



Environment and Natural Resources Trust Fund

2021 Request for Proposal

General Information

Proposal ID: 2021-405

Proposal Title: TeachScience: Schools and Communities as STEM living laboratories

Project Manager Information

Name: Kristen Poppleton

Organization: Climate Generation: A Will Steger Legacy

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Project Basic Information

Project Summary: TeachScience will connect new science standards, renewable energy, and STEM opportunities through teacher training and support across the state to prepare students for the challenges and careers of the future.

Funds Requested: \$369,000

Proposed Project Completion: 2023-08-31

LCCMR Funding Category: Environmental Education (C)

Project Location

What is the best scale for describing where your work will take place?

Statewide

What is the best scale to describe the area impacted by your work?

Statewide

When will the work impact occur?

During the Project and In the Future

Narrative

Describe the opportunity or problem your proposal seeks to address. Include any relevant background information.

Schools are living laboratories of learning: a place where the environment and infrastructure surrounding students can bring science and engineering practices to life. Through the TeachScience project, 300 middle school science teachers from across Minnesota (Mankato, St. Cloud, Moorhead, Ely, TC Metro), representing over 5,000 students, will receive hands-on training and ongoing support to make their schools living laboratories of learning about energy and the environment. As more schools and cities add renewable energy as an electricity source, and the need for jobs in this sector grows, there is an opportunity and need to integrate renewable energy and green jobs skills into our classrooms. Additionally, Minnesota science teachers are on the edge of a new era of science education as the first change in science standards in 10 years are adopted in summer 2019. There is a critical need to support teachers, schools, and districts throughout Minnesota as they begin the process of implementing these standards.

What is your proposed solution to the problem or opportunity discussed above? i.e. What are you seeking funding to do? You will be asked to expand on this in Activities and Milestones.

Through participation in TeachScience, teachers will receive resources and support to make their schools living laboratories, highlighting the renewable energy infrastructure on their school or in their community and the opportunity of green STEM careers. The new science standards offer the ideal platform to emphasize these concepts, with their focus on the practice of doing science and engineering, and the inclusion of more environmental and earth science content than in the past. During the school year, teachers will receive support through monthly virtual network meetings and 5 virtual classroom presentations on energy and environmental topics. Climate Generation has over 15 years of experience building the comfort, confidence, and competence of teachers to deliver STEM and environmental-based education in their classrooms, and a suite of curriculum resources already developed and ready to share. Our teacher network includes over 4,000 Minnesota teachers, and this project will leverage this network, our partners in the private energy and public education sector, and our expertise, to develop a new generation of Minnesota students with the STEM-based knowledge and skills for environmental leadership.

What are the specific project outcomes as they relate to the public purpose of protection, conservation, preservation, and enhancement of the state's natural resources?

This project is founded on the recognition that schools and communities are rich in environmental learning opportunities with a diversity of examples of natural resource protection, conservation, preservation, and enhancement. Through TeachScience teachers will be connected with natural resource career professionals and will learn ways to connect local, relevant examples to their science curriculum. Students will see how science learning connects with their local community, and build a stronger conservation ethic.

Activities and Milestones

Activity 1: Develop and plan trainings and teacher support network

Activity Budget: \$147,050

Activity Description:

We will review the new Minnesota Science Standards, work with statewide partners to identify renewable energy and environmental community themes, and build relationships with 5 schools and districts in and near Mankato, St. Cloud, Moorhead, Ely, and the Twin Cities to develop and plan trainings around the state to support the 2022-2023 school year. In addition, we will plan follow up support for teachers in the form of 9 monthly virtual meetings including topics on effective teaching and equity, with the opportunity for discussion. We will also develop 5 virtual classroom presentations featuring energy and environmental topics and speakers.

