Environment and Natural Resources Trust Fund
2012-2013 Request for Proposals (RFP)

Project Title: **ENRTF ID:** **136-H**

Renewable Energy Leadership Centers

Topic Area: H. Renewable Energy

Total Project Budget: $ 1,400,000

Proposed Project Time Period for the Funding Requested: 3 yrs, July 2013 - June 2016

Other Non-State Funds: $ 0

Summary:

Install 240 KW of renewable energy and engage park visitors in an interactive learning environment that informs, educates and entertains while interpreting the benefits of energy efficiency and renewable energy.

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Sponsoring Organization: MN DNR

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Location

Region: NW, NE

County Name: Beltrami, Cass, Clearwater, Hubbard, St. Louis

City / Township:

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

Environment and Natural Resources Trust Fund (ENRTF)
2013-2013 Main Proposal

PROJECT TITLE: Renewable Energy Leadership Centers

I. PROJECT STATEMENT

Each year the Minnesota DNR consumes an amount of energy equivalent to 50,000 barrels of crude oil in its fleet and facilities. This energy has a total cost of $6.5 million and releases over 60 million pounds of carbon emissions each year. Reducing energy consumption reinforces the DNR mission to conserve and manage the state's natural resources in a way that creates a sustainable quality of life. Reducing annual energy spending will allow DNR to lead by example in mitigating climate change and enhancing the sustainability of our buildings and operations. By educating visitors about the benefits of energy efficiency and renewable energy DNR can drive a "multiplier effect" by motivating individual efforts and purchasing behaviors, leading to job creation across Minnesota. The primary goal of this project is to install a significant amount of renewable energy generation and engage park and website visitors in an interactive learning environment that informs, educates and entertains while interpreting the benefits of energy efficiency and renewable energy. The secondary goal of the project is to provide a renewable energy learning infrastructure for high school and technical college students.

The Iron Range OHV Recreation Area near Virginia, MN is already one of DNR's most energy efficient sites, with three photovoltaic arrays and extensive use of LED lighting. There is a well equipped classroom on-site suitable for hosting learning events related to renewable energy and energy efficiency. The addition of a 20 KW wind generator will add another dimension for interpretation of renewable energy and provide a rich set of data for use in the classroom. The interpretative program development will be done in partnership with local educators, who have already visited the site and expressed an interest in participating. The 20 KW wind generator will be mounted on a 30 meter tilt-up tower that can be lowered to the ground for easy access. Students will be able to inspect the generating mechanism and observe periodic maintenance activities in a safe, supervised setting without having to climb the tower. Student interest and preparedness for careers in Minnesota's wind industry will be enhanced by this opportunity.

Itasca State Park is the flagship of the Minnesota state park system and consumes more energy than any other state park in Minnesota. There is currently no renewable energy generation in the park. This project will provide a 220 KW photovoltaic system that will generate about 25% of Itasca's total electricity consumption. In addition, a "hands on" Learning Lab and interpretive program covering renewable energy, energy efficiency and climate change will be created to inform, educate and entertain visitors. Each year these projects will reduce DNR energy costs by over $30,000 and carbon emissions by over 500,000 pounds. The majority of the 220 KW photovoltaic system will be installed up front by a certified contractor. The rest of the system will be installed in 1 KW increments by qualified technical college students with oversight from certified photovoltaic installers. The 1 KW system will count toward the student's required number of installations to qualify for taking the certification exam to become a photovoltaic installer. Student interest and preparedness for careers in Minnesota's solar industry will be enhanced by this opportunity.

II. DESCRIPTION OF PROJECT ACTIVITIES

Activity 1: Renewable Energy System Design **Budget:** $20,000

This activity includes detailed design of the photovoltaic system for Itasca State Park and a site wind resource analysis for Iron Range OHV Recreation Area. Specification documents will also be developed to support the contracting process.

Outcome	Completion Date
1. Photovoltaic system design for Itasca State Park	10/1/2013
2. Wind resource analysis requirements	10/1/2013
3. Specifications defined and Bid Packages developed.	11/15/2013

Activity 2: Interpretive Program Development **Budget:** $30,000

This activity will be a cooperative effort with local educators and DNR Interpretive Specialists to design and develop an innovative, substantive and entertaining interpretive program including static signage, interactive website content and lesson plans for high school and technical college students.

