

We hope you enjoyed learning some facts about home energy usage, how to save energy, and how you can design a fun paper pinwheel!

— Your friends at Penn State Brandywine



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**Sustainability
Research Station**

Today's activities promote United Nations Sustainable Development Goals 7, 11, & 12



Learn more about the UN Sustainable Development Goals:
<https://sustainabledevelopment.un.org/>

Learn more about us on our website
<http://sites.psu.edu/sustainovation/>

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Energy Efficiency in the Home



**Learn about energy in your home
and how renewable energy works!**

Brought to you by Penn State Brandywine's Sustainovation Club (students working towards a sustainable future through innovative ideas and approaches)

sustainovation
sustainability + innovation

Energy facts

- In 2016, the average annual electricity consumption for a U.S. residential customer was 10,766 kilowatt-hours (kWh) or 897 kWh per month. That is the same as one 100-watt bulb running for ~12 years and 4 months.
- Pennsylvania requires that 18% of the electricity sold by 2021 comes from renewable sources, including at least 0.5% solar photovoltaic power. In 2017, renewable energy accounted for 4.5% of the state's net electricity generation.
- In 2017, Pennsylvania ranked second in the nation in electricity generation from nuclear power, which supplied 42% of the state's net electricity generation - more than from any other energy source.

The challenge for the planet

- Through direct and indirect greenhouse gas emissions, approximately 716 million metric tons of carbon dioxide have been emitted into the atmosphere by American households in 2016.
 - **Direct emissions** are produced by directly burning fossil fuels for heating, cooking, and decomposing organic waste.
 - **Indirect emissions** are produced by burning fossil fuel at a power plant to make electricity, which is then used in residential and commercial activities such as lighting and appliances.

How you can be energy efficient

- Replace old incandescent light bulbs, with more efficient LED light bulbs, saving about \$10 per bulb per year.
- Upgrade to Energy Star Certified appliances and electronics.
- Turn off the lights and electronics when leaving a room.
- Get a home energy audit from your local electric utility.
- Go outside!

Improve your energy usage! Learn more!

- **Department of Energy, Office of Energy Efficiency** - <https://www.energy.gov/eere/office-energy-efficiency-renewable-energy>
- **PECO Energy Assessments**- <https://www.peco.com/WaysToSave/ForYourHome/Pages/Assessment.aspx>
- **Energy Kids, U.S. Energy Information Administration** - <https://www.eia.gov/kids/index.php>
- **PA State Parks** - <https://www.dcnr.pa.gov/StateParks/FindAPark/Pages/default.aspx>
- **Get Outdoors PA** - <https://getoutdoorspa.org/>

How is your overall knowledge of energy?
Check out the U.S. Dept. of Energy's
Energy Literacy Principles!


1

Energy is a physical quantity that follows precise natural laws.




2

Physical processes on Earth are the result of energy flow through the Earth system.




3

Biological processes depend on energy flow through the Earth system.




4

Various sources of energy can be used to power human activities, and often this energy must be transferred from source to destination.




5

Energy decisions are influenced by economic, political, environmental, and social factors.




6

The amount of energy used by human society depends on many factors.



7

The quality of life of individuals and societies is affected by energy choices.



Energy Literacy is an understanding of the nature and role of energy in the world and daily lives accompanied by the ability to apply this understanding to answer questions and solve problems.