RFP Cover Sheet

Offeror's Name:	National Energy Education Development (NEED) Project

RFP Information	
Title of RFP:	K-12 Energy Curriculum Training
RFP Number:	EERMC - 2021- 03

Offeror Information	
Legal Name of Offeror:	National Energy Education Development (NEED) Project
Type of Entity (i.e. corporation, partnership, sole proprietorship):	Non-profit 501c3 corporation.
Mailing Address of Primary Place of Business:	8408 Kao Circle, Manassas, VA 20110
Phone Number:	703-257-1117
Website:	www.need.org

Contact Person for the Offeror	
Name:	Mary Spruill
Title:	Executive Director
Mailing Address:	8408 Kao Circle, Manassas, VA 20110
Phone Number:	703-257-1117
Email Address:	mspruill@need.org

Signature of Authorized Person

5/24/21
Date

Mary Spruill, Executive Director
Printed Name, Title

II. Technical Proposal: The NEED Project
Response to RFP Title: K-12 Energy Curriculum Training EERMC-2021-03

National Energy Education Development (NEED) Project
Proposal to the Rhode Island Office of Energy Resources
Rhode Island Energy Efficiency and Resource Management Council (EERMC)

A. Background and Overview

The National Energy Education Development (NEED) Project welcomes the opportunity to bring forty-one years of energy curriculum development, training, and state programming expertise to the Rhode Island Office of Energy Resources – Energy Efficiency and Resource Management Council in support of EERMC's K-12 energy curriculum and teacher training goals. NEED, like EERMC, has worked to "promote public understanding of energy issues and of ways in which energy efficiency, energy conservation and energy resource diversification and management." As a nonprofit organization providing curriculum and training to Rhode Island teachers and students for over thirty-five years, NEED understands the importance of developing a thorough understanding of the science of energy, energy resources, energy consumption and energy conservation and efficiency. NEED's vast portfolio of energy resources includes the science of energy, sources of energy, electricity, transportation, and energy efficiency and conservation with varying levels of depth across the K-12 spectrum.

This proposal to EERMC leverages the work completed by the EERMC and NEED and the creation of the ***Rhode Island Energy, Climate and You*** curriculum designed at 3 levels for the K-12 community both in traditional classrooms and in clubs and afterschool programs as well. NEED's history of work in partnership with the Office of Energy Resources EERMC and National Grid provides a wealth of opportunity for teachers and students. Using the new curriculum and NEED's existing energy portfolio, NEED is also offering two courses through the Rhode Island Department of Education All Course Network. Although the number of participants for the courses is unknown at this time, RIDE was pleased to see an energy offering for students among the proposals. NEED was also approved to join the ECN – RIDE's Educator Course Network to offer energy and STEM professional development for school districts.

In addition, this proposal leverages NEED's professional work with existing Rhode Island education standards aligned energy curriculum, teacher training, student leadership development, and evaluation. This proposal seeks to grow a robust teacher and student energy training program, continue high quality curriculum delivery, increased opportunities for teacher, and therefore student, engagement and provide the training opportunities needed to address the significant challenges local communities face related to climate change, energy and environmental justice, and public health. There is no debate that resources provided in a classroom or afterschool setting can engage teachers, students and families in learning more about energy in order to be a voice for change and awareness in the local community.

The Rhode Island Energy, Climate and You 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. The curriculum provides a look into the science and social science aspects of these major issues including energy burden of families. The first workshop was completed with excellent results and positive teacher feedback and this proposal seeks to expand the effort with additional teacher training opportunities including summer workshops, virtual workshops and partial day workshops. This expanded training component will strengthen the use of the curriculum in Rhode Island schools, especially Environmental Science, and nonformal education programs. The training can be expanded to include youth advocacy organization leaders and students, should the EERMC wish to include those two stakeholders in the training audience.

B. Work Plan and Scope of Work:

To support EERMC's education and outreach objectives NEED proposes several activities designed to increase teacher capabilities around energy efficiency and climate change in the classroom and in out of school time programs or clubs. Ensuring that teachers receive the content knowledge and classroom skills needed to deliver the ***Rhode Island Energy, Climate and You*** curriculum is fundamental to the work plan. The training will help teachers engage students in learning about energy, energy efficiency and climate change in a more authentic and comprehensive way. Providing training, curriculum, and energy leadership development will allow for EERMC's objectives to be met with long-term success.

Teacher Training

- NEED seeks to target Rhode Island K-12 teachers and students for the work in this proposal. In both anecdotal and evaluation data gathered over time, NEED understands that energy education is often overlooked, poorly explained in the classroom and not effectively taught in many cases. NEED's pre-post teacher workshop data notes that teachers often have a limited understanding of energy and energy concepts, especially at the elementary level. Energy is not a strong theme in science of social studies standards, but the increase in interest in STEM education has allowed for more energy to be taught in the classroom. As always, energy is an excellent topic for afterschool or extracurricular programming. The ***Rhode Island Energy, Climate, and You*** curriculum provides the content and lessons needed. The training will provide the skills, comfort and confidence needed for teachers to effectively teach these energy topics.
- Using the model designed for the ***Rhode Island Energy, Climate and You*** training pilot workshops, NEED will organize and host five half-day trainings for Rhode Island teachers and students. Although NEED can and will do half-day trainings happily, we recommend EERMC consider a full day. Teachers seldom find it easy to participate in half-day trainings – sub plans are still required, substitute funds are still required, assimilating back into the school day halfway through the day isn't easy – why not offer a full day (at not a huge additional cost) opportunity. NEED hosts all variations of workshops and perhaps, EERMC will be willing to look at a series of workshop options that include half-days, full days, a full day over 2 half days, Saturdays, and also in person and virtual workshops. NEED has found that offering a virtual option reaches educators who would not otherwise be able to attend – expanding equity and access for the program.

- NEED also recommends hosting workshops for grade bands. It would be appropriate to host a primary/elementary workshop for only primary/elementary teachers and then a workshop for intermediate/secondary teachers.
- NEED finds that offering a calendar of workshops allows teachers to plan and allows for building of interest and momentum. We take evaluation data and teacher comments/photos from the first workshop to enhance the recruitment for the remaining workshops.
- All workshops will include certification of hours for teacher professional development, breakfast, lunch, and substitute reimbursement.
- NEED hosted workshops are turn-key. NEED will handle recruitment, marketing materials, logistics and extensive evaluation.
- The budget is submitted to provide the ***RI Energy, Climate and You*** kit to participating teachers. This line item can be altered to provide more training if that is what EERMC prefers.
- NEED is also incorporating the new curriculum into its National Grid funded energy efficiency workshops.
- Proposed Agendas are Attached as an appendix.

Marketing and Outreach Strategy

- NEED recruits teachers and students to participate in training workshops via school networks, STEM teacher associations, and databases from the State of Rhode Island. Much of NEED's success with workshops has come from word of mouth – with educators, families and students sharing about their participation in NEED programs. Teachers are an exceptional network. They share, they encourage, they recruit. NEED will work with EERMC's communications team to share about the program offerings as well.
- NEED also recommends that the workshop calendar be posted on the EERMC website and perhaps shared in the Office of Energy Resources newsletters.
- NEED has in-house design capability and will provide design services for all collateral and recruitment. A sample workshop flyer is attached.

Evaluation

- NEED will utilize a pre and post assessment for training that can be customized should EERMC have questions or concepts that the Council would like assessed. The responses are completed in a scanned format and reports of detail and summary provided to EERMC. The baseline to knowledge increase in some of NEED's recent training has been at least a 60% knowledge increase. In addition, the usability of curriculum and usage of curriculum will be assessed both at the workshop and 3 months post-workshop. These results will allow EERMC to see the impact of its investment.
- Sample evaluation data is attached.

Timeline

June 2021

Award of Contract
Agendas and Recruitment, and Evaluation drafted for EERMC review/branding
Report Submitted

July 2021

Workshops Scheduled (using school district calendars)
Report Submitted

August 2021

First Workshop
Report Submitted

September 2021

Report Submitted

October 2021

Second and Third Workshop
Report Submitted
Mid-Point Check in with EERMC

November 2021

Fourth and Fifth Workshop
Report Submitted

December 2021

Evaluation Summary and Final Report Presented to EERMC
EERMC/NEED meeting to review the year and consider future programming.

C The NEED Project – Company Profile

For over 40 years, NEED has focused its efforts on designing and delivering energy curriculum and training. This focus has allowed NEED to be best in class – with the only comprehensive energy curriculum available. This extensive portfolio of curriculum and training, as well as the organization's skill set and network, has allowed for sustained growth in capabilities and assets to include programming across the country and internationally as well. NEED's partners represent a cross-section of the energy sector with large investor owned utilities like National Grid, electric cooperatives, energy infrastructure companies like solar installers, energy efficiency engineering and design firms and energy agencies and organizations like the U.S. Department of Energy, the Energy Information Administration, the National Renewable Energy Laboratory, and the U.S. Department of Interior. NEED also works with state governments on similar projects including the State of Rhode Island, the Commonwealth of Kentucky and including EPA's Pollution Prevention and Green and Health Schools efforts in those states.

An issue for NEED in this response to RFP however is the ISBE requirement. As NEED is a 501c3 nonprofit organization we are excluded from being able to identify as an ISBE company. Should the opportunity to ever register as an ISBE organization arise, NEED would gladly do so, but after much review at the state and national level, we are excluded from identification in either category due to our non-profit status.

Roles & Responsibilities
NEED believes in maintaining an efficient and effective team for program implementation. Because NEED supports many signature programs around the country, staffing and program implementation benefit from economies of scale and the opportunity to have the expertise of NEED's network of highly skilled energy and education professionals and partners.

The NEED team is comprised of veteran energy and education professionals including:

Mary Spruill, Executive Director: Mary has 30 years of experience in non-profit management and energy education having started with NEED out of high school, first as an intern and now as NEED's 3rd Executive Director in the organization's 41-year history. Throughout her career, Rhode Island programs have been part of her work in developing and training educators and students in the state for almost 25 years.

Emily Hawbaker, Curriculum Director: Emily guides and develops standards aligned curriculum that is accurate, comprehensive and up-to-date with current pedagogy and data. She is also a trained NEED facilitator. Emily is a former middle school science teacher.

Caryn Turrel, Curriculum Associate and CEM: Caryn serves on the team to assist in the development of curriculum and to provide support and guidance in energy efficiency and conservation efforts in schools and homes. She is a certified energy manager and former high school chemistry and physics educator.

Shannon Donovan, NEED Educator and STEM Coordinator for Scituate Public Schools: Shannon serves as a NEED curriculum advisor and facilitator for teacher and student workshops. She is passionate about Rhode Island's environment, energy efficiency and renewable energy. She is a former Rhode Island Teacher of the Year.

D. Relevant Experience
Working with utilities, state government agencies, federal government agencies (DOE, NREL, BLM, BOEM), energy efficiency programs, energy companies, and other NGOs, NEED has designed and delivered energy training and curriculum nationwide. NEED is currently implementing a number of programs similar to this proposed project including: the Exelon STEM Academy designed for young women from underserved communities in Philadelphia, Chicago, Baltimore and the District of Columbia; the Pathways to Solar program for the Sacramento Municipal Utility District and Urban League to bring unemployed, underemployed and emerging workforce individuals of color together for entry level training related to solar installation; energy efficiency workshops and training for National Grid; the Wind for Schools program for the

National Renewable Energy Laboratory (NREL) and the WaterPower project for NREL and the U.S. Department of Energy. In 2019, NEED launched a partnership with Prince George's County (Maryland) to provide energy training and workforce skills to 250 under-resourced youth for a six week summer program, the program expanded to 500 youth in 2020 (virtually) and 2021 (virtually). NEED has a decades long history of successfully managing cooperative agreements with federal agencies ranging from its $1,000,000 project on Hydrogen for the U.S. Department of Energy, to the current NREL agreements in the range of $50,000 - $75,000 for energy, efficiency, renewables and workforce development.

For most of the last 35 years, NEED has been part of the Rhode Island classroom. OER and NEED have worked together to implement curriculum development, teacher training and student leadership development in Rhode Island with former students serving as adult mentors in the program today and a network of over 200 educators in the state.

