

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

**LCCMR ID: 061-B2**

**Project Title:**

Acquire/Develop Native Grasslands for Energy and Environmental Services

**LCCMR 2010 Funding Priority:**

B. Renewable Energy Related to Climate Change

**Total Project Budget: \$** \$881,000

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

**Other Non-State Funds: \$** \$191,425

**Summary:**

The project will produce an integrative approach that maximizes both the economic and environmental benefits of a perennial grassland bioenergy system in the Lower Minnesota River Valley watershed.

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**Web Address:** \_\_\_\_\_

**Location:**

**Region:** Central, Metro, SE

**County Name:** Carver, Dakota, Le Sueur, Rice, Scott, Sibley

**City / Township:**

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

# MAIN PROPOSAL

## PROJECT TITLE: Developing Native Grasslands for Energy and Environmental Services

### I. PROJECT STATEMENT

Converging state and national interests for energy independence, rural economic development, and environmentally friendly fuel sources have led to significant public and private investment in a rapidly evolving bioenergy industry. While the field surges ahead there are significant questions regarding its long-term sustainability, both from the ecologic and economic perspectives.

Research from the University of Minnesota has shown that “low input – high diversity” (LIHD; Tillman, 2006) perennial grassland communities are a viable biofuel production system that also provides wildlife habitat and improved water quality. Energy produced from LIHD systems has the added benefit of reducing greenhouse gases through zero net-carbon emissions and increased soil carbon storage. Finally, strategically placed LIHD systems will increase landscape water storage capacity, thereby reducing flooding and minimizing soil erosion.

Uncertainties resulting from evolving markets; untested production and harvest techniques; and limited risk management options currently impede wide-scale landowner implementation of a perennial biofuels cropping system. Similarly, the landscape-scale ecological implications of perennial biofuel systems are not well understood or quantified. For the industry to advance in a manner that maximizes both the economic and environmental benefits it is critical that these uncertainties are measured and addressed.

We propose an integrative project that will guide development of a high-profile “fuelshed” project located in an ecologically-important region at the edge of the Twin Cities Metro area in Scott, Rice, LeSueur, Carver, Sibley and Dakota counties. The project will produce a highly participatory, learn-by-doing, adaptive approach to developing new models for biofuel and bioenergy systems that will ensure that the potential of perennial biofuel crops to create environmental benefits along with economic opportunity is realized. Finally, each part of the proposed project will enable the model fuelshed region to compete for major cost-share funding available through the 2008 Farm Bill to assist biomass crop production.

### II. DESCRIPTION OF PROJECT RESULTS

#### Result 1: Multifunctional Fuelshed Spatial Analysis

**Budget:** \$ 150,000

Design and implement spatial decision support systems to systematically target the establishment of perennial biofuel crops in ways that maximize environmental benefits while producing abundant biomass feedstocks.

#### Deliverable

#### Completion Date

- |   |           |
|---|-----------|
| 1. Landscape GIS analysis and fuelshed map overlaying potential biomass production with highest conservation priority areas                     | June 2012 |
| 2. Predictive economic model for biomass production analyzing potential yields, cost of production, and expected landowner return on investment | June 2012 |
| 3. Baseline and potential Environmental Services and biodiversity models for the fuelshed   | June 2012 |

#### Result 2: Community Based Stakeholder Coordination

**Budget:** \$ 80,000

Organize and convene a community-based, multi-stakeholder, natural-resource planning process to engage a wide range of land managers, policy makers, private landowners, and other interested parties in a highly participatory process that will balance environmental and economic benefits from “next generation” LIHD biofuel production systems in a fuelshed.

| <b>Deliverable</b>  | <b>Completion Date</b> |
|---|------------------------|
| 1. Convene and facilitate stakeholder steering group throughout project | June 2012              |
| 2. Conduct 5 sector-specific stakeholder workshops                      | June 2012              |

**Result 3: Field Scale Demonstration Harvest**

**Budget:** \$ 155,000

Conduct field-scale biomass production/harvest trials on private and publicly owned lands to help farmers manage risk and answer uncertainties in establishing and growing perennial biofuel crops while providing ecological benefits to high priority conservation lands.

| <b>Deliverable</b>   | <b>Completion Date</b> |
|--|------------------------|
| 1. Complete demonstration biomass harvest on 300 acres of conservation lands | June 2012              |
| 2. Monitor ecological response of harvest techniques and timing              | June 2012              |

**Result 4: Acquisition and Restoration**

**Budget:** \$ 496,000

Acquire and restore an approximately 80-acre tract within an existing priority habitat complex of the watershed. Multi-functional restoration will represent a field-scale test of plant community composition and techniques with the expectation of maximizing biofuel production, enhancing wildlife habitat, sequestering soil carbon, and improving water quality.

| <b>Deliverable</b>   | <b>Completion Date</b> |
|--|------------------------|
| 1. Acquisition of approximately 80 acres within existing habitat complex             | June 2012              |
| 2. Restoration of native grassland community as a field-scale test and demonstration | June 2012              |

**III. PROJECT STRATEGY**

**A. Project Team/Partners**

**Scott Soil & Water Conservation District** – Dave Rickert, Biomass Technician

- Scott SWCD will serve as the project manager and will facilitate the demonstration harvest activities

**The Nature Conservancy MN Chapter**, Neal Feeken, Renewable Energy Coordinator

- TNC will conduct the GIS analysis, assist with stakeholder convening, and lead the acquisition component

**University of Minnesota** – Nick Jordan, Professor, Department of Agronomy and Plant Genetics

- UMN will lead the modeling activities and the stakeholder convening process

**Minnesota Department of Natural Resources** – Diana Regenscheid, Area Wildlife Manager

- MNDNR will participate in stakeholder coordination, demonstration harvest, and ecological monitoring

**U.S. Fish & Wildlife Service** – Mike Malling, Private Lands Biologist

- USFWS will participate in stakeholder coordination, demonstration harvest and ecological monitoring

**Shakopee Mdewakanton Sioux Community** – Mike Whitt, Senior Environmental Specialist

- SMSC will participate in demonstration harvests, stakeholder coordination, and monitoring

**B. Timeline Requirements**

We anticipate that all Results will be completed by the end of the 2 year project period. Outside of the scope and funding of this project, we anticipate the following: (1) additional ecological monitoring on the demonstration harvest sites, and (2) additional monitoring and testing on the field-scale test site for an additional 8 years.

