



Environment and Natural Resources Trust Fund (ENRTF)

M.L. 2020 ENRTF Work Plan

Today's Date: August 21, 2019

Date of Next Status Update Report: April 1, 2021

Date of Work Plan Approval:

Project Completion Date: June 30, 2022

Does this submission include an amendment request? No

PROJECT TITLE: TeachScience: Schools as STEM living laboratories

Project Manager: Kristen Poppleton

Organization: Climate Generation: A Will Steger Legacy

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City, State, Zip Code: Minneapolis, MN 55407

Project Manager Direct Telephone Number: 612-278-7147

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Web Address: www.climategen.org

Location: Statewide with hubs in Twin Cities, Mankato, Ely

Total Project Budget: \$250,000

Amount Spent: \$0

Balance: \$250,000

Legal Citation: M.L. 2020, Chp. xx, Sec. xx, Subd. xx

Appropriation Language:

PROJECT STATEMENT:

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, 200 middle school science teachers from across Minnesota (Mankato, Ely, Twin Cities Metro), representing over 2,000 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 communities 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 fall 2019. There is a critical need to support teachers, schools, and districts throughout Minnesota as they begin the process of implementing these standards.

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 14 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 3,000 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.

II. OVERALL PROJECT STATUS UPDATES:

First Update April 1, 2021

Second Update October 1, 2021

Third Update April 1, 2022

Final Report between project end (June 30) and August 15, 2022

III. PROJECT ACTIVITIES AND OUTCOMES:

ACTIVITY 1: Develop and plan trainings and teacher support network

Description: *We will work with statewide partners including the Minnesota Science Teachers Association (MnSTA), Rural Renewable Energy Alliance (RREAL), Certified Energy Resource Teams (CERTS), and Regional Sustainable Development Partnerships (RSDP) to identify community level renewable energy and environmental themes and build relationships with 3 schools and districts in and near Mankato, Ely, and the Twin Cities. We will review the new Minnesota Science Standards to identify standards that support the teaching of environmental topics and develop hands-on trainings that help teachers envision how they will implement these topics in their classrooms. Trainings will be planned to support the 2021-2022 school year. In addition, we will plan follow up support for teachers in the form of 9 monthly virtual meetings on topics such as effective teaching and equity, integrating Traditional Ecological Knowledge with western science, and education pathways to renewable energy jobs, with the opportunity for discussion. Teachers will be surveyed for best times to meet and provided with online and call in options to participate. These meetings will be recorded and shared for those who cannot participate. We will also develop 5 virtual classroom presentations featuring energy and environmental topics and speakers. Topics will be selected based on teacher and student feedback.*

These virtual presentations will occur during the school day and include more than one classroom, offering the opportunity for cross-state connections and perspectives.

ACTIVITY 1 ENRTF BUDGET: \$101,700

Outcome	Completion Date
<i>1. Build partnerships with schools and community organizations in the regions surrounding Ely, Mankato, and the Twin Cities to help identify training locations; use networks to promote 3 teacher trainings and recruit teachers</i>	<i>August 2021</i>
<i>2. Develop content, identify speakers, and revise resources to reflect the unique assets of the communities and regions surrounding them for each of 3 training locations</i>	<i>August 2021</i>
<i>3. Develop plan, identify topics, coordinate speakers for 9 teacher support network virtual meetings during the school-year.</i>	<i>June 2022</i>
<i>4. Develop plan, identify topics, coordinate speakers for 5 virtual classroom presentations reaching 5000 students during the school-year.</i>	<i>June 2022</i>

First Update April 1, 2021

Second Update October 1, 2021

Third Update April 1, 2022

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ACTIVITY 2: Implement trainings

Description: *We will implement 3, 2-day trainings for 200 middle school science teachers in Mankato, Ely, and the Twin Cities. Trainings will be open to any teacher in Minnesota, but each will focus on the unique assets of the schools, community and region. Teachers will receive modest meals during the training to ensure that time is maximized, they are sustained, and work can continue uninterrupted. They will engage in hands-on activities that can be taken back to their classrooms to inspire student engagement on environmental topics, STEM careers, and help them see their school and community as places to learn about these topics. Activities may include engaging in energy audits of their school or interviewing renewable energy or conservation professionals in their community. Trainings will be held Spring-Fall of 2021.*

ACTIVITY 2 ENRTF BUDGET: \$60,000

Outcome	Completion Date
<i>1. Implement two-day training in Mankato for up to 50 teachers.</i>	<i>October 2021</i>
<i>2. Implement two-day training in Ely for up to 50 teachers.</i>	<i>October 2021</i>
<i>3. Implement two-day training in Twin Cities Metro for up to 100 teachers.</i>	<i>October 2021</i>

First Update April 1, 2021

Second Update October 1, 2021

Third Update April 1, 2022

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ACTIVITY 3: School Year Virtual Support of Teachers and Students

Description: *We will coordinate 9 monthly virtual meetings for 200 teachers and provide 5 virtual classroom presentations for 2,000 students. The monthly virtual meetings for teachers will focus on*

topics such as effective teaching and equity, integrating Traditional Ecological Knowledge with western science, education pathways to renewable energy jobs, and include the opportunity for discussion. Teachers will be surveyed for best times to meet and provided with online and call in options to participate. Classroom presentations will feature energy and environmental topics and speakers including scientists and individuals in STEM careers. Topics will be selected based on teacher and student feedback. These presentations will occur during the school day and include more than one classroom offering the opportunity for cross-state connections and perspectives. Meetings and presentations will be recorded for future use.

