E² Energy to Educate SM

As part of our commitment to education, E² Energy to Educate grant awards support projects that are team oriented, hands-on projects with specific results. E² Energy to Educate projects enhance student understanding of the science and technology needed to address energy issues and reach and inspire students to think differently about energy.

2024 E² Energy to Educate – Highlights

- **20 projects awarded $500,000 across 8 states, reaching nearly 11,800 students nationwide**
- Projects include a hydrogen fuel cell training program, mobile labs, wind and solar energy design build competitions, climate clubs, and programs focused on preparing youth for careers in STEM and clean carbon free energy.

2024 E² Energy to Educate – Awardees

American Nuclear Society Inc
Westmont, IL
Project Title: ANS Accelerators Program Pilot

Description: The ANS Accelerators Program is a nuclear science enrichment initiative designed to inspire junior high and high school students. It provides access to educational resources, hands-on activities, industry insights, and guidance on post-secondary opportunities. The program aims to deepen students' understanding of nuclear science and technology through a blend of in-person and virtual lessons, expert presentations, interactive experiences, and field trips to prominent nuclear sites. The initiative seeks to propel their knowledge and skills in nuclear science to new heights and emphasizes the societal and environmental value of nuclear science, showcasing a range of professions within the field.

BakerRipley
Houston, TX
Project Title: BakerRipley's Future Leaders in STEM

Description: The Future Leaders in STEM project aims to empower youth by providing access to state-of-the-art makerspaces and Learning and Innovation Centers (LICs) across four main campuses in Texas. These centers are equipped with cutting-edge technologies like 3D printers, laser cutters, and video editing tools, fostering creativity and essential 21st-century skills. The project offers a free STEM curriculum for K-12 students, including an 8–12-week program for elementary students, an 8-week program for middle school students, and a 12-week program for high school students. The initiative also includes public skill-building workshops and outreach programs, focusing on practical applications and vocational training. BakerRipley collaborates with various partners and local school districts to ensure the success and accessibility of its programs.

Build Solar Inc.
Cary, IL
Project Title: Illinois Solar Decathlon Build Project 2023-2025

Description: The Illinois Solar Decathlon Build Project aims to enhance the community of Rantoul, Illinois, by developing affordable homes powered by clean energy. The project focuses on constructing houses for single-parent families using distributed residential solar systems that provide high efficiency and backup power during outages. The project also emphasizes economic benefits through net metering, allowing homeowners to receive credits for excess energy supplied to the grid. The initiative is a collaboration between Illinois Solar Decathlon, Habitat for Humanity, and the Village of Rantoul, aiming to promote renewable energy and energy efficiency in the region.

Cathleen Stone Island Outward Bound School Inc
Boston, MA
Project Title: Green Ambassadors: Environmental Career Development on Cathleen Stone Island

Description: The Green Ambassadors: Environmental Career Development on Cathleen Stone Island project is a three-year summer employment and job-readiness program for students aged 14-18. The program emphasizes leadership, environmental, and social justice, providing hands-on work experience, exposure to green careers, and engagement in Outward Bound activities. The curriculum is designed to build on learning experiences from previous years, with Year 1 focusing on trail maintenance and natural resource monitoring, Year 2 on facilities management and carpentry projects, and Year 3 on internships in different departments at Cathleen Stone Island Outward Bound Schools and external organizations. The initiative is grounded in social and environmental justice, aiming to mitigate the impacts of climate change in and around Boston.

Consumer Energy Education Foundation
Houston, TX
Project Title: Securing the Energy Future

Description: The Securing the Energy Future project is a week-long camp serving middle and high school youth in the Greater Houston, TX area. The goal is to create an engaging, equitable, and inspiring learning experience that connects at-risk youth with real-world opportunities in the energy sector while exploring the transformative impact of digital innovation on the future of energy. The camp will offer a STEM-focused, hands-on learning experience that is inquiry-based and rooted in real-world challenges and authentic experiences. Key components include hands-on activities, customized STEM kits, video programming, and interaction with industry experts. The program aims to cultivate critical and creative thinking skills while fostering a collaborative and equitable learning environment.

Illinois State University Foundation
Normal, IL
Project Title: Smart Choices: Empowering Future Leaders in Energy and Sustainability - Energy Economics Boot Camp

Description: The Smart Choices: Empowering Future Leaders in Energy and Sustainability - Energy Economics Boot Camp project aims to educate and engage high school and college students in Illinois on energy and sustainability issues. The project involves a 5-day boot camp that introduces students to climate change, energy sources, and sustainability challenges through the lens of economics. The program includes hands-on activities, field visits to local wind farms, nuclear power plants, and EV manufacturers, and discussions on energy efficiency and conservation. Students will also learn about career prospects in energy and sustainability fields. The initiative aims to create awareness among young minds and encourage them to make environment-friendly choices.