**C. Long-Term Strategy**

The project is designed to test and demonstrate both the economic and ecological benefits of a perennial biofuels system. Income derived from biomass sales will be reinvested in the project, to the extent that it is considered project income. If successful, we anticipate that market forces will drive future development of this and other project areas, making future public investment less critical.

## Project Budget

### IV. TOTAL PROJECT REQUEST BUDGET (2years)

| <b>BUDGET ITEM</b> <i>(See list of Eligible &amp; Non-Eligible Costs, p. 13)</i>   | <b>AMOUNT</b>     |
|--|-------------------|
| <b>Personnel:</b> Scott SWCD Biomass Technician, Demonstration harvest coordination (57% of project time), stakeholder workshop convening (29% of project time), GIS analysis support (14% of project time) (75% salary/25% benefits) (77% total annual position time) | \$ 70,000         |
| Scott SWCD, Office Manager, Project Administration (5% of annual position time) (75% salary/25% benefits)  | \$ 10,000         |
| <b>Contracts:</b>  |                   |
| GIS mapping - The Nature Conservancy   | \$ 60,000         |
| Economic/Biodiversity modeling - UMN   | \$ 80,000         |
| Stakeholder workshop facilitation, organizing - UMN Extension (\$30,000), TNC (\$20,000)   | \$ 50,000         |
| Biomass harvest - Private party custom harvesters - TBD (\$75,000), TNC support (\$10,000)   | \$ 85,000         |
| Ecological Monitoring - MN DNR   | \$ 30,000         |
| Grassland restoration - Private party contractor (\$140,000), TNC coordination (\$20,000),   | \$ 160,000        |
| <b>Acquisition (Fee Title or Permanent Easements):</b> Approximately 80 acres to be acquired by The Nature Conservancy, MN DNR, or USFWS   | \$ 336,000        |
| <b>TOTAL PROJECT BUDGET REQUEST TO LCCMR</b>   | <b>\$ 881,000</b> |

### V. OTHER FUNDS

| <b>SOURCE OF FUNDS</b>  | <b>AMOUNT</b> |
|---|---------------|
| <b>Other Non-State \$ Being Applied to Project During Project Period:</b> TNC - Indirect Expenses (\$26,293), TNC contribution via Private Foundations (\$191,425 - Pending)  | \$ 236,712    |
| <b>Other State \$ Being Applied to Project During Project Period:</b> Project occurs in a Working Lands Initiative designated area. State funds are available for establishing grassland biomass resources on private lands (\$200,000 secured) | \$ 200,000    |
| <b>In-kind Services During Project Period:</b>  | \$ -          |
| <b>Remaining \$ from Current Trust Fund Appropriation (if applicable):</b>  |               |
| <b>Funding History:</b> <i>Indicate funding secured prior to July 1, 2010 for activities directly relevant to this specific funding request. State specific source(s) of funds.</i>   | \$ -          |

# Developing Native Grasslands for Energy and Environmental Services

Scott County Soil and Water Conservation District



## Legend

-  LCCMR Project Area
-  County



Map Created by: RCJ, TNC in MN-ND-SD, 2009/4/24  
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## **PETE BECKIUS**

Peter Beckius, District Manager Scott Soil and Water Conservation District. Bachelor of Science degree from Mankato State University. Majors in Geography and Recreation, Parks and Community Education: Resource Management, Minor in Earth Science. Started working for the Minnesota Department of Natural Resources in 1976, assigned to the Minnesota Valley Trails State Park in Scott County. Developed hiking, horseback riding and snowmobile trails, primitive and group campgrounds and picnic areas. Began career with the Scott Soil and Water Conservation district in 1978.

The Scott Soil and Water Conservation District (SWCD) is a district established and operated pursuant to Chapter 103C of the Minnesota Statutes and governed by an elected Board of Supervisors. It is the objective of the SWCD to carry out a well rounded program of conservation by working in partnership with local, regional, state, and federal conservation agencies and organizations, to obtain technical, financial and educational resources, and focus or coordinate them to help Scott County residents conserve, improve and sustain our natural resources.

SWCD staff, under the direction of the District Manager, work primarily on a one-on-one basis with landowners, aiming to connect landowners with the financial and technical resources they have access to through longstanding cooperative efforts, with conservation agencies, to put conservation practices on the land. Private landowners trust SWCDs to provide needed technology, funding and educational services because they are established in each community, governed by local leaders and focused on conservation of local soil and water resources.

## **DAVE RICKERT**

Dave is a recent graduate of the University of Wisconsin-Oshkosh, majoring in Environmental Science and Geographic Information Systems. Since December 2008 he has served as Biomass Conservation Technician for a collaboration of 4 Soil & Water Conservation Districts which include Scott, Dakota, Carver, and Rice Counties. He also functions as a leader of the Working Lands Initiative in the Lower Minnesota River Valley watershed.

He comes from a farming background in Eastern Wisconsin and has contributed numerous hours to the NRCS Earth Team and multiple Land & Water Conservation Districts through internships and volunteer opportunities.