



2019-2020

## Program Offerings, Guidelines, and Application Information

***Apply NOW!***

***A limited number of openings are available for each program offering. Applications for program offerings will be approved on a rolling, first come, first served basis.***

***All applications must be submitted by February 14.***

For more details and to apply NOW, visit [www.need.org/peco](http://www.need.org/peco).

PECO and The Exelon Foundation, in partnership with the National Energy Education Development (NEED) Project and The Franklin Institute, are offering PEEP 2.0 with a series of energy workshops, educational energy audits, energy carnivals, and the PECO Innovation Challenge, a STEM-focused energy program for grades 3-12. This program brings together standards-based curriculum, teacher training, STEM innovation challenges and many other engaging and fun activities.

The PEEP 2.0 program, its offerings, and its Innovation Challenge is a collaborative educational initiative designed to empower young students to explore opportunities in STEM and help them discover their own path to innovation through a variety of classroom subjects. Students and educators engage in science, technology, engineering and mathematics in classroom and extracurricular activities while learning fundamental principles of energy use and conservation. Students learn best when engaged in inquiry learning, and the activities and explorations included in the program allow them to think, explore, share, and develop a profound respect for energy and the world around them. PEEP 2.0 is designed to help educators bring energy into the school and to provide all the tools and resources necessary for students and teachers to learn together, explore energy together, and teach their local communities about energy.

We know that teaching others helps us learn as well, and the Kids Teaching Kids philosophy woven throughout The NEED Project curriculum helps keep students of all learning styles engaged and excited to learn. The lessons and projects in this program are designed to allow students to teach their peers as well as their local community.

***PEEP 2.0 offers all the following opportunities for any who wish to participate:***

### **PEEP 2.0 Workshops**

- One-day PEEP 2.0 workshop and energy training. Workshops open to new and returning teachers, with dates from October to January. December's workshop will strictly focus on returning teachers.
- Participants receive their choice of hands-on energy kit and standards-aligned curriculum.

### **PEEP 2.0 Energy Fair**

- Attend a PEEP 2.0 Workshop, complete an online application, and select a date.
- Engage students in energy education activities.
- Plan and hold a student-run energy fair or carnival on or before June 1, 2020.
- Schools will receive an *Energy Fair in a Box Kit* and a cash grant of \$150 to help host their event.
- Participants will submit an April progress report **and** a final report on or before June 1.

### **Kit Contents Include:**

- Seven pre-made games from NEED's *Energy Carnival*
- *Facts of Light* activity sheets & bulbs to showcase energy savings in lighting choices
- Supplies for small groups to build and demonstrate an energy efficient home.
- Energy Information Exhibit supplies
- *Bumper Stumpers* – energy license plate riddles
- Energy Linked-In templates to showcase careers in energy
- Passport template & ink stamps, press release templates, partner resources, and more!

## PEEP 2.0 Energy Audit

- Attend a PEEP 2.0 Workshop, complete an online application and select a date, with approval from administrator.
- Participate in a free, half-day Educational Energy Audit for 10-15 students to learn about their school building with certified energy professionals.
- Participants will receive a hands-on energy efficiency and conservation kit.
- Priority for audits will be given to Innovation Challenge and Energy Fair participants.
- Participants are required to respond to communication with coordinator, Kimberly Swan, and assigned auditor. Failure to do so will result in forfeiture of audit to another school.
- Participants are STRONGLY DISCOURAGED from cancelling audits. Please remember auditors must travel to your location and incur travel and other expenses. If you are unsure that a date will work, please consider other schools who may be interested.

## PECO Innovation Challenge

- Complete an online application.
- Choose from a series of PECO Innovation Challenge starters or create your own *innovative* solution to an energy challenge. Projects must focus on solving an energy challenge or problem within your local community, greater community, or society in general.
- Participants will receive a \$750 grant for supplies to complete the challenge.
- Participants will attend a half-day training (12pm to 3pm) in February for innovation challenge participants to answer questions, go over logistics, and to gain insight into energy related challenges in the region.
- Participants will submit a progress report on or before April 1, 2020.
- Participants will participate in a webinar to review final details and Challenge requirements.
- All Innovation Challenge Teams will attend the PECO Innovation Challenge and STEM Career Symposium, (Thursday, May 28, 2020 at the Franklin Institute), where school teams showcase their challenge projects and learn more about STEM careers in energy.

