

Environment and Natural Resources Trust Fund 2009 Phase 2 Request for Proposals (RFP)

LCCMR ID: 100-D1

Project Title: Landfill to Energy, Catalyst to Riverfront Renaissance

Total Project Budget: \$ \$45,000

Proposed Project Time Period for the Funding Requested: July 2009 to October 2009

Other Non-State Funds: \$ \$0.00

Priority: D1. Renewable Energy Life Cycle Costs and Impacts

First Name: John

Last Name: Shardlow

Sponsoring Organization: Bonestroo

Address: 2335 Hwy 36 W

St. Paul MN 55113

Telephone Number: 651-967-4560

Email: john.shardlow@bonestroo.com

Fax: 651-636-1311

Web Address: www.bonestroo.com

Region:

Metro

County Name:

Dakota

City / Township:

Burnsville

Summary: Project assesses the feasibility of utilizing plasma arc technology to remediate riverfront landfill(s) and generate clean, alternative energy to support the reclamation, redevelopment and transformation of Burnsville's riverfront.

Main Proposal: 1008-2-028-proposal-2009 Main Proposal-Final.doc

Project Budget: 1008-2-028-budget-RFP_2009_Project Budget.xls

Qualifications: 1008-2-028-qualifications-PM Qualifications and Org Description.pdf

Map:

Letter of Resolution:

MAIN PROPOSAL

PROJECT TITLE: Landfill to Energy, Catalyst to Riverfront Renaissance

I. PROJECT STATEMENT

Even though Minnesota is one of the leading states in recycling its Municipal Solid Waste (MSW), the state is still dumping over 2 million tons a year of MSW into landfills throughout Minnesota, Iowa, and Wisconsin. The rate of recycling appears to have reached a plateau in the range of 45 to 50 percent of Minnesota's total MSW. The percentage of the total MSW going into landfills has increased from 18 percent ten years ago to 36 percent today. This cannot be sustained. Minnesota landfills will reach capacity in about 15 years and any new ones will be opposed due to increasing stress on the existing landfill infrastructure throughout the state.

A solution is needed to eliminate MSW from going into landfills while using the MSW as an energy source without harming the environment. A solution with extraordinary potential may be Plasma Torch technology.

The objective of this study is to provide the City of Burnsville, local agencies, and private stakeholders with key information about the potential to utilize plasma arc gasification technology to convert landfill stored MSW and/or daily supplies of MSW into energy, and remediate the land for productive reuse.

The approach of this study will be to summarize the primary data for waste composition and flow, technology options, and order-of-magnitude estimates for energy production from these sources.

II. DESCRIPTION OF PROJECT RESULTS

The final deliverable for this project will be a report outlining a baseline assessment of landfill remediation and recovery of the landfill site for redevelopment, as well as a basic appreciation for the energy production opportunities. The secondary outcome of this study will be to identify the required next steps and prepare a budget and scope of work for the next step. Details and budget for each section of the report are provided below.

Result 1: Introduction and Executive Summary Completion Date: 10/09 Budget: \$ 5,000

This section of the report will introduce the problem and summarize the status of the technical and economic options available to the City. The conclusions of the study will address the potential for differentiating and incenting redevelopment opportunities in the MRQ and explore the cost-benefit relationships between the potential capital investment necessary to pursue these strategies and the economic benefits that would result from their deployment. A combined heat and power utility may arise from the disposal technology being proposed with this study. The summary will outline a likely structure and sales potential for such a utility.

Result 2: Composition and flow of wastes Completion Date: 10/09 Budget: \$ 5,000

To establish a basis for design, this section will address the quantity of wastes available in the form of daily flow and recovery from existing landfill. Composition of the daily waste flow will be taken from published regional studies.

Result 3: Baseline Scale of operation Completion Date: 10/09 Budget: \$ 10,000

Based on the composition and flow rates from the previous section, a proposed scale of operation will be identified. This section will address the material and energy balance for the proposed project. The study will begin with the assumption that the fuel will be used to generate power with potential for heat recovery for heating and cooling in the area. The study will also highlight the current potential for producing liquid fuels or natural gas as an alternate to combined heat and power and assess the timeline on which those technologies could become commercially available. Order-of-magnitude capital costs for the facility will be estimated. Order-of-magnitude operating expenses will be summarized. A simple site plan showing the facility, its general arrangement and relationships with surrounding uses and activities will be provided.

