Minneapolis – Saint Paul Solar Districts: Project Abstract

Name of applicant: City of Saint Paul

Project director: Anne Hunt, Deputy Policy Director - Environment

Project title: Minneapolis Saint Paul Solar Districts

Objectives: Demonstrate the value of integrating solar thermal and combination thermal/photovoltaic (PV) with district energy systems. Implementation of this project results in large scale solar investment and transformative actions in the energy market.

- Extend the Minneapolis Saint Paul Solar America Cities partnership to two district energy systems
- Inventory and assess the most suitable solar technologies for large scale installation
- Complete comprehensive site assessments to identify projects with highest potential performance and adaptability to a solar energy system.
- Engineer and install one (or more) solar system(s) that demonstrates large scale solar systems highlighting solar thermal, integrated thermal/PV, and/or installations that service multiple buildings.
- Prepare a report identifying the applicable economic and technical factors of the project, including recommendations to increase solar technology in district energy systems.

Description of the project (including methods)

The Minneapolis Saint Paul Solar Cities partnership has a specific goal of transforming the market to enable large-scale solar energy investment within the cities by 2015. In order to achieve this goal the cities must partner with entities that can develop and implement large scale solar projects. The cities of Minneapolis and Saint Paul will work with two local district energy providers to investigate and demonstrate the value of using district energy systems to leverage large scale solar investment and create transformative actions in the energy market.

The proposed solar district energy project will document how solar energy, (including solar thermal and hybrid solar thermal/photovoltaic systems, may be integrated to serve multiple users. The demonstration will examine both how solar energy supplements existing district energy systems from a technological perspective (integrating solar as a generating input to the district energy system) and from a business model perspective (adding value to the energy services provided by the district energy system). In addition this investigation will review the potential for new solar thermal district systems as demonstrated in the European market.

Potential impact of the project (benefits, outcomes)

Assessment and implementation by 2010 will have the following immediate impacts:

- Identify solar thermal and solar thermal/PV potential in Minneapolis and Saint Paul
- Implement projects with a thermal production potential between 1-3 MW thermal equivalent
- Plan added installations at buildings with large thermal loads and potential to serve multiple buildings Long-term benefits will include:
- Creation of solar districts in Minnesota and replicable among most other Solar America Cities
- Increased penetration and visibility of solar thermal in a northern climate
- Establishment of a market for integrated solar thermal/PV systems

Major participants

Principal: Cities of Saint Paul and Minneapolis, Minnesota Office of Energy Security

Utilities: District Energy Saint Paul and NRG Energy Center Minneapolis LLC

Additional: Saint Paul RiverCentre, Minnesota Center for Energy and Environment, Xcel Energy