**Sign up for the PECO Innovation Challenge Now!**

## What is expected of schools participating in the PECO Innovation Challenge?

1. Attend a PEEP 2.0 Workshop (or have attended 2 or more past PEEP 2.0 Workshops). Incorporate the program's energy-focused curriculum and related activities into your classroom.
2. Working in classrooms or in an extracurricular setting, choose or design an energy-focused **Innovation Challenge** (some samples are provided in this application packet) and get started! Challenges are intended to solve a real energy challenge within your local community, the greater community, or within society in general. Projects are intended to build upon and go beyond the activities within the curriculum in an innovative fashion.
3. Attend a half-day (12-3 PM) workshop in February to learn more about energy, challenges within the local region, challenge program logistics, and the end-of-year celebration.
4. Work with students, faculty, parents and community members to plan and implement the STEM focused challenge. Research, explore, learn, share, reach out to experts, and more. Document progress on the challenge. Take photos and videos.
5. Share about your program via your school and community communication networks and social media, (PTA newsletter, community newsletter, Facebook, Instagram, Twitter). Submit at least 2 photos per month with captions (set the post/photos to public) using the hashtag: **#pecopeep**.
6. Submit a progress report on or before April 1, 2020. Progress reports will include a description of the challenge, photos, an overview of steps and activities completed/remaining, anticipated use of funding, help needed, etc.
7. Participate May webinar to review final logistics for projects and end-of-year event.
8. Create a model and/or presentation item to bring to the PECO Innovation Challenge and STEM Career Symposium on May 28<sup>th</sup>. Students will present to other participants, STEM Mentors and PEEP partners. Attending this event is a requirement for participation in the PECO Innovation Challenge. Presentation teams will consist of a maximum of 5 students and 2 adults. Cash prizes may be awarded for challenge work by a panel of judges. Additional students, faculty, and parents are welcome to attend the closing showcase presentation in the Franklin Theater.

## Who should apply for the PECO Innovation Challenge?

- Teachers teaching grades 3-12 in the 6 counties PECO serves.
  - Philadelphia
  - Bucks
  - Montgomery
  - Chester
  - Delaware
  - York (partial)
- Schools seeking to provide students with STEM and energy focused explorations.
- Schools seeking to provide students an opportunity to engage their minds in the Challenge while learning many other skills like public speaking, teamwork, and more.

## PECO Innovation Challenge Prompt

**Using an energy concept and a challenge or problem within that concept, design or create an innovative solution for the challenge.**

- Explore energy concepts as a class.
- Use student questions and student learning to identify problems, issues, concerns, and questions related to an energy source, energy technology, or consumer need.
- Design or create a solution to one or more of the challenges you have identified.

## Innovation Challenge Samples – use these for inspiration or create your own!

### Microgrid

In the last election, the county citizens decided that sustainability would become a priority in your county. Your community has decided that their first goal will be to become energy independent, creating a microgrid.

1. Design a microgrid system for your community.
  - Decide the boundaries of your “community,” (neighborhood, town, city, etc.).
  - Estimate the number of homes, businesses, and industry. that would be served by the microgrid system.
  - Identify any existing electricity generation facilities, sites or equipment within your community. Identify any electrical infrastructure presently in place in your community.
  - Determine the amount of power required to supply the energy for your community.
  - Plan for new electricity generation that will supply the remaining power needed for your community. At least 50% of this power must be renewable.
2. Create a map of the community, highlighting its borders (streets, landmarks, water features, etc.) and indicating existing homes, businesses, schools, industry, and existing electricity generation facilities and infrastructure.
3. Create an overlay of the map that shows new facilities or technologies that will be installed to create your microgrid system. Indicate the power generating capacity of new facilities or technologies for each site.
4. Write a detailed description of the new facilities or technologies that will be built to provide power to consumers within the community microgrid system.
5. Explain the community’s plan to tie into the larger grid system.
6. Explain the advantages and disadvantages for your community of operating the microgrid as planned (environmental, economic, logistical, etc.)

