NEW YORK STATE OF OPPORTUNITY. | NY Power Authority

KATHY HOCHUL
Governor

JOHN R. KOELMEL
Chairman

JUSTIN E. DRISCOLL
Interim President and Chief Executive Officer

June 24, 2022

New York Power Authority (NYPA)

NYPA is the largest public power organization in the United States. Our mission is to "lead the transition to a carbon-free, economically vibrant New York through customer partnerships, innovative energy solutions, and the responsible supply of affordable, clean, and reliable electricity." We have 16 generating facilities and over 1,400 circuit-miles of transmissions lines that are all over New York State. NYPA also has a strong commitment to sustainability and promoting energy efficiency. About 80% of electricity, that is produce is from renewable hydropower and is pollution free. NYPA employs a large number of STEM professionals, such as Engineers and research scientists who work every day to develop new methods for power generation, transmission and energy efficiency. In 2009, NYPA established Women in Power, an employee resource group whose mission is to support women at NYPA and to serve as role models for girls and women in STEM.

The NYPA Patch Program is designed to help Girl Scouts think about how they can contribute to a more sustainable future for themselves, their communities, and the planet and to understand the benefits of pursuing a career in STEM and Energy related careers. To learn more, please visit http://www.nypa.gov/ . To learn more about electricity, play our Electric City video game and learn about ways you can complete fun hands-on activities at home, please visit https://www.nypa.gov/communities/nypa-engagement/virtual-learning-center

To earn this patch, girls must **complete at least two** of the steps for their given rank. If you have any questions or would like to share photos of completed projects, please email us at Environmental.Justice@nypa.gov.

Once completed to receive your patch please contact Tianna Tyler or Alex DeRosa at Environmental.Justice@nypa.gov, or 914-287-3084.

Daisy and Brownie

1. **Get Educated on Electricity**! Answer the following questions: What is electricity? How do you use electricity in your daily life? How is electricity made? What is the difference between renewable energy and non-renewable energy? What are some types of renewable energy and non-renewable energy? How does non-renewable energy impact our planet? What does it mean to save energy (energy conservation), and why should we reduce our energy use? How does this benefit the environment? Share what you have learned in this section to another troop, by making a presentation, poster or video journal.

2. **All About Electric Vehicles!** Watch NYPA EV 101 Video where you will learn everything you wanted to know about Electric Vehicles. https://youtu.be/nx9ng0A9yQg. How are EVs and Gas cars different? What are some of the benefits or advantages to driving an EV? What are some of the latest EV cars on the market today?

3. **Start a Conservation Campaign!** Watch NYPA Energy Saving Tips: Stand-by Power Video
   to learn about Vampire Power and ways to help save energy. Small changes in behavior, when achieved by entire communities, can bring about big results. Starting in your home, for 1 week, work with your family to be more conservative with energy. Turn off unnecessary lights, unplug electronics, turn off air conditioners and open windows instead. Once you have conquered conservation in your own home, collaborate with your troop to create a list of best practices. Then present your ideas to your Service Unit and ask them to join you in a conservation campaign to save power in numbers!

Junior and Cadette

1. **Explore Engineering!** Select one of the engineering disciplines (civil engineering, electrical engineering, etc.) to research. What are the educational requirements? What types of employment opportunities are available? What percentage of engineers in the field are women? Do you know a woman that is an engineer? How did they get to where they are in their career field? Is this a career you would consider? Why or why not? Then share your findings with another troop to educate others about a career in engineering.

2. Start a Conservation Campaign! Watch NYPA Energy Saving Tips: Stand-by Power Video
   to learn about Vampire Power and ways to help save energy.
   https://youtu.be/8QkOT7Bs2ik .Small changes in behavior, when achieved by entire communities, can bring about big results. Starting in your home, for 1 week, work with your family to be more conservative with energy. Turn off unnecessary lights, unplug electronics, turn off air conditioners and open windows instead. Once you have conquered conservation in your own home, collaborate with your troop to create a list of best practices. Then present your ideas to your Service Unit and ask them to join you in a conservation campaign to save power in numbers!

