**PROJECT TITLE: TeachScience: Schools as STEM living laboratories**

**I. 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, 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.

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. PROJECT ACTIVITIES AND OUTCOMES**

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| **Activity 1: Develop and plan trainings and teacher support network**  **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 2021-2022 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.*  **ENRTF BUDGET: $146,750** |  |

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| **Outcome** | **Completion Date** |
| *1. Identify specific locations, build partnerships, promote 5 teacher trainings, recruit teachers through our CG network and partner networks* | *August 2021* |
| *2. Develop content, identify speakers, and revise resources for each of 5 training locations* | *August 2021* |
| *3. Develop plan, identify topics, coordinate speakers, for 9 teacher support network virtual meetings during the school-year.* | *August 2022* |
| *4. Develop plan, identify topics, coordinate speakers for 5 virtual classroom presentations reaching 5000 students during the school-year.* | *August 2022* |

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| **Activity 2: Implement trainings**  **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 2021.*  **ENRTF BUDGET: $93,455** |  |

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| **Outcome** | **Completion Date** |
| *1. Implement two-day training in Mankato for up to 100 teachers.* | *October 2021* |
| *2. Implement two-day training in St. Cloud for up to 100 teachers.* | *October 2021* |
| *3. Implement two-day training in Ely for up to 50 teachers.* | *October 2021* |
| *4. Implement two-day training in Twin Cities Metro for up to 150 teachers.* | *October 2021* |
| *5. Implement two-day training in Moorhead for up to 100 teachers.* | *October 2021* |

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| **Activity 3: School Year Virtual Support of Teachers and Students**  **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.*  **ENRTF BUDGET: $116,800** |  |

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| **Outcome** | **Completion Date** |
| *1. Provide 9 monthly virtual meetings for teachers featuring supporting content and providing opportunity for collaboration and discussion. Reach: 300 teachers* | *July 2022* |
| *2. Provide and record for future use 5 virtual classroom presentations on energy and environmental topics. Reach: 5000 students* | *July 2022* |

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| **Activity 4: Project Evaluation**  **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.*  **ENRTF BUDGET: $11,500** |  |

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

**III. PROJECT PARTNERS AND COLLABORATORS:**

Minnesota Science Teachers Association, Minnesota Earth Science Teachers Association, Minnesota Association for Environmental Education, Department of Education: Science, Department of Commerce: Energy Division, Environmental Quality Board, IPS Solar, All Energy Solar, Apex, Clean Grid Alliance, RREAL, GPI

**IV. 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.

**V. SEE ADDITIONAL PROPOSAL COMPONENTS:**

**A. Proposal Budget Spreadsheet**

**B. Visual Component or Map**

**F. Project Manager Qualifications and Organization Description**

**G. Letter or Resolution**

**H. Financial Capacity**