

## Rhode Island Energy and Energy Efficiency Curriculum and Training

EERMC Education Group

2/12/2020 (Updated 4/27)

EERMC's support of this project will leverage National Grid's collaboration with the National Energy Education Development (NEED) Project. NEED provides energy curriculum and training to K-12 teachers and students throughout the United States with over 30 years of programming in Rhode Island with the Office of Energy Resources and National Grid. The RI Office of Energy Resources and the RI Department of Health are seeking to expand and enhance the NEED energy efficiency and conservation curriculum and training with additions to include energy justice and climate science. Building on NEED's portfolio of energy curriculum resources and training processes, this expanded curriculum module brings together energy efficiency and conservation (both school and residential), building science, climate science, energy justice, and health for Rhode Island teachers, students and families.

With the funding requested, the expanded curriculum module will be developed, and more training hours will be offered to K-12 teachers and nonformal educators in 2020. The goal is to increase teacher literacy in not only energy and energy efficiency, but also energy justice and climate change impacts, and ensure that teachers have access to high quality, accurate resources regarding these issues. Ideally, these resources would be used not only in science classes but also in social studies, political science, and other humanities classes. This curriculum module will be well suited for both the STEM and the social science classroom and specifically will meet the needs of the environmental science teachers (especially AP), STEM teachers, and social science/public health teachers. The curriculum would be an excellent supplement to Rhode Island's health magnet schools and other magnet/special focus schools as well. In addition, NEED has seen success in the nonformal education sector – with out of school time programs (afterschool) -- that will be included in this EERMC effort with a focus on underserved students and families.

Using the foundations of energy efficiency and conservation and wise resource use, NEED and OER will weave in energy justice topics including, but are not limited to, the concept of energy burden, energy poverty, how individual actions can affect costs for everyone on the grid or natural gas system, and how families and individuals can participate more thoroughly in energy policy discussions. Linking in climate change, local climate impacts and resiliency of the energy system will allow for discussion of community resiliency and public health equity. The ability of energy efficiency and distributed generation/energy storage technologies to help mitigate these effects is fundamental to an understanding of the issues facing communities now and in the near future.

**Updated post 3/13/2010: Within the last two months, we have seen the delivery of instruction altered in ways never expected before COVID-19. NEED has adapted to meet the needs of teachers and students with Distance Learning resources for teachers to use with their classrooms and for parents to keep inquisitive students engaged in learning opportunities. In May, NEED will roll-out a series of workshops on wind in a pilot for the National Renewable Energy Laboratory. This pilot will inform plans moving forward to deliver workshops for teachers and students in a virtual environment if needed. NEED recognizes that virtual training is not as effective for teaching hands-on science but will have the tool available with some adaptations to workshop content and agenda if needed.**

### **Alignment with Mission and Justification of Need**

This funding directly advances the EERMC's mission to educate residents about energy efficiency and energy conservation. It will also encourage further stakeholder engagement and participation in energy efficiency programs and deepen awareness of those programs. In collaboration with the Department of Health, The NEED Project, and National Grid, and OER/EERMC will be able to offer a timely and necessary resource designed to educate and engage teachers, students and families.

### **Deliverables:**

1. A curated list of resources (journal articles, websites, maps, etc.) surrounding residential and school energy efficiency and conservation, climate change, health, energy, and energy justice. These will range from beginner-level resources (which can be given to students to read and analyze) to higher-level, more complex materials (intended to increase teacher literacy).
2. A landing page for hosting these resources will be created on either the OER site or on the NEED site for ease of updates and ease of use.