E. Examples of Prior Work

NEED has quite a few examples of previous or ongoing projects similar in nature to the EERMC effort including our history with the Office of Energy Resources and National Grid. These programs offered teacher training, student workshops, classroom curriculum, student leadership development and evaluation. NEED served as a turn-key provided in of these programs. The recent effort to work with the EERMC resulted in the launch of the ***Rhode Island Energy Climate and You*** curriculum and teacher workshop. It is hoped that this proposal will allow for more workshops to be hosted in the coming school year.

Outside of Rhode Island, NEED has worked extensively with a five-party program in the State of Illinois that provides teacher workshops, classroom grants, hands-on kits, curriculum, and local Energy Fairs. The Energizing Student Potential program is the joint effort of Exelon, ComEd, Peoples and North Shore Gas, Nicor Gas and BP with a goal to increasing energy within the STEM classroom and development an understanding of energy and energy conservation/efficiency among Illinois teacher and students. This program was a 3 year program, now in year six reaching 1000 teachers and 115,000 students. The program has replicated to include Maryland, Pennsylvania and the District of Columbia.

In Virginia, working with the Virginia Department of Education and Dominion Energy, NEED designed and developed curriculum for Virginia's 6th grade classrooms to meet the energy requirements in Virginia's SOLs (standards of learning). This unit focused on the science of energy and Virginia's energy resources, provided hands-on kits, teacher training, student engagement, and evaluation.

F. Reference Information

U.S. Department of Energy – State Energy Program – Commonwealth of Kentucky
FAP111-44-00NP
$75,000
Energy Efficiency Education

1. Agreements are ongoing for over 10 years, successful completed each year, careful coordination and communication with agency points of contact.
2. All progress was reported in a timely manner based on agreement requirements.
3. Eileen Hardy – Commonwealth of Kentucky - eileen.hardy@ky.gov

Office of Energy Policy, Office of the Governor – Commonwealth of Kentucky
FAP111-44-00NP
$125,000
Kentucky Energy Tour for Teachers, Teacher workshops and Curriculum

1. Agreements are ongoing for over 10 years, successful completed each year, careful coordination and communication with agency points of contact.
2. All progress was reported in a timely manner based on agreement requirements.
3. Eileen Hardy – Commonwealth of Kentucky - eileen.hardy@ky.gov

U.S. Department of Energy – Energy Information Administration
19EI000193
$39,140
Energy Industry Study Program – Intern and Employee Training

1. Agreement are ongoing for over 15 years, successfully completed each year, careful coordination and communication with agency points of contact.
2. All progress was reported in a timely manner based on agreement requirements
3. El'Martez Jones - el'martez.jones@eia.gov

G/H/I. Identification of Staff and Subcontractors

NEED has a team of education and energy professionals in its Virginia headquarters that will provide support for a portion of this program including workshop logistics, accounting, recruitment, outreach, curriculum distribution, kit distribution. Those individuals include:

Mary Spruill, Executive Director
Overall management of program, outreach support, training support

Sandra Harben, Accountant
Budgeting and financial management

Wendi Moss, Training Coordinator
Workshop logistics, recruitment

Kim Swan, Evaluation Coordinator
Design and collection of evaluation data

The NEED team for this project is comprised of veteran energy and education professionals including (resumes will be submitted separately):

Mary Spruill, Executive Director: Mary has 30 years of experience in non-profit management and energy education having started with NEED out of high school, first as an intern and now as NEED's 3rd Executive Director in the organization's 41-year history. Throughout her career, Rhode Island programs have been part of her work in developing and training educators and students in the state for almost 25 years.

Emily Hawbaker, Curriculum Director: Emily guides and develops standards aligned curriculum that is accurate, comprehensive and up-to-date with current pedagogy and data. She is also a trained NEED facilitator. Emily is a former middle school science teacher.

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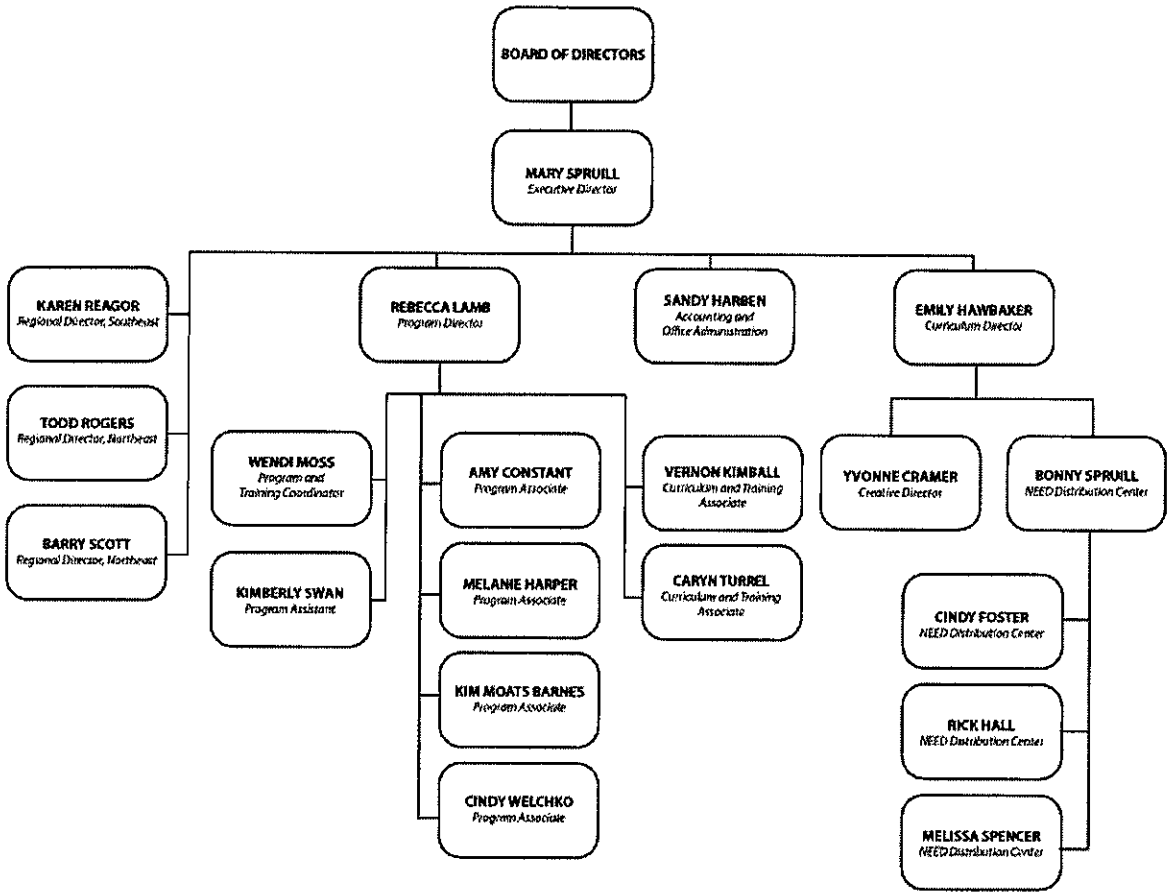
Shannon Donovan, NEED Educator and STEM Coordinator for Scituate Public Schools: Shannon serves as a NEED curriculum advisor and facilitator for teacher and student workshops. She is passionate about Rhode Island's environment, energy efficiency and renewable energy. She is a former Rhode Island Teacher of the Year.



J. Conflicts of Interest
No known conflicts exist.

K. Litigation
No known litigation exists.

L. Investigation
No known investigations exist.

III Cost Proposal is Submitted Separately.

IV. ISBE Proposal is Submitted Separately.
An issue for NEED in this response to RFP however is the ISBE requirement. As NEED is a 501c3 nonprofit organization we are excluded from being able to identify as an ISBE company. Should the opportunity to ever register as an ISBE organization arise, NEED would gladly do so, but after much review at the state and national level, we are excluded from identification in either category.

NEED Attachments to Technical Proposal:

1. Resumes
2. Sample Evaluation
3. Draft Workshop Agendas
4. Sample 2021 Workshop Agenda

Emily B. Hawbaker

717-360-5259

2606 Trenton Avenue, Philadelphia, PA 19125

emilybhawbaker@gmail.com

EXPERIENCE

The National Energy Education Development Project (NEED) — Manassas, VA

Curriculum Director — June 2012- present

Job Responsibilities:

- Create hands-on, energy related curriculum instruction units and activities for the K-12+ environment
- Manage and edit over 130 curriculum units annually to reflect current statistical information, industry changes, and technology updates
- Develop digital content and social media engagement for educators and partners
- Design and lead internal and external professional development for educators and other professionals at workshops, conferences, and trainings nationally and internationally
- Coordinate and direct staff and volunteer advisory board members during curricular revisions, statistical updates, standards correlation alignment, and creation of new content
- Create programs to align with RFP and grant opportunities
- Administer teacher and student programs by coordinating conference calls, planning travel, evaluating participant progress, reviewing project submissions, and planning events
- Promote the organization through networking and presentation delivery at energy industry and education meetings and events
- Create assessment tools and analyze data to refine programs, materials, and trainings

Penn-Delco School District — Aston, PA

Northley Middle School Classroom Teacher — 2006 -2012

Courses and Roles: *8th grade Physical Science, Team Leader, PSEA Building Representative*

Job Responsibilities:

- Create units of curriculum for differentiated instruction
- Incorporate formative and summative assessments and analyze data to drive success
- Maintain student documents, personal website, and communicate with parents and case-workers
- Manage cohort of 8th grade teachers, delegate instructional and supportive tasks, administer and organize student events, plan professional learning community meetings, coordinate student intervention
- Act as a liaison between teachers and administration
- Conduct monthly staff building meetings, monthly association meetings, and attend PSEA Young Leaders Program

EDUCATION

Cabrini University — Radnor, PA

Masters in Education — December 2008

The Pennsylvania State University — University Park, PA

Bachelor of Science, Earth Sciences — May 2006

Minor, Science Education and *Geosciences*

PUBLICATIONS

Energy Lab for Kids

- Published 2017, ISBN-13: 978-1631592508

ACTIVITIES

Member – National Science Teachers Association

Cancer Support Buddy, Sidney Kimmel Cancer Center at Thomas Jefferson University Hospital

Mentor, Participant – Team in Training Program, Leukemia and Lymphoma Society

CARYN TURREL

1381 Harrison Drive • Greenwood, IN 46143
(317) 502-2552 (mobile)• cturrel@need.org

SUMMARY

Science educator passionate about scientific literacy and energy education. High school chemistry and physical science teacher for eight years, curriculum and training program associate with national not-for-profit for eight years. Certified Energy Manager.

EXPERIENCE

Curriculum and Training Associate, National Energy Education Development Project, Manassas, VA, August 2011 – Present.

- Professional development provider for K-12 teachers in science and energy education
- Developed and implemented professional development programs ranging from one to five days long
- Editor and author of five major curriculum pieces
- Editor and contributing author of four major and five minor curriculum pieces
- Obtained Certified Energy Manager status to lead and train students in more than 80 age-appropriate energy audits of schools in Chicago and Washington, DC over three years
- Principal research and analysis of industry and government data in annual statistical curriculum update
- Past lead coordinator of correlation of national standards to current curriculum, including Common Core State Standards and Next Generation Science Standards
- Coordinated programs with NASA Solar Sciences Laboratory in Berkeley, CA, Illinois Clean Energy Community Foundation in Chicago, IL, CITGO in Houston, TX, IBEW Local 134 in Chicago, IL, SMUD in Sacramento, CA, and National Renewable Energy Laboratory
- Developed plans for graduate credit for teachers in conjunction with Ashland University

Science Teacher, Greenwood Community High School, Greenwood, IN, August 2003 – August 2011.