Activity Milestones:

Description	Completion Date
Develop content, identify speakers, and revise resources for each of 5 training locations	2022-08-31
Identify specific locations, build partnerships, promote 5 teacher trainings, recruit teachers through our CG network and partner networks	2022-08-31
Develop plan, identify topics, coordinate speakers for 5 virtual classroom presentations reaching 5000 students during the school-year.	2023-06-30
Develop plan, identify topics, coordinate speakers, for 9 teacher support network virtual meetings during the school-year.	2023-06-30

Activity 2: Implement trainings

Activity Budget: \$93,555

Activity Description:

We will implement 5 trainings for 300 middle school science teachers in Mankato, St. Cloud, Ely, the Twin Cities, and Moorhead. Trainings will be held Spring-Fall of 2022.

Activity Milestones:

Description	Completion Date
Implement two-day training in Moorhead for up to 100 teachers.	2022-10-31
Implement two-day training in Twin Cities Metro for up to 150 teachers.	2022-10-31
Implement two-day training in Ely for up to 50 teachers.	2022-10-31
Implement two-day training in St. Cloud for up to 100 teachers.	2022-10-31
Implement two-day training in Mankato for up to 100 teachers.	2022-10-31

Activity 3: School Year Virtual Support of Teachers and Students

Activity Budget: \$116,800

Activity Description:

We will coordinate 9 monthly virtual meetings for 300 teachers and provide 5 virtual classroom presentations for 5,000 students. Meetings and presentations will be recorded for future use.

Activity Milestones:

Description	Completion Date
Provide and record for future use 5 virtual classroom presentations on energy and environmental topics. Reach: 5000 students	2023-07-31
Provide 9 monthly virtual meetings for 300 teachers featuring content/opportunity for collaboration and discussion.	2023-07-31

Activity 4: Project Evaluation

Activity Budget: \$11,595

Activity Description:

Project evaluation will provide important feedback on the trainings to inform future trainings, demonstrate change in capacity to implement the new science standards throughout the year, and demonstrate change in student interest and knowledge on energy, environmental science and engineering concepts.

Activity Milestones:

Description	Completion Date
Develop comprehensive evaluation plan including formative and summative evaluation.	2022-06-30
Develop and implement pre/post evaluation for students attending virtual presentations.	2023-07-31
Develop final project report.	2023-08-31
Develop and implement pre and post evaluation for teachers attending trainings and for full year of network support.	2023-08-31

Project Partners and Collaborators

Name	Organization	Role	Receiving Funds
Great Plains Institute	Great Plains Institute	Speaker suggestions, topic suggestions	No
RREAL	RREAL	Speaker suggestion, outreach to teachers, connection with tribes doing solar	No
Clean Grid Alliance	Clean Grid Alliance	Speaker suggestion, outreach to teachers	No
All Energy Solar	All Energy Solar	Speaker suggestion, outreach to teachers	No
IPS Solar	IPS Solar	Speaker suggestion, outreach to teachers	No
Department of Commerce: Energy Division	Department of Commerce: Energy Division	Suggesting and/or providing speakers	No
Department of Education: Science	Department of Education: Science	Providing outreach, suggesting and/or providing speakers	No
Minnesota Association for Environmental Education	Minnesota Association for Environmental Education	Supporting outreach, reviewing materials, suggesting speakers and topics relevant to environmental educators.	No
Minnesota Earth Science Teachers Association	Minnesota Earth Science Teachers Association	Supporting outreach, reviewing materials, suggesting speakers and topics relevant to Earth Science standards.	No
Minnesota Science Teachers Association	Minnesota Science Teachers Association	Supporting outreach, reviewing materials, suggesting speakers and topics relevant to Minnesota Science teachers.	No
Contract Graphic Designer	Byrn Bundle	Sole design and print contractor with Climate Generation since 2014, hired through competitive bidding process, located in Minnesota. Will design collateral for project	Yes
Contract Web Support/Systems Administrator	Oz Technology	Sole web contractor with Climate Generation since 2013, hired through competitive bidding process, located in Minnesota. Will maintain website and resources	Yes
Community experts receiving honorariums to present at trainings	TBD	We will invite community experts in renewables, engineering, career opportunities, relevant scientific topics, and science education, to present at trainings.	Yes

Long-Term Implementation and Funding

Describe how the results will be implemented and how any ongoing effort will be funded. If not already addressed as part of the project, how will findings, results, and products developed be implemented after project completion? If additional work is needed, how will this be funded?

