Environment and Natural Resources Trust Fund (ENRTF) 2010 Work Program

Date of Report: 1/27/2010 Date of Next Progress Report: 1/15/2011 Date of Work Program Approval: Project Completion Date: 6/30/2012

I. PROJECT TITLE: Demonstrating Sustainable Energy Practices at Residential Environmental Learning Centers (RELCs) – Eagle Bluff

Project Manager: Joe Deden
Affiliation: MN Coalition of Residential Environmental Learning Centers
Mailing Address: • Eagle Bluff, 28097 Goodview Drive
City / State / Zip: Lanesboro, MN 55949
Telephone Number: (507) 467-2437 Cell: (507) 951-8986
E-mail Address: director@eagle-bluff.org
FAX Number: (507) 467-3583
Web Site Address: www.eagle-bluff.org

Location: Aitkin, Cass, Fillmore, Lake, Pine, and St. Louis

Total ENRTF Project Budget:	OVERALL & EAGLE BLUFF	PORTION (7d-1)
	ENRTF Appropriation	\$350,000
	Minus Amount Spent:	<u>\$0</u>
	Equal Balance:	\$350,000
	ALL PORTIONS	
	7d-1: Eagle Bluff	\$ 350,000
	7d-2: Audubon	\$ 206,000
	7d-3: Deep Portage	\$ 212,000
	7d-4: Laurentian	\$ 258,000
	7d-5: Long Lake	\$ 240,000
	7d-6: Wolf Ridge	\$ 234,000
	TOTAL APPROPRIATION:	\$1,500,000
Legal Citation: ML 2010, Chap.[], Sec.[], Subd	

Appropriation Language:

II. PROJECT SUMMARY AND RESULTS: Eagle Bluff's work plan is for both Eagle Bluff's portion of this project and for the overall management of the project as a whole.

Collectively, six Residential Environmental Learning Centers (RELCs - Audubon Center, Deep Portage, Eagle Bluff, Laurentian, Long Lake and Wolf Ridge) will reduce their carbon footprints while disseminating energy education that focuses on renewable energy, energy efficiency, and conservation options. The centers, supported by Bush

Page 1

and Butler foundations, chose to invest in a professional energy audit utilizing the engineering and consulting firm McKinstry. The audits evaluated existing buildings, technologies, and energy uses at each centers' location and resulted in state-of-the-art recommendations for conservation and energy efficiency measures, renewable energy possibilities, and demonstration opportunities. Due to the variations of each center's location the suggested solutions represent a variety of options and make the combined effort important for statewide dissemination. McKinstry's study is the basis for our collective energy investment and education development request.

The LCCMR grant will allow the RELCs to: 1) Increase conservation measures and energy efficiency at each center; 2) invest in renewable energies using appropriate technologies for each center; and 3) conduct multi-faceted educational outreach at all centers. A web consultant will design and construct a website showing each center's energy related information for educational use while providing statewide verification of the engineering and installation results.

Each school, college, and adult that attends a center will be exposed to knowledge about choices, energy, conservation, and options that are important and applicable to their home, family and schools. In 10 years this collective education program would reach 840,000 people and annually affect 596 K-12 schools and 46 colleges.

Specifically at Eagle Bluff we will implement McKinstry recommendations to reduce the energy consumption in our most energy inefficient building by up to 80% and to install solar hot water and photovaic systems for demonstration purposes. These improvements will be used during educational activities involving the New ERA-Energy Resource Advisor Program being developed in conjunction with Winona State University. More information about the New ERA program is found in Section VII, DISSEMINATION.

Over ten years, approximately 220,000 participant will benefit from Eagle Bluff programming.

Eagle Bluff will coordinate the collective efforts of the six centers to achieve Results 2, 3. and 4.

III. PROGRESS SUMMARY AS OF: 11/30/2009

IV. OUTLINE OF PROJECT RESULTS:

RESULT 1: Implementation of carbon and energy reduction systems for education and demonstration purposes at Eagle Bluff. Budget \$245,000. Completion Date June 30, 2012.

Description: Eagle Bluff is the only RELC located in southeastern Minnesota near the town of Lanesboro. We have about 20,000 users a year and teach them about the ecology of "Bluff Country".

