

Environment and Natural Resources Trust Fund 2010 Request for Proposals (RFP)

LCCMR ID: 047-B1

Project Title:

Climate Protection, Renewable Energy, and Community Development

LCCMR 2010 Funding Priority:

B. Renewable Energy Related to Climate Change

Total Project Budget: \$ \$190,500

Proposed Project Time Period for the Funding Requested: 2 years, 2010 - 2012

Other Non-State Funds: \$ \$0

Summary:

The project encourages community-based renewable energy projects appropriate for urban areas. We will evaluate technology, map high value resources for proactive planning, and create community development-based implementation strategies.

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Sponsoring Organization: MN Renewable Energy Society

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Location:

Region: Metro

County Name: Anoka, Carver, Dakota, Hennepin, Ramsey, Scott, Washington

City / Township:

_____ Knowledge Base	_____ Broad App.	_____ Innovation
_____ Leverage	_____ Outcomes	
_____ Partnerships	_____ Urgency	_____ TOTAL

MAIN PROPOSAL

PROJECT TITLE: Climate Protection, Renewable Energy, and Community Development

I. PROJECT STATEMENT

1. The State of Minnesota has set an aggressive goal of reducing greenhouse gas emissions by 80% by the year 2050. Many local governments have similarly committed to aggressive climate protection goals. Renewable energy development and use is widely acknowledged to be a critical element of meeting climate protection goals. Yet local and regional governments lack both the necessary information on renewable energy options and the templates for taking action through development planning, ordinances, and programs. Most energy use and the bulk of greenhouse gases emissions are driven by infrastructure and development decisions within Minnesota's metropolitan areas. Until local governments in Minnesota's metropolitan areas have a clear path to setting and implementing renewable energy policy, renewable energy opportunities will remain an afterthought and development practices will continue to contribute to the climate change problem.
2. **Goals and Impact:** Create public domain information for metropolitan area governments on where their high quality renewable energy resources are located and work with regional and local governments to integrate this information in local plans, ordinances, and programs. This effort enables proactive planning for community-based renewable energy development in the areas where energy demand is greatest and climate protection efforts most critical.
3. **Process:** Map renewable energy resources (wind, solar, geothermal) in the metropolitan area, identifying valuable resources based on the geographic characteristics and technological applicability in urban areas. Work with experts on renewable energy technologies and urban development practices to evaluate renewable energy technologies for urban settings and development regulation to facilitate renewable development and resource protection. For instance, good wind energy resources near permanent agricultural lands or large industrial sites are more valuable than wind energy in areas slated for eventual residential development. Large areas of impervious surface near electric transmission lines, such as an industrial park, are more suited to large scale solar energy investment than a remote area. After mapping renewable energy potential, review existing local and regional plans, ordinances, and programs for high-potential renewable energy sites. Identify barriers to using local renewable energy resources and barriers associated with specific types of renewable technologies. Identify opportunities for incorporating renewable energy resources into local government plans and development regulations. Work with communities that have signed climate protection agreements and with the Met Council to use the mapping and implementation strategies to transform development practices and create community renewable energy development, and to develop web-based dissemination of data, maps, and implementation tools.

II. DESCRIPTION OF PROJECT RESULTS

Result 1: *Create a database of GIS information relating to renewable energy* **Budget:** \$ 30,000

Work with the technology experts, government agencies, the Metropolitan Council, and local governments as necessary to compile a consistent set of geographic information relating to the viability of renewable energy development. Data include topography, existing land uses, impervious surfaces, wind power, soils, high quality natural areas or habitat, planned urban expansion areas, and other data sets.

Deliverable

1. Assembled GIS data sets

Completion Date

December 2010

Result 2: Create GIS model and map high value renewable resources Budget: \$ 70,000

Identify geographic and technical characteristics for solar, wind, and geothermal technologies that make renewable energy resources more or less valuable in urban areas. Land along the north side of major transportation infrastructure would have a higher solar suitability, geothermal energy is more suitable where soil conditions allow for better heat exchange and where there are opportunities for shared use, such as industrial parks.

Deliverable

- | | Completion Date |
|---|------------------------|
| 1. Identify geographic characteristics defining the quality of energy resources | <i>December 2010</i> |
| 2. Identify renewable technologies compatible with urban development | <i>March 2011</i> |
| 3. Maps showing high quality local wind, solar, and geothermal resources | <i>April 2011</i> |

Result 3: Facilitate community-based implementation of renewable energy development.

Budget: \$ 90,500

Comprehensive plans, development regulation, and resource protection plans are largely silent on opportunities or risks associated with renewable energy development. Site assessments for renewable energy are done after the fact, rather than prior to or part of the development process. We will review the high priority areas, assess planning and regulatory barriers, create a framework and develop alternative language for local governments to incorporate renewable energy goals in their plans and development regulation.

