

NETL ENERGY ZONE AT THE CARNEGIE SCIENCE CENTER



NETL

NATIONAL **ENERGY** TECHNOLOGY LABORATORY

BACKGROUND

Located on the fourth floor of the Carnegie Science Center, the NETL Energy Zone includes a variety of hands-on, minds-on activities designed to help children think early about careers in energy science and engineering. The Energy Challenge is the centerpiece exhibit. Since 2010, this fun, quiz-style game has been educating visitors of all ages on energy use and production. In 2018, NETL revamped the Energy Challenge to modernize the look and feel of the exhibit. In addition, content was refreshed to reflect current energy topics, trends, and challenges. Annually, the exhibit receives approximately 150,000 visitors, making the Energy Challenge one of NETL's most popular educational outreach activities. The exhibit is geared toward science, technology, engineering, and mathematics (STEM) which is a core value of DOE.

OVERVIEW

NETL's Energy Zone is a vital component of the Lab's STEM Education Program, advancing the Lab's goals to inspire the next generation of energy researchers, engineers and scientists and proactively develop and support education initiatives at all levels. The Energy Zone effectively educates the public about many aspects of energy and offers positive visibility for NETL and its broad mission in a popular, regional venue. The "Energy Challenge" is the centerpiece exhibit, anchoring seven energy-focused exhibits, collectively displayed as the NETL Energy Zone:

- **NETL Energy Challenge** – the cornerstone exhibit, in which participants can challenge each other by buzzing in to answer questions on energy – how it works, and how we can conserve and reduce our energy use.
- **NETL Power House** – participants flip toggle switches associated with household appliances to learn about relative energy consumption on an electric usage meter.
- **NETL Circuit Station** – participants use red and black cable wires to connect complete circuits to power a light, spinner, or buzzer.
- **Energy Quiz** – a single-user activity in which a participant answers energy questions and is scored on correct responses.
- **Rebound** – participants explore transfer of energy as they ricochet balls on a tabletop.
- **Ring Launcher** – participants press a button to initiate an electric current, producing an electromagnet that forces a metal ring to be swiftly launched up a pole.
- **Wind Power** – Participants spin turbine blades to generate power and light up a model home.

THE ENERGY CHALLENGE

The Energy Challenge teaches Science Center visitors about the importance of energy in our daily lives, how energy works, and how we can conserve and reduce our energy use. It also illustrates the unique collaboration among the region's academic, government, business, and nonprofit organizations in addressing the challenges posed by energy use. To play, participants answer questions on all aspects of energy, which are divided into the following age groups to permit all levels of play: kindergarten through fourth grade, fifth through eighth grade, ninth grade through adult.



OUTCOMES

From its launch in 2010 to its refresh in 2018, and even throughout the COVID-19 pandemic, the NETL Energy Zone has remained a popular stop at the Carnegie Science Center. The Energy Zone has welcomed more than 1.5 million guests, including over 300,000 school students. Annually, the approximate visitor traffic is 150,000, and it is estimated that at least 80 percent of all Science Center guests visit the fourth-floor gallery where NETL's interactive exhibits are housed.

The NETL Energy Challenge hosts a wide range of demographic users, from multi-generational families competing against each other, student-versus-student use, and even teachers competing against their students.

Statistics collected by NETL show that more than 206,000 games have been played since 2015. The Energy Zone remains popular with visitors of all ages year-round, and especially with field trip visits from March to June, when the exhibit is in almost constant use and entertains approximately 1,500 students per day.

NETL is a U.S. Department of Energy national laboratory that drives innovation and delivers technological solutions for an environmentally sustainable and prosperous energy future. Through its world-class scientists, engineers and research facilities, NETL is ensuring affordable, abundant and reliable energy that drives a robust economy and national security, while developing technologies to manage carbon across the full life cycle, enabling environmental sustainability for all Americans, advancing environmental justice and revitalizing the economies of disadvantaged communities. Leveraging the power of workforce inclusivity and diversity, highly skilled innovators at NETL's research laboratories in Albany, Oregon; Morgantown, West Virginia; and Pittsburgh, Pennsylvania conduct a broad range of research activities that support DOE's mission to ensure America's security and prosperity by addressing its energy and environmental challenges through transformative science and technology solutions.

Contacts

Ken Mechling

K-12 STEM Education and Outreach
NETL
Kenneth.Mechling@netl.doe.gov

Kate Nielsen

Career Management & Education Programs
NETL
Katherine.Nielsen@netl.doe.gov

Carnegie Science Center

1 Allegheny Avenue Pittsburgh, PA 15212

Open every day (10 am-5 pm), except for Thanksgiving, Christmas, and Steeler game days.

carnegiesciencecenter.org