3. **Career Considerations** In 2009, NYPA established Women in Power, an employee resource group whose mission is to support women at NYPA and to serve as role models for girls and women in STEM. Visit NYPA Women in Engineering NYPA Energy Professionals to read about some of their female professionals. What did you learn from their answers? What advice resonated most with you? What did they have in common? Why do you think it's important for young women to read articles like this?

4. **Create an Energy Education Campaign**! Using PowerPoint, Google Slides, Prezi, etc. create a presentation that answers the following questions: What is energy? How do you use energy in your daily life? How is electricity generated and transmitted in New York State? How does energy generation and transmission affect the environment? How is energy generated where you live? What is the difference between renewable energy and non-renewable energy? What are the impacts of using sources nonrenewable energy? What is energy conservation and why should we reduce energy use? How does this benefit the environment? What is sustainability? Why is it important for everyone on the planet? How does sustainability relate to energy efficiency? Share your presentation to another troop, friends or family members.

Senior and Ambassador

1. **Peak Load Activity:** What time of day do we use the most power? What happens if all of New York uses their appliances at the same time? Simultaneous use of electrical items results in a large electrical demand on the electricity grid. What could be a result of this large electrical demand? Create a list of the electrical items that you use in your home, organized by the time of day that each item is used (for example, 6am-8am, 9am-11am, 12pm-2pm, 3pm-7pm, 8pm-12am). Compare your list with the other members of your troop. Did they have similar patterns of use in their household? Now compare matching game results to New York Independent System Operator (NYISO) data at http://www.nyiso.com/public/markets_operations/market_data/graphs/index.jsp. What did you find? Were you surprised by any of the data? With your troop, brainstorm ways to decrease simultaneous electrical demand. Commit to making changes in your own home and present your ideas to another troop and ask them to do the same. How would this pattern be affected if more renewable energy sources were incorporated into the Grid?

2. **Women in Power!** Why is it important for girls and women to build a network of mentors and sponsors in business and in life? Brainstorm ways that you can begin to build a network of your own and make it a goal to add at least one female to your support network. Then interview a woman who inspires you (troop leader, science teacher, family member) to get to know them. How did they become interested in their career field? What challenges did they face and how did they overcome them? Who were their role models, and how did they learn from them? What did you learn from their answers? What resonated most with you?

3. **Residential Energy Efficiency Activity** Visit a local hardware store and speak to an associate about various products (i.e.: insulation, weather stripping, LED lighting, high efficiency appliances, window film, AC covers, etc.) that can reduce residential energy consumption. Discuss these upgrades with your family. Which would have the largest effect on reducing home energy bills? Research the equivalent amount of greenhouse gas reductions associated with energy efficient upgrades. With the help of a parent or guardian, implement at least one of the energy efficient upgrades that you learned about in your home.

4. **All About the Audit**! Choose a location to conduct an audit of the electricity used. It can be in your school, meeting place or home. Using the Energy Audit Table below, make a list of everything in the room that uses electricity, such as a phone charger, laptop, microwave, fan, etc. Next, form your hypothesis: which appliances do you believe are the largest 'energy hogs'? Highlight these appliances on your sheet. With your troop leader, measure the reading of each item using a wattmeter. First, unplug the appliance to be tested and plug the wattmeter into the outlet. Now plug the appliance into the wattmeter, turn on the appliance and note the power consumption reading. Repeat the step above with the appliance off. Do you still obtain a reading? If yes, this is called Vampire power, which is electrical power used by appliances and equipment while switched off or not performing their chief function.
   Discussion questions:
   - Which Appliance uses the most energy? Was your hypothesis correct?

- What do the top 3 appliances have in common? How long are these appliances on during the day?
- Now that you know the difference between real power and vampire power, how can you prevent unintended standby electrical use?

Appliance	**Watt meter reading** (Kw)	**How long is it used every day**(H)	**KiloWatt-hours** (Kw x H)
Room Total			