Constellation
An Exelon Company

E^2 Energy to Educate℠

As part of our commitment to education, E^2 Energy to Educate grant awards support projects that are team oriented, hands-on projects with specific results. E^2 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.

2021 E2 Energy to Educate – Highlights

- **23 projects awarded nearly $515,000, reaching more than 20,000 students nationwide**
- Student projects include carbon reduction projects, building and racing electric and solar-powered cars, , summer camps exploring renewable energy, and game-based learning for STEM and energy concepts.

2021 E^2 Energy to Educate – Awardees

Academy for Global Citizenship
Chicago, IL
Project Title: AGC's Net-Positive Energy Education Hub
Description: We are expanding our robust environmental education curriculum to include energy learning modules to show the effects of different behaviors and lifestyle practices on energy usage on our new net-positive energy campus. Experiential learning will teach our students the power of their decisions in driving a sustainable future by showcasing real-time impacts through our electric building and automation systems and how renewable technologies and energy storage are contributing to a healthier future. Students will actively participate by assisting in with our sunshades and natural ventilation systems, and observing the change in energy savings resulting from their actions. The visible building controls and dashboards will enhance student and visitor system transparency of our on-site photovoltaic production, energy storage and educational displays about energy conservation.

Charles R. Drew University of Medicine and Science
Los Angeles, CA
Project Title: 2021-2022 Saturday Science Academy II
Description: SATURDAY SCIENCE ACADEMY II (SSA II) is the Science, Technology, Engineering, Math, and Medicine (STEMM) enrichment program of CDU and CDU's flagship pipeline program preparing underrepresented, low to moderate-income PK-12th-grader students of color for STEMM and health care professional careers. Students in the program will receive six (6) weeks of hands-on learning experiences. Each week students will spend 120 minutes interacting with course work, learning about STEMM professionals and STEMM careers. As part of their equity in energy project, our senior academy students will build their own Tiny House 3D model using recycled materials and applying the engineering design process with an environmental justice, affordable housing, and sustainability lens. They will also use circuits to build a power generator to support and power their tiny appliances and discuss collectively how to use renewable energy can be used to power their own communities.

Clarkson University
Potsdam, NY
Project Title: Food-to-Energy, Forging New Partnerships: Promoting Resource Recovery in Schools and Community to make a Lasting Impact
Description: Clarkson University (CU) and Canton Central School (CCS) partner to treat cafeteria food waste (FW) at a nearby anaerobic digester (AD) and educate students about resource recovery (RR). Leveraging our

success at CCS (https://sites.clarkson.edu/foodwaste/) we seek funds to (1) expand the FW collection system at CCS; (2) engage CU students in a campus RR project; and (3) educate students, teachers and community members in RR, including a new group of Heuvelton Central School (HCS) middle school students. CU students will develop and administer educational materials to CCS and HCS students, mentor CCS students to expand the FW program, and create community education materials. We will work with math students to analyze FW disposal options and explore sustainable FW treatment. CU students will oversee operation of the FW digester and educate the CU community about RR. Teacher workshops will promote regional expertise.

Consumer Energy Education Foundation

Houston, TX
Project Title: How Artificial Intelligence will Revolutionize Energy Industry
Description: To create an Artificial Intelligence (AI) Energy Summer week long Camp experience in 2022 for 150 underserved and underrepresented high school youth in Houston, TX. The goal of this investment is to create a highly engaging, equitable and inspiring learning event that will connect high school youth with experiences and real world opportunities in clean energy sources to explore the evolving role of AI in the Energy sector and how they might play a role in it. Support from Constellation would allow CEEF to be the ONLY AI in Energy Summer Camp program and allow the partnership to engage underrepresented groups in the energy sector, explore the role of AI in future energy usage, and create a clean energy path in the future. Components of the program include development of hands-on activities and customized STEM kits, video programming and interaction with subject matter experts in the energy industry.

Cooper Union for the Advancement of Science and Art

New York, NY
Project Title: Cooper Union Motorsports Electric Vehicle Team and Education Outreach
Description: The Cooper Union (CU) Formula Society of Automotive Engineers (FSAE) Motorsports Team immerses undergraduates in engineering design to build a high-performance, open wheel formula-style race car from start to finish. College students deepen their understanding of science and technology to advance their education and professional STEM careers. They also conduct outreach to underserved NYC high school students to strengthen the STEM pathway for more youth from diverse backgrounds. The CU Motorsports team consists of 135 college students who work throughout the year to design, build, test and finetune their vehicle to participate in the intercollegiate FSAE competition in July. The focus of our 2021-22 project is to develop and produce CU's first electric vehicle to compete in the 2022 FSAE Electric competition.

Coppin State University Development Foundation Inc.