Deliverable

- | | Completion Date |
|--|------------------------|
| 1. Assessment of planning and regulatory barriers | <i>April 2011</i> |
| 2. Framework for incorporating renewable energy into regional planning | <i>July 2011</i> |
| 3. Plan and ordinance language for removing barriers, creating incentives for community-based renewable energy development in urban areas. | <i>December 2011</i> |
| 4. Promote and disseminate project results, maps, data, tools via web | <i>December 2011</i> |

III. PROJECT STRATEGY

A. Project Team/Partners

Minnesota Renewable Energy Society – Grant management, compiling GIS data, direct outreach to local governments, assembling and reviewing technical information, interviewing renewable energy producers on appropriate geographic criteria, creation of web-based dissemination of project results and ongoing advocacy for local government action.

CR Planning – Overall project management, managing GIS database and mapping process, land use plan and ordinance review, creation of local and regional implementation tools.

Metropolitan Clean Energy Resource Team – Enhancing CERT's existing local government assistance and outreach on renewable energy.

Local governments – MRES currently works with local governments on climate protection/renewable energy strategies, including Apple Valley, Matomedi, and Burnsville.

B. Timeline Requirements

The project is envisioned to take 18 months. The timeline may change to influence the next round of metropolitan area comprehensive plan and the regional climate protection standards.

C. Long-Term Strategy

This project serves as a component of ongoing programs by local governments, state agencies, and non-profit organizations to meet long-term climate protection goals through the adoption of community-based renewable energy systems. MRES and project partners will continue to use the project results to advocate for community-based renewable energy solutions to climate protection challenges.

Project Budget

Climate Change, Renewable Energy, and Community Development

IV. TOTAL PROJECT REQUEST BUDGET (1.5 years)

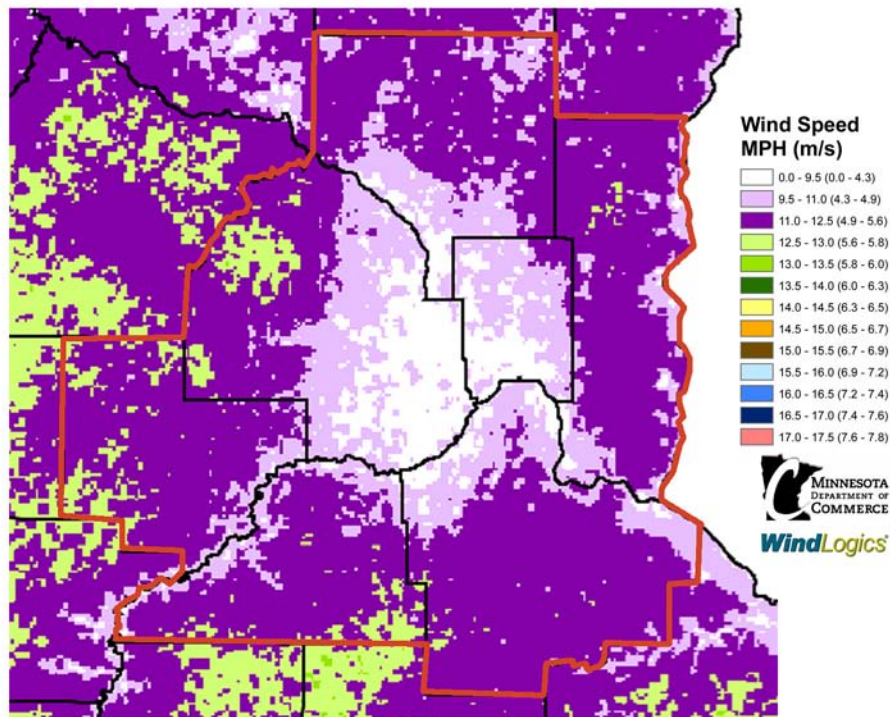
BUDGET ITEM	AMOUNT
Personnel	\$ -
MRES Project Manager - one person, 18 months, 50% on project. Administrative management of project, assessment of technical characteristics associated with mapping of renewable energy resources, outreach to local governments (initially focusing on the 18 metro-area cities that have made climate protection commitments), coordination of technical consultants.	\$ 60,000
MRES Intern - one person, approximately 6 months of 50% time. Technical research, compilation of data, assistance with outreach to local governments.	\$ 5,000
Contracts	\$ -
CR Planning - GIS management and mapping; Ordinance and plan review in areas with high value resources; Create model comprehensive planning language based on mapped data; Create model regional and local renewable energy overlay districts for solar, wind, and geo-thermal; Create other development tools to integrate community-based renewable energy systems into land use planning and development regulation; Work on regional integration of renewable energy information; Assist MRES with production of documents.	\$ 95,000
Renewable energy technical consultant(s) - Create technical memorandum on feasibility of specific renewable energy technologies applicable in urban, suburban, and exurban settings as found in the metropolitan area. Includes solar, wind, and geothermal memoranda.	\$ 20,000
Equipment/Tools/Supplies: None	NA
Acquisition (Fee Title or Permanent Easements): None	NA
Travel: Local travel to meet with local governments and various committees	\$ 500
Additional Budget Items: .Develop web-based and other electronic dissemination tools for ongoing outreach to local government by MRES	\$ 10,000
TOTAL PROJECT BUDGET REQUEST TO LCCMR	\$ 190,500

