

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

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**LCCMR ID: 167-F**

**Project Title:**

School and Community Energy/Climate Change Education Initiative

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**LCCMR 2010 Funding Priority:**

F. Environmental Education

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**Total Project Budget: \$** \$640,682

**Proposed Project Time Period for the Funding Requested:** 3 years, 2010 - 2013

**Other Non-State Funds: \$** \$0

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**Summary:**

Statewide standards-based education and outreach program that will help students, families and communities understand energy and climate change and help them make informed energy choices that positively affect our environment.

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**Sponsoring Organization:** Hamline University's Center for Global Environmental Education (CGEE)

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**Location:**

**Region:** Statewide

**County Name:**

**City / Township:**

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

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## 2010 LCCMR MAIN PROPOSAL

### PROJECT TITLE: School & Community Energy/Climate Change Education Initiative

#### I. PROJECT STATEMENT

**Project Need.** The way we use energy has major implications for Minnesota's environment and our climate. As environmental education with an energy and climate focus has not been uniformly taught in MN schools, a standards-based, logically sequenced energy education program is highly desirable for those school districts that choose to implement such a curriculum: one that adheres to STEM guidelines and MN State science education standards.

Hamline University's Center for Global Environmental Education will address this situation by collaborating with several local and national organizations to develop and implement a comprehensive **Minnesota Energy/Climate Change Education Initiative**. Leveraging the work of Wisconsin's K-12 Energy Education Program but strictly aligned to MN state science standards that include a focus on the integration of scientific inquiry and engineering standards, this program (informed by subject experts from the Office of Energy Security, the Communities for Responsible Energy Environmental Demonstration Project and the Will Steger Foundation) will create awareness and educate students, their families and communities about energy and climate change issues, prompting responsible actions that result from behavior and lifestyle changes.

**Goal.** The project will create awareness and educate K-12 and adult audiences about energy, its use, and implications for climate change, resulting in people's informed energy decisions and responsible climate actions.

**Population and Geographic Audience Served.** In conjunction with state-wide Math and Science Teacher Centers, the project will provide professional development opportunities for 350 teachers and reach over 55,000 students via an established framework of K-12 educators. Thousands more adults and families will have access to web-based interactive videos, activities and experiments through an online "Energy Education Network." Five interactive kiosks rotated throughout the state will deliver powerful conservation messages that prompt tactical solutions promoting energy and water conservation and reductions in greenhouse gas emissions. A diverse audience of 350,000 people can experience the project's interactive messages at the MN State Fair's Eco-Experience exhibit each year, and an additional 25,000 can benefit from project materials at the Living Green Expo annually.

**Activities.** The project's goal will be achieved by:

- Leveraging the work of Wisconsin's K-12 Energy Education curriculum and other resources to develop and make available a K-12 MN standards-based, energy-focused curriculum that addresses climate change.
- Providing 10 professional development institutes for 350 K-12 educators statewide that help them successfully incorporate energy/climate change issues into their curricula.
- Creating and distributing accessible energy/climate-related interactive multi-media for use with students and adult audiences in school, at home, and in community settings.

#### II. DESCRIPTION OF PROJECT RESULTS

##### Result 1: Curriculum Development and Implementation

**Budget: \$ 175,945**

We will leverage materials from multiple sources to develop and implement a standards-based, comprehensive energy/climate change education program that educates multiple audiences about energy concepts and issues, enabling people to make responsible energy decisions.

##### Deliverables

##### Completion Date

- |   |                |
|---|----------------|
| 1. A MN standards-based K-12 Energy/Climate Education Curriculum. | 5/2011         |
| 2. An Energy/Climate Education Lesson & Activity Guide.           | 5/2011         |
| 3. A web-based Energy-Climate Education Resource Repository.      | 7/2011-ongoing |

- 4. A Statewide Energy-Climate Educators Network. 9/2011-ongoing
- 5. Implementation of Energy-Climate Education curriculum in 350 schools. 10/2011-ongoing
- 6. Online Educator Continuing Education Courses designed to support, mentor and sustain Institute concepts, skills and lessons. 11/2011
- 7. An Energy/Climate Education Community Partnership comprised of utilities, energy & education professionals, schools and community groups. 10/2011-ongoing
- 8. An evaluation mechanism that tracks changes in energy awareness, understanding and behavior. 12/2011-2013

**Result 2: Professional Development for K-12 Educators** **Budget: \$ 218,823**

Professional development will be provided to 350 educators statewide to incorporate energy/climate change education into their curricula. Participants will be mentored throughout the project period through their involvement with Institute professional learning communities, the Energy Educators Network, and other online resources.