3. A Teacher Guide/Leader Guide for use when implementing the lessons and a Student Guide to be used in total or in part depending on the amount of time a teacher can dedicate to the topic. This lesson plan should be able to be modified in length, adjusting from one class to a quarter/semester long plan.
  - a. The Teacher Guide should include final project (Capstone) ideas, as well as an option to present these final projects to members of the OER and DOH teams to be scored and receive awards. NEED recommends the projects be designed to submit to the NEED Youth Awards for Energy Achievement which has awarded many Rhode Island schools for excellence in energy education for over 30 years.
  - b. The Student Guide will include student background reading, lessons and activities, school to home connections for engaging families, and some student leadership components as well. It will also include a letter to families to explain why OER, Health, and EERMC are making the investment in this program for students, teachers and families.
4. Teacher Training agenda and training scheduled to provide training to over 100 educators across the state. As with all NEED teacher training plans, the training will guide teachers through energy efficiency and conservation and building science while integrating climate science and the Rhode Island energy system. The training will also engage teachers on how to facilitate discussions around smart energy decisions, energy policy, energy equity and justice along with simple classroom/lesson management processes and techniques.
5. Expansion Opportunity (for future years): Student Training agenda and training scheduled to provide training to over 200 students in a Teacher/Student workshop format. These students will explore the lessons in the curriculum, will work on leadership development together and will begin to create a strong network of student ambassadors for this work.

### **Evaluation**

EERMC believes in significant evaluation and metrics and evaluation tools will be integrated throughout the program including:

- pre/post teacher knowledge
- pre/post student knowledge
- usability
- applicability
- grade level appropriateness
- use

### **Timeline**

#### **April – May 2020**

- **Content review**
- **gap analysis**
- **curriculum team finalized**

#### **May 2020 – July 2020**

- **Draft Module Completed,**
- **Hands-on lessons field tested**
- **training plans completed, dates selected**
- **stakeholders engaged for recruitment of teachers**

#### **August – September 2020**

- **Recruitment for training**
- **Final refinement of curriculum**

#### **October 2020**

- **Energy Action/Awareness Month**
- **Workshops Hosted**

**November 2020**

- **Workshops Hosted**
- **Evaluation Compiled and Submitted**

## NEED Project Proposed Budget Options 1

	Unit Cost	2020	Additional Details	
<b>Administration</b>				
Program Management		\$1,500.00	Includes all personnel costs, expenses, accounting, printing, copies - all in program costs. evaluation collection, processing, and reporting.	
Program Evaluation		\$350.00		
Curriculum Development		\$3,500.00	Includes the development of the Teacher and Student Guide, Training Agendas, Landing Page and other collateral as needed.	
<b>Curriculum</b>				
Curriculum Module Sets (TG and SG, plus background materials)	\$25.00	75	\$1,875.00	Curriculum sets for the program.
NEED Climate Science Kit	\$200.00	75	\$15,000.00	Custom kit designed with energy efficiency and conservation tools and resources, building science, and climate science to use alongside curriculum. Reusable with replenished consumables.
<b>Training and Outreach</b>				
Teacher Training Workshops	\$7,500.00	2	\$15,000.00	Includes all costs associated - venue, food, and all supplies. Up to 75 teachers.
<b>Total</b>			<b>\$37,225.00</b>	

## NEED Project Proposed Budget Options 2

	Unit Cost	2020	Additional Details	
<b>Administration</b>				
Program Management		\$1,500.00	Includes all personnel costs, expenses, accounting, printing, copies - all in program costs.	
Program Evaluation		\$350.00	evaluation collection, processing, and reporting.	
Curriculum Development		\$3,500.00	Includes the development of the Teacher and Student Guide, Training Agendas, Landing Page and other collateral as needed.	
<b>Curriculum</b>				
Curriculum Module Sets (TG and SG, plus background materials)	\$25.00	50	\$1,250.00	Curriculum sets for the program.
NEED Climate Science Kit	\$200.00	50	\$10,000.00	Custom kit designed with energy efficiency and conservation tools and resources, building science, and climate science to use alongside curriculum. Reusable with replenished consumables.
<b>Training and Outreach</b>				
Teacher Training Workshops	\$6,500.00	2	\$13,000.00	Includes all costs associated - venue, food, and all supplies. Up to 50 teachers.
<b>Total</b>			<b>\$29,600.00</b>	