The target of our LCCMR work plan is the director's residence which was built in 1973 and is our most energy in-efficient building. We have assembled a design and builder team with

remodeling and energy related experience and have been meeting since the spring of 2008 and plan to have finished plans by May 2010. The funding for the design phase came for internal Eagle Bluff funds and a \$15,000 grant from the Beim Foundation.

Our plans are to add significant levels of insulation and to re-establish a continuous air barrier in the walls and ceilings. All windows and door will be replaced with high efficiency units. Plans include installing a heat recovery ventilator to achieve good interior air quality and to prevent mold.

We also plan to install solar hot water and solar photo-voltaic panels.

Monitoring equipment is already in place to establish base data and monitor improvements.

Summary Budget Information for Result 1:	ENRTF Budget:	\$245,	,000
	Amount Spent:	\$	0
	Balance:	\$245,	000

Deliverable/Outcome	Completion Date	Budget	Estimated Carbon Reduction (#s)
1-1 Envelope & Mechanical Improvements will be completed	12/31/10	\$170,000	7,755
1-2 Solar Hot Water will be installed	12/31/10	\$25,000	6,000
1-3 Solar Photovoltaic will be installed	12/31/10	\$50,000	TBD depending on size

Result Completion Date: June 31, 2012

Result Status as of 1/15/2011:

Result Status as of 7/15/2011:

Result Status as of 1/15/2012:

Result Status as of 7/15/2012:

Final Report Summary: 7/15/2012

RESULT 2: Measurement and oversight as a basis for education and information sharing. Budget \$30,000 Completion Date June 30, 2012

Description: Umbrella function: Managing architect - Kirk Program Management, Inc. (KPM) who supervised the McKinstry Study will help all six centers prioritize their energy projects matching their needs with current technologies, provide advice for contracting for design and construction services, review and critique proposed design solutions and perform periodic on-site observations of the work in progress and contribute updates, provide background information for the website and education materials.

Summary Budget Information for Result 1:	ENRTF Budget:	\$30,	000
	Amount Spent:	\$	0
	Balance:	\$30,	000

Deliverable/Outcome	Completion Date	Budget
2-1 Scope of Work & Technical Teams will be established for each center. Centers will be assisted in going out for, receiving, and evaluating procurement options.	12/31/10	\$20,000
2-2 Progress on Work Plans will be monitored at each center.	6/31/2012	\$10,000

Result Completion Date: June 30, 2012

Result Status as of 1/15/2011:

Result Status as of 7/15/2011:

Result Status as of 1/15/2012:

Result Status as of 7/15/2012:

Final Report Summary: 7/15/2012

RESULT 3: Development of significant public education on energy choices. Budget \$60,000 Completion Date June 2011

Description: Umbrella function: Eagle Bluff will coordinate the development of appropriate K-12 curriculum and activities, on-site signage, take-home materials, web interaction and the development of center specific workshops and training seminars will be completed under the guidance of an educational consultant.

- 3.1Lessons on Sustainability and Renewable Energy delivered at each RELC We will develop, pilot test, and teach classes centered on renewable energy and sustainable lifestyles. These lessons will be large-group presentations and interactive classes for groups of 15-20 students, all of varying time lengths to fit each RELC's needs.
- 3.2 Participation in sustainable lifestyle activities at the RELC. All students will be asked to live a more sustainable lifestyle during their RELC visit. This may include, but is not limited to: reducing food waste, composting food, reducing electricity use, reducing water use, recycling, etc.
- 3.3 Interactive web-based tools

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We will develop and maintain interactive web tools to complement the pre- and post-visit lessons that students will complete at their own school before and after their visit to the RELC. This curriculum will be a matching in-kind donation to the program.

3.4 Assessment

We will develop and implement an assessment tool that will measure the change in behavior and/or knowledge of students who participate in our program.

Summary Budget Information for Result 1:	ENRTF Budget:	\$60,000
	Amount Spent:	<u>\$0</u>
	Balance:	\$60,000

Deliverable/Outcome	Completion Date	Budget
3-1 K-12 curriculum will be developed	6/30/2011	\$40,000
3-2 On-site signage recommendations will be	6/30/2011	\$4,000
completed, designed and printed		
3-3 Interactive web-based tools will be	6/30/2011	\$6,000
developed and implemented	7	
3-4 Assessment Tools will be developed	6/30/2011	\$10,000

Result Completion Date: June 30, 2012

Result Status as of 1/15/2011:

Result Status as of 7/15/2011:

Final Report Summary: 7/15/2012

RESULT 4: Establish and maintain center specific websites to share information and knowledge with all interested individuals and groups. Budget \$15,000 Completion date June 2012.