- Taught Chemistry I, Physics I, Environmental Chemistry and Integrated Chemistry and Physics
- Solely responsible for textbook adoption and development of Integrated Chemistry and Physics course when added in 2005
- Academic Competition Coordinator and coach

Contracted Test Item Writer, NWEA and Pearson, 2010

- Wrote test items in chemistry, physics, and general science for standardized test programs for Texas and Utah

Science Teacher, The Summit Academy, Indianapolis, IN, January 2001 – May 2002

- Planned and implemented entire science program
- Responsible for textbook review and procurement and selection and purchase of school's entire collection of laboratory equipment and supplies

Research Assistant, Institute of Chemical Toxicology, Wayne State University, Detroit, MI, August 1990 – September 1992.

- Worked with principal investigator and post-doctoral students to learn the effects of lead toxicity in bone and liver cells
- Responsibilities included purchasing supplies, maintaining laboratory equipment, and technical procedures such as gel electrophoresis and cell culture

EDUCATION

Indiana University/Purdue University at Indianapolis, Indianapolis, IN, May, 2006
- Master of Science in Secondary Science Education
- Six credits of advanced chemistry in lieu of Master's Project

Indiana University/Purdue University at Indianapolis, Indianapolis, IN.
- Post-Baccalaureate Secondary Science Teacher Certification Program
- Completed in June 2003

Michigan Technological University, Houghton, MI
- Bachelor of Science in Biochemistry, May 1990
- Included concentrated studies in technical writing as well as substantial studies in physics and electricity

CERTIFICATIONS AND LICENSES

Secondary Science, State of Indiana: Grades 5-12.
- Granted in June, 2003.
- Licensed in biology, chemistry, physics, and middle school science
- Expired July, 2018

Certified Energy Manager, Association of Energy Engineers
- Granted in March, 2016
- Expires December, 2022

Mary Elizabeth Spruill
4635 Luxberry Drive; Fairfax, Virginia 22032
(703) 257-1117 email: mspruill@need.org

Professional Experience

Executive Director, National Energy Education Development Project, 2007-Present
Program Director, 1991- 2007

- Build and manage relationships with diverse energy interests in order to expand the depth and scope of the organization's energy education offerings.
- Design curriculum, training and signature programs for energy partners including energy efficiency (residential and institutional), renewable energy, nuclear, oil and gas and other issues for the K-12 community and the general public.
- Manage grant-making efforts on behalf of partners with up to $1,000,000 in grants to schools and school districts
- Create and maintain network of energy producers, energy consumers, and energy regulators to support public education/affairs efforts nationwide
- Manage activities of the organizational strategic plan and partner with the Board of Directors in its implementation.
- Develop government contracting relationships and manage long-term contractual relationships with federal, state, and local agencies.
- Manage major gifts, annual giving, corporate donations and foundation development programs.
- Manage NEED's partnerships with national, state, and local energy related organizations and government agencies, trade associations, and companies.
- Develop and manage $6 million dollars in annual contributions.
- Develop and support a highly qualified team of 15 energy and education professionals located across the United States who design and deliver NEED curriculum and training.
- Manage an organizational evolution to virtual training and teaching in response to Covid-19 and support the development of the technology infrastructure, processes and personnel needed for the response.

Educational Services Representative, American Electric Power, 1989 - 1991

Develop activities and programs for teachers, community groups, and students dealing with the generation of electricity and other topics related to the energy industry.

Educational Background

George Mason University, Master of Public Administration; Certificate in Nonprofit/Association Management

Coursework concentration in budgeting, human resource management, policy development and implementation, finance, fundraising, constituent relations, communication, marketing, and nonprofit/association law and governance.

George Mason University, B.A. International Studies; Minor, Global Systems

Coursework concentration in regional economic and political issues, defense and intelligence policy, American Foreign Policy, energy and environmental issues, and global systems.

Professional Activities

Board Member, IPAA Energy Institute High School, Houston, Texas
Advisor, Society of Petroleum Engineer's Energy4Me program, Worldwide
Member, Public Affairs Committee, National Ocean Industries Association, Washington, D.C.
Co-Chair, PECO Energizing Education Program, Philadelphia, PA
Co-Chair, Energizing Student Potential Program supported by Exelon Foundation, ComEd, Nicor Gas, BP, and Peoples Gas, North Shore Gas and Pepco, Illinois, Indiana, Maryland, and Washington, D.C.
Advisor, STEM Education, Pacific Gas & Electric Company, San Francisco, California
Committee Lead, Smithsonian Science Education Center and Shell Oil Company, FOSTERING CHANGE: Ideas and Best Practices for Diversity in STEM Teaching in K-12 Classrooms

Shannon G. Donovan
6196 Flat River Rd
Greene, Rhode Island, 02827
c.401-996-9788, shannondonovanri@gmail.com

Education:

M.S. in Biology, received August 1999 from the University of Rhode Island, GPA: 3.66
B.S. in Botany (highest distinction), chemistry minor, received May 1995 from the University of Rhode Island, *Phi Beta Kappa*, URI Presidents Award for Excellence, GPA: 3.76

Relevant Employment Experience:

1/19 – present	Career and Technical Education (CTE) Coordinator: (This is a part-time role in addition to my STEAM position); Support recruitment, instruction, and work-based learning for all RIDE approved CTE Programs, grant-writing, ordering, program development, reporting
10/17-present	District STEAM Coordinator: Design and implement **S**cience, **T**echnology, **E**ngineering, **A**rt, and **M**athematics (STEAM) activities into weekly school routines. Raise awareness in community to potential donors; define and communicate strategic plan and program overview. During the 2017-2018 and 2018-2019 school years this position was 1/5 of my position. In July 2019 this became my full-time role to support STEAM integration K-12, enhance community engagement, and write grants.
9/03- 7/19	Science and Engineering Teacher, Scituate High School, North Scituate, RI: Engaging, articulate communicator; able to lead the classroom with ease and effectively communicate and coordinate with other staff members. Rhode Island Teacher of the Year in 2011; Finalist for 2015 Presidential Awards for Excellence in Mathematics and Science Teaching; Led the development and implementation of new Career and Technical Education (CTE) pathway in engineering.
9/11- present	Facilitator for the National Energy Education Development (NEED) Project: Facilitates workshops and events for students and teachers about many aspects of energy. Serves as a successful mentor to other teachers, statewide, regarding energy and environmental education programing.
1/11-5/13	Instructor for BIO 102, Principles of Biology II, Feinstein College of Continuing Education, Providence, RI
10/02- 6/03	Chemistry Teacher, Coventry High School, Coventry, RI
9/02-10/02	Long-term Substitute Biology and General Science Teacher, Coventry High School, Coventry, RI
1/02 – 6/02	Long-term Substitute Science Teacher, Grade 8, Burrillville Middle School, Harrisville, RI
Summer '01	Instructor for BIO 104A, Biology of Plants, Feinstein College of Continuing Education, Providence, RI
Summer '01	Instructor for BIOL 1030, General Biology-Botany, Community College of Rhode Island, Knight Campus, Warwick, RI
Fall '00 &'04	Instructor for BIOL 2090, Genetics, Community College of Rhode Island, Knight Campus, Warwick, RI
9/98 – 12/01	Graduate Teaching Assistant, Department of Biological Sciences, University of Rhode Island, Kingston, RI. Taught laboratories for the following courses: BIO 104A - Biology of Plants, BIO 112 - General Botany, BIO 311 - Plant Anatomy, BIO 418 - Marine Botany, and BIO 465 - Introduction to the Algae
1/97- 8/98	Quality Control Cell and Molecular Biology Laboratory Analyst, GlaxoWellcome Biopharmaceuticals, West Greenwich, RI. Duties included the testing of raw materials and in-process samples, detailed record keeping, technical writing, equipment validation, data entry, and data analysis.
8/96 - 1/97	Technician in Back Up Culture Laboratory, GlaxoWellcome Biopharmaceuticals, West Greenwich, RI. Duties included culture maintenance, cleaning, and detailed record keeping.

Selected Professional Development:

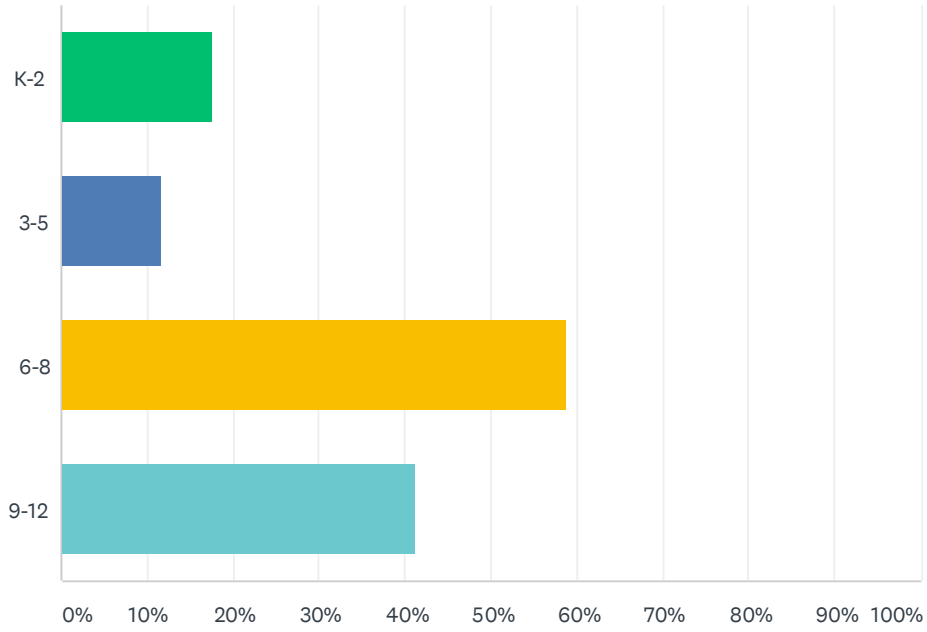
2018	Science Communication Fellowship with Ocean Exploration Trust; Hosted live interactions with broad audiences from aboard the Exploration Vessel Nautilus; engaged public in ocean exploration from remote locations around the globe by answer their questions via live satellite feed during dives of remotely operated vehicles engaged in ocean engineering and exploration
2018	Project Lead the Way (PLTW) Core Training: Civil Engineering and Architecture
2017	PLTW Core Training: Principles of Engineering and Introduction to Engineering Design
2015-2017	Marine Technology for Students and Teachers, http://mattsproject.org/
2015	Rhode Island Teacher at Sea Program, hosted live ship-to-shore experiences
2015	ConnectEd GIS Summer Institute, Rhode Island College and the RI Geography Education Alliance
2013-16	Consultant to Dr. Alison Roberts, Chair of Biological Sciences at the University of Rhode Island; created student and teacher education materials to make understanding of research skills and techniques accessible. Created and delivered after-school and summer research experience for high school students. http://web.uri.edu/bi/
2012	NASA TRIAD Academy, Johnson Space Center
2011, 2015	National Energy Education Development Project Facilitator Training Conferences
2011	International Space Camp in Huntsville, Alabama
2010	Rhode Island Technology Enhanced Science (RITES) Biology Resource Team
2009-2010	RITES Program Cohort 1 participant
July '08	Large Molecule~Small Molecule Interactions Workshop participant. LMSM trained teachers and their students in the use of several techniques that led to independent student inquiry into the interactions of small molecules with DNA.
August '07	Project ARISE Cohort 1 participant. Project ARISE is an NIH-funded professional development program for Rhode Island high school biology teachers designed to engage teachers and students in inquiry-based approaches to learning about science and improve the understanding of the relevance of science to everyday life.
July '06	EE Just Environmental Educator Institute at Kimball Union Academy, training in AP Environmental Laboratory Exercises
Summer '05	Analyst III (promoted midsummer from Analyst II) in the QC Cell and Immunobiology Lab at Amgen, RI. Duties included cell culture maintenance, sample receipt and disposal, and cleaning and documentation of maintenance on laboratory equipment.
Summer '04	Rhode Island Department of Environmental Management Division of Agriculture. I served on a team that inspected nurseries throughout the state for insect and fungal infestations. We also verified compliance of organic farms against established criteria.
9/98-12/01	Graduate Student, University of Rhode Island, Dr. Alison Roberts, advisor. I studied cellulose biosynthesis in plants and algae using a variety of molecular, biochemical, and cytological techniques. Duties included conducting original scientific research, laboratory maintenance, detailed record keeping, and supervision of undergraduate lab members.