V. OTHER FUNDS

SOURCE OF FUNDS	AMOUNT	Status
Other Non-State \$ Being Applied to Project During Project Period:	NA	
Other State \$ Being Applied to Project During Project Period:	NA	
In-kind Services During Project Period:		
Ongoing work by local governments to meet climate protection goals. Assumes \$10,000 per year for half the metro area communities that have already committed to climate protection actions.	\$ 90,000	
MRES advocacy work with local governments, in-kind labor	\$ 20,000	
Remaining \$ from Current Trust Fund Appropriation (if applicable): .	NA	
Funding History:	\$ -	

Illustration

Wind Speed at 30 Meters
Metropolitan Area



The project will use geographic information such illustrated above to create community-based renewable energy climate protection strategies appropriate for urban, suburban and exurban areas. The above map shows wind speed at 30 meter elevation for the seven-county metropolitan area (outlined in red). 30 meter wind speed is the appropriate data for most urban and suburban wind turbine technology. The wind speed data will be overlaid with other relevant data sets, such as existing and 20-year proposed urban density development, areas slated for natural resource protection, and areas where existing land uses preclude development. The resulting map would illustrate for local governments where wind energy might be a priority community energy resource, which could then be integrated into long-range development plans and community development ordinances. Similar maps and implementation strategies would be developed for other types of renewable energy technologies.

Climate Protection, Renewable Energy, and Community Development

Project Manager Qualifications and Organizational Description

Project Manager Qualifications

Brian Ross, CR Planning, will serve as the project manager. Mr. Ross has 20 years of project management experience in energy efficiency and renewable energy work in addition to managing development planning and writing development regulations. He works with local governments on sustainable development, wind and solar energy ordinances, and green building policy. He was the primary author of Minnesota's original and updated sustainable development guidebook, *From Policy to Reality: Model Ordinances for Sustainable Development*, and was a major contributor to Minnesota comprehensive planning guide, *Under Construction*. Mr. Ross currently manages of the Minneapolis Saint Paul *Solar Cities* project, a U.S. DOE project working to transform the local market for solar energy in Minnesota's two largest cities.

Responsibilities.

Mr. Ross will oversee the assembly of the GIS information database, create criteria for defining high value renewable energy resources in an urban context (including solar, wind, and geothermal applications), create maps of high value resources, and develop policy and ordinance language for local governments to result in community-based renewable energy development. He will work with MRES staff and technical consultants to develop climate protection renewable energy strategies for metro-area communities, focusing first on communities that have signed the U.S. Council of Mayors Climate Protection Agreement or are participating in the Cities for Climate Protection program (at least 18 cities in the metropolitan area). He will also have responsibility for working with the Metro Clean Energy Resource Team and the Metropolitan Council to create a regional framework for how metro area communities can integrate renewable energy information into the next round of comprehensive plans.

Mr. Ross has worked with MRES for a number of years on renewable energy advocacy and projects, including writing MRES's Community Solar Guidebook. He was a co-founder of Solar Minnesota, Minnesota's U.S. DOE sanctioned Million Solar Roofs program which is now managed by MRES.

About the Minnesota Renewable Energy Society (MRES)

The Minnesota Renewable Energy Society (MRES) is a member-run, 501(c)(3) non-profit organization founded in Minneapolis in 1978 to promote the use of, and to engage in advocacy for, renewable energies in Minnesota through education and through the demonstration of practical applications. MRES conducts initiatives on education, awareness, and advocacy for all forms of renewable energy.

MRES has a long history of direct involvement with renewable energy projects throughout the state, and currently works with individuals, business groups, and local governments to advocate for and implement renewable energy projects. The organization provides unbiased information for consumers and policymakers on renewable energy technology in addition to organizing large scale renewable energy promotional events such as the Solar Buildings Tour held in early October every year. MRES is a partner in the Minneapolis Saint Paul *Solar Cities* project.

Our Mission

To advance a sustainable society and a renewable energy economy through education, leadership, and example.

Our Values

Above all else, we believe in:

- Planning for the long term in order to preserve the commons for future generations;
- Equitable access to renewable energy for all;
- Effecting change through education and example;

Our Vision

To be a key catalyst in advancing solar energy and in transforming Minnesota's energy landscape to embrace efficiency and sustainability.

- Embodying excellence and positivity;
- Honesty, science, and truth;
- And...perseverance