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

LCCMR ID: 158-F3+4

Project Title: Olmsted County Landfill Dual Use Solar Project

Category: F3+4. Renewable Energy

Total Project Budget: $ $2,200,000

Proposed Project Time Period for the Funding Requested: 3 yrs, July 2011 - June 2014

Other Non-State Funds: $ 0

Summary:

Olmsted County Landfill Dual Use Solar Project is a pilot solar demonstration project that will research how closed landfills can be utilized as sites to generate solar energy.

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Location

Region: SE

Ecological Section: Paleozoic Plateau (222L)

County Name: Olmsted

City / Township: Oronoco

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

2011-2012 MAIN PROPOSAL

PROJECT TITLE: Olmsted County Landfill Dual Use Solar Project

I. PROJECT STATEMENT

The Olmsted Landfill Solar Project is a pilot demonstration project created by the Minnesota Pollution Control Agency (MPCA) aimed at researching how the State of Minnesota can utilize the land area of over 7,000 acres at 112 closed landfills to provide distributed renewable energy generation while reducing maintenance costs and environmental pollution related to the Closed Landfill Program.

Using current solar technology, the Closed Landfill Program represents the potential for over 350MW of solar photovoltaic generation capacity. However, research must be conducted to determine the effects of landfill settlement on solar photovoltaic system operations. A typical landfill settles 2-3" every year from the decomposition of the landfill contents. This settlement may affect solar system operations and overall project viability.

The pilot project will be located at the closed Olmsted County Landfill site near Rochester, MN through a land lease with the MPCA. The pilot project will provide the critical data needed to determine the economic and physical viability of constructing and maintaining large scale solar photovoltaic systems on other landfills throughout the state. The utility scale facility will produce approximately 1,300,000 kWh of renewable energy a year and offset 2,806,427 pounds of carbon dioxide emissions annually. During construction the project will provide workforce development to the expanding photovoltaic solar industry including over 10,000 person hours of Minnesota labor and suppliers.

A report will be prepared annually for three years that describes the physical and economic effects associated with the facility including a detailed analysis of annual settlement, energy production and maintenance cost data. Specific attention will be paid to identifying outcomes in comparison to a typical solar facility in northern climates and its ability to be replicated on other landfill sites.

II. DESCRIPTION OF PROJECT ACTIVITIES

Activity 1: Project Engineering **Budget:** $170,000

Analyze and prepare structural, electrical and layout construction plans. Identify site appropriate products and design specifications including foundation design, racking specification, wiring and conduit specification and photovoltaic module selection. The design team will work with the Minnesota Pollution Control Agency to ensure that the installation techniques will not damage the landfill cap or operations. Final construction plans will be distributed to local contractors for bids.

Outcome	Completion Date
1. Collect site data including topography, settlement rates and existing conditions	**July 2011**
2. Prepare construction documents including civil, electrical and facility layout	**July 2011**
3. Select qualified contractors to construct facility	**July 2011**

Activity 2: Construct Solar Facility **Budget: $**2,000,000

Procure local labor, inverters, concrete racking ballasts, interconnection equipment and balance of system components with LCCMR funding. Photovoltaic modules, racking and remaining project components will be procured through funding provided by the Federal Investment Tax Credit and equity investors. Deliver equipment to a secure site at the Olmsted County Closed Landfill site . Contract with local labor and equipment providers to construct solar facility. Estimated construction period is four months.

Outcome	Completion Date
1. Procure photovoltaic modules, racking inverters and BOS equipment	July 2011
2. Contract with contractors to construct the facility	August-November 2011
3. Commission system	December 2011

Activity 3: Monitor Affects of Landfill Settlement of Solar Operations **Budget:** $ 30,000
Monitor solar facility for solar resource, environmental conditions, all aspects of energy production and operations on a live, seasonal and annual basis. Registered land surveyors will collect topographic data in order to analyze settlement rates and design modifications to racking, ballast and wiring installation techniques. Provide design recommendations to optimize system operations and limit maintenance costs.