Selected Honors, Awards, and Grants:

- 2017: Champlin Grant for library renovation at Scituate Middle/High School, $99,260
- 2016: Inspiring Environmental Educator from the Northwest Rhode Island Supporters of Open Space
- 2015 RI Finalist for The Presidential Awards for Excellence in Mathematics and Science Teaching
- 2015 & 2016: America the Beautiful grant in collaboration with City of Central Falls and Northern Rhode Island Conservation District to establish an urban arboretum, http://www.centralfallsarboretum.org/
- 2015: Alice M Howland Award for Conservation
- 2011: Champlin Foundation Grant. $59,270 for SmartBoards and additional technology for the Scituate High Science Department
- 2011: Amgen Award for Science Teaching Excellence
- 2011: Rhode Island Teacher of the Year
- 2010: Rhode Island Forest Conservator's Organization's Presidential Award
- 2010: Scituate Teacher of the Year

Q2 What grade(s) do you teach? Select all that apply.

Answered: 17 Skipped: 0

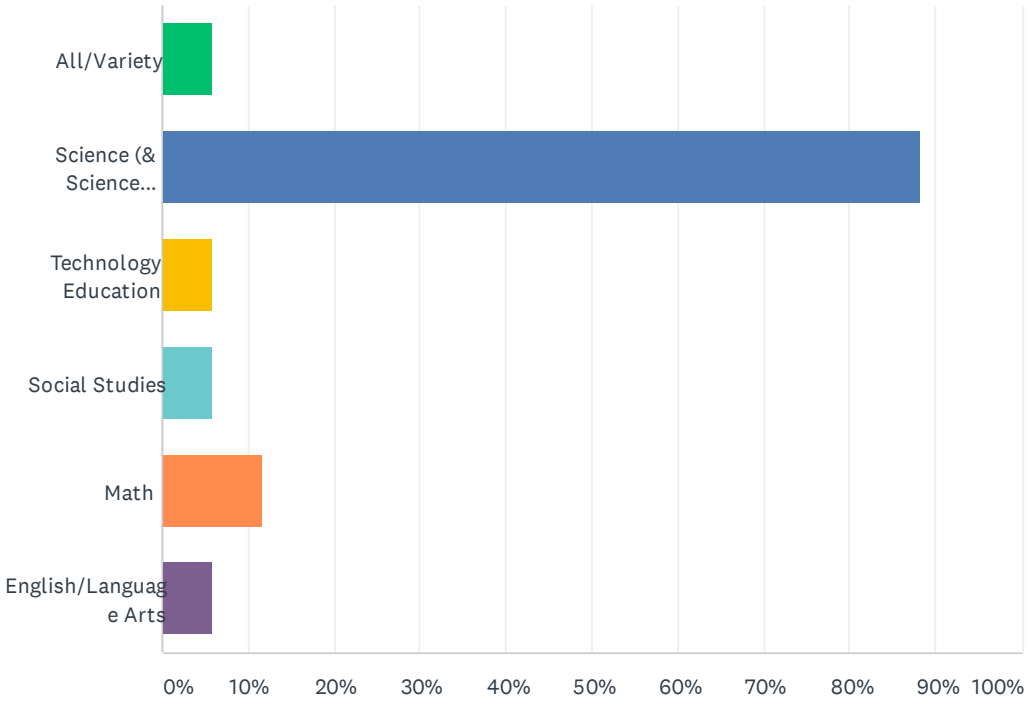


ANSWER CHOICES	RESPONSES	
K-2	17.65%	3
3-5	11.76%	2
6-8	58.82%	10
9-12	41.18%	7
Total Respondents: 17		

#	OTHER (PLEASE SPECIFY)	DATE
	There are no responses.	

Q3 What subject(s) do you teach? Select all that apply.

Answered: 17 Skipped: 0



ANSWER CHOICES	RESPONSES	
All/Variety	5.88%	1
Science (& Science Related)	88.24%	15
Technology Education	5.88%	1
Social Studies	5.88%	1
Math	11.76%	2
English/Language Arts	5.88%	1
Total Respondents: 17		

#	OTHER (PLEASE SPECIFY)	DATE
1	STEM	3/25/2021 3:09 PM
2	Instructional Tech Coordinator K12, Science Lead 3-8	3/25/2021 2:59 PM

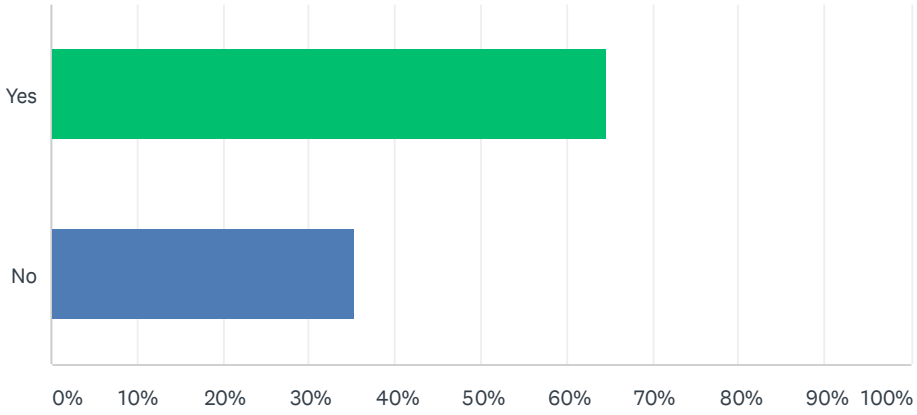
Q4 How many students (# of students) do you think you will reach with the materials/curriculum provided at the training?

Answered: 17 Skipped: 0

#	RESPONSES	DATE
1	130	3/30/2021 11:36 AM
2	130	3/29/2021 8:14 AM
3	10	3/28/2021 4:20 PM
4	600	3/26/2021 1:27 PM
5	60	3/26/2021 1:03 PM
6	108	3/26/2021 11:34 AM
7	60	3/26/2021 11:21 AM
8	90	3/25/2021 3:41 PM
9	100	3/25/2021 3:09 PM
10	About 100	3/25/2021 3:05 PM
11	110	3/25/2021 3:04 PM
12	100	3/25/2021 3:02 PM
13	95	3/25/2021 3:00 PM
14	300	3/25/2021 2:59 PM
15	100	3/25/2021 2:58 PM
16	unsure	3/25/2021 2:56 PM
17	120	3/25/2021 2:54 PM

Q5 Have you attended a prior energy training program (virtual or otherwise) before this workshop?

Answered: 17 Skipped: 0

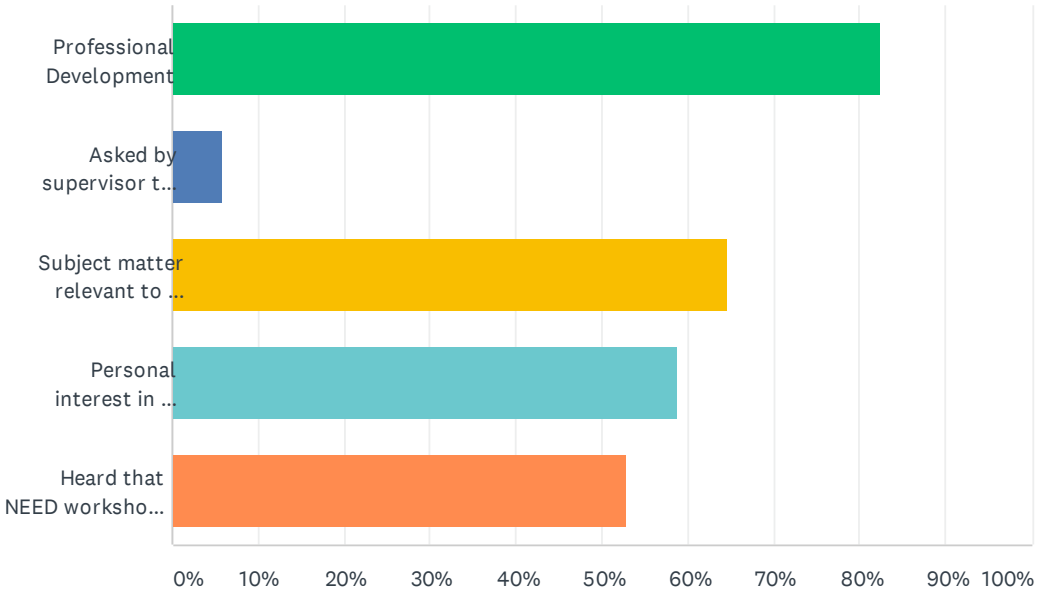


ANSWER CHOICES	RESPONSES	
Yes	64.71%	11
No	35.29%	6
TOTAL		17

#	IF YES, WHICH ONE(S)?	DATE
1	To many to list :)	3/30/2021 11:36 AM
2	18 months ago in Providence and Last Fall Virtual	3/29/2021 8:14 AM
3	Project ReCharge	3/26/2021 1:27 PM
4	Many	3/26/2021 1:03 PM
5	2020-NEED workshop	3/26/2021 11:34 AM
6	2019	3/25/2021 3:09 PM
7	Science of Energy	3/25/2021 3:04 PM
8	Science of Energy	3/25/2021 3:02 PM
9	various NEED workshops, mostly w/Shannon	3/25/2021 2:56 PM

Q6 Why did you attend the workshop? Select all that apply.

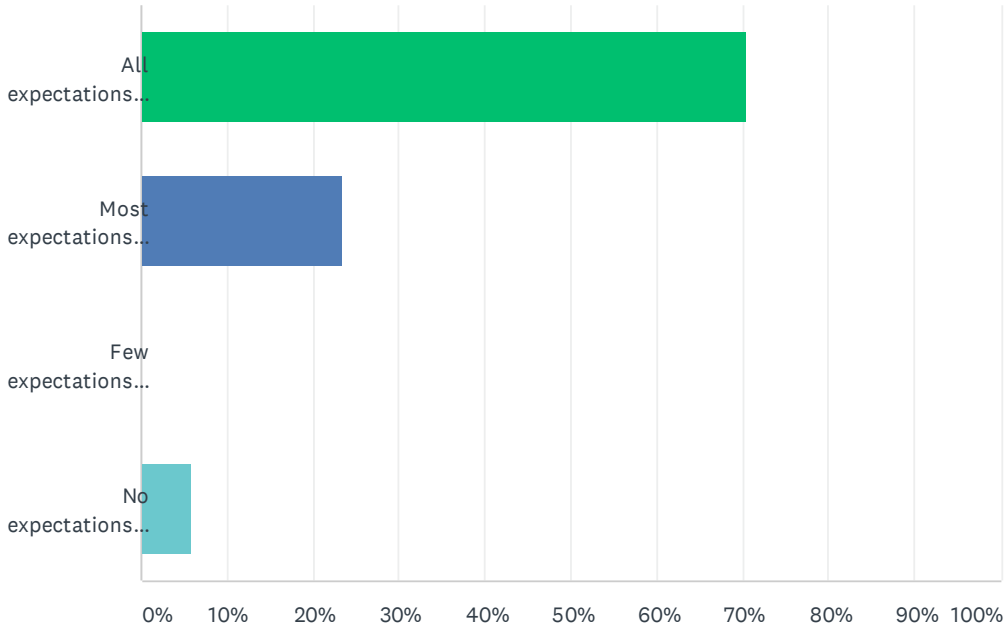
Answered: 17 Skipped: 0



ANSWER CHOICES	RESPONSES	
Professional Development	82.35%	14
Asked by supervisor to attend	5.88%	1
Subject matter relevant to my teaching assignment	64.71%	11
Personal interest in the subject matter	58.82%	10
Heard that NEED workshops are high quality	52.94%	9
Total Respondents: 17		

Q7 Did the virtual workshop meet your expectations?