Outcome	Completion Date
1. Conduct Ideation Session with educators and interpretive specialists	9/1/2013
2. Define requirements and implementation approach for interpretive program	11/1/2013
3. Develop static signage and lesson plans	2/1/2014
4. Develop interactive website content	3/1/2014

Activity 3: Renewable Energy System Procurement and Installation **Budget:** $1,300,000

This activity is focused on the procurement and installation of the renewable energy systems. The specifications developed in Activity 1 will be used to create Bid Packages for a 20 KW Wind Generator and a 220 KW photovoltaic system. After bids are awarded the systems will be installed, commissioned and interconnected to the electrical grid.

Outcome	Completion Date
1. Create Bid Packages for the Wind Generator and Photovoltaic System	1/15/2014
2. Bids awarded	3/1/2014
3. 20 KW Wind Generator installed at the Iron Range OHV Recreation Area	12/1/2014
4. Phase 1 of 220 KW Photovoltaic System installed at Itasca State Park	12/1/2014
5. Full capacity of 220 KW Photovoltaic System installed at Itasca State Park	9/1/2016

Activity 4: Upgrade existing facilities to support Learning Lab requirements **Budget:** $50,000

Existing space will be upgraded with the technology to support the hands-on, interactive learning environment.

Outcome	Completion Date
1. Specify facility upgrades and technology	3/1/2014
2. Procure and install facility upgrades	9/1/2014

III. PROJECT STRATEGY

A. Project Team/Partners

- DNR Project Team Members
  - Parks & Trails Division Interpretive Specialists: Develop interpretation strategy and approach
  - Park Managers: Ensure alignment with park strategic direction and facilities master plan
  - Energy Team Leader: Provide technical expertise to system design and installation
  - Facilities Manager: Coordinate facility upgrades
- Local Educators
  - Hibbing Community College: Develop photovoltaic interpretation strategy, approach and lesson plans
  - Mesabi Range Technical College: Develop wind interpretation strategy, approach and lesson plans
  - Northwest Technical College, Bemidji: Develop renewable energy interpretation strategy, approach and lesson plans

B. Timeline Requirements

This project is expected to take 3 years from start to finish.

C. Long-Term Strategy and Future Funding Needs

Ongoing maintenance costs for the renewable energy systems and learning labs will be the responsibility of the DNR. Ongoing participation of local educators in on-site learning activities will be funded by their respective educational institutions.

2012-2013 Detailed Project Budget

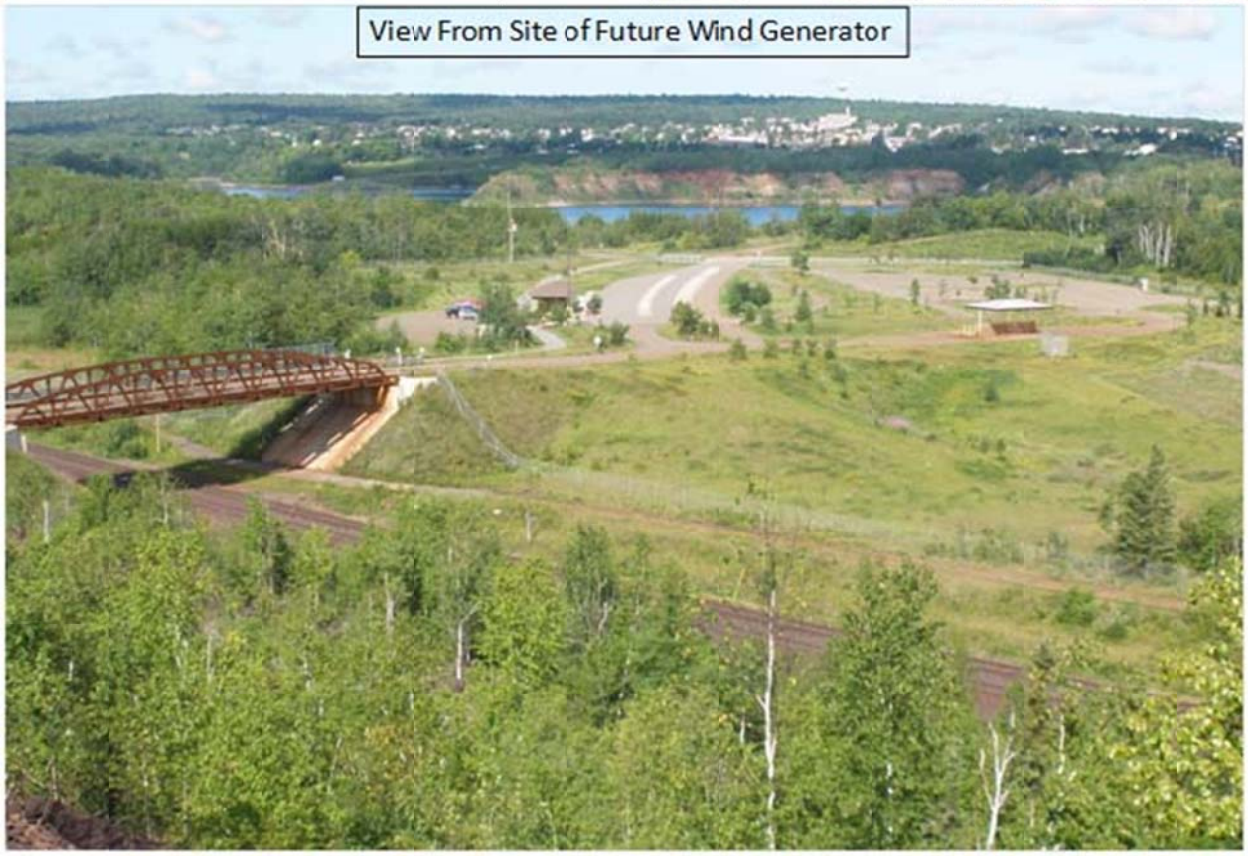
IV. TOTAL ENRTF REQUEST BUDGET for *2* years