Outcome	Completion Date
1. Annual Report	Annually – thru 2014

III. PROJECT STRATEGY

A. Project Team/Partners: The project will utilize a variety of funding sources including Federal, State and private investment dollars. However, all funds received by the Environment and Natural Resources Trust Fund will be utilized to design and construct the solar facility and are detailed below:

Environment and Natural Resources Trust Fund Expenditures:

1. Local Contractors: Will construct the solar facility per the design and specifications.
   Total Budget: $1,350,000
2. Equipment Suppliers: Will provide foundation and balance of system components.
   Total Budget: $550,000
3. Westwood Renewables, LLC: Will provide design and engineering services as well as on-going research and analysis of how to implement solar facilities on other closed landfill sites.
   Total Budget: $200,000

The remaining project funds will be secured through the Federal Investment Tax Credit (ITC) and private equity. The Federal ITC provides a credit for 30% of the total project costs and special depreciation benefits to project investors. All tax benefits will flow to the investment partners through a *special purpose entity*: Olmsted Landfill Solar, LLC. Please note that in order to leverage Federal dollars; the Federal tax code requires an exception from the LCCMR fund repayment provision.

Olmsted Landfill Solar, LLC will own and operate the facility through a 20 year land lease with the MPCA and will also enter into a Power Purchase Agreement with Dairyland Power Cooperative for the sale of the renewable energy produced by the system.

B. Timeline Requirements

The solar facility will be constructed within 8 months of project award and will be monitored annually for 3 years. No additional phases are anticipated or requested. All Environment and Natural Resources Trust Fund reimbursable activities will be completed within 3 years.

C. Long-Term Strategy and Future Funding Needs

The solar facility requires no additional long term funding requests. The 20 year Power Purchase Agreement between Olmsted Landfill Solar, LLC and Dairyland Power Cooperative will provide operating capital for the duration of the 20 year land lease with the Minnesota Pollution Control Agency.

2011-2012 Detailed Project Budget

IV. TOTAL TRUST FUND REQUEST BUDGET 1 years

BUDGET ITEM	AMOUNT
Personnel: Not applicable	$ -
Contracts: Westwood Renewables would be contracted to provide design and engineering services.	$ 200,000
Contracts: A general contractor will be selected to manage onsite construction logistics and hire specialty subcontractors. Contract to include all electrical work, solar module installation, rack and ballast installation, interconnection and construction material logistics.	$ 1,250,000
Equipment/Tools/Supplies: concrete ballasts, wire, conduit, circuit breakers, transformers and switch gear.	$ 750,000
Acquisition (Fee Title or Permanent Easements): Not Applicable	$ -
Travel: Not Applicable	$ -
Additional Budget Items: Not Applicable	$ -
TOTAL ENVIRONMENT & NATURAL RESOURCES TRUST FUND $ REQUEST	$ 2,200,000