Answered: 17 Skipped: 0

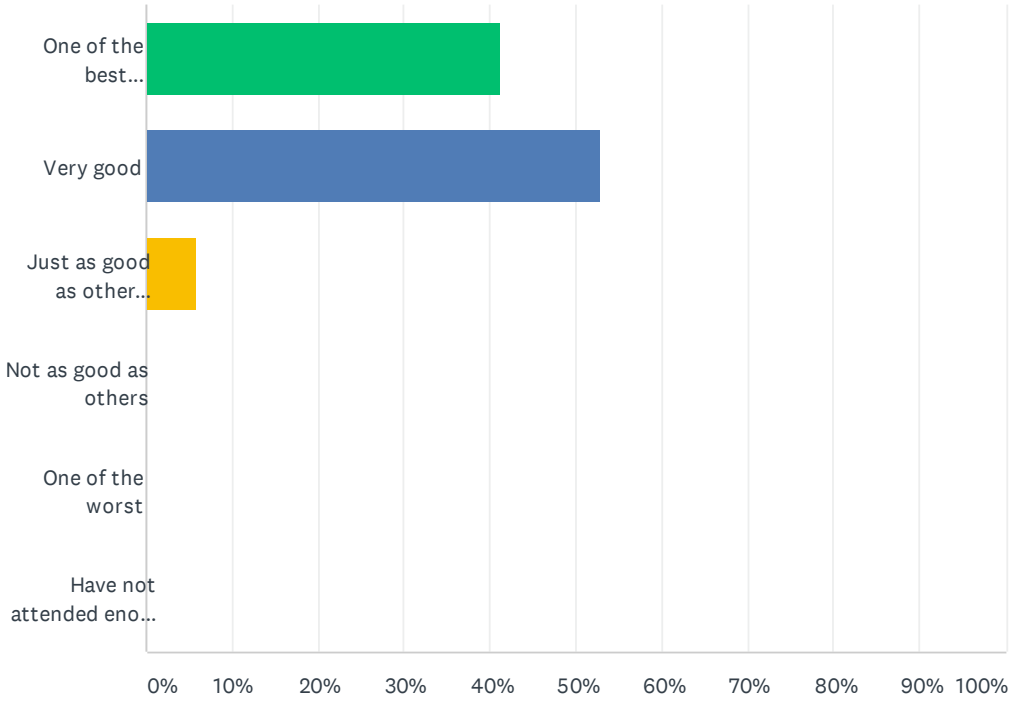


ANSWER CHOICES	RESPONSES	
All expectations met	70.59%	12
Most expectations met	23.53%	4
Few expectations met	0.00%	0
No expectations met	5.88%	1
TOTAL		17

#	IF "FEW" OR "NO" EXPECTATIONS MET, PLEASE PROVIDE HELPFUL FEEDBACK:	DATE
	There are no responses.	

Q8 Compared with other professional development you've attended, how would you rate this workshop? Please choose the most applicable.

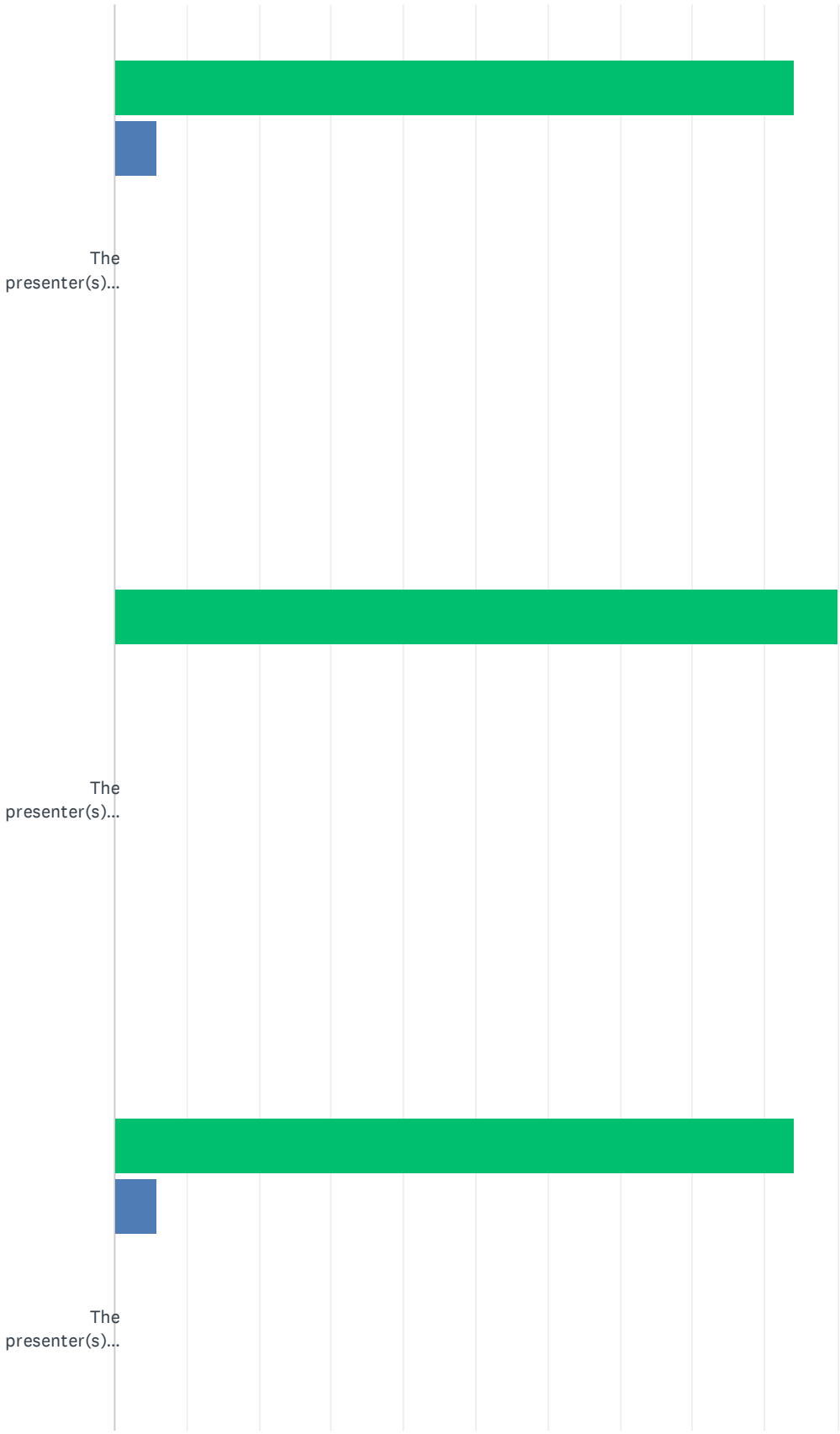
Answered: 17 Skipped: 0



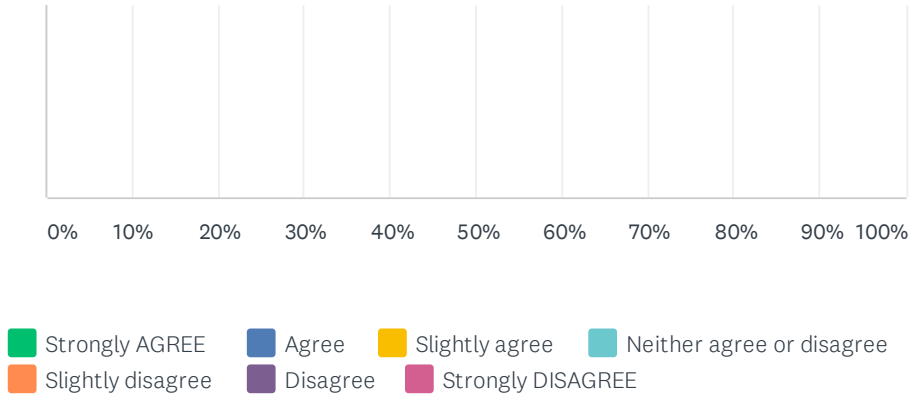
ANSWER CHOICES	RESPONSES	
One of the best professional development workshops I've attended	41.18%	7
Very good	52.94%	9
Just as good as other workshops	5.88%	1
Not as good as others	0.00%	0
One of the worst	0.00%	0
Have not attended enough professional development workshops to compare this one to others	0.00%	0
TOTAL		17

Q9 Please rate the following:

Answered: 17 Skipped: 0



Virtual Energy Workshop for Educators Evaluation



	STRONGLY AGREE	AGREE	SLIGHTLY AGREE	NEITHER AGREE OR DISAGREE	SLIGHTLY DISAGREE	DISAGREE	STRONGLY DISAGREE	TOTAL
The presenter(s) gave clear explanations and directions.	94.12% 16	5.88% 1	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	17
The presenter(s) demonstrated knowledge and comfort with the subject matter.	100.00% 17	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	17
The presenter(s) encouraged me to think about how I could apply the concepts and activities presented in my classroom.	94.12% 16	5.88% 1	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	17

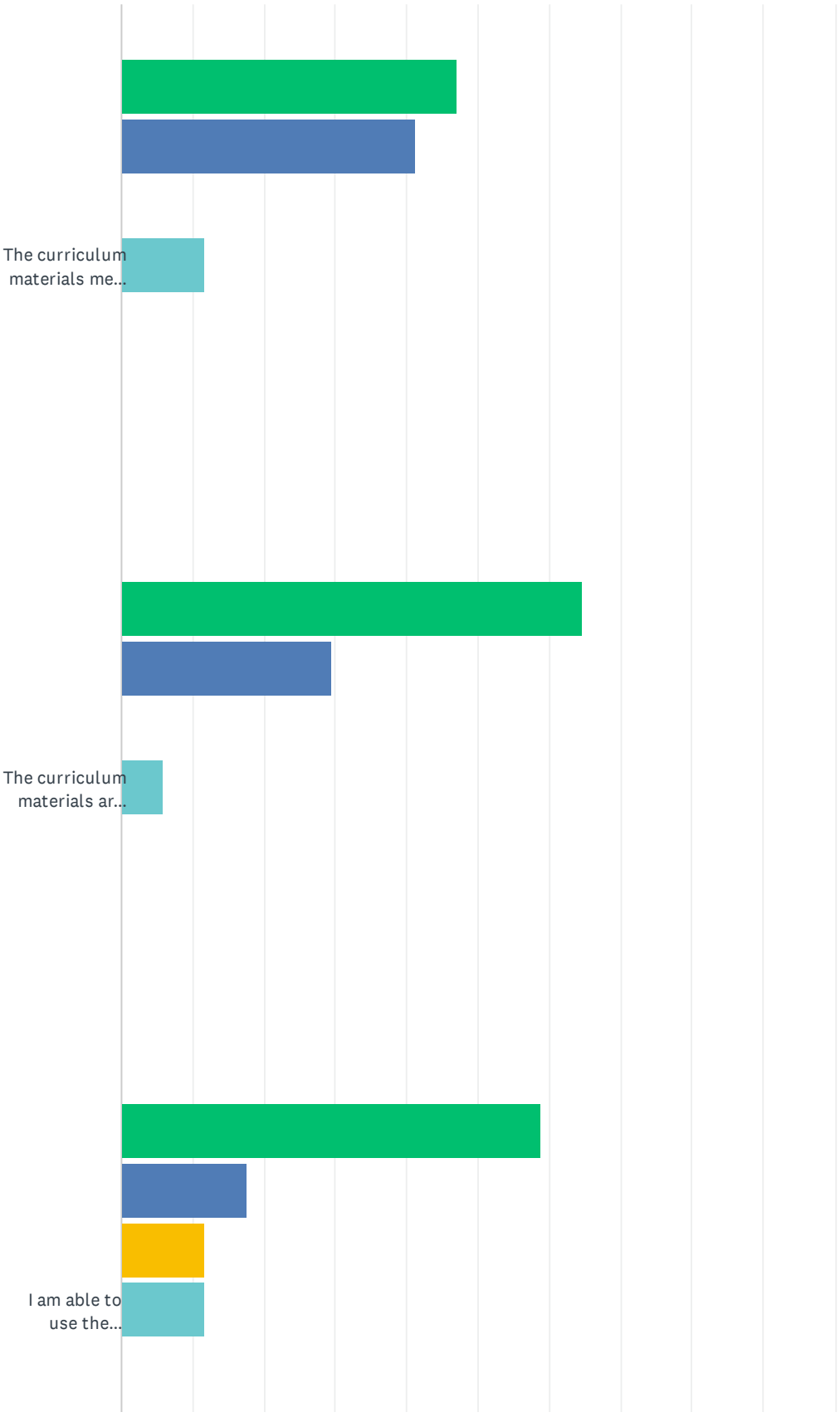
Q10 Any comments on presenter performance?