BUDGET ITEM *(See list of Eligible and Non-Eligible Costs, p. 11)*	**AMOUNT**
Personnel:	
Contracts: Interpretive Specialists: 150 hours at $50/hr Local Educators: 150 hours at $50/hr Renewable Energy System Design: $15,000 Interactive Website Development: $20,000	$ 50,000
Equipment/Tools/Supplies: 20 KW Wind Generator: $150,000 220 KW Photovoltaic Array: $1,060,000	$ 1,210,000
Acquisition (Fee Title or Permanent Easements):	$ -
Travel: 5 visits to each location	$ 5,000
DNR Direct Support Services: DNR used a rate of 6.5% to calculate costs for direct support services, which are DNR's direct and necessary business services required to support this proposal.	$ 90,000
Additional Budget Items: Facility upgrades	$ 45,000
TOTAL ENVIRONMENT AND NATURAL RESOURCES TRUST FUND $ REQUEST =	$ 1,400,000

V. OTHER FUNDS

SOURCE OF FUNDS	**AMOUNT**	**Status**
Other Non-State $ Being Applied to Project During Project Period:	$ -	
Other State $ Being Applied to Project During Project Period:	$ -	
In-kind Services During Project Period:	$ -	
Remaining $ from Current ENRTF Appropriation (if applicable):	$ -	
Funding History:	$ -	

PROJECT TITLE: Renewable Energy Leadership Centers



PROJECT TITLE: Renewable Energy Leadership Centers

Project Manager Qualifications

Rob Bergh is the DNR Energy Coordinator, responsible for all energy efficiency and renewable energy initiatives. He is an electrical engineer with a certification in photovoltaic systems design. Over the last three years Rob has done the site selection, initial design and construction administration for 17 renewable energy installations in state parks and facilities. These systems generate over 200,000 kWh of clean energy each year and provide a rich interpretive experience for park visitors. Rob was also the key Project Advisor for the DNR Energy Website that extends the renewable energy interpretive experience to the Internet.

Rob started his career as a manufacturing engineer with IBM in Rochester, MN. His ten years with IBM included managing a team of engineers and programmers and selling the complete IBM product line to manufacturing companies in the Twin Cities. Rob's eight years of management consulting experience includes Coopers & Lybrand and a Partner-level leadership role in the Process Improvement practice at CSC Consulting. Rob's corporate experience includes a Planning Director role at Pillsbury and six years as Vice President of Business Process Improvement at Best Buy. Prior to joining DNR Rob ran his own consulting business offering Environmental Sustainability consulting for retail companies. Rob's career goal is to make a significant contribution to individuals, businesses and communities by promoting environmental sustainability and applying renewable energy technologies.

Organization Description

The Minnesota Department of Natural Resources' overall mission is to work with citizens to conserve and manage the state's natural resources, to provide outdoor recreation opportunities, and to provide for commercial uses of natural resources in a way that creates a sustainable quality of life.