Ingenuity Project Inc
Baltimore, MD
Project Title: Expanding Socially-Responsible Research to All Students

Description: The Expanding Socially-Responsible Research to All Students project aims to increase access to STEM research for historically untapped students in Baltimore City. The initiative focuses on providing advanced STEM programming to nearly 900 students across five Baltimore City Public Schools. Ingenuity has introduced an In-House Research course and redesigned its 10th-grade Introduction to Research course to address social and environmental justice issues. The program also includes a new 9th Grade Honors Biology curriculum to foster early interest in STEM researc1. The ultimate goal is to prepare students for competitive college admissions and leadership roles in STEM fields.

Joliet Junior College Foundation
Joliet, IL
Project Title: Constellation Rising Stars Endowed Scholarship

Description: The Joliet Junior College Foundation's "Constellation Rising Stars Endowed Scholarship" aims to support low-income students enrolled in the Process Control Instrumentation Technology (PCIT) program. Recognizing the high demand for skilled instrument technicians due to industry growth and workforce attrition, the scholarship provides financial assistance to students who might otherwise be unable to pursue higher education and acquire specific career credentials. The program targets a diverse group of high school and community college students, aiming to enhance their career readiness and ensure high academic persistence and completion rates. Industry partners play a crucial role in guiding the curriculum and providing co-op and internship opportunities, thereby reinforcing the program's commitment to academic excellence and career success.

LET'S GO Boys & Girls
Severna Park, MD
Project Title: Inspiring & Developing the Next Generation of STEM Leaders

Description: The Inspiring & Developing the Next Generation of STEM Leaders project aims to create a pathway for youth to gain STEM awareness, knowledge, and access from elementary and middle school through to high school and college. The project includes the Teen Science Café (TSC) and Outreach Program, a 12-month initiative that empowers students to build leadership skills through community-based STEM projects. The program connects students with STEM professionals and community volunteers, enhances STEM and leadership identities, and provides paid internships for student leaders. The overall goal is to tackle Maryland's and the District of Columbia's challenges of youth education and unemployment while promoting STEM literacy and career awareness.

Manned Space Flight Education Foundation Incorporated
Houston, TX
Project Title: Conrad Challenge

Description: The Conrad Challenge, run by the Manned Space Flight Education Foundation, engages high school students in developing innovative solutions to global environmental issues. The program offers resources such as guides, a resource library, and access to industry professionals as project coaches. Students work in teams to tackle challenges in five main categories: Aerospace & Aviation; Cyber-Technology & Security; Energy & Environment; Health & Nutrition; and Water: "Currents of Change". The project includes multiple stages over a 12-month period, culminating in a final competition at Space Center Houston. Winners receive scholarships, patent support, and other resources to further their innovations. The initiative aims to foster problem-solving skills, collaboration, and entrepreneurship among participants.

Marietta College
Marietta, OH
Project Title: Promoting Gender Equity in STEM: Earth, Energy and Environmental Mobile Lab

Description: The project, Promoting Gender Equity in STEM: Earth, Energy and Environmental Mobile Lab, aims to provide middle and high school students with hands-on STEM education focusing on environmental science and energy. The mobile lab travels to secondary schools in southeastern Ohio, offering instruction on protecting the earth and understanding various energy sources. Students use testing equipment to evaluate soil, water, and air samples, learning crucial testing and analytical skills. The initiative seeks to attract students, particularly girls, to STEM fields and careers in petroleum and environmental engineering. The project addresses the gender gap in STEM by partnering with organizations to specifically encourage female students. Additionally, the mobile lab will participate in after-school programs, summer camps, and community events, making STEM education accessible to a broader audience.

Massachusetts Institute of Technology
Cambridge, MA
Project Title: Accessing STEM Career Pathways

Description: The Accessing STEM Career Pathways project supports students in pursuing STEM degrees and careers. The program offers free, innovative STEM educational programming at MIT, providing real-world science and engineering challenges. Students also receive guidance on financial aid, scholarship applications, and college application processes. Additionally, the program includes an alumni networking component, MITES-Connect, which offers support and career opportunities with corporate sponsors. The project aims to help scholars achieve success in STEM fields.

MoCo KidsCo
Bethesda, MD
Project Title: Invent the Future

Description: The Invent the Future project aims to support middle school students from priority populations in a semester-long program. This program integrates science, technology, engineering, and design, encouraging students to develop, design, and prototype innovative solutions to community or global problems. The project emphasizes the engineering design process, including defining a problem, developing solutions, building prototypes, testing, and optimizing solutions, and communicating ideas. The project aims to equip students with technical skills, foster resilience, and prepare them to become agents of positive change.

PS Science
Inglewood, CA
Project Title: Advancing Equity: Expanded Programming to Provide Under-resourced Middle School Students with Hands-on, Science Education in the Classroom and Out-of-School Enrichment Programming Year-Round

Description: This initiative will expand PS Science's existing TK-5th-grade in-classroom program to include middle school students (6-8th grade) in three new K-12 schools in Orange County and the Inland Empire. The program will provide 60-90 minutes of engaging science experiments and hands-on activities weekly, with a specific 6-week unit focused on exploring the past and future of electrical energy production and understanding solutions to the climate crisis. The initiative aims to serve almost 300 new middle school students in 9 classes at 5 partner schools and one community-based organization. The project also includes robust evaluation practices to measure the program's impact on students' understanding of core science concepts, interest in STEM subjects, and teachers' confidence in delivering hands-on science instruction.