Description: Umbrella function: The centers are committed to collecting real time data that can be used on their websites and also for research on the efficiency of the various selected solutions. It will also be used to monitor the results of construction and the accuracy of projections. The websites will have similar background information, photos and essays on the project as it develops, and real time monitoring of the energy savings. The six individual center sites will be linked together.

Summary Budget Information for Result 4:	ENRTF Budget:	\$15,000
	Amount Spent:	<u>\$0</u>
	Balance:	\$15,000

Deliverable/Outcome	Completion Date	Budget
4-1 Web consultant will be selected & appropriate technologies will be determined	9/1/2011	\$3,000
4-2 Center websites will be upgraded	7/15/2011	\$10,000
4-3 State-wide composite site recommendations will be completed	1/15/2012	\$2,000

Result Completion Date: June 30, 2012

Result Status as of 1/15/2011:

Result Status as of 7/15/2011:

Result Status as of 1/15/2012:

Final Report Summary: 7/15/2012

V. TOTAL ENRTF PROJECT BUDGET:

Contracts: \$101,000 Supplies: \$4,000 Capital Improvements: \$245,000

TOTAL ENRTF PROJECT BUDGET: \$350,000

Explanation of Capital Expenditures Greater Than \$3,500: The capital improvements made with these funds are fixed capital assets and will remain in place and will continue to be used for the same program through its useful life.

VI. PROJECT STRATEGY:

A. Project Partners: Audubon Center, Sandstone; Deep Portage, Walker; Eagle Bluff, Lanesboro; Laurentian, Britt; Long Lake, McGregor; and Wolf Ridge, Finland.

B. Project Impact and Long-term Strategy: This is one quarter of the Phase One Campus Improvement goal and sets the stage for our Phase Two Educational Program. The centers will continue to work together to complete Phase One's \$6,000,000 goal through state and federal resources and the assistance of foundations.

B. Funding Sources	Umbrella	Ctr Specific
LCCMR 2010 Request - Pending	\$1,500,000	
2009 Federal Allocation - \$300,000/ctr - 5		1,500,000
Northern Ctrs - Pending		
2010 Federal Allocation - \$300,000/ctr - 6 ctrs -		\$1,800,000
In Process		

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MN DEED – Energy Related - Deep Portage -	\$135,000
Received	
Federal Stimulus EECBG Grant – Long Lake –	\$100,000
Under consideration	

C. Other Funds Proposed to be Spent during the Project Period:

C. Other Funds	Umbrella	Ctr Specific
In-kind Staff - \$30,000		\$5,000 per ctr
2009 Federal Allocation - \$300,000/ctr - 5		\$1,500,000
Northern Centers		
Continue Project Development – Butler Family	\$30,000	
Foundation		
2010 Federal Allocation - \$300,000/ctr – 6 ctrs –		\$1,800,000
In Process		

D. Spending HIstory:

D. Spending History	Umbrella	Ctr Specific
Bush Foundation – McKinstry Study	\$176,000	
Butler Family Foundation – Project Development	\$30,000	
AURI – Biomethane Study at Eagle Bluff		\$65,000
Beim Foundation - Deep Energy Reduction		\$15,000
Design Team at Eagle Bluff		

VII. DISSEMINATION: Information about this project will be disseminated in Eagle Bluff's newsletters, email blasts, and annual reports. It will also be discussed in all future New ERA training seminars. More information on the New ERA Program follows.

Energy Resource Advisor (ERA) Certificate

Winona State University is announcing a new curriculum, **Energy Resource Advisor (ERA) certificate**, to accelerate public understanding of energy efficiency, clean energy, carbon emissions, resource conservation, green technologies, and green jobs.

This curriculum is the *first of its kind in Minnesota*. It is a non-credit, continuing education course for adults 18 years of age and older, using online instructional technology combined with applied, field experience. It is intended to foster understanding and leadership of environmental sustainability in our communities, homes and workplaces.

