed, and continue to blaze, in our support of our institution's academic mission,” UW Oshkosh Foundation President Arthur Rathjen said. “With two, UW Oshkosh Foundation-supported digesters producing energy on and off campus, we are very confident this third, large-scale digester will significantly advance our efforts to negate our carbon footprint while strengthening UW Oshkosh's position as an unparalleled, cutting-edge institution allied with visionary local, regional and international partners.”

“This project also represents one more tremendous step forward for the New North's burgeoning, national reputation as a proving ground and epicenter for renewable energy advancements and education,” said Tom Sonnleitner, UW Oshkosh Vice Chancellor for Administrative Services.

Milk Source co-founder and partner Jim Ostrom said he and his company were “excited to see this forward-looking UW Oshkosh Foundation project come to life” after nearly two years of collaboration and planning.

“The care, professionalism and commitment to sustainability and excellence that has been shown by the Foundation and its partners is an outstanding example of how diverse groups of people can work together to enhance the ability to use resources in new and exciting ways for the betterment of all,” Ostrom said.

### **Additional project benefits**

Renewable energy production is just one facet of the vision and plan for the new biodigester. The facility will include:

- A public education center operated by UW Oshkosh students and faculty. Wisconsin K-12

students, educators and residents will get an up-close introduction to the environmental science and engineering involved in harnessing a renewable energy source from a state-of-the-art, 21st Century dairy farming operation. UW Oshkosh is also committed to working with UW Extension and other constituent groups to use biodigester revenues to develop a new center on rural community development.

- A remote classroom and laboratory for UW Oshkosh microbiology, biology, environmental studies and chemistry classes. Revenues from the production and sale of energy will further fund the enhancement and growth of laboratories throughout the institution, including the University's Environmental Research and Innovation Center. The ERIC is home to the institution's collaborative, student-and-faculty aquatic and sustainability research initiatives.
- Development of new revenues for new student scholarships within the UW Oshkosh Foundation. The scholarships and rural community development initiatives will involve the consultation of UW Oshkosh's faculty, staff and student leadership, Wells said.

### **Existing partnerships, projects**

The Rosendale Dairy project adds to a growing list of collaborations between the University and Viessmann Group.

In March 2012, the Wisconsin Department of Administration (DOA), through the Department of Administration and State Energy Program, supported a feasibility study to install anaerobic digestion units on family farms with fewer than 500 head of dairy cattle. The "EUColino" (OY-co-lino) project conducted by BIOFerm™ and UW Oshkosh through the UW Oshkosh Foundation, involves the first small-scale biodigester unit in Wisconsin. The feasibility study and test project is located on the Allen Farm, about six miles northwest of Oshkosh.

The specific project and technology, referred to as the "Titan 55," involves a small-scale, wet biodigester with a 55 kW engine. It is innovative, scaled energy technology once again championed by Viessmann and BIOFerm.

Those companies were also partners in the UW Oshkosh Foundation's existing, on-campus dry-fermentation anaerobic biodigester. That facility came online in late 2011 and is capable of producing up to 10 percent of UW Oshkosh's campus electricity needs by generating and combusting methane produced from food and plant waste that decomposes in airless storage chambers.

"It is our privilege to work with such forward thinking partners -- Milk Source, the University of Wisconsin Oshkosh and the UW Oshkosh Foundation -- in solving waste removal problems and launching this major waste remediation project which will benefit the Rosendale township and the surrounding area," said Joachim Janssen, Viessmann Group's chief financial officer and biogas sector leader.

"Clearly, northeastern Wisconsin is widely recognized as a leader in the Americas in digester technology," Janssen said. "This project serves as another wonderful example of public-private partnerships working in collaboration to solve real-life problems within our communities."

Viessmann Group's partnership with and support of UW Oshkosh has also extended into dynamic academic programs. In December, Viessmann Group CEO Martin Viessmann, Ph.D., and his wife Annette pledged a generous gift to the UW Oshkosh Foundation, creating the University's first fully endowed chair. The academic position will support UW Oshkosh's new Sustainable Technology program. The "Viessmann Endowed Chair in Sustainable Technology" will, for decades, allow UW Oshkosh to play a visionary and international academic leadership role in renewable energy technologies.

"Dr. Viessmann has found several ways to share his and his company's deep commitment to sustainability through these new and growing partnerships with UW Oshkosh," said Nadeem Afghan, BIOFerm's President and CEO. "As a subsidiary of Viessmann and a Wisconsin-based company, we are proud to continue to have the opportunity to expand that vision in the New North alongside UW Oshkosh, the UW Oshkosh Foundation and this new project's array of partners."

Learn more:

- [State, UWO, partners rally around small-farm biodigester project \(March 2012\)](#)
- ['Feed the Beast' aims at collecting waste to fuel UWO's biodigester](#)
- [Switch flipped: UWO biodigester producing energy](#)