ACTIVITY 3 ENRTF BUDGET: \$77,600

Outcome	Completion Date
<i>1. Provide 9 monthly virtual meetings for teachers featuring supporting content and providing opportunity for collaboration and discussion. Reach: 200 teachers</i>	<i>June 2022</i>
<i>2. Provide and record for future use 5 virtual classroom presentations on energy and environmental topics. Reach: 2000 students</i>	<i>June 2022</i>

First Update April 1, 2021

Second Update October 1, 2021

Third Update April 1, 2022

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ACTIVITY 4: Project Evaluation

Description: *We will solicit ongoing feedback from teachers on training and virtual support, including online surveys post web meetings, and in-person pre and post surveys at the trainings. The overarching goal of the evaluation is to determine the comfort and competence of teachers to use their schools and communities as contexts for implementing the new science standards and highlighting future STEM Careers. Students that participate in the webinars will provide basic feedback on what they learned. Project evaluation will provide important feedback on the trainings to inform future trainings, demonstrate educators' 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 4 ENRTF BUDGET: \$10,700

Outcome	Completion Date
<i>1. Develop comprehensive evaluation plan including formative and summative evaluation.</i>	<i>June 2021</i>
<i>2. Develop and implement pre and post evaluation for teachers attending trainings and for full year of network support.</i>	<i>June 2022</i>
<i>3. Develop and implement pre/post evaluation for students attending virtual presentations.</i>	<i>June 2022</i>
<i>4. Develop final project report.</i>	<i>August 2022</i>

First Update April 1, 2021

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IV. DISSEMINATION:

Description:

Trainings will be held in northern, central, and southern Minnesota. Media will be alerted to each of our community visits for additional coverage and outreach. Additionally, teachers will be encouraged to share their experiences and resources with colleagues for dissemination. Outreach for training will occur at relevant education conferences. Additionally we will be determining through research and evaluation a set of best practices in using communities as a context for science education. We will disseminate our resources and findings via our website (www.climategen.org), the Climate Generation listserv, the Education Minnesota Statewide Educator Conference, the Minnesota Science Teachers Association Conference, MNCERTS (Minnesota Clean Resource Energy Teams) Conference, social media outlets including Facebook, Twitter, and Instagram as well as through the many partners associated with the trainings.

The Minnesota Environment and Natural Resources Trust Fund (ENRTF) will be acknowledged through use of the trust fund logo or attribution language on project print and electronic media, publications, signage, and other communications per the [ENRTF Acknowledgement Guidelines](#).

First Update April 1, 2021

Second Update October 1, 2021

Third Update April 1, 2022

Final Report between project end (June 30) and August 15, 2022

V. ADDITIONAL BUDGET INFORMATION:

A. Personnel and Capital Expenditures

Explanation of Capital Expenditures Greater Than \$5,000: N/A

Explanation of Use of Classified Staff: N/A

Total Number of Full-time Equivalents (FTE) Directly Funded with this ENRTF Appropriation:

Enter Total Estimated Personnel Hours for entire duration of project: 5616	Divide total personnel hours by 2,080 hours in 1 yr = TOTAL FTE: 2.7
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Total Number of Full-time Equivalents (FTE) Estimated to Be Funded through Contracts with this ENRTF Appropriation:

Enter Total Estimated Contract Personnel Hours for entire duration of project: 1,270	Divide total contract hours by 2,080 hours in 1 yr = TOTAL FTE: .61 FTE
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VI. PROJECT PARTNERS:

- A. Partners outside of project manager's organization receiving ENRTF funding: Locations of trainings in Mankato, Ely, Twin Cities TBD; Experts receiving honorariums to present at trainings TBD; Contract Web Support/Systems Administrator-sole web contractor with Climate Generation since 2013, hired through competitive bidding process; contract graphic designer-sole design and print contractor with Climate Generation since 2014, hired through competitive bidding process, located in Minnesota
- B. Partners outside of project manager's organization NOT receiving ENRTF funding: Minnesota Science Teachers Association, Minnesota Earth Science Teachers Association, Minnesota Association for Environmental Education, Department of Education: Science, Department of

VII. LONG-TERM- IMPLEMENTATION AND FUNDING:

Climate Generation has pioneered the development of STEM-based resources and training for over 13 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.

