



Mississippi Headwaters Chapter *Transformation*

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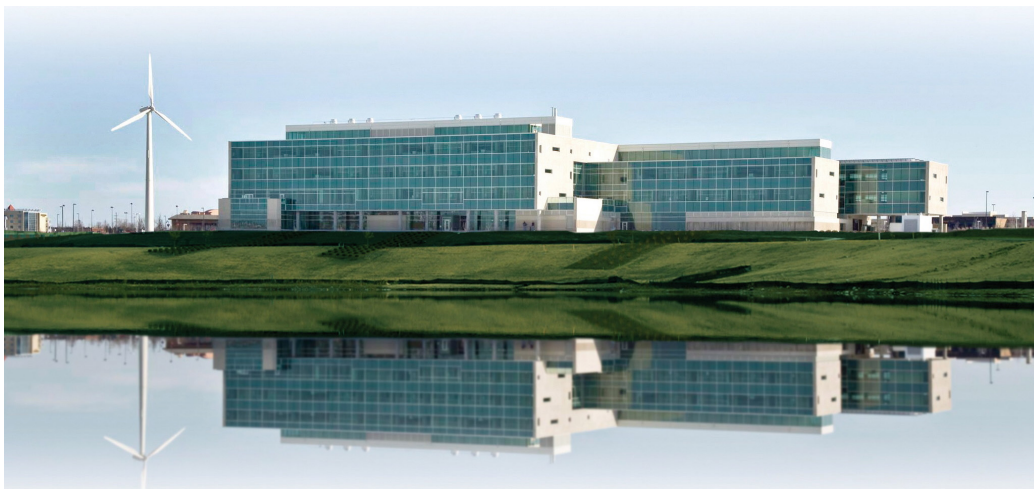
The Newsletter

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Great River Energy Seeks LEED® Platinum Status For New Maple Grove Headquarters

**Achieving LEED Platinum Status Would Rank Facility
As One of 50 Globally**

By Nick Banovetz



Great River Energy, Minnesota's second largest utility provider, completed construction this spring of its corporate headquarters in Maple Grove. The four-story, 166,000 square-foot building is located on a 12.5 acre site in Maple Grove's Arbor Lakes development. Project leaders will register the building for LEED Platinum certification with the U.S. Green Building Council.

About Great River Energy

The company's pursuit of LEED Platinum certification is an important element of its overarching commitment to environmental stewardship. As

an electric utility, GRE is taking significant steps to protect the environment while providing reliable and affordable electricity.

The new corporate headquarters is one of only a small number of buildings in the United States attempting to achieve platinum status. There are less than 50 such buildings in the world and the GRE building will be one of the most energy efficient and sustainable structures in Minnesota and the Upper Midwest.

When compared to similarly-sized traditional office buildings, GRE's new headquarters:

- Consumes 50 percent less energy than Minnesota code requires
- Uses 40 percent less electricity for lighting than buildings using standard construction
- Uses 90 percent less water than comparable corporate campuses

- Diverts 75 percent of construction waste from landfills
- Produces on-site renewable energy that delivers up to 15 percent of the building's energy
- Uses recycled and locally manufactured materials
- Saves nearly \$90,000 in annual energy costs, with a payback in four years for energy efficient technology.

Perhaps the most visible feature of the new corporate campus is the 150-foot tall wind turbine, which can be seen from Interstates 94 and 494. The Maple Grove City Council approved a 5-year Conditional Use Permit for the turbine. It is expected to produce 390,000 kWh/yr, or enough electricity to meet the electrical energy needs of 40 average-sized homes. The wind turbine and solar electric or photovoltaic (PV) system together will supply up to 15 percent of the building's annual electrical energy needs.

**New Great River Energy
Campus cont. on pg. 2**

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SAVE THE DATES!

LEED-CI Presentation & Tour

June 26, 2008
Location: Dunham Associates
Minneapolis, MN

Biking Event - Networking Committee

June 28, 2008
Location: Lake Harriet Band Shell
Minneapolis, MN

Quarterly Chapter Update Featuring Rick Fedrizzi

July 15, 2008
Location: Great River Energy
Maple Grove, MN

LEED-NC Workshop

August 7, 2008
Location: Como Zoo
and Conservatory
St. Paul, MN

4th Annual Chapter Meeting

October 22, 2008
Location: Wilder Foundation
St. Paul, MN

Key Company Facts:

- Member cooperatives: 28
- Employees: More than 860
- Number of member/customers: 627,000
- Transmission line: 4,553 miles
- Revenue: \$770 million (2007)
- Total assets: \$2.2 billion (2007)

New Great River Energy Campus *cont. from pg. 1*

The turbine, manufactured in Denmark, is a NEG Micon M700. The turbine was first purchased by Vestas (Denmark) in 2005. Great River Energy purchased it from Energy Maintenance Services (EMS) and had it shipped from Canada to Gary, SD in 2007 for refurbishment.