Answered: 4 Skipped: 13

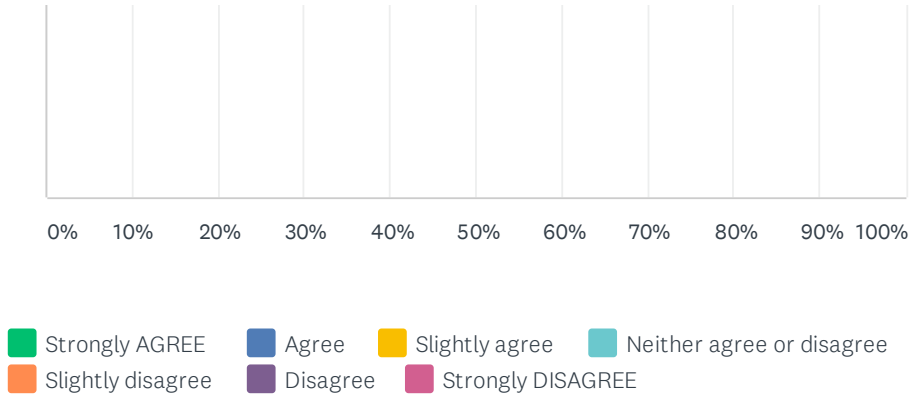
#	RESPONSES	DATE
1	I love when PD presenters know the science behind what they're talking about and can answer questions from participants.	3/26/2021 1:04 PM
2	Great job all around :)	3/25/2021 3:05 PM
3	Thank you for your expertise and enthusiasm and for sharing the resources. Some of the images are very good. I like how it applies to RI too.	3/25/2021 3:04 PM
4	Awesome!	3/25/2021 3:00 PM

Q11 Please rate the following:

Answered: 17 Skipped: 0



Virtual Energy Workshop for Educators Evaluation



	STRONGLY AGREE	AGREE	SLIGHTLY AGREE	NEITHER AGREE OR DISAGREE	SLIGHTLY DISAGREE	DISAGREE	STRONGLY DISAGREE	TOTAL
The curriculum materials meet my classroom needs.	47.06% 8	41.18% 7	0.00% 0	11.76% 2	0.00% 0	0.00% 0	0.00% 0	17
The curriculum materials are grade level appropriate.	64.71% 11	29.41% 5	0.00% 0	5.88% 1	0.00% 0	0.00% 0	0.00% 0	17
I am able to use the majority of today's activities with my students.	58.82% 10	17.65% 3	11.76% 2	11.76% 2	0.00% 0	0.00% 0	0.00% 0	17

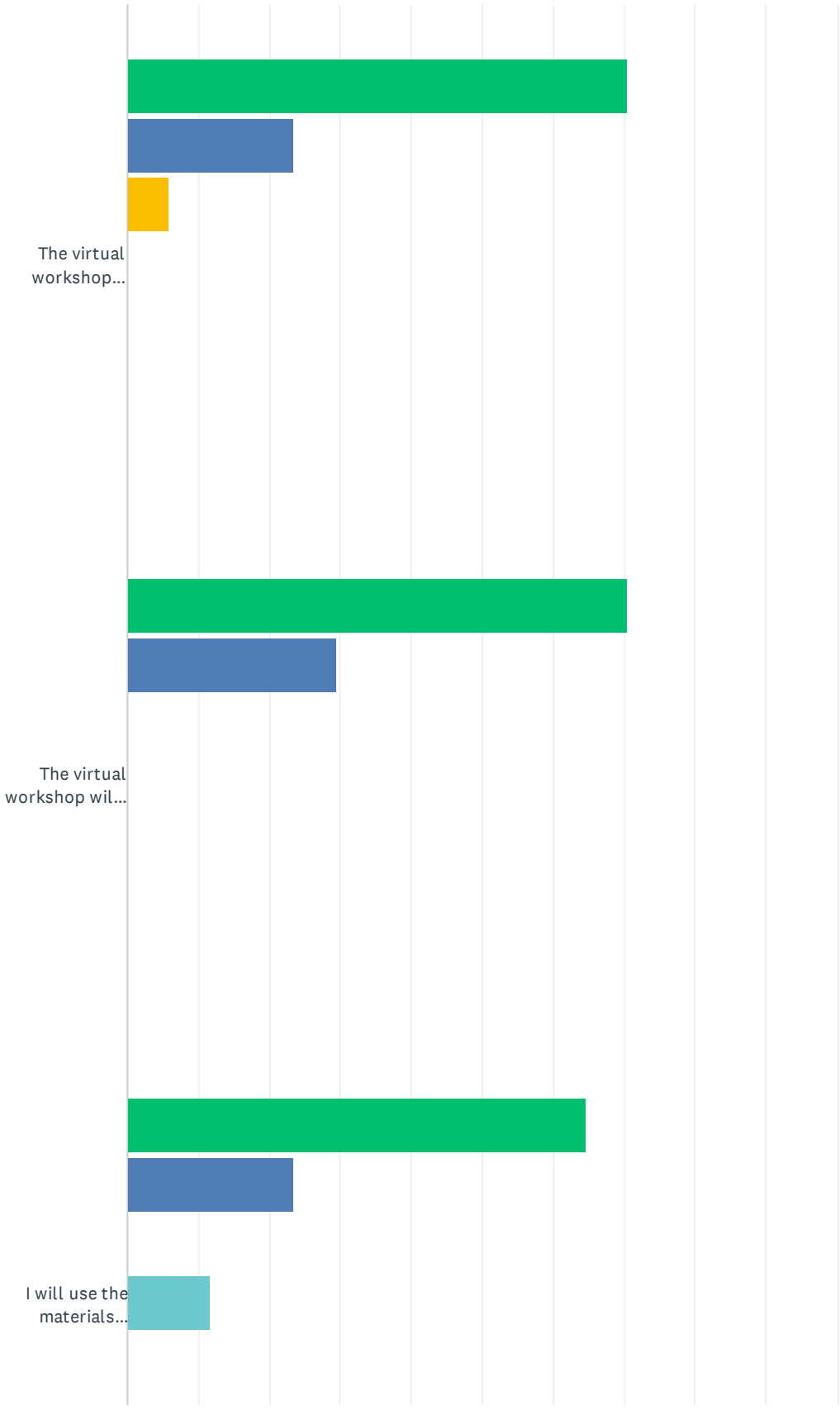
Q12 Any comments on curriculum materials?

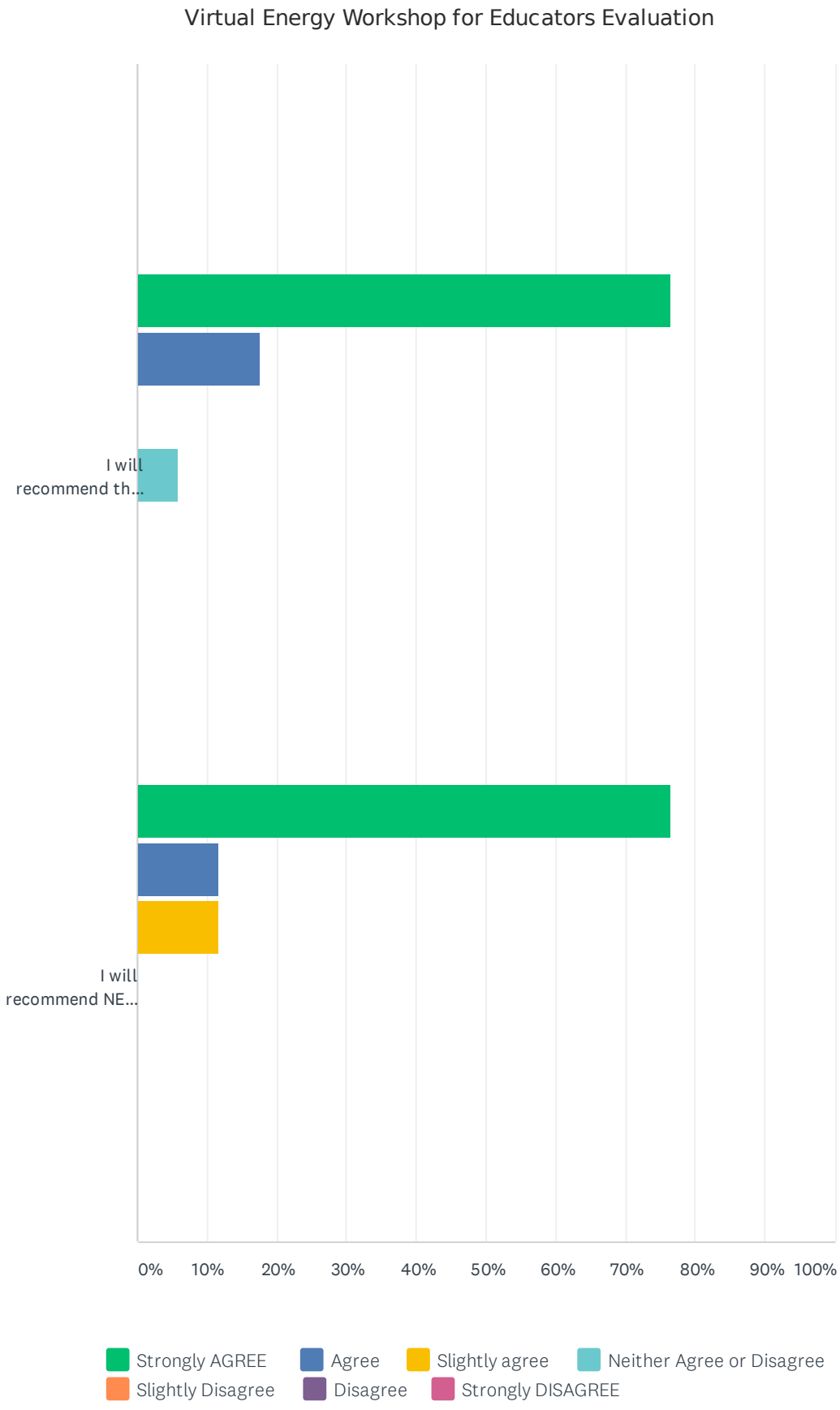
Answered: 2 Skipped: 15

#	RESPONSES	DATE
1	I may not be able to use some of them - just due to time constraints and topics taught this year.	3/25/2021 3:05 PM
2	I still do not know whether I will be allowed to include this in my non-Env. Sci. curriculum (I don't even know what classes they will have me teach as I was assigned to VLA for this year and there have been major changes administrative-wise)	3/25/2021 2:58 PM

Q13 Please rate the following:

Answered: 17 Skipped: 0



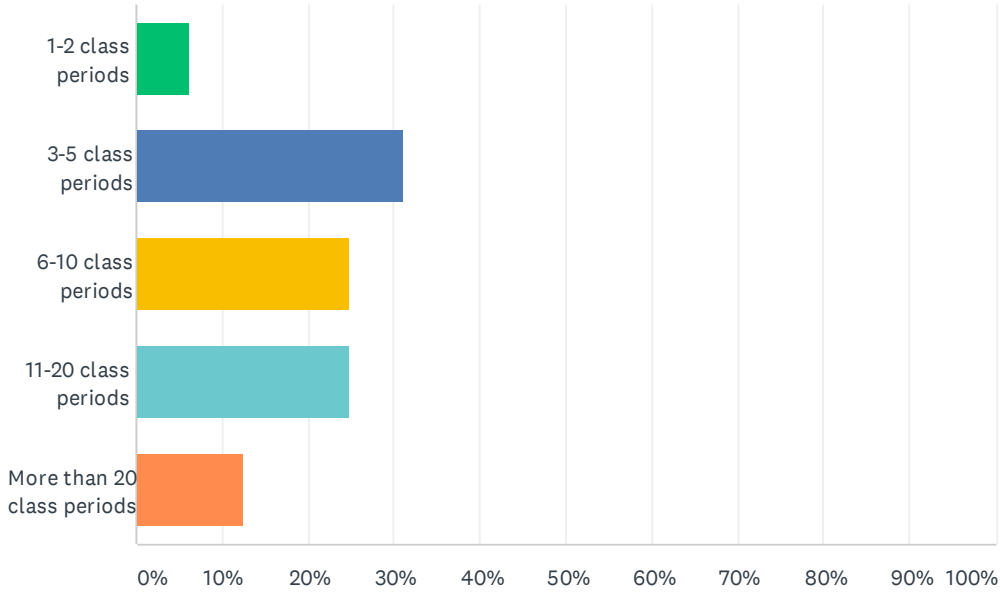

Virtual Energy Workshop for Educators Evaluation
I will recommend th...
I will recommend NE...
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Strongly AGREE
Agree
Slightly agree
Neither Agree or Disagree
Slightly Disagree
Disagree
Strongly DISAGREE

Virtual Energy Workshop for Educators Evaluation

	STRONGLY AGREE	AGREE	SLIGHTLY AGREE	NEITHER AGREE OR DISAGREE	SLIGHTLY DISAGREE	DISAGREE	STRONGLY DISAGREE	TOTAL
The virtual workshop increased my energy knowledge.	70.59% 12	23.53% 4	5.88% 1	0.00% 0	0.00% 0	0.00% 0	0.00% 0	17
The virtual workshop will allow me to increase my students' energy knowledge.	70.59% 12	29.41% 5	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	17
I will use the materials during my next energy unit.	64.71% 11	23.53% 4	0.00% 0	11.76% 2	0.00% 0	0.00% 0	0.00% 0	17
I will recommend this workshop to other teachers.	76.47% 13	17.65% 3	0.00% 0	5.88% 1	0.00% 0	0.00% 0	0.00% 0	17
I will recommend NEED materials to others.	76.47% 13	11.76% 2	11.76% 2	0.00% 0	0.00% 0	0.00% 0	0.00% 0	17

Q14 How many class periods do you plan to devote to energy this coming school year?

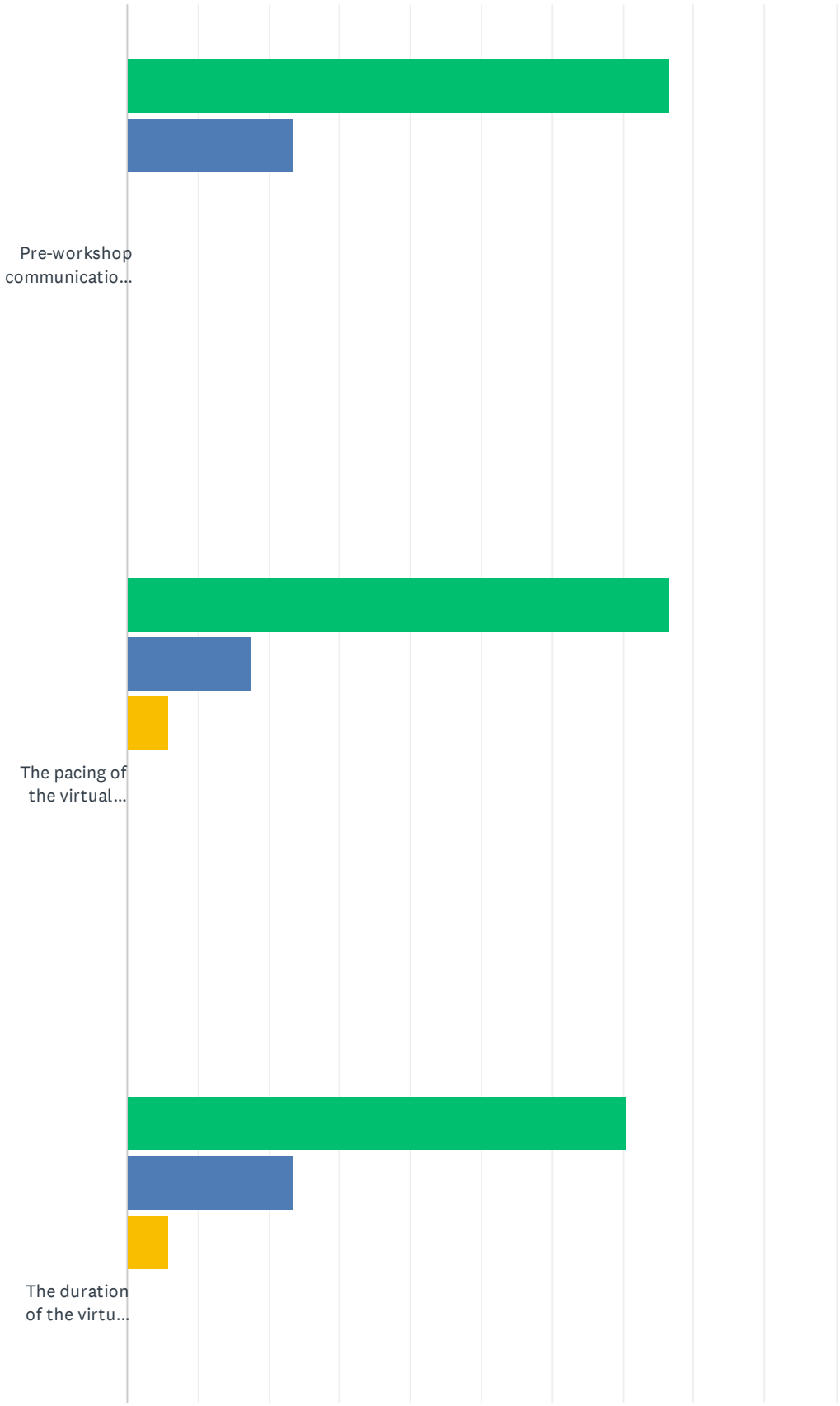
Answered: 16 Skipped: 1



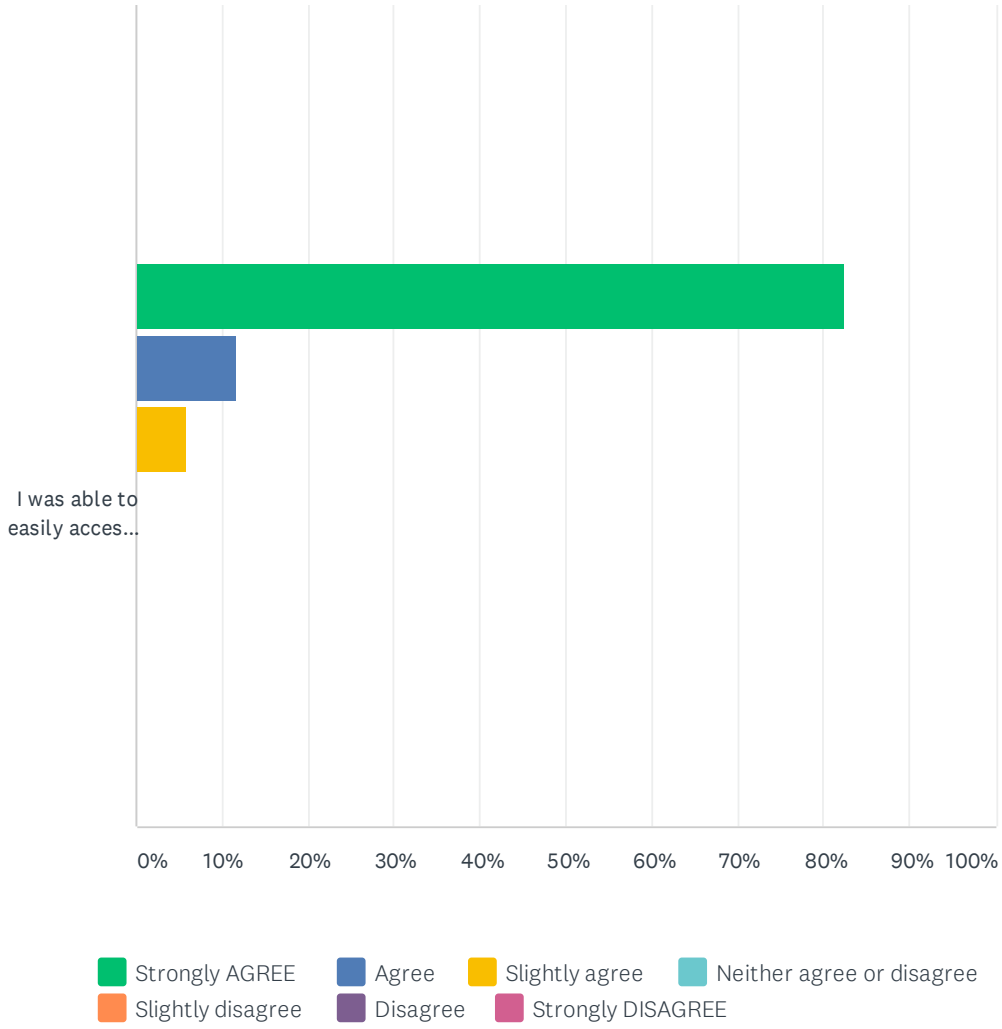
ANSWER CHOICES	RESPONSES	
1-2 class periods	6.25%	1
3-5 class periods	31.25%	5
6-10 class periods	25.00%	4
11-20 class periods	25.00%	4
More than 20 class periods	12.50%	2
TOTAL		16

Q15 Please rate the following:

Answered: 17 Skipped: 0



Virtual Energy Workshop for Educators Evaluation

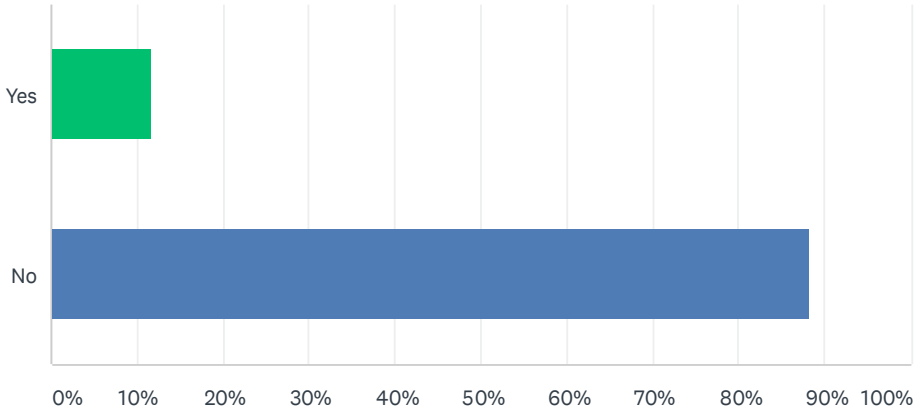


	STRONGLY AGREE	AGREE	SLIGHTLY AGREE	NEITHER AGREE OR DISAGREE	SLIGHTLY DISAGREE	DISAGREE	STRONGLY DISAGREE	TOTAL
Pre-workshop communication was satisfactory.	76.47% 13	23.53% 4	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	17
The pacing of the virtual workshop was satisfactory.	76.47% 13	17.65% 3	5.88% 1	0.00% 0	0.00% 0	0.00% 0	0.00% 0	17
The duration of the virtual workshop was sufficient for the material covered.	70.59% 12	23.53% 4	5.88% 1	0.00% 0	0.00% 0	0.00% 0	0.00% 0	17
I was able to easily access the handouts needed for this virtual workshop.	82.35% 14	11.76% 2	5.88% 1	0.00% 0	0.00% 0	0.00% 0	0.00% 0	17

#	COMMENTS:	DATE
1	communication was excellent. I appreciated the text reminders.	3/26/2021 11:43 AM

Q16 Did you experience any technical issues during the virtual workshop? (quality of sound, internet connectivity, etc.)