Result 4: Comparable projects Completion Date: 10/09 Budget: \$ 5,000

This section of the report will address the current status of comparable or similar projects now in startup or in planning including, but not limited to Koochiching County MN, St. Lucie County FA, and the Plasco Energy Project in Ottawa, Canada

Result 5: Env. Concerns and Potential Effects Completion Date: 10/09 Budget: \$ 5,000

This section of the report will address the likely environmental issues that would be raised by this project and a preliminary assessment of the prospects for mitigating those concerns. The concerns identified at this time include air quality, noise, effects of disturbing the existing waste inventory, and groundwater contamination.

Result 6: Relationship with Planned Redevelopment Completion Date: 10/09 Budget: \$ 5,000

This section of the report will illustrate the potential scope and geographic extent of the alternative energy opportunities both within and beyond the study area. The total and composition of the energy demands for this redeveloped area will be estimated and compared to the energy production potential in the area.

Result 7: Recommended Next Steps Completion Date: 10/09 Budget: \$ 5,000

This section of the report will summarize recommended next steps. If the conclusion of the report is favorable, a budget and scope of work for the next phase of planning will be included as an attachment to the report.

Result 8: Presentations Completion Date: 10/09 Budget: \$5,000

Attendance at two public meetings is included in the scope of work. Up to three working meetings with potential partners are included in the scope. Three working meetings with city staff are included.

III. PROJECT STRATEGY AND TIMELINE

A. Project Partners

1. Bonestroo: John Shardlow (Project Manager); Greg Halverson (Technical writer)
2. 6Solutions: Cecil Massie (Technical Writer); Derek Miller (Technical Writer)

It is also understood that any of multiple scenarios by which this technology could be applied within the study area will necessitate negotiations, business relationships and potential partnerships between the City of Burnsville and several other key stakeholders. These could include, but not be limited to, Dakota County, Waste management, Xcel Energy, CenterPoint Minnegasco, Minnesota Pollution Control Agency, Edward Kraemer & Sons and other land owners.

B. Project Impact

Conversion of the existing Burnsville landfill area(s) to Mississippi Riverfront restoration and redevelopment. Generate clean alternative energy and heat to thousands of households within Burnsville and neighboring communities.

C. Time

The project will be started in July 2009 with an estimated completion date of October 2009.

D. Long-Term Strategy (if applicable)

Establish a preliminary assessment of the potential utilization for plasma arc gasification technology within the study area. If the results of this initial investigation are positive, it is expected that additional funding to complete a more detailed feasibility study will be necessary. If so, additional funding potential includes the City of Burnsville, Dakota County, DEED, the Department of Commerce, Excel Energy, Waste Management, MPCA, aggregate companies, land owners, LCCMR, and Federal funding programs.

Project Budget

INSTRUCTIONS AND TEMPLATE (1 PAGE LIMIT)

IV. TOTAL PROJECT REQUEST BUDGET

BUDGET ITEM <i>(See list of Eligible & Non-Eligible Costs, p. 17)</i>	AMOUNT	% FTE
Personnel:	\$ -	
John Shardlow, Bonestroo Project Manager	\$ 18,000	5%
Greg Halverson, Bonestroo Technical Writer	\$ 9,600	5%
Cecil Massie, 6Solutions Technical Writer	\$ 8,700	5%
Derek Miller, 6Solutions Technical Writer	\$ 8,700	5%
Contracts: N/A	\$ -	
Equipment/Tools: N/A	\$ -	
Acquisition (Including Easements): N/A	\$ -	
Restoration: N/A	\$ -	
Other: N/A	\$ -	
	\$ -	
TOTAL PROJECT BUDGET REQUEST TO LCCMR	\$ 45,000	

V. OTHER FUNDS

SOURCE OF FUNDS	AMOUNT	Status
Remaining \$ From Previous Trust Fund Appropriation (if applicable):	\$ -	
Other Non-State \$ Being Leveraged During Project Period:	\$ -	
Other State \$ Being Spent During Project Period:	\$ -	
In-kind Services During Project Period:	\$ -	
Past Spending:	\$ -	