Option: For a simpler version ask students to do the microgrid for a “new” school building, following any applicable protocols above. Have students visit: <http://energy.gov/articles/how-microgrids-work>

### Solar

Many people are quick to suggest that solar energy can solve energy problems. However, solar has its challenges that prevent it from being our energy savior. Presently, solar energy provides 10 MW of the power needed for those in the city of Philadelphia. Design a plan to incorporate solar into the greater Philadelphia area that is supported by existing infrastructure but creates/addresses power storage, provides 10 additional MW of power, and does not require the use of more than 20 acres of land.

### Transportation and Electricity

As popularity of Battery Electric Vehicles (BEVs) rises with models like the Tesla Model-S, Nissan Leaf, and Chevy Volt, more and more Americans must plug-in their vehicles after their day-to-day travels. Devise a set of strategies to meet the additional demand for electric power of these vehicles. These strategies must address the incorporation of renewable energy, reporting of data between plug-in vehicle users and utilities, and efficiency of charging mechanisms.

## Balancing the Environment and Economy

The Northeast U.S. is very energy-rich in its resources and industry. Much of the energy used for electric power generation is still attributable to coal, which is a major emitter of carbon dioxide. Balance PA's power generation in a way that provides adequate power, reduces carbon emissions, AND protects the economy and those jobs related to the coal industry while supplying the energy from other sources.

## Using Technology to Increase Energy Conservation and Efficiency

Design an app for tablet and mobile that would allow someone to identify the best energy efficiency discounts and rebates available based on your location. The app could connect with local utilities, contractors, and retailers to provide current rebates, discounts, sales, etc. for energy efficient services, products and materials. The app could also use publicly available data to provide energy efficiency opportunities for a home.

# PECO Innovation Challenge – APPLY NOW!

## Application for Participation

- *Apply online at [www.need.org/peco](http://www.need.org/peco).*
- *Applicants are invited to apply on a rolling basis. Applicants will be notified of acceptance and can begin challenge work as soon as they are accepted.*
- *The PEEP Team expects to approve applications within two weeks.*
- *A limited number of spots are available and are first come, first served.*
- *The application window closes February 14, 2020.*
- *Only one submission per school. After February 14, additional spots may open for multiple teams per school.*
- *Cash prizes may be awarded for challenge work by a panel of judges at the PEEP 2.0 Innovation Challenge and STEM Career Symposium.*

Please be sure to submit all application components and respond to all questions:

### 1. School Information:

School  
Name of Person Completing Application (Teacher)  
Title  
Address  
City, State, Zip  
Phone  
Email  
% of free lunch

### 2. Principal of the School

Name  
Phone  
Email

(continued)

**3. Additional Information**

Grades taught at this school

Number of students attending this school

Number of students participating in the PECO Innovation Challenge

First year in PECO Programming? Yes or No

If Yes, which date did you attend, or do you plan to attend?

If No, how many PEEP workshops have you attended?

**4. Please provide responses to the following questions:**

Why should your school be selected for the PECO Innovation Challenge?

Do you believe participating in The Challenge will add to your students' academic and leadership development?

What topic(s) do you anticipate focusing on for your challenge work?

**5. Endorsements and Acceptance of Program Expectations**

Evaluations have shown that the most successful schools have support at the administrative level. Does the school have the active support of the principal/vice principal/curriculum specialist to provide the administrative support (minimal expectations) needed for The Challenge? Check any/all that have indicated support for your school to participate in the project:

\_\_\_\_\_ Principal/Assistant Principal

\_\_\_\_\_ District and/or school curriculum specialist (library, science, technology, etc.)

**6. Signature \_\_\_\_\_**

By signing above, you certify that, if selected, your school has the administrative approval and support to fully participate in the PECO Innovation Challenge and accepts the expectations of the program.