

Silver Bay Eco Business Park Draft 7/24/09

Project Description - Silver Bay: Eco-Industrial Opportunities This project brings together a strong inter-disciplinary team to assess the feasibility and develop a plan to transform the Business Park into an Eco-Industrial Park. The park will be subdivided geographically into industrial and business clusters in order to align commercial and industrial facilities to:

- ◆ optimize resource productivity
- ◆ recover energy and material byproducts
- ◆ power facilities with an integrated renewable energy system
- ◆ integrate conservation design and green building features
- ◆ move toward zero waste and emissions
- ◆ create synergies and economic benefits that will incent business growth
- ◆ serve as a model for sustainable industrial development and tourist attraction

A keystone of the park will be the development and integration of a renewable, cyclical, self-sustaining, energy production system (electricity and heating). The project team will analyze and identify the most economical and environmentally responsible combination of renewable energy sources for the energy production system.

Project Goals This project will provide a pragmatic foundation of eco-industrial concepts to develop an eco-industrial park. This Silver Bay Eco Business Park will attract eco-industries and businesses that will work synergistically with each other, the local environment, and the Silver Bay community.

The primary goal is to assess and determine the technical and economic feasibility of renewable energy options including wind, biomass/binary, and biodiesel, and to identify development strategies for an integrated renewable energy production system as a fundamental cornerstone for an eco-industrial development.

Location Silver Bay is located 56 miles northeast of Duluth, along the scenic shores of Lake Superior. In the City is a Silver Bay Business Park. Roads, utilities and site/environmental permits are in place and the park is ready for the development of retail and light industrial businesses.

Anticipated Results

1. For each of the potential renewable energy options, a complete summary of projected environmental benefits and the projected economics (business models).
2. Conceptual designs of the industrial and business cluster scenarios, including identifying potential core businesses and the development of sustainable design

guidelines for the park and buildings will be completed. Targeted businesses will be those most likely to benefit from or contribute to the energy systems.

3. The development of information dissemination products regarding the renewable energy analyses, conceptual designs, and business cluster scenarios. Information dissemination strategies will include brochures, website information, and presentations.

Funding Partners

MPCA	\$40,000
Iron Range Resources	\$12,500
UMD Center for Community and Regional Research	\$ 4,000
City of Silver Bay and Local Sources In-kind	\$40,500
Total Project Budget:	\$93,000

Project Team Contributors

Scott Johnson, Silver Bay Mayor Scott will provide leadership and communication to the City Council and Silver Bay community as the renewable energy projects are discussed and planned.

Lana Fralich, Silver Bay City Administrator Lana will provide the fiscal management of any project funding and will provide assistance to the Project Management Team.

Wade LeBlanc, Silver Bay Economic Development Authority Wade is a lifelong Silver Bay resident, and President of North Shore Oil and Propane. Wade is also President of the Silver Bay EDA who developed the Silver Bay Business Park.

Bruce Carman, Project Coordinator Bruce is President of Cedar Tree Enterprises, Inc. Bruce is the primary liaison for the project. He will facilitate the Project Management Team meetings, coordinate completion of the tasks, lead in project reporting, and will help develop strategies to engage Business Park developers and consult on construction and feasibility issues unique to the North Shore.

Joe Niklay, Lake Superior School District Joe is the K-12 Principal in Silver Bay and is supportive and involved with this project because of the potential educational and financial benefits.

Bill Mittlefeldt, NE Clean Energy Resource Teams Coordinator, University of MN Duluth Bill works with the nine counties in northeastern Minnesota to support local teams in building a more sustainable future for their communities.

Chuck Hartley, Director of Energy Management Services, LHB Engineering Chuck has more than 20 years of energy, waste heat recovery, biomass and co-generation engineering and operations experience. He is a senior member of the Association of Energy Engineers and has significant environmental permitting and energy contract experience, including third party and alternative financing.

Tim Nolan, Sustainable Industrial Development Coordinator, Prevention and Assistance Division, MPCA Tim will provide eco-industrial development expertise. He will also help guide the application of eco-industrial park development strategies.

Dr. Mike Mageau, Director of the Center for Sustainable Community Development, University of Minnesota Duluth (UMD) The mission of the Center for Sustainable Community Development is to understand how communities can transition from global dependence toward community self-reliance by designing and implementing economically attractive, as well as socially and environmentally sustainable, local energy production systems.

Jim Skurla, Director of the Bureau of Business and Economic Research (BBER), UMD Jim will provide expertise in business plans and assessments, and economic impact scenarios.

Dr. Jean Jacobsen, BBER, UMD Jean is currently Senior Editor at the Bureau of Business and Economic Research in the Labovitz School of Business and Economics at the University of Minnesota-Duluth.

Dr. Andrew Klemer, Professor Emeritus, UMD Andrew is a recently retired Professor Emeritus of Biology from the University Minnesota-Duluth. Andy is a world leader in the field algal physiology and ecology. Andy has over 30 years of experience with algae culturing/analysis in both the laboratory and field.

Stacey Stark, Director of the Geographic Information Sciences Lab (GISL), UMD. As Director of the Geographic Information Sciences Laboratory (GISL) at the University of Minnesota Duluth. She will contribute GIS analysis in natural resource management, hydrology, renewable energy resources, landscape ecology, and watershed management.

Project Workplan Objectives

Objective 1: Data collection and the generation of a summary of projected environmental benefits and the projected economics (business models) of the renewable energy production system

Task A: Wind Energy

Task B: Biomass/Binary Cogeneration

Task C: Bio-diesel

Objective 2: Site Design of Business and Industrial Cluster Layout & Building Guidelines

Task A: Completion of site design of business & industrial clusters

Task B: Design information narrative and ready for distribution

Objective 3: Establish prospectus for targeted industrial and retail businesses

Task A: Develop written guidelines

Objective 4: Project Coordination

Task A: Communications: fiscal management & reports, technical support

Objective 5: Reporting and Dissemination

Task A: Reports and Dissemination of reports, presentations and publications.

Objective 6: Evaluation

Task A: Compilation of all data, interpretation, and information summaries produced.

Project Ending June 30, 2011