Baltimore, MD
Project Title: Educating High School and College Students on the novel 2-dimensional MXene material and its application in dye sensitized solar cell and energy storage.
Description: Basic Education in Plasmonic and Solar Cells Technology: students will be introduced to several concepts associated with renewable energy. Dye sensitized solar cells (DSSC) are low-cost and easily fabricated type of photovoltaic devices which were first developed by Michael Gratzel and he was awarded the 2010 Millennium Technology Prize for this invention. MXene formation and DSSC Fabrication: the MXene will be synthesized using a different chemistry method. The MXene will first be synthesized and characterized. The prepared MXenes will be employed in the energy storage. MXene possesses high electrical conductivity, excellent thermal stability, with high surface areand and easily tunable structure. The unique combination of properties makes them useful for various application

Dream in Green

Miami, FL
Project Title: Green Schools Challenge - Environmental Justice Curriculum & Teacher Training Project
Description: Through its established Green Schools Challenge (GSC), Dream in Green will develop hands-on environmental literacy lessons and organize stewardship activities, as well as teacher trainings to support positive actions, specifically in those neighborhoods disproportionately affected by climate change. The project will implement a grade 6-12 sustainability curriculum with a focus on environmental justice to educate and empower teachers and students to develop solutions in their communities. Their curriculum

focuses on the following core sustainability concepts: energy efficiency, waste reduction & recycling, water quality & conservation, alternative transportation, food security, and green buildings & careers.

EcoRise
Austin, TX
Project Title: Decarbonizing the Electric Grid: Phase 2
Description: Decarbonizing the Electric Grid (DEG), challenges students to use real-world modeling strategies, STEM, and 21st century skills to identify ways to design an electric grid that reduces carbon emissions by 90%. As students explore systematic ways to reduce carbon emissions, they become motivated to use critical thinking and innovation to address global climate change and other environmental issues. Phase 2 of the project, which includes bringing DEG to a larger audience along with a broader package of EcoRise energy-focused resources, including our foundational Sustainable Intelligence (SI) program, which is currently used by over 5,700 teachers and 320,000 students in 50 U.S. states. SI is a bilingual curriculum consisting of 160 STEM-based, standards-aligned, hands-on lessons organized in distinct eco-themes (energy, water, waste, air, public spaces, transportation, food). The lessons engage youth in developing real-world solutions through project-based activities, design labs, and campus eco-audits.

Emory University
Atlanta, GA
Project Title: Environmental Justice and Clean Energy for All
Description: Emory plans to organize multiple programs over the calendar year 2021 to empower the youth by providing free online resources on food waste and clean energy, environmental justice and energy efficiency, specifically targeted for middle school and high school students in underserved communities. We will build on our existing EPA environmental education grant, anaerobic digester grant, and soil ingestion grant to create outreach videos for middle school and high school students. In addition, using the Google Nest thermostats we own, we will recruit 300 students to conduct energy audit and reduce the energy burden in their homes in the Westside of Atlanta. Emory University students and faculty will work together in partnership with Science ATL, Southeast Energy Efficiency Alliance, and Historic Westside Gardens.

Fairfield University
Fairfield, CT
Project Title: SuSTEMability
Description: SuSTEMability -- this program will engage over 300 students and 12 STEM educators from Cesar Batalla School (CBS) and Wakeman Boys and Girls (Wakeman), both located in the urban area of Bridgeport, CT, in STEM education and hands-on activities using real-world issues that surround environmentally sound and sustainable energy sources. SuSTEMability seeks to empower students in grades 6-8 to become more informed energy consumers as they participate in experiments that both align with Constellation's Innovation themes and are relevant to energy issues facing their communities. Twenty SOE student fellows (Fellows) and their faculty mentors will visit each community partner ten times between January and June 2022, for a total of 20 visits. We will bring together all program participants for a day-long event on the campus of Fairfield University in June, and the program will culminate with a teacher professional development workshop in July.

GRID Alternatives Mid-Atlantic
Washington, DC
Project Title: Solar Futures
Description: GRID Mid-Atlantic is a clean energy nonprofit that provides workforce training and solar installation that exclusively serves families with low-to-moderate incomes and owners of affordable housing through residential, multi-family, and community solar installations. Through our Solar Futures Program, we provide high school juniors and seniors with opportunities to learn more about solar energy, receive technical training through skills workshops, and illuminate career pathways into the growing solar industry. In the District, we have a particular focus on partnering with local high schools in Wards 5, 7, and 8 where communities of color face the greatest environmental sustainability issues and have been historically marginalized and underserved.

