



Gundersen Health System: Saving Energy and Breathing Easier

Supporting Local Environmental and Economic Sustainability

In 2014, Gundersen Health System became the first health system in the United States to attain energy independence by producing more energy than it consumed. This is especially significant because hospitals typically use two and a half times more energy than commercial buildings. In Wisconsin, which has extremely cold winters and hot summers, the challenges are amplified. The heat and power system's biomass boiler accounts for 38 percent of Gundersen's energy independence goal.

The system is the largest part of a suite of sustainability improvements, including solar, wind, and biogas, saving the health system \$3.7 million per year. The heat and power system alone saves Gundersen about \$500,000 a year.

The system incorporates a steam turbine to generate electricity that is used across Gundersen's 25-acre La Crosse Campus, further reducing fossil fuel emissions. It produces enough electricity to power about 225 homes a year.

The combined heat and power (CHP) system at the [Gundersen Health System's](#) medical campus in La Crosse, WI, turns locally sourced wood chips into renewable energy. This modern wood energy system uses state-of-the-art combustion and emissions-control technologies to save energy, reduce operating costs, and protect local air quality.

"We set out to make the air better for our patients to breathe, control our rising energy costs, and help our local economy. We believe we have made more progress on all three than anyone else in the country," said Dr. Jeff Thompson, Gundersen Chief Executive Officer, Emeritus.

Excess steam is also used to sterilize infectious waste. In 2017, the sterilizer processed 45 percent of all biohazardous material produced at Gundersen, saving the organization \$41,000.

Sustainability Leaders Focused on Health and Energy Efficiency

Gundersen Health System's environmental program, Envision, provides leadership for the healthcare industry by demonstrating that green energy is healthy, socially responsible, and economically beneficial. The Envision program embodies Gundersen's commitment to managing its environmental footprint in ways that support the health and well-being of the communities it serves. The project helps mitigate climate change by providing a net annual reduction of more than 9,500 metric tonnes of carbon dioxide.

Supporting a Sustainable Local Economy

The project advances local, State, and Federal goals for rural economic development and creating jobs centered on renewable energy. The system keeps more than \$600,000 in annual energy spending within the local economy, helping create jobs in the local forest products industry.

The system provides heat and power onsite in one single, highly efficient process. Low-value wood and wood waste are fed into the system, where it is burned to heat water and create steam that is distributed to a steam-driven district heating system.

The U.S. Department of Agriculture (USDA), Forest Service [Wood Education and Resource Center \(WERC\)](#) provided the feasibility study for the project that identified a viable path forward for the CHP system. This allowed Gundersen to pursue project implementation.

The project was awarded \$220,000 by the Wisconsin State Energy Office through the Linking Fuels Reduction and Wood Energy Program, which was funded by the Forest Service.

FAST FACTS

- Became the first hospital in the United States to generate more energy than it uses.
- Achieved sustainability with renewable wood energy, wind turbines, biogas digesters, landfill gas, and geothermal.
- Uses 15,000 green tons per year of locally sourced wood chips.
- Replaced natural gas with renewable wood energy to power over 1 million square feet of facility space.
- Uses state-of-the-art emissions control technology to meet air quality standards.
- Reduced the hospital's carbon dioxide emissions more than 9,500 metric tonnes each year by using wood chips.

More Information

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This biomass boiler is one part of Gundersen Health System's sustainable power generation. Courtesy photo by Gundersen Health System.

Cover photo: The Gundersen CHP unit. Courtesy photo by Gundersen Health System.