Climate Generation has pioneered the development of STEM-based resources and training for over 15 years and is committed to including this as a key component of our K-12 programming. Our diverse funding base ensures the continuity of our programming.

Other ENRTF Appropriations Awarded in the Last Six Years

Name	Appropriation	Amount Awarded
Educating Minnesotans about Potential Impacts of Changing Climate	M.L. 2014, Chp. 226, Sec. 2, Subd. 09e	\$325,000

Project Manager and Organization Qualifications

Project Manager Name: Kristen Poppleton

Job Title: Senior Director of Programs

Provide description of the project manager's qualifications to manage the proposed project.

Kristen Iverson Poppleton is the Senior Director of Programs for Climate Generation: A Will Steger Legacy. Climate Generation empowers individuals and communities to engage in solutions to climate change. Kristen develops a vision for and provides strategic coordination, oversight and support for all Climate Generation programs focusing on youth, policy, educator and influentials engagement. She served on the recently disbanded Federal Advisory Committee for the Sustained National Climate Assessment and the City of St. Paul's Climate Action Planning Committee, and she currently serves on the CLEAN (Climate Literacy) Network's Leadership Board and Minnesota's Science Standards Revision Committee. Kristen has worked at the Science Museum of Minnesota, the International Wolf Center, and taught environmental education in Argentina. Kristen holds a BA in Biology and Hispanic Studies from St. Olaf College, a MEd in Environmental Education from University of Minnesota, Duluth and a MS in Conservation Biology from the University of Minnesota, Twin Cities. Kristen has managed two past successful LCCMR funded projects for Climate Generation.

Organization: Climate Generation: A Will Steger Legacy

Organization Description:

Climate Generation: A Will Steger Legacy empowers individuals and their communities to engage in solutions to climate change with a vision fo a world of resilient communities with equitable solutions to climate change. The organization was founded by polar explorer, Will Steger, based on his powerful eyewitness to climate change from over 50 years exploring the polar regions and his determination to engage people in the issue and solutions. Climate Generation recognizes that communities collectively hold the power to innovate and demand climate change solutions. Empowering individuals in their communities to make long-term, lasting change requires building climate literacy, understanding personal connections to climate change, and developing powerful advocates through a model of collaboration and partnership. By engaging educators, youth, and the public, communities can be better positioned to build a resilient and equitable future.

Budget Summary

Category / Name	Subcategory or Type	Description	Purpose	Gen. Ineligible	% Benefits	# FTE	Classified Staff?	\$ Amount
Personnel								
Director of Programs/Project Manager		Manage, oversee budget, and evaluate			22%	50		\$48,000
Education Manager		Coordinate, develop, implement program			22%	150		\$104,840
Education Coordinator		Support program development and implementation			22%	150		\$95,510
Finance Manager		Administrative and budget reporting support			22%	10		\$27,950
							Sub Total	\$276,300
Contracts and Services								
Systems Administrator: Oz Technology	Professional or Technical Service Contract	technology support, webpage integration				10		\$12,500
Print Design: Bryn Bundle	Professional or Technical Service Contract	Design of collateral for teachers and project				-		\$1,500
Program Intern	Professional or Technical Service Contract	Project support for the program. Will likely contract with one each year.				-		\$12,500
							Sub Total	\$26,500
Equipment, Tools, and Supplies								
	Tools and Supplies	Killawatt meter/teacher \$16*300=\$4800	For use in training to bring back to classroom for activities					\$4,800
	Tools and Supplies	Workshop materials (markers, flipchart paper, snacks \$150/workshop)	For activities and support of workshops					\$750