VIII. REPORTING REQUIREMENTS:

- Project status update reports will be submitted April 1 and October 1 each year of the project
- A final report and associated products will be submitted between June 30 and August 15, 2022

IX. SEE ADDITIONAL WORK PLAN COMPONENTS:

A. Budget Spreadsheet

B. Visual Component or Map

Attachment A: Project Budget Spreadsheet
 Environment and Natural Resources Trust Fund
 M.L. 2020 Budget Spreadsheet



Legal Citation:
 Project Manager: Kristen Poppleton
 Project Title: TeachScience: Schools as STEM living laboratories

Organization: Climate Generation: A Will Steger Legacy
 Project Budget: \$250,000
 Project Length and Completion Date: July 1, 2020- June 30, 2022
 Today's Date: August 21 ,2019

ENVIRONMENT AND NATURAL RESOURCES TRUST FUND BUDGET		Budget	Amount Spent	Balance
BUDGET ITEM				
Personnel (Wages and Benefits)				
Director of Programs/Project Manager: Manage, oversee budget, and evaluate \$38,500 (78% Salary, 22% benefits), 20% FTE each year for 25 months		\$ 199,000	\$ -	\$ 199,000
Education Manager : Coordinate, develop, implement program \$70,000 (78% Salary, 22% benefits), 50% FTE for 25 months				
Education Coordinator: support program development and implementation \$64,000 (78% Salary, 22% benefits), 50% FTE for 25 months				
Finance Manager: Administrative and budget reporting support \$14,000 (78% Salary, 22% benefits), 10% FTE for 25 months				
Program Intern (\$500/month= 12,500 Will post on education listservs and share with partners and our network and go through fair, competitive hiring process. Selection of internee will be fair based on Equal Employment Opportunity (EEO) compliance selection process				
Professional/Technical/Service Contracts				
Systems Administrator: Oz Technology (\$12500 = 10 hour/month \$50/hr x 25 months): technology support, webpage integration- sole web contractor with Climate Generation since 2014, hired through competitive bidding process, located in Minnesota		\$ 12,500		\$ 12,500
Print Design: Bryn Bundle (\$1500)- sole design and print contractor with Climate Generation since 2015, hired through competitive bidding process, located in Minnesota		\$ 1,500		\$ 1,500
Equipment/Tools/Supplies				
Killawatt meter/teacher(\$16*200=\$3200); workshop materials, markers, flipchart paper, snacks (\$150*3 workshops=\$450); Renewable Energy with Venier curriculum guides (\$40*75=\$3000); Solar Kits from Venier (\$80*40 kits= \$3200); Wind Kits from Venier (\$120*20=\$2400); 1 micro-grid from		\$ 14,750		\$ 14,750
Printing				
Workshop curriculum (\$25*200=\$5000); Outreach and Dissemination materials (\$900)		\$ 5,900		\$ 5,900
Travel expenses in Minnesota				
Staff travel to Ely and Mankato for trainings (\$736 hotel/meals, \$464 mileage - 800 x.58) plus travel for planning meetings (\$200) per Commissioner's plan.		\$ 1,400	\$ -	\$ 1,400
Other				
Facility Rental for 3 workshop locations (\$1000/per location=\$1000x3=\$3000)		\$ 3,000		\$ 3,000
Minnesota Science Teachers Conference Exhibit and Registration for program dissemination and presentation (\$250)		\$ 250		\$ 250
Education Minnesota Exhibit and Registration for program dissemination and presentation (\$500)		\$ 500		\$ 500
Workshop meals for participants (Breakfast/lunch for 2 days, 200 teachers: \$25/teacher/day, \$50*200=10000 Participants will be spending full days over meal hours in possibly remote locations. Modest meals will be provided to sustain them and ensure work flow can continue uninterrupted		\$ 10,000		\$ 10,000
Honorariums for speakers (\$200/speaker, 2 speakers/training*3 trainings= \$400*3=\$1200 Selected speakers will represent experts in education, environmental, energy, and conservation careers. They will be modestly compensated for providing their expertise and the travel and time donated		\$ 1,200		\$ 1,200
COLUMN TOTAL		\$ 250,000	\$ -	\$ 250,000
SOURCE AND USE OF OTHER FUNDS CONTRIBUTED TO THE PROJECT		Budget	Spent	Balance
Non-State: Xcel Energy Foundation, Olseth Family Foundation	Status (secured or pending)	\$ 37,000	\$ -	\$ 37,000
State:		\$ -	\$ -	\$ -
resources (\$15,000 secured)		\$ 25,000	\$ -	\$ 25,000
Other ENRTF APPROPRIATIONS AWARDED IN THE LAST SIX YEARS		Budget	Spent	Balance
Chp. 226, Sec. 2, Subd. 09e (2014-2016)	Amount legally obligated but	\$ 325,000	\$ 325,000	\$ -