Research Foundation for the State University of New York
Albany, NY
Project Title: Growth and Characterization of Silicon Nanoparticle - Activated Carbon Composite as Anode for High Performance Lithium Ion Battery

Description: The project by the Research Foundation for the State University of New York aims to improve the performance of lithium-ion batteries for large scale applications such as electric vehicles. The current graphite anodes in lithium-ion batteries have limitations, prompting the researchers to develop a silicon nanoparticle-activated carbon composite anode. The project will use silicon sourced from industrial waste and combine it with activated carbon derived from waste tires. The resulting Si-AC composite anode is expected to provide high performance and durability, potentially leading to patented discoveries in battery technology. The project also includes educational outreach, such as a workshop for high school students and teachers to promote clean energy careers.

Rochester Institute of Technology
Rochester, NY
Project Title: Clean Energy/Hydrogen Fuel Cells Training Sessions for High School Teachers and Students

Description: The Rochester Institute of Technology has developed a program to educate high school teachers and students about clean energy generation using hydrogen fuel cells. The program covers topics such as global warming, clean energy sources, hydrogen as a fuel and energy carrier, fundamentals of electrochemistry, and electricity generation using fuel cells. It includes both face-to-face and online Zoom meetings, demonstrating laboratory experiments like fuel cell construction, electricity generation with hydrogen/oxygen fuel cells, and solar electrolysis of water. The project also involves on-campus weekend workshops at RIT, providing hands-on experience and tours of RIT's Chemical and Materials Analytical Facilities, Plasma Research Lab, and the Golisano Institute for Sustainability. The program targets high schools with a high percentage of diverse students, aiming to provide access to current technologies, practices, and employability skills.

Saint Joseph's University
Philadelphia, PA
Project Title: Physics Wonder Girls Program at Saint Joseph's University

Description: The Physics Wonder Girls Program at Saint Joseph's University focuses on equity and renewable energy education for middle and high school girls from diverse backgrounds. The summer camp component offers hands-on energy experiments, such as building solar-powered devices and wind turbines, and includes tours of research labs and industrial plants. Throughout the academic year, the program supports the "Introduction to Renewable Energy" course for college students, combining themes of renewable energy and equity. The program has a strong emphasis on mentoring, with undergraduate STEM students and faculty guiding the participants. The initiative aims to inspire young women to pursue careers in STEM and energy science, providing them with leadership opportunities and exposure to real-world applications of physics and renewable energy.

University of Maryland College Park Foundation Inc .
College Park, MD
Project Title: Maryland Regional KidWind Competition

Description: This initiative engages public school teachers and students in grades 4-12 in STEM for sustainability through wind and solar energy design and build competitions. The project has two main components: ongoing teacher trainings and the regional KidWind competition. The teacher trainings bring K-12 public school STEM teachers from across Maryland to University of Maryland's campus, where they learn strategies and lessons to help students explore renewable energy science and technology. This year, the program is expanding to western Maryland and northern Virginia through partnerships with the University of Virginia, Shenandoah University, and James Madison University. The regional competition, held annually, involves students presenting their wind turbine designs to judges, exploring clean energy initiatives, and participating in hands-on challenges.

York College of Pennsylvania
York, PA
Project Title: EmpowerHer Girls STEM Workshop

Description: The EmpowerHer Girls STEM Workshop project aims to address the gender gap in STEM fields by engaging middle and high school girls in hands-on learning experiences. The workshop targets rising 7th to 10th graders and aims to create a supportive and interactive environment where participants can explore various STEM fields, including chemistry, biology, mathematics, robotics, and engineering. The primary objective is to spark curiosity and build STEM skills, empowering girls to see STEM as a viable and exciting career path. The program includes five annual summer workshops over the next five years, featuring activities such as building robots, conducting experiments, and learning about renewable energy systems. Female STEM professionals will serve as mentors, providing guidance and acting as role models. At the end of the workshop, participants will receive take-home STEM kits to continue exploring STEM subjects independently.

YWCA Tri-County Area
Pottstown, PA
Project Title: Full STEAM Ahead Climate Club

Description: The Full STEAM Ahead Climate Club is part of YWCA Tri-County Area's Youth Empowerment Programs. It targets underserved youth in grades 5-8, offering interactive science and environmental programming to expand STEAM literacy and experiential learning. The club features two 8-week after-school sessions focusing on climate change, energy resources, sustainability, horticulture, climate justice, and local water conservation. Activities include growing produce on hydroponic towers, field trips to energy-related locations, energy audits of schools or homes, career exploration in energy fields, and collaboration with Schuylkill River Greenways. The program aims to increase students' awareness and knowledge of sustainability practices, renewable energy, and climate equity, as well as enhance their design thinking and problem-solving skills.