PROJECT MANAGER QUALIFICATION AND ORGANIZATION DESCRIPTION

John W. Shardlow, AICP - Bonestroo

Qualifications for

LCCMR Grant Funding - Landfill to Energy, Catalyst to Riverfront Renaissance

Mr. Shardlow has extensive and wide-ranging project experience serving clients in both the public and private sectors. He has frequently been called upon to lead multi-disciplinary teams of consultants in completing large, complicated planning projects. John's skills include project planning for residential, commercial, mixed-use, industrial, and institutional developments; comprehensive and community planning; and preparing redevelopment plans, tax-increment financing plans, subdivision regulations, and environmental assessments. John also frequently provides expert testimony on matters related to planning.

Relevant Experience

EDUCATION

University of Minnesota
Bachelor of Science
University of Minnesota
Bachelor of Landscape
Architecture

CERTIFICATIONS

American Institute of Certified
Planners

PROFESSIONAL ORGANIZATIONS

Chair, Minnesota Chapter of
Urban Land Institute
American Planning
Association
ULI National Sustainable
Development Council
Sensible Land Use Coalition

RECOGNITION

Sensible Land Use Coalition
Mo Dorton Award for
Distinguished Service to the
Minnesota Land Use
Community

• ACCOMPLISHMENTS AND AFFILIATIONS

Urban Land Institute – John is currently serving as the Chair of the Minnesota Chapter ULI, where he provides leadership on a broad range of regional land use issues. He also works closely with the ULI sponsored Regional Council of Mayors and serves as Co-chair of its' Sustainability Committee. John is also a member and Vice Chair for Programming for the ULI National Sustainable Development Council.

LCCMR Statewide Conservation & Preservation Plan – Working with the University of Minnesota Institute on the Environment, John served as a member of the project's Core Management Team and chaired the Land Use Practices Team. This study is the most comprehensive inventory and analysis of Minnesota's natural resources that has ever been produced. Its recommendations present a vision and strategy for natural resource conservation and preservation efforts for the next 50 years.

Planning Consultant for more than 100 cities and counties throughout Minnesota – John has been extensively involved in a wide and diverse range of planning, zoning and development projects, including numerous award winning projects. His career has been particularly distinguished by innovative and effective models for community participation in complicated and often controversial projects.

"The High Cost of Sprawl: Urban Land Supply Analysis and Recommendations for Managing Growth" – John was the primary author of this document, which was prepared for the Builders Association of the Twin Cities. Continuing efforts on behalf of the Builders Association in regard to future growth options for the Twin Cities, and expansion of the MUSA.

Regional Conservation Design Framework – John was a co-author of this effort for the greater 13-county Twin Cities metropolitan area. He worked through the Minnesota Chapter of the Urban Land Institute to get in unanimously adopted by the Regional Council of Mayors.

Organization Qualifications

BONESTROO

Bonestroo is headquartered in St. Paul, MN, and has branch offices in Rochester and St. Cloud. We've also established offices in Milwaukee, WI, and Chicago, IL. Bonestroo was founded in 1956 specializing in service to municipalities. Today, our 400+ staff includes 40-year veterans and recent college graduates—a mix that allows us to combine new ideas and state-of-the-art technologies with seasoned experience. Our 50 years of experience have taught us that engineering requires innovative, practical solutions that stand the test of time. In the face of controversy and budget limitations, our professionals help clients make difficult decisions based on proven experience.

6SOLUTIONS LLC

6Solutions LLC facilitates the commercialization of technologies that promote value-added agriculture, renewable energy and sustainable regional economic development. **CECIL T. MASSIE** and **Derek E. Miller** co-founded 6Solutions, LLC, in 2005. 6Solutions assists fledgling technologies, start up technologies and operating technologies in the areas of renewable raw material, renewable energy and agriculture, and in water processing for reuse. Specifically 6Solutions brings knowledge of process, design, equipment, alternative technologies, and commercialization, including working with our clients to arrange financing, resulting in economic rewards for the client.

