

**Environment and Natural Resources Trust Fund  
2011-2012 Request for Proposals (RFP)**

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**LCCMR ID: 159-F3+4**

**Project Title:** Wind Meteorological Assessment of Closed Landfills

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**Category:** F3+4. Renewable Energy

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**Total Project Budget:** \$ \$405,000

**Proposed Project Time Period for the Funding Requested:** 2 yrs, July 2011 - June 2013

**Other Non-State Funds:** \$ 0

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**Summary:**

Meteorological towers installed over a two year period and a natural resource assessment performed at 12 high potential closed landfills provides data necessary for private investment in distributed renewable energy.

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**Sponsoring Organization:** Minnesota Pollution Control Agency

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**Location**

**Region:** NW, NE, Central, SW, SE

**Ecological Section:** Northern Superior Uplands (212L), No. Minnesota and Ontario Peatlands (212M), No. Minnesota Drift and Lake Plains (212N), Minnesota and NE Iowa Morainal (222M), Red River Valley (251A)

**County Name:** Douglas, Mower, Roseau, Stearns, Todd, Wilkin

**City / Township:**

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_____ Funding Priorities	_____ Multiple Benefits	_____ Outcomes	_____ Knowledge Base
_____ Extent of Impact	_____ Innovation	_____ Scientific/Tech Basis	_____ Urgency
_____ Capacity Readiness	_____ Leverage	_____ Employment	_____ TOTAL _____%

## **LCCMR 2011-2012 Funding Proposal**

### **Targeted Issue Area F: Climate Change, Renewable Energy and Air Quality**

*Focus area 4: Evaluation of the applicability and/or effective implementation of clean energy technologies (e.g. biofuels, solar, geothermal, wind) or energy conservation in Minnesota.*

#### **I. PROPOSAL:**

MSW landfill sites contribute 3% of greenhouse gas emissions in the state. Renewable energy installations at closed landfills can significantly offset greenhouse gas emissions through solar, wind energy or biomass/biogas production. MPCA developed 2 landfill gas- to-energy projects at closed landfills and recently awarded development of a 2 megawatt pilot solar installation at a closed landfill in Olmsted County which is expected to begin operation in late 2011.

In November, 2009 Windlogics completed an assessment of 13 closed landfills under contract to the MPCA. This assessment indicated that all of the 13 landfill sites all have economic potential for wind development, but was ranked based on potential wind production capacity, proximity to substations and transmission lines, and surrounding tree canopy. The 13 sites, in priority order are Jackson, Murray, Kluver, Pipestone, Paynesville, Barnesville, Redwood, LaGrand, Olmsted, Salol Roseau, Long Prairie, Red Rock, and East Mesaba (see map p.4). Olmsted County has been removed from consideration in this proposal due to the solar pilot. East Mesaba, although low in wind potential compared to the southwest quadrant of the state, is on a ridge known for strong potential for wind energy including development of wind projects by Minnesota Power. This proposal establishes wind meteorological towers at 6 sites, collects one year of data from those sites, then provides funding for deconstruction and erecting the towers at the last six sites for another year of data collection. The proposal includes data collection and analysis that will provide expected energy production. In addition, a natural resource assessment at the 12 sites will indicate potential impacts affecting wind development.

To attract private investment, historical wind data has been needed to support the 1 year meteorological data. However since 2006, Department of Commerce has been unable to financially support the annual collection and publication of wind data through the Wind Resource Assessment Program in support of commercial development of wind projects. According to staff at the Department of Employment and Economic Development, data collected at private sites is not available to others requiring longer timeframes and increased investment in data collection for new projects. Meteorological and natural resource impact data collected at state-managed closed landfill sites with LCCMR dollars will be available to private investors at other sites, which may reduce the timeframe and cost for developing other local wind energy projects near or immediately adjacent to the closed landfills.

The state owns or has control over land suitable for wind production at the 12 sites. This proposal will provide the necessary data for private investment in community-based, locally produced renewable energy. An added benefit is the future opportunity to capture and return a portion of state taxpayer investment in the closed landfill program through sales of wind production.

## II. DESCRIPTION OF PROJECT RESULTS

Result 1: Meteorological data for 12 high potential closed landfills Budget: \$156,000

Over a 2 year period, assess site-specific wind production and natural resource impacts to support development of locally-produced renewable energy at closed landfills

### Deliverables

1. Install Meteorological (MET) towers, collect data and analyze to quantify site-specific wind production at 6 closed landfill sites.

September 30, 2012

2. Deconstruct MET towers from initial 6 sites, move and install MET towers at final 6 sites, collect data and analyze to quantify site-specific wind production at remaining 6 sites.