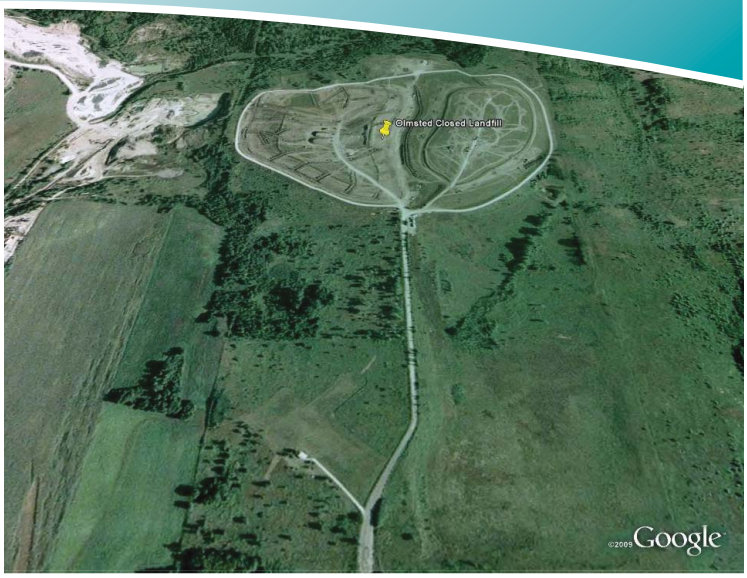
V. OTHER FUNDS

SOURCE OF FUNDS	AMOUNT	Status
Other Non-State $ Being Applied to Project During Project Period: Federal Investment Tax Credit. Amount is approximate. Actual amount to be determined upon project completion.	$ 1,350,000	Secured
Other Non-State $ Being Applied to Project During Project Period: Dairyland Power Cooperative will provide a Power Purchase Agreement for renewable energy produced by the solar facility. Amount is estimated based upon Dairyland Electric's Pilot Small Renewable Energy Purchase Service Schedule DG-5 for a period of 20 years.	$ 2,340,000	Secured
Other Non-State $ Being Applied to Project During Project Period: Olmsted Landfill Solar, LLC is a Special Purpose Entity consisting of private investors who provide equity and debt equity to finance the remainder of the facility costs through monetization of the Federal Investment Tax Credit and depreciation benefits. Actual amount may vary based on market conditions and changes to tax code.	$ 1,350,000	Pending

Public Private Partnership:

Olmsted Landfill Solar PV Project

A Utility Scale Landfill Reuse Demonstration Project



Project Partners:

- Dairyland Power Cooperative
- Minnesota Pollution Control Agency
- Olmsted Landfill Solar, LLC
- People's Cooperative Services
- Westwood Renewables, LLC

Project Benefits:

- **Brown to Brightfield demonstration**
- Dual use of underutilized property
- **Largest solar facility in the Midwest!**
- Supports Minnesota Renewable Energy Standards
- Immediate construction jobs – over 10,000 person hours
- Land lease payment to the State of Minnesota
- Reduced maintenance costs for the State of Minnesota
- Leverages local, state, federal and private funds

Research Benefits:

- Determines effects of landfill settlement on solar system operations
- Model can be replicated on **112 other landfills** - over 7,000 acres
- Explore value of distributed generation (facility requires no upgrades to transmission system)
- Provides training for workers in the solar industry

Courtesy of BP Solar

PERSONNEL AND TEAM EXPERIENCE

Organization Description:
Westwood Renewables, LLC, Eden Prairie, MN 55344
Renewable energy integrators who provide design and development of national commercial and utility-scale solar and wind projects. In collaboration with our sister company, Westwood Professional Services (Westwood), we support developers, utilities, and T&D designers in the siting, permitting, design, finance, and construction of renewable energy projects and transmission line infrastructure.

Our experience in energy project development began in the late 1970's designing and constructing some of the very first solar and wind energy systems in the Midwest. We have grown to serve clients a variety of solutions across the country.

Project Executive:
Dwight Jelle, CEO, Westwood Renewables, LLC
Dwight Jelle is CEO of Westwood Renewables and President of Westwood Professional Services. His primary focus and expertise is client satisfaction and setting up the business for success. His experience includes responsibility for all aspects renewable energy development including, engineering, lease agreements, site analysis, environmental permitting, budget and proforma management, contract negotiation subcontractor and general contractor (EPC) agreements. With his dual roles, Dwight brings over 12 years of exposure to servicing clients in renewable energy and over 20 years of land improvement experience.

Program Manager:
Nathan Franzen, General Manager, Westwood Renewables, LLC
Nathan Franzen handles project and contract management for the firm. During the Olmsted Landfill Solar Project, he would be responsible for overall project management and serve as the primary point of contact for LCCMR staff. Nathan has over six years of experience as a Project Manager and recently served as the Project Manager for the 400kW Saint John's Solar Farm and 600kW Minneapolis Convention Center projects.

System Designer:
Mario Monesterio, NABCEP, Principal, Westwood Renewables, LLC
Mario Monesterio has 30 years of design, installation, research, development, and education experience in the renewable energy and energy management sectors. His experience includes responsibility for all aspects of renewable energy development, including structural and electrical design, estimating, training, project management, R&D, site evaluation, and hands-on install work. He has managed solar and wind electric generation projects in industrial, commercial, and residential settings. He has designed and installed over 100 systems.