

# PowerGrant Profiles

October, 2005



## *Hubbard United Methodist Church: Ground-Source Heating and Cooling Is Heavenly*

United Methodist Church in Hubbard, Minn., is a warm and welcoming place to gather in the heart of winter. It also is cool and comfortable in the heat of summer. No matter what the weather outside, the newly constructed church maintains a constant indoor temperature of 70° Fahrenheit, thanks to one of the most energy-efficient, environment-friendly heating and cooling systems available.



*A \$4,878 PowerGrant rebate from Minnesota Power helped offset the cost of installing a geothermal heat pump system in the new Hubbard United Methodist Church.*

United Methodist is among a growing number of new churches and community centers incorporating geothermal heat pump (GHP) technology to conserve energy and save money. GHP systems tap a renewable resource—the constant temperature of the earth—for indoor climate control. The science is surprisingly simple. In the winter, underground coils filled with fluid draw thermal energy, or heat, from the earth and circulate it via pipes throughout the building. In the summer, the same process transfers heat from the building to the ground, cooling the entire facility. These systems use the earth's relatively constant temperature to provide heating, cooling and hot water for homes and commercial buildings. They also can substantially reduce monthly utility bills, which was very attractive to the



*Ground-source heating and cooling uses liquid-filled pipes and coils to harvest thermal energy from the earth. A system similar to the one shown above (inset) is buried behind the United Methodist Church.*

100-member congregation of United Methodist Church as it embarked on a recent \$900,000 church construction project.

Hubbard is a tiny, unincorporated resort community, located just south of Park Rapids in north-central Minnesota. Home to just a handful of year-round residents, Hubbard's population—and attendance at weekly worship services—skyrockets in the summer with seasonal cabin owners and vacationers. This mixed blessing prompted members of United Methodist to replace the small church they had occupied since the 1890s with a larger sanctuary and fellowship hall. The contractor chosen to build the new 10,700-square-foot facility, Curtis Construction of Fargo, North Dakota, strongly advocated for ground-source heating and cooling.

“We were interested in this technology for two

### ***PowerGrant Contact Information***

For more information, please call Minnesota Power's Conservation Improvement Program toll-free at 800-228-4966 ext. 2909.

## ***"Energizing Our Region" through Conservation Improvement***

Minnesota Power's Conservation Improvement Program (CIP) works with local leaders, businesses, community groups, other energy providers and government entities to help customers reap the economic and environmental benefits of sustainable energy savings. Minnesota Power and its partners accomplish this through research, education, evaluation and direct impact initiatives.

### ***Find out how you could get a PowerGrant***

Minnesota Power awards grants to commercial/industrial customers who use innovative technologies, improve manufacturing processes, undertake renewable electric energy projects, or who need project design assistance. PowerGrant awards are available for a wide variety of projects employing diverse technologies.

Here are some examples of activities or products that could qualify for MP funding under the PowerGrant Program:

- New electro-technologies that lower energy costs per unit of production in a manufacturing process
- Innovative technologies that are new and underutilized in our regional marketplace
- Inclusion of energy-efficient options in the design phase of a project

Maximum annual grants are determined by a customer's average billing demand:

<b><i>Customer Demand</i></b>	<b><i>Maximum Rebate</i></b>
0 to 100 kW	\$10,000
101 to 300 kW	\$25,000
Over 300 kW	\$50,000

Customers may submit multiple grant requests.

### ***Other MP Products and Services***

In addition to PowerGrants, MP CIP offers commercial and industrial customers other energy efficiency products and services. These include energy audits, rebates, dual fuel, storage/off-peak services, outdoor and area lighting and economic development assistance.



*Building committee chair Curtis Bakken (top) helped secure a Minnesota Power rebate for the geothermal heat pump, which helps maintain a constant temperature in the new sanctuary (bottom).*

## ***Many church construction projects incorporate energy efficiency ...***

main reasons," said Curtis Bakken, a retired Mayo Clinic physician who led the capital campaign and who chairs the church's building committee. "Staff wanted a consistent temperature so they wouldn't have to heat up a cold building in the winter before meetings and services. We also heard that geothermal heating and cooling would help keep our utility bills to less than \$3,000 per year. Of course, that remains to be seen."

Minnesota Power energy consultant Gary Olson of Matt Haley & Associates reviewed the project and estimates the GHP will save United Methodist 139,357 kWh per year and 55.3 kW of demand per month over a conventional heating and cooling

system. This translates to an annual energy cost savings of \$5,156. Minnesota Power provided a \$4,878 PowerGrant rebate. Altogether, the \$61,000 GPH system is expected to pay for itself in 11 years.

"More church communities are looking at environmental issues and conservation as they plan new facilities," Olson said. "Geothermal heating and cooling is the latest technology for energy-efficient construction and is something to consider if you're building a brand new facility in an area with the right type of soil."

Minnesota Power PowerGrant rebates can help you answer the higher call to conservation.