**Deliverables**

**Completion Date**

- 1. Facilitate 10 K-12 Professional Development Institutes. 6/2011 and 6/2012
- 2. Conduct Institute evaluations, measuring teachers' progress. 7/2011 and 7/2012

**Result 3: Public and Community Outreach** **Budget: \$ 245,914**

Multimedia resources (including web-based CD-ROMs, interactive activities and videos) will be created for use in MN schools and as community outreach resources. These media will encourage students and adults to think critically about energy/climate change issues, and develop behavioral change strategies that result in informed energy choices.

**Deliverables**

**Completion Date**

- 1. Create energy/climate change-focused multimedia materials. 6/2011
- 2. Launch prototypes at Eco Experience/MN State Fair kiosks. 8/2011
- 3. Integrate interactive media into school/home/community settings. 10/2011
- 4. Conduct evaluations of effectiveness of materials. 10/2011

**III. PROJECT STRATEGY**

**A. Project Team/Partners.** Hamline University's Center for Global Environmental Education, a national leader in developing and implementing curriculum that focuses on teaching scientific concepts, critical thinking skills and positive behavior change, will develop curriculum, professional training, and outreach materials. Tracy Fredin, CGEE Director, will provide project management and assistance in all result areas. Peggy Knapp, Hamline Assistant Professor, will be responsible for curriculum content and professional development, emphasizing alignment with Minnesota Academic Science Standards. Shawn Hubert will mentor participants over a 2 year period. John Shepherd, Hamline Associate Professor, will be responsible for multimedia development. The Steger Foundation will assist with integrating climate messages into the curriculum, and the Communities for Responsible Energy Environmental Demonstration Project will assist with professional development. (3) Janet Streff, Manager of the Commerce Office of Energy Security, and her staff will provide assistance and expertise particularly in energy and outreach-related aspects of the project.

**B. Timeline Requirements.** This is a three year project that will begin in July 2010 with curriculum and multi-medial resource development. Professional development begins in the summer of 2011, with roll out of curriculum and media resources in the summer (State Fair) and fall of 2011. The third year will see additional professional development; a wider roll-out into schools and community events; and evaluation and reporting of project results.

**C. Long-Term Strategy.** The effort will continue beyond the project period by: (1) Aligning the K-12 curriculum to evolving science standards to ensure continuing relevancy in teachers' practice; (2) Reaching a broad public using multimedia resources available at ongoing community events (such as the State Fair's Eco-Experience); (3) Working with utilities, government and private sources to develop a long-term funding strategy to support ongoing curriculum refinement, professional development and community outreach.

## Project Budget

### IV. TOTAL PROJECT REQUEST BUDGET (3 years)

<u>BUDGET ITEM</u>	<u>AMOUNT</u>
<b>Personnel: Hamline University Center for Global <i>Environmental Education</i> . 1)</b> Personnel: \$256,479. Tracy Fredin, Principal Investigator: .2 FTE @ 3 yrs: facilitate Advisory Council, manage curriculum and evaluation development. Shawn Hubert, Program Administrator, .9 FTE @ 3 yrs: project advice, curriculum development, institute coordination, in-school mentoring; Peggy Knapp, 200 hours: curriculum development, on-line course development, and evaluation. 2) Creation of 10-module interactive multimedia learning program for web & kiosk delivery, led by John Shepard of Hamline: \$189,000: Research and design (29,000), production, including graphic design, illustration/animation (53,000); illustration/animation, video/audio production and editing (15,000); beta testing and revision (63,000); implementation through websites, kiosk customization, Spanish language adaptation (29,000).	\$ 400,391
<b>Will Steger Foundation - Grant Contract.</b> Will Steger and Education Coordinator 0.5 FTE @ 3 yrs: project advice, curriculum development, instruction at summer institutes, and in-school mentoring.	\$ 97,510
<b>Communities for Responsible Energy/Environment Demonstration - Grant Contract:</b> Project advice, curriculum development, instruction at summer institutes, and in-school mentoring - 1,200 hours @ \$50/hr. over 3 years.	\$ 60,000
<b>Wisconsin K-12 Energy Education Program - Grant Contract:</b> Curriculum modification support and licensing of program.	\$ 20,000
<b>Regional Summer Institute Instructors &amp; Presenters - P/T Contracts:</b> 6 instructors for 5 days @ \$400/day for 2 years; 6 instructors for 4 days @\$400/day x 2 yrs.	\$ 33,600
<b>Advisory Board Members - P/T Contracts:</b> 5 advisors x 3 meetings/yr x 3 yrs @ \$100/meeting.	\$ 4,500
Education supplies for 12 institutes (\$1,000 per institute for 6 institutes over 2 years)	\$ 12,000
<b>Travel:</b> In-state Summer Institutes for instructors; Program Advisory meetings, and class presenters	\$ 6,681
<b>Additional Budget Items:</b> Site rental for Summer Institutes (\$500 each x 6, 2yrs.)	\$ 6,000
<b>TOTAL PROJECT BUDGET REQUEST TO LCCMR</b>	<b>\$ 640,682</b>