	Tools and Supplies	Renewable energy with Venier curriculum guides (\$40*125=5000)	To support wrokshops with pre-developed, vetted science education materials					\$5,000
	Tools and Supplies	Solar kits from Venier (\$80*60 kits=4800)	To support workshops with pre-developed materials					\$4,800
	Tools and Supplies	Wind kits from venier (\$120*30=3600)	To support workshops with pre-developed, vetted science education materials					\$3,600
	Tools and Supplies	Micro-grids from Recharge Labs (\$2500*2=\$5000)	To demonstrate in trainings how renewable energy works into the Grid					\$5,000
							Sub Total	\$23,950
Capital Expenditures								
							Sub Total	-
Acquisitions and Stewardship								
							Sub Total	-
Travel In Minnesota								
	Miles/ Meals/ Lodging	5 Staff trips to communities for trainings (\$1730 hotel/meals, \$825 mileage - 1422x.58) plus travel for planning meetings (\$1000)	For travel to trainings and planning meetings					\$3,500
	Conference Registration Miles/ Meals/ Lodging	Minnesota Science Teachers Conference Exhibit and Registration \$250)	for program dissemination and presentation					\$250
	Conference Registration Miles/ Meals/ Lodging	Education Minnesota Exhibit and Registration (\$500)	For program dissemination and presentation					\$500
							Sub Total	\$4,250
Travel Outside Minnesota								
							Sub Total	-

Printing and Publication								
	Printing	Workshop materials (30*300=9000)	Handouts, activity outlines for trainings					\$9,000
	Printing	Outreach and dissemination materials	Outreach materials for conferences and school outreach					\$1,500
							Sub Total	\$10,500
Other Expenses								
		Facility Rental for 5 workshop locations (\$1000/location)	Locations to hold workshops for teachers					\$5,000
		Workshop meals for participants (Breakfast/lunch for 2 days, 300 teachers: \$30/teacher/day, \$60*300=18000)	Workshops will be held over a full day and depending on location may not be close to food. Providing lunch will be critical to maximize time and make the day usefu.					\$18,000
		Zoom cost	Web based platform for conducting virtual trainings and presentations					\$1,500
		Speaker Honorariums (\$300/speaker, 2 speakers/training*5 trainings=600*5=3000)	Speakers will travel to training and be sharing their expertise and will need compensation					\$3,000
							Sub Total	\$27,500
							Grand Total	\$369,000

Classified Staff or Generally Ineligible Expenses

Category/Name	Subcategory or Type	Description	Justification Ineligible Expense or Classified Staff Request
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Non ENRTF Funds

Category	Specific Source	Use	Status	Amount
State				
			State Sub Total	-
Non-State				
Cash	Xcel Energy Foundation	Teacher network support	Pending	\$20,000
Cash	Olseth Family Foundation	K-12 Program Support	Secured	\$20,000
In-Kind	Executive Director time	Time spent supporting project	Secured	\$10,000
In-Kind	Climate Generation curricula resources	Already developed materials used to support the project	Secured	\$15,000
			Non State Sub Total	\$65,000
			Funds Total	\$65,000

Attachments

Required Attachments

Visual Component

File: [8c44a748-855.pdf](#)

Alternate Text for Visual Component

The graphic is a flow chart of the project demonstrating the work and the outcomes. It shows a map with 5 stars in different locations of MN and reads: 5 science teacher workshops. This flows to a list of workshop topics including: new science standards, equity, renewable energy, green careers. This flows to an image of a computer and the words: teacher and student support through virtual meetings and presentations. This flows to an image of renewable energy resources and the words Minnesota students with STEM skills for a better environment.

Financial Capacity

File: [2e9ca5e5-20b.pdf](#)

Board Resolution or Letter

Title	File
Climate Generation Board Resolution	983de273-ce7.pdf

Administrative Use

Does your project include restoration or acquisition of land rights?

No

Does your project have patent, royalties, or revenue potential?

No

Does your project include research?

No

Does the organization have a fiscal agent for this project?

No

TEACHSCIENCE: SCHOOLS AS STEM LIVING LABORATORIES