Legends of Learning
Washington, DC
Project Title: 2022 Equity in Energy and Sustainability as a Lifestyle Game Design Challenge
Description: Teachers and students will be provided with lessons plans and curriculum about how daily choices in transportation and in the home can create (or not create) a more sustainable future and about which energy sources and choices have the greatest and future potential to mitigate against climate change. We'll host speakers (with an emphasis on minority and female speakers) from a variety of different STEM backgrounds who can talk about STEM careers related to sustainability and energy sources and choices. This will expose students to real-work opportunities and help create pathways to STEM careers. Then students will then have the opportunity to build and submit a game that teaches the underlying curriculum around energy sources and climate change and daily choices and sustainable futures. Prizes in the form of educational technology will be provided to the winners.

Lewis University
Romeoville, IL
Project Title: Tools for Sustainable Living
Description: Lewis University proposes to offer the week-long "Tools for Sustainable Living" program to three cohorts consisting of 35 middle-school students during the summer of 2022. "Tools for Sustainable Living", led by Lewis faculty, will help rising 6th, 7th, and 8th graders understand: (a) what sustainability means, (b) the benefits that small, sustainable living adjustments can have on the environment and personal finances, and (c) how green technologies work. The camp will employ a mix of classroom and hands-on laboratory activities to teach these concepts. As part of this initiative to advance sustainability education, Lewis University will also offer a one-day workshop for 25 middle-school teachers that provides resources for integrating sustainability education into their classrooms. The workshop will focus on integrating sustainability laboratory activities into instruction and will function as a forum for teachers to share activities they have implemented in their classrooms.

Montclair State University Foundation
Montclair, NJ
Project Title: Montclair State University Green Teams Program
Description: The Green Teams Program creates pathways to STEM careers by engaging low income, first generation college and traditionally underrepresented undergraduates in a paid transdisciplinary, hands-on sustainability internship program. The program helps this diverse cohort develop skills that make them highly desirable job candidates, while they work in collaborative learning teams to produce actionable recommendations for organizations to improve sustainability and create a greener, healthier planet. At the same time, the Green Teams Program builds corporate-academic-community partnerships to engage students in real world settings, while bridging classroom experiences to career skills. Green Teams work has included: collecting emissions data; benchmarking emissions levels; goal setting for emissions reductions targets; estimating carbon sequestered by street trees; and identifying mitigating factors for climate impacts.

Ohio University Foundation
Athens, OH
Project Title: Connecting Appalachian Youth to STEM through Clean Energy and Zero Waste Activities
Description: Over the past year, our team has been creating the technical platform, interface and initial content for a new "Appalachian STEM Enrichment Academy," a centralized portal to deliver place-based STEM learning to a broad audience. Supported in collaboration by the U.S. Department of Energy EM PPPO, the AEP Ohio Foundation and GVS, the mission of the Academy is to spark interest in the pursuit of STEM careers for K-12 students. Lessons are designed to foster an appreciation for the unique Appalachian region and the ways students experience STEM in their daily lives and future careers. To help address inequities in our economically distressed region, GVS proposes a 4-pronged program: develop and deploy “Connecting Clean Energy & Zero Waste” lessons; engage local STEM teachers; host US DOE science alliance kiosk; and leverage Ohio partner programs.

Remote Energy
Tacoma, WA
Project Title: Pathway to STEM and Solar Energy Careers for Native American High School Students in Washington State (pilot program at Chief Kitsap Academy)
Description: The overall goal of this project is to motivate youth to pursue careers in STEM and solar energy by integrating a proven, hands-on solar curriculum into high school science classes. The multi-module curriculum specifically combines solar energy and engineering education with real-world applicability to inspire students' interest in STEM subjects while learning about global energy poverty, climate change, and how to meet the immediate needs of their community. The primary target population is Native American students from Washington State (target = 75%), though given the demographic make-up of the student population in the state's Tribal schools, students from other ethnic groups (primarily Hispanic) will be involved as well. An additional target is to have 50% representation from female students.

Riverbend Environmental Education Center Inc.
Gladwyne, PA
Project Title: Building STEM Skills through Aquaponics
Description: Riverbend's Aquaponics Greenhouse and award-winning "Building STEM Skills Through Aquaponics" program will be used to enhance curriculum and increase access to sustainability education for students in low income schools, particularly Norristown and Philadelphia. Students will investigate green energy to reduce energy consumption and increase the overall sustainability of the system. They will monitor rates of production, energy use and water quality. They will apply these skills and understanding to look at the human impacts of Riverbend's creek using Stroud Water Research Center's Enviro DIY program which includes a Mayfly data logger and monitoring equipment. To apply their learning, they will work with Riverbend's graphic designer to create instructional signage to enhance the learning experience in the greenhouse for future students.