Answered: 17 Skipped: 0



ANSWER CHOICES	RESPONSES	
Yes	11.76%	2
No	88.24%	15
TOTAL		17

#	IF YOU ANSWERED YES, PLEASE EXPLAIN:	DATE
1	My microphone at school was mal functioning everyone was very helpful and understsanding	3/29/2021 8:32 AM
2	Yes...but it's not your fault. But if it says I was gone for a little it is because my power was turned off for power line upgrades. The irony of that happening....This only affected 1-2 hours and I used my phone. I missed part of the candy activity and some of the statistics - so I missed about 15 minutes or so.	3/25/2021 3:08 PM

Q17 Please share any other recommendations, ideas and thoughts! We get better because of the feedback we receive. We also love quotable quotes to share with our sponsors and promoting future workshops!

Answered: 6 Skipped: 11

#	RESPONSES	DATE
1	I liked the quest speaker. that was a nice treat. Everyone was lovely and informative. I appreciate the thought and preparation that go into every NEED workshop	3/29/2021 8:33 AM
2	Well coordinated. On topic and schedule!	3/26/2021 11:46 AM
3	I enjoyed how today was different and I like the new "twist". I liked the jamboard activity and the discussion. I was disappointed about the kit change....I have a few "Science of Energy" kits, so I wanted to get the "wind energy" option - because I do a mini lesson on wind energy (and the Block Island Wind Farm). But, the kit changed. This is fine. I appreciate all that you do and the sub reimbursement. Climate change and energy is one of the most important topics for our students to know - in my opinion.	3/25/2021 3:12 PM
4	Excellent as always. I miss the collaboration in person provides.	3/25/2021 3:11 PM
5	If there's a way for NEED to work with districts at the administrative level, not just teachers, it would be helpful	3/25/2021 2:59 PM
6	A break afternoon	3/25/2021 2:57 PM

Sample Agendas

Rhode Island EERMC *Energy, Climate, and You!* Proposed Agenda

In-person Setting, full day

Note: Before the day of the virtual workshop, registered participants will receive an e-mail confirming registration and detailing the location of the workshop, parking arrangements, etc.

8:30 am **Breakfast and Registration – Participants check in, take pre-assessment**

9:00 am **Welcome, Introductions, Climate Science Bingo**

- Participants meet each other by engaging in an interactive bingo activity

9:30 am **Science of Energy Grab Bag**

- Presentation about energy forms and transformations
- Participants take a "grab bag" with some energy transforming materials inside and work through the activity
- Participants share within their small groups the energy transformations taking place

10:00 am **Energy, Electricity, and the Rhode Island Energy Picture**

- Energy Roundup – Participants work together through ten lists of clues to find their own and identify the other nine
- Rhode Island Electric Connections – Participants work in small groups to rank energy sources according to the amount of electricity they supply nationally and at the state level

10:45 am **Break**

10:50 am **Introduction to Efficiency and Conservation**

- A presentation about the basics of energy efficiency and conservation and why it is important

11:15 am **Today in Energy**

- Participants work within their small groups to describe the "perfect day" using pre-printed activities or by designing their own, then are scored based on the amount of energy their day uses

11:30 am **Catered Lunch**

12:15 pm **Introduction to Climate Science and Its Impacts on Health**

- A presentation about climate science, how the global climate is changing, and how climate change is impacting health

12:30 pm **Greenhouse in a Beaker**

- A hands-on activity showing how carbon dioxide operates as a greenhouse gas

1:00 pm **Mini Heat Islands**

- Participants build model residential buildings, covering them with assorted supplied materials representing common building materials. Participants then use an infra-red thermometer to determine the temperature of various surfaces and a probe thermometer to monitor internal temperature after model buildings are placed under a light source.

2:00 pm **Energy Burden and Drawing Connections**

- A discussion among peers about energy burden, energy justice, and how climate science, energy management, and health all mesh to increase the energy burden of disadvantaged households

2:30 pm **Additional Energy Education Resources**

- An informal sharing session where low- or no-cost energy education resources are highlighted

3:00 pm **Post-assessment and Evaluation**

3:15 pm **Adjourn**

Rhode Island EERMC *Energy, Climate, and You!* Proposed Agenda

In-person Setting, half day

Note: Before the day of the virtual workshop, registered participants will receive an e-mail confirming registration and detailing the location of the workshop, parking arrangements, etc.

8:30 am **Breakfast and Registration – Participants check in, take pre-assessment**

9:00 am **Welcome, Introductions, Climate Science Bingo**

9:30 am **Energy, Electricity, and the Rhode Island Energy Picture**

- Energy Roundup – Participants work together through ten lists of clues to find their own and identify the other nine
- Rhode Island Electric Connections – Participants work in small groups to rank energy sources according to the amount of electricity they supply nationally and at the state level

10:00 am **Introduction to Efficiency and Conservation**

- A presentation about the basics of energy efficiency and conservation and why it is important

10:20 am **Break**

10:30 am **Greenhouse in a Beaker**

- A hands-on activity showing how carbon dioxide operates as a greenhouse gas

11:00 am **Energy Burden and Drawing Connections**

- A discussion among peers about energy burden, energy justice, and how climate science, energy management, and health all mesh to increase the energy burden of disadvantaged households

11:30 am **Post-assessment and Evaluation**

11:45 am **Adjourn**

Rhode Island EERMC *Energy, Climate, and You!* Proposed Agenda

Virtual Setting, half day

Note: Before the day of the virtual workshop, registered participants will receive a box of materials shipped to their home or school and a link to the Zoom meeting.

8:45 am **Participants log in, take pre-assessment**

9:00 am **Welcome, Introductions, and Zoom norms**

9:15 am **Energy, Electricity, and the Rhode Island Energy Picture**

- Virtual Energy Roundup – Participants are shown clues and independently guess the identity of the energy source
- Rhode Island Electric Connections – Participants rank energy sources in terms of the amount of electricity generated on a national as well as state level, then are told actual rankings

9:45 am **Introduction to Efficiency and Conservation**

- A presentation about the basics of energy efficiency and conservation and why it is important

10:05 am **Break**

10:15 am **Greenhouse in a Beaker Demonstration**

- Participants watch facilitators demonstrate how carbon dioxide operates as a greenhouse gas

10:45 am **Energy Burden and Drawing Connections**

- A presentation about energy burden, energy justice, and how efficiency and conservation, climate science, and health all mesh to increase the energy burden of disadvantaged households

11:15 am **Teaching Energy in a Virtual Environment**

- Facilitators demonstrate different ways energy education can occur in the virtual space

11:30 am **Post-assessment and Evaluation**

11:45 am **Adjourn**

Rhode Island EERMC *Energy, Climate, and You!* Proposed Agenda

Virtual Setting, full day

Note: Before the day of the virtual workshop, registered participants will receive a box of materials shipped to their home or school and a link to the Zoom meeting.

8:45 am **Participants log in, take pre-assessment**

9:00 am **Welcome, Introductions, and Zoom norms**

9:15 am **Science of Energy scavenger hunt**

- Presentation about energy forms and transformations
- Demonstration of a few energy transforming devices
- Participants search for and demonstrate their own energy transforming device, naming the forms of energy transformed

10:00 am **Energy, Electricity, and the Rhode Island Energy Picture**

- Virtual Energy Roundup – Participants are shown clues and independently guess the identity of the energy source
- Rhode Island Electric Connections – Participants rank energy sources in terms of the amount of electricity generated on a national as well as state level, then are told actual rankings

10:45 am **Break**

10:50 am **Introduction to Efficiency and Conservation**

- A presentation about the basics of energy efficiency and conservation and why it is important

11:15 am **Today in Energy**

- Participants independently choose activities from a typical day, and are scored based on the energy cost of each activity

11:30 am **Lunch and Wellness Break**

12:00 pm **Introduction to Climate Science and Its Impacts on Health**

- A presentation about climate science, how the global climate is changing, and how climate change is impacting health

12:30 pm **Greenhouse in a Beaker Demonstration**

- Participants watch facilitators demonstrate how carbon dioxide operates as a greenhouse gas

1:00 pm **Mini Heat Islands**

- Participants build model residential buildings, using colored construction paper to simulate various building materials, and measure the relative temperature of surfaces under a light source by using the backs of their hands to gauge how hot each is

2:00 pm **Energy Burden and Drawing Connections**

- A presentation about energy burden, energy justice, and how efficiency and conservation, climate science, and health all mesh to increase the energy burden of disadvantaged households

2:30 pm **Teaching Energy in a Virtual Environment**

- Facilitators demonstrate different ways energy education can occur in the virtual space

3:00 pm **Post-assessment and Evaluation**

3:15 pm **Adjourn**

2021 Virtual Rhode Island Energy, Climate, and You Workshop!

Join the Rhode Island Energy Efficiency and Resource Management Council and the NEED Project for a great day learning about climate science and energy efficiency!

Date and Time

Thursday, March 25, 2021

8:45 a.m. to 3:15 p.m. Eastern Time

Register Before March 17th!

http://events.constantcontact.com/register/event?llr=hyzzrodab&oeidk=a07ehi7i3bh2f531c4b

Support from the EERMC provides:

- Substitute reimbursement
- Energy Curriculum and Hands-On Kit
- Rhode Island standards aligned curriculum
- Helpful information about Rhode Island's Energy Efficiency resources

Who should attend?

- **K-12 Teachers including Science, AP Environmental Science, Social Studies and Health teachers. School teams encouraged.**
- **Afterschool program leaders working with students in energy, environment, STEM programming**

About the NEED Project

The NEED Project designs and delivers teacher-tested educational materials, evaluation techniques and tools, recognition of student achievement, and professional development for educators. NEED materials and training programs provide comprehensive, objective information about the scientific concepts of energy and the sources of energy – their use and their impact on the environment, the economy and society.

QUESTIONS?

Contact Wendi Moss at wmoss@need.org or call 1-800-875-5029

Special thanks to the

Rhode Island Energy Efficiency and Resource Management Council and the Rhode Island Office of Energy Resources for supporting the development of this curriculum and training.

STATE OF RHODE ISLAND
ENERGY EFFICIENCY & RESOURCE MANAGEMENT COUNCIL

2021 Rhode Island Energy, Climate, and You Workshop! (Virtual)
March 25, 2021
Registered Participants will receive the link to Zoom.
Agenda

8:45 a.m. **Participants Log in, Take Pre-Assessment**

9:00 a.m. **Welcome from partners, Introduction & Goals, Zoom Norms**

9:15 a.m. **Energy Scavenger Hunt**
Learn about the science of energy and take a few minutes to scavenger around the house to find an item to shows an energy transformation.

9:45 a.m. **Energy, Electricity, and the Rhode Island Energy Picture**

- Energy Round Up
- Candy Collector
- Spaghetti plot graphing
- Rhode Island Electric Connections

10:40 a.m. **Stretch and Snack Break**

10:45 a.m. **Today in Energy**

11:00 a.m. **Introduction to Efficiency & Conservation**
Learn the basics about energy efficiency and conservation for home and school. Check out some fun energy audit tools and complete a quick home audit.

11:45 a.m. **Lunch and Stretch Break**

12:05 p.m. **Guest Speaker**

12:30 p.m. **Climate in the Classroom**
Introduction to climate science and create a greenhouse in a beaker.

1:30 p.m. **Mini Heat Islands –** Learn more about heat islands and complete your own heat island.

2:30 p.m. **Curriculum Connections**
A quick look at additional activities available and ways to incorporate into cross curricular activities.

2:45 p.m. **Discussion and Feedback –** With the launch of this curriculum, we want to hear more from you about today's workshop. Help us gather some good feedback to incorporate into curriculum or training adaptations.

3:00 p.m. **All the good stuff: Post-Assessment, Ordering Kits, Evaluation, Sub Reimbursement and More!**

3:15 p.m. **Adjourn**

Special thanks to the Rhode Island Energy Efficiency and Resource Management Council (EERMC) for supporting the curriculum development and today's workshop. Learn more about the EERMC at: https://rieermc.ri.gov/

STATE OF RHODE ISLAND
ENERGY EFFICIENCY & RESOURCE MANAGEMENT COUNCIL