

PowerGrant Profiles



Hill Annex Mine State Park: New Pumps Reduce Drain on Budget

Geology enthusiasts come to Calumet, Minn., from around the world to visit the Hill Annex Mine. The Minnesota State Park is one of the few locations in the Upper Midwest where the Earth's geological history is revealed in exposed layers of sedimentary rock dating back two billion years.

It was deep below the sandy glacial band and the fossil-rich Cretaceous layer that early 20th-century miners discovered iron ore so pure that early extractions could be shipped to Eastern steel mills with almost no processing.



Minnesota Power engineers overcame topographical challenges to bring electricity to the new pump (in lower left of photo).

The Hill Annex Mine, named for railroad mogul and financier James J. Hill, played a historic role in the development of this country. From its start in 1912 to its final shipment in 1979, Hill Annex Mine produced more than 64 million tons of iron ore, making it the sixth largest producer of natural (hematite) iron ores in the United States. Many believe the Allies could not have won World War II had it not been for the iron ore flowing from Minnesota's Mesabi Range.

Mining operations ended in 1979, but the site was left intact and sold to the Iron Range Resources a Rehabilitation Board for one dollar to run as a tourist attraction. It became a state park in 1988 and is operated by the Minnesota Department of Natural Resources. Ten-thousand visitors tour the park each year.

Unlike most abandoned mines on the Iron Range,

Hill Annex has not been allowed to fill with groundwater. The DNR pumps 9 million gallons of water per day from the deep pits so the layers of prehistoric rock, historic buildings and idled equipment remain visible reminders



L-R Dale Sundin, MP Regional Account Manager; Steve Railson, Hill Annex Mine Park Manager; Craig Kedrowski, MP Regional Account Manager

of mining's impact on the region's past, present and future. The fresh water siphoned from the pits flows into the nearby Panacea Lakes, through the Swan River and eventually into the Mississippi.

It takes a lot of energy to pump the pits, but a partnership between Minnesota Power and the DNR has improved the efficiency and reduced the cost of pump operations.

"We used to have two old pumps that were clumsy, inefficient and expensive to operate," said Steve Railson, park manager of Hill Annex Mine. "Minnesota Power was aware of our equipment failures and high energy costs and told us about a program that would help pay for upgrades."

Minnesota Power calculated that replacing the pumps would save 1,271,677 kWh per year and reduce energy demand by 317 kW per month. The

PowerGrant Contact Information

For more information, please call Minnesota Power's Conservation Improvement Program toll-free at 800-228-4966 ext. 2902.

"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:

<i>Customer Demand</i>	<i>Maximum Rebate</i>
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 CIP Products & 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.



The new electric pump at Hill Annex Mine saves the State of Minnesota more than \$100,000 per year.

New pump does the work of two older models

projected cost savings were more than \$135,000 per year. A \$63,000 PowerGrant rebate from Minnesota Power's Conservation Improvement Program helped offset the cost of the \$229,000 project.

One new 450 hp electric pump now does the work of two older models (450 hp and 400 hp). A smooth-flowing, high-density polyethylene pipeline has replaced a deteriorating pipeline with sharp bends and joints. Minnesota Power system engineers overcame topographical challenges to move the mine's primary electric service closer to the pumps for greater efficiency, reliability and safety. A communications system with a green light at the top of the pit was installed with the electric service. It now tells maintenance personnel if the pumps are running without anyone having to travel down the steep, treacherous dirt road to the pumping station.

"We're pumping more than 6,500 gallons of water per minute with the new equipment—more than we could handle with both of the old pumps—and we're running at less cost," Railson said. "Minnesota Power really helped us accomplish this project."

"Energy conservation is in everyone's best interest," said Dale Sundin, regional account manager for Minnesota Power. "It is good for the environment and lowers costs for our customers so they can succeed."

In the case of Hill Annex Mine State Park, energy conservation is helping the DNR be responsible stewards of taxpayers' money while showcasing the state's rich history of natural ore mining.

For more information about Hill Annex Mine State Park, call 218-247-7215 or go to DNR's website at www.dnr.state.mn.us