The blades, nacelle and tower were freshly painted to match colors present in the GRE headquarters' building. The gears in the gearbox were remanufactured and the generator was rewound to change the machine from a two-speed to a one-speed to increase efficiency. Located within an "urban" location (Maple Grove), wind resources are slightly lower.

Serving as a model for sustainable practices, GRE uses it as a tool to educate member cooperatives, contractors, businesses leaders and other members of the building industry about ways they can conserve energy and practice sustainability. The public

can experience the energy efficiency technologies at the new headquarters by visiting an experiential exhibit at the building or by participating in one of a series of community workshops.

GRE provides wholesale electricity to more than 627,000 customers via 28 distribution cooperatives in Minnesota and Wisconsin. It is the second largest electric utility in the state, based on generating capacity, and the fifth largest generation and transmission (G&T) cooperative in the United States in terms of assets. Member cooperatives range from those in the outer-ring suburbs of the Twin Cities to the Arrowhead region of Minnesota to the farmland of southwestern Minnesota. The company's largest distribution cooperative serves more than 120,000 member-consumers; the smallest serves just over 2,400.

GRE and its member cooperatives are not-for-profit companies owned by the customers they serve. From its origins as an

electric cooperative, Great River Energy provides its member systems and other customers wholesale electric service. The company partners with members to deliver energy solutions at commercial, industrial and residential locations, including conservation and economic development programs and technical solutions unique to their systems. Great River Energy's 2,800-megawatt generation system comprises an effective mix of base load and peaking power plants, including both traditional and renewable sources. Great River Energy's electric transmission system



**GREAT RIVER
ENERGY®**

A Touchstone Energy® Cooperative

includes more than 4,500 miles of transmission line. Great River Energy also owns or partially owns more than 100 transmission substations.





Sustainable Features

The building features a number of the latest advancements in energy efficiency technology that help set the new standard for building design and construction, including:

- A low-energy HVAC system design featuring under-floor displacement ventilation and a geothermal heating and cooling system that utilizes the adjacent Arbor Lake. The technology will result in a dramatic improvement in indoor air quality and workplace productivity.
- An on-site 200kW wind turbine that transforms wind energy into electricity. The 160-foot tall wind turbine is visible to drivers on Interstates 94 and 494.
- Photovoltaic cells mounted on the roof of the building will transform solar energy into electricity. Solar energy will also be used to pre-heat hot water.
- Nearly 15 percent of the building's total electric use will come from renewable energy.

- Dimming ballasts, daylight sensors and motion sensors to help reduce artificial lighting needs. The new headquarters will also harvest daylight through narrow office floor plates and multiple light-filled atriums. With reduced lighting requirements, there will be less heat generated from the lighting, reducing the need for air conditioning to cool the building. Artificial lighting will be high-efficiency fluorescent lighting.
- The building will use 40 percent less energy for lighting than similarly sized buildings that use standard technology.
- A longer east and west running orientation of the building to maximize harvesting daylight. Windows on the east and west walls are kept to a minimum to reduce unwanted solar heat gain.
- The new facility's concrete structural frame contains nearly 50 percent fly ash, the product created when coal is burned to generate electricity. Fly ash from the Great River Energy Coal Creek Station was used in both the structure as a replacement for cement, and in carpet backing. Using fly ash in construction decreases the amount of waste sent to landfills and reduces energy used to produce cement.
- Energy efficient elevators that use 60 percent less energy and require less space use a counterbalance mechanism and high-efficiency motors.
- Sustainable landscape features such as rain gardens, and native plantings and vegetation. Rainwater will be used for on-site irrigation and the flushing of toilets.
- Local construction materials were used when possible, including Mankato limestone and Lake Superior granite.
- Nearly 90 percent of construction waste was recycled.

Key Project Facts:

- **Owner:**
Great River Energy
(www.greatriverenergy.com)
- **Address:**
12300 Elm Creek Blvd.,
Maple Grove, MN
- **Construction start:**
December 2006
- **Completion:**
April 2008
- **General Contractor:**
McGough Construction,
St. Paul
- **Architect:**
Perkins + Will, Minneapolis
- **Owners Representative:**
Tegra Group, Minneapolis
- **Size:** four-stories,
166,000 square feet
- **Site:** 12.5 acre site in Arbor
Lakes area of Maple Grove
- **Estimated building cost:**
Approximately \$45 million
- **Number of employees
to move to site:**
Approx. 350 employees

USGBC - Mississippi Headwaters Chapter Member Profile: Lisa Parker, Walker Parking Consultants

**LEED accreditation affirms personal belief
in treading lightly on the earth.**

By Elaine Samolytz



With a degree in architecture, you've been working in the built environment for more than 10 years. What were some of the influences that triggered your interest in green building?

Lisa: I've always had a strong interest in sustainable living and treading lightly on the earth. It's just natural for that to encompass all aspects of life, from what we eat to the built environment.