### V. OTHER FUNDS

<u>SOURCE OF FUNDS</u>	<u>AMOUNT</u>	<u>Status</u>
In-kind Services: Licensing Hamline's online assessment function and Educator Network web portal. Hamline 10% indirect waiver, \$75,000 for kiosk leasing. Tracy Fredin will also provide 0.1 FTE in-kind support for his work on the project.	\$ 216,612	Secured
In-kind Services: Licensing Wisconsin K-12 Energy Education Program.	\$ 80,000	Pending
In-kind Services: Licensing Global Warming 101 program from Steger Foundation and Will Steger in-kind support.	\$ 50,000	Secured

## Project Manager Qualifications and Organizational Description

**Project Manager Qualifications.** Tracy Fredin is a faculty member at Hamline University and has led the Center for Global Environmental Education (CGEE) for fourteen years. CGEE's mission is "To foster environmental literacy and stewardship in citizens of all ages," and achieves its goal as a national innovator in delivering environmental education based on the Center's effectiveness in responding to educators' needs for replicable environmental and science programs for K-12 students.

Mr. Fredin's qualifications to oversee the **Minnesota Energy/Climate Change Education Initiative** are demonstrated by the following accomplishments:

- Program Director of Hamline University's Center for Global Environmental Education overseeing the effective implantation of grant monies in excess of \$7M (1995-Present).
- Program Administrator for the \$2.3M State-funded Minnesota Science Teachers Education Project, one of the three largest professional development projects in the country, according to the U.S. Department of Education.
- Program Administrator for the \$668K Dallas Environmental Education Initiative, a CGEE-developed, replicable K-12 standards-based model that has reached over 100,000 students focusing on water and conservation issues.
- Producer of award-winning interactive multimedia, including the CD-ROM *Waters to the Sea: The Chattahoochee River*, the second in a series of programs on American rivers, which was honored with the world's top award at the Wildscreen Festival in Bristol, England: the world's largest and most prestigious environmental media festival.
- Principal Investigator for the LCMR-funded *1000 Friends of Frogs* Program, which engaged citizen monitors and K-12 students in studying and gathering data on frog populations.
- Founding member/facilitator of the Watershed Partners, a consortium of more than 40 conservation organizations and agencies in the Twin Cities area that provides extensive, award-winning community education initiatives focusing on non-point source pollution.

**Organizational Description.** Hamline University's Center for Global Environmental Education is a national leader in the development and implementation of award-winning curriculum that focuses on teaching scientific concepts and critical thinking skills that lead to positive behavior change. The Center achieves its mission through extensive education programs for formal and non-formal educators utilizing inquiry as a foundational teaching strategy; innovative K-12 learning initiatives for students, award-winning multimedia storytelling for all audiences, and community outreach projects that cross disciplines to connect with diverse audiences nationwide.

The Office of Energy Security, Minnesota Department of Commerce, works to move Minnesota toward a sustainable energy future, managing energy assistance funds, advocating in the public interest on energy utility rates and facility siting. The Office provides information and assistance to residents, builders, utilities, non-profits and policy-makers on home improvements, financial assistance, renewable technologies, policy initiatives, and utility regulations. The Office has developed energy-related education and outreach materials for a wide audience and has a lead role in the state's policy and actions on energy and climate issues.