September 30, 2013

Result 2: Basis for development plans to encourage private investment. Budget \$165,000

### Deliverables

3. Develop site plans, including turbine placement and business case/development plan.

June 29, 2013

4. Perform natural resource assessment for each of the sites to identify potential for adverse impacts.

June 29, 2013

## III. PROJECT STRATEGY

### A. Project Team/Partners

The University of Minnesota Initiative for Renewable Energy and the Environment will assess natural resource impacts at the 12 closed landfill sites, along with a private contractor for the MET tower staging, data analysis and development plans. MPCA will provide site-specific data, work with local units of government and manage the project, including the final report

### B. Timeline Requirements

The wind MET tower installation and data collection will occur in two phases to save money. Based on the data from the 2009 wind assessment, installation and data collection will occur for 6 sites in 2012. The following year, the remaining 6 sites will have MET tower installation and data collection occurs. The project will be completed in 2 years and 3 months, although a final report for LCCMR can be developed by June 29, 2013.

### C. Long Term Strategy

Use of Remediation Fund dollars is restricted to cleanup and operational maintenance of closed landfill sites. The state of Minnesota has invested \$163 million into cleanup of these sites. Recent experience with soliciting interest and awarding a private agreement for solar development at a closed landfill site has improved the MPCA's ability to develop business case scenarios that will result in renewable energy production income to the state, create local jobs and provide community-based power for local residents and businesses.

## Project Budget

### Renewable Energy Assessment/Implementation at Closed Landfill Sites

#### IV. TOTAL PROJECT REQUEST BUDGET (Amount is for 24 month project)

<u>BUDGET ITEM</u>	<u>AMOUNT</u>
<b>Personnel:</b>	<b>\$36,000</b>
Project Coordinator MPCA (.20 FTE) contract oversight	\$ 24,000
Administrative support MPCA (.10 FTE)—contract development	\$ 12,000
<b>Contracts:</b>	<b>\$369,000</b>
1 contract with private companies for installation, data collection and analysis and deconstruction of MET towers for 12 sites (6 towers first year @ \$50,000 each, re-used for second year—data collection and analysis cost \$24,000 second year)	\$ 324,000
1 contract with UMD-NRRI for natural resource assessment at 12 wind sites (\$45,000),	\$ 45,000
	\$
<b>Equipment/Tools/Supplies:</b>	\$
<b>Acquisition (Fee Title or Permanent Easements):</b>	NA
<b>Travel:</b>	NA
<b>Additional Budget Items:</b>	\$ -
<b>TOTAL PROJECT BUDGET REQUEST TO LCCMR</b>	<b>\$405,000</b>

#### V. OTHER FUNDS

<u>SOURCE OF FUNDS</u>	<u>AMOUNT</u>	<u>Status</u>
<b>Other Non-State \$ Being Applied to Project During Project Period:</b>	\$ -	
<b>Other State \$ Being Applied to Project During Project Period:</b>		
<b>In-kind Services During Project Period:</b>	\$ 26,400	
Renewable energy/sustainable communities staff (MPCA) 0.05 FTE	\$12,000	
MPCA CLP project managers: site specific data, conditional use permits and associated in-state travel (.06 FTE)	\$14,400	
<b>Remaining \$ from Current Trust Fund Appropriation (if applicable):</b>	NA	
<b>Funding History:</b>	\$163,000,000	Rem and Env Funds



**Project Manager:**  
**Cathy Berg Moeger, Sustainability Manager**  
**Minnesota Pollution Control Agency**

Sustainability Manager will provide project management for this proposal. The Sustainability Manager is currently responsible for reducing MPCA operations' contribution to greenhouse gas emissions, reporting progress to The Climate Registry and "leading the way" with other state agencies. Current sustainability focus areas include source reduction, reduction in vehicle miles traveled (commuter and work fleet), energy efficiency of building operations, and renewable energy production and diesel emission reduction at closed landfills and other remediation sites.

Past experience includes 8 years as Prevention and Assistance Division Director/Chief Financial Officer of the Pollution Control Agency directing technology and human resources infrastructure/ support and \$238 million annual spending plan; and education and financial assistance related to pollution prevention, source reduction and recycling, environmental education, and facility operator training and certification. Nearly 20 years of prior solid waste management program development experience.

**Organizational Description:**

The mission of the Minnesota Pollution Control Agency (MPCA) is to work with Minnesotans to protect, conserve, and improve our environment and enhance our quality of life. The vision for the MPCA is that Minnesotan's take responsibility to protect our environment, the air is clean and clear, the land supports healthy ecosystems and sustainable land uses, surface and ground water is clean and sustainable, and the MPCA is an excellent operation.

To fulfill the mission the MPCA has adopted these principles:

- Focus on priorities and manage for environmental results;
- Actively partner to leverage knowledge, ideas and resources;
- Rely on data for decision-making;
- Integrate environmental, economic and social sciences when developing environmental policy; and,
- Strive for excellence and innovation in service delivery.

The MPCA has approximately 950 employees and a biennial budget of \$366.1 million. Programs and services are managed and delivered through MPCA's central office in St. Paul, which has approximately 738 staff, and seven regional offices. In 2010, the regional offices and their approximate number of employees are as follows: Duluth (49), Brainerd (51), Rochester (43), Mankato (12), Detroit Lakes (36), Willmar (10), and Marshall (21). The MPCA includes a 9-Member Citizens' Board that acts on significant and controversial environmental issues.

Please visit [www.pca.state.mn.us](http://www.pca.state.mn.us) for more detail.