I understand you recently became LEED Accredited. What were the driving forces behind your decision to pursue accreditation?

Lisa: I jumped at the chance to become LEED accredited when my employer asked me. I felt it was a great opportunity for my work life to more accurately reflect my personal beliefs.

How have your thoughts about sustainability and the environment changed after going through the process of getting accredited?

Lisa: I think I have a better understanding that it's not a black and white issue with

clear-cut answers. It's a matter of making better choices and finding balance. It might be easy to become cynical and wonder if there really is anything that we can do to make a difference, but I think we can, and LEED is a place to start.

Just about any type of building can be LEED certified, but parking facilities can't (at least not yet). What trends have you observed in sustainable developments that incorporate parking structures? In what way can parking structure design contribute to sustainability?

Lisa: Parking structures offer many opportunities to incorporate green building elements and contribute LEED points as part of a larger project. Anything from vegetated rooftops and plazas, PV panels and wind turbines to special concrete mixes that utilize recycled material can help a project attain LEED certification. Owners need to drive the decision to go green, and lately more and more are.

Do you have any advice for other professionals considering accreditation?

Lisa: I found many online forums and resources that were very helpful, as well as taking every practice test I could find (my personal favorite is the Colorado Chapter Study Guide & Practice Exam). And I read the Reference Guide over and over, at least three times I think!

Green Buildings Feature

Each quarter we provide a glimpse of some regional projects that may be featured in future newsletters. To submit your project for consideration, email editor@usgbcmn.org with information provided in the format below.

Bowman and Brooke Offices - Minneapolis



Project Team: Smith Group, architects; Meyer Borgman Johnson, structural engineer; Michaud Cooley Erickson, mechanical/electrical engineers; Greiner Construction, contractor
Completion: March 2007

Green Features: With their new Minneapolis headquarters, Bowman and Brooke LLP became the first law firm in Minnesota to achieve LEED-CI certification, and the first nationally located outside of California. The primary design challenge was offering solutions to promote sustainability and an open, collaborative environment in a business practice requiring privacy and security of information – one that traditionally incorporates offices along the entire exterior perimeter. To address the need for daylight and allow staff without exterior offices views and natural light, the floor plan is laid out to provide corridors with exterior views, and the use of large expanses of interior glazing transfers natural light to interior zones, and provides a connection with the outdoors as staff move about the office. All new furniture has a minimum of 20% recycled content, with an average of 41% recycled content, and five percent of the furniture was manufactured locally. More than 70% of construction waste was recycled.

Sawtooth Cottages - Grand Marais



Project Team: Wagner Zaun, architects; Northern Community Land Trust, developer/sponsor; Isak Hansen, general contractor.

Completion: 2009

Green Features: Ten units of new, permanently affordable, detached, single-family homes will be included in the 37-unit Sawtooth Cottages development, located on a beautiful wooded site near the beginning of the Gunflint Trail, one-half mile from downtown Grand Marais. All ten homes will remain affordable in perpetuity as part of the Northern Communities Land Trust. The NCLT projects will be constructed with green and sustainable elements for the benefit of both the residents and the surrounding community, including:

- Energy Star modeling and integration with appliances and lighting.
- Healthy flooring materials (non-carpet and non-vinyl flooring).
- Heat Recovery Ventilation (HRV) systems for proper ventilation and moisture control.
- Solar orientation of homes on sites where possible.
- Cement fiber board siding.
- Rain barrels for managing storm water and reducing water used for irrigation.
- Homeowners manual outlining green building and landscaping features and maintenance.
- Low-VOC paints, sealants, and adhesives.
- Water-conserving appliances and fixtures.

Labovitz School of Business & Economics - University of Minnesota Duluth



Project Team: Perkins + Will, architects; Gausman & Moore, mechanical/electrical engineers, Olson J. Boldt Construction, contractor.

Completion: TBD

Green Features: This new 62,000 square-foot School will support the University's mission to provide state-of-the-art business education with a focus on experiential learning, global perspectives, and entrepreneurship. The building's bent bar configuration connects into the existing campus circulation system between the Library and Library Annex building and is oriented with its long facades facing north and south to maximize daylighting potential and solar control. The design is organized around a 3-story, skylit commons area surrounded by a two-level administration block, a large 150 seat auditorium and a rotated instructional wing, also on two levels, which contains classrooms for 40 to 60 students. Gausman & Moore provided complete mechanical and electrical systems design in compliance with the State of Minnesota Sustainable Building Guidelines. Building utilities are served from the campus infrastructure including HP steam, chilled water loop, a dual 13.8 kv parallel loop feeder system, and copper/fiber backbone telecommunications system. The building is planned for Leadership in Energy and Environmental Design (LEED) Silver certification. It could be the first public higher education building in Minnesota certified for LEED by the U.S. Green Building Council.



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