With Innovation Grant funding from the Minnesota State Colleges and Universities, the ERA curriculum was developed through a collaborative partnership among:

- Winona State University
- Eagle Bluff Environmental Learning Center
- Clean Energy Resource Teams (CERTs)
- Winona County Environmental Services
- U.S. Fish and Wildlife Service
- Other green organizations

Dr. Jeanne Franz, Professor of Chemistry at Winona State University, served as lead curriculum designer, working in collaboration with Teaching Learning Technology staff.

Course Description:

Participants in this class will have a broad exposure to issues in sustainability. They will learn the basic components of an energy audit and will learn about small-scale renewable energy including site suitability, system sizing, and financial incentives that are available. Participants will also learn about alternative building options, ways to green up the home or business, and alternative transportation options. Finally, this class will present information about emerging "green" jobs.

This class will be taught online as well as having a contextual field component. The contextual field component will give participants a chance to apply knowledge gained to real world challenges. After completing this course, the successful participant may serve as an energy resource advisor and "green" consultant in the community and workplace.

Course details:

- 40 hours **online** instruction *plus* 16 hours contextual field experience at Eagle Bluff Environmental Learning Center in Lanesboro, MN
- Noncredit; 6 Continuing Education Credits (CEUs). Students do not need to seek formal admission to WSU in order to participate.
- First-time, introductory cost is \$225 per participant. Following the first offering, the cost will be \$525 per participant.
- Course will begin on March 1, 2010 and will conclude by May 31, 2010.
- Enrollment is limited to 25 students.
- Students should be at least 18 years old and be able to demonstrate strong basic math skills including introductory algebra concepts.

Instructor:

Rich Huelskamp has over 25 years of supporting, educating, and assisting homeowners and business owners as well as Minnesota's energy industry professionals. With a thorough understanding of residential and industrial energy use, Mr. Huelskamp has evaluated, recommended and verified building construction, mechanical/electrical equipment, and renewable energy systems.

Mr. Huelskamp has served on the Boards of the Minnesota Renewable Energy Society, Twin Cities Energy Engineers, Moorhead State University Energy Program, Minnesota's Environmental Education Advisory Board, and Minnesota's Energy Education Association. He has coordinated engineering projects and educational programs for the Minnesota State Energy Office.

Mr. Huelskamp is a frequent speaker, author, and advocate for energy conservation, renewable energy technologies, and sustainable building practices. He received his BS in Physics and Mathematics from Winona State University.

For more information or to register, contact:

Outreach & Continuing Education Winona State University <u>continuingeducation@winona.edu</u> 1-800-DIAL-WSU, extension 5080 507-457-5080

VIII. REPORTING REQUIREMENTS: Periodic work program progress reports will be submitted not later than 7/15/2011 and 1/15/2012 A final work program report and associated products will be submitted between June 30 and August 1, 2012 as requested by the LCCMR.

Project Title: Residential Environmental Learning Center's (RELC's) Sustainable Energy Project - Summary

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Project Title: Residential Environmental Learning Center's (RELC's) Sustainable Energy Project - Result 1 Partner's Composite

Project Title: Residential Environmental Learning	Center's (REL	.C's) Sustainal	ble Energy Proj	ect - Result 1										I				1		
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Other - Contingency @ 10%	\$21,000	ليبسب	\$21,000				\$25,000		\$25,000	\$25,800	\$0		\$16,000		\$16,000	\$23,400	ΨŬ	\$23,400	\$132,200	\$132,20
OLUMN TOTAL	\$206,000	\$0	+=,	\$212,000	\$0	+=,	\$245,000		\$245,000	\$258,000	\$0	+===;===	\$240,000	\$0	\$240,000	\$234,000		+=0.,000	\$1,395,000	\$1,395,00
	Result 1	Amount Spent (date)	Balance (date)	<u>Result 1</u> Budaet:	Amount Spent (date)	Balance (date)	<u>Result 1</u> Budget:	Amount Spent (date)	Balance (date)	<u>Result 1</u> Budget:	Amount Spent (date)	Balance (date)	<u>Result 1</u> Budget:	Amount Spent (date)	Balance (date)	<u>Result 1</u> Budaet:	Amount Spent (date)	Balance (date)	TOTAL BUDGET	TOTAL BALANCE