Solar One
New York, NY
Project Title: Green Design Lab
Description: Solar One requests support for the Green Design Lab (GDL), our K-12 environmental education program in New York City and New Jersey. GDL primarily serves BIPOC (Black, Indigenous, and People of Color) students. The GDL comprises teacher training, classroom residencies and afterschool programming, with curriculum, lessons, and distance learning resources. In the last several years, we have strengthened our career-focused programming that creates energy career pathways for BIPOC students and increases energy equity, which we will cover in this proposal. CareerCLUE: Our summer career readiness programming. CareerSTEP: Our 14-month program, CareerSTEP (Skills, Training, Experience, Power), runs in the school year and will lead to internships during Summer 2022. Solar CTE: An advanced technical solar training program for Career and Technical Education (CTE) for high school students.

Student Global Ambassador Project
Rockville, MD
Project Title: Sustainability Challenge & Climate Action Workshops
Description: Student Global Ambassador Program (SGAP Leaders) provides opportunities for experiential learning both inside and outside of the classroom with the goal of fostering an actionable awareness about climate change issues as it affects youth in underserved communities. In particular, youth will close the "knowledge-action gap" in climate solutions through deployment of a proprietary framework. As a result, youth are coached as the next generation of climate change leaders who will be able to cut through the noise and coach their communities to climate solution excellence, as well as being exposed to climate change occupations. SGAP Leaders (with partners Catholic University of America - School of Engineering (CUA) and nonprofit Footprint2Wings (FP2W)) will lead a three-tier education and engagement project for 500 students (250 in Maryland & 250 nationwide) where they will explore key issues related to climate solutions, learn how to break down any given zero carbon play & the challenges and opportunities of coordinating it among the various "players" involved and participate in interactive learning.

Tech Belt Energy Innovation Center
Washington, DC

Project Title: BRITE Students Equitable Energy Education
Description: To expand the educational programming for students grade 6 - 12 in Trumbull and Mahoning counties in Northeast Ohio, with a focus on introducing STEM and energy concepts to underrepresented students. Through educational outreach and a summer cohort program, we will provide hands-on opportunities to see energy concepts in action for an estimated 725 students grades 6 - 12.. During the in-school presentations, we will provide students with a primer on energy concepts, followed by a demonstration of battery storage, energy generation, and photovoltaic concepts. At the conclusion of the demonstration, each student will be provided a hand-out which reinforces the energy information they learned, and invites interested students to apply for our 3-week summer energy cohorts, the BRITE Students Energy Cohort, and BRITE Students Junior Energy Cohort. These represent the 2nd phase of our energy education program.

University of Illinois
Urbana, IL
Project Title: STEM Scholars Enhancing Energy Equity through Community Engagement
Description: STEM Scholars is an after school program and summer internship for marginalized youth designed to encourage high school students to pursue careers in science, technology, engineering, and math (STEM), as well as equip students with experience and expertise in energy efficiency and the smart-grid. Students currently participate in a session focused on energy efficiency and the microgrid, building a personal solar microgrid and learning the importance of sustainable energy and energy efficiency. The proposed project would build upon what students have learned through the energy efficiency session and engage the students in community outreach events where students would educate community members on energy efficiency and the benefits of weatherization. Students would interface with communities to teach individuals how to weatherize a house and give weatherization kits to community members. These activities would be hosted by partnering community action agencies across Chicago and are based on previous income eligible energy efficiency kit dispersal coordination facilitated by the ERC.

University of North Texas Foundation
Denton, TX
Project Title: Building an Energy-Aware Next-Gen Workforce through Student and Teacher Engagement
Description: This project will host 100 students from eight high schools once per month during the academic semester for hands-on exercises. High schools are part of a system of schools having current engineering and computer science students receiving financial aid, first gen (80%) and under-represented minorities. Additionally, this project will host three groups of 25 teachers on Saturdays in the summer semester for curriculum and experiential learning. The project aims to involve students in exploring advanced technologies, i.e., thermal energy storage (TES), to shift or fully utilize solar energy. It uses the latent heat of fusion of phase change materials (PCMs) during melting/solidification but maintaining a relatively constant temperature for efficient solar energy management. High school students will engage in TES and renewable energy technologies through our unique ZØE lab.

University of the Sciences
Philadelphia, PA
Project Title: Physics Wonder Girls Camp
Description: The Physics Wonder Girls Camp is a free summer physics camp for middle-school girls that weaves together the themes of Renewable Energy and Equity in Energy. The Physics Wonder Girls Camp has a demonstrated record of recruiting campers from diverse backgrounds, with 60 to 80% of students from previous camp years being non-Caucasian. The middle-schoolers are trained in the basics and applications of renewable energies. Campers will work in teams during an intensive week of hands-on experiments and project-building centered on solar energy, wind energy and fuel cell technology. To engage with the theme of Equity in Energy, campers and crew will participate in intentional storytelling about the history and career stories of women, scientists of color, and other underrepresented minorities who shaped the fields of physics and energy. Select campers will participate in community energy outreach events either at the annual Philadelphia Science Carnival, visited by over 70,000 individuals, or at The Franklin Institute.