

Foundry Powered by Xcel Solar Garden

Full Scale Implementation OR Pilot Scale/Study

1. Description of the project: What is the issue and how did you fix it?

Rising cost of Energy and general society desire to move away from coal/petroleum-based sourcing for energy. Project was to replace our electrical energy sourcing for operation of this Steel and Iron Commercial foundry operation. We looked to be on the leading edge of the implementation of the nation's largest Solar Energy initiative which is taking place in Minnesota. Ultimately, MMP became the lead in 4 of Xcel Energy's solar gardens covering about 10 acres of land and generating the full electrical needs of both the plant's induction melting units and all other electrical power needed to operate the foundry.

2. Environmental Benefits: Conservation of raw materials or energy, reduction or elimination of emissions, wastes, toxics, water discharges, etc.

MMP consumes just under 3 million kWh (kilowatt hours) annually to operate the foundry in Winona, MN. Greenhouse gas pollutants are significantly reduced with this sourcing: According to the National Renewable Energy Laboratory (pg.2), a typical US household uses about 830 kWh of electricity each month. If you had a solar system on your rooftop producing 1,000 kWh of energy, there is a huge opportunity to reduce emissions. NREL calculates that you'll avoid the following: Per Year: 5 pounds of Nitrogen Oxides (one of the top 6 pollutants), 8 pounds of Sulfur Dioxide (another one of the top 6 pollutants), 1,400 pounds of Carbon Dioxide (a greenhouse gas that contributes to climate change and global warming). So at MMP's usage these savings increase by a factor of 3000 times!

3. Other Benefits: Productivity, health and safety, employee morale, etc.

MMP is happy to be a part of a National lead on use of this friendly energy source. Our employees are proud to be able to say that their company is advancing this technology.

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4. Cost Savings: Capital cost, operating cost, ROI or other pertinent cost information.

The move into the Minnesota Solar Garden initiative has generated savings about equal to 1 month of energy consumption for the foundry. This money has been used in improving wages, benefits, and the facility.

5. Applicability to other foundries and additional Comments

Many states have similar programs and any electrical consumer can participate, the programs all work differently with respect to contracts, power availability, and the return to the consumer.

6. Applicable Environmental Categories and Foundry Processes. Select all that apply.

Environmental Categories

- Carbon (GHG) Emissions Measurement and Reduction
- Air Quality Water Use and Discharge Waste Management
- Beneficial Use Stormwater Material and Resource Conservation
- Community Engagement

Foundry Process(es) Impacted

- Melt Pour Mold Core sand system/reclaim
- Shakeout Heat Treat Quench Finishing Shipping
- Maintenance Pattern Shop Casting Design
- Management Systems and Metrics
- Other, explain:

7. Add photos to enhance your application, if applicable.

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