

inter

Energy Literacy 2016

nef

**Energy
Industry
Spotlight:**

Natural Gas
Helping Achieve
National Goals

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cultivating energy literacy



Know What's Below

Visually identifying potential hazards is one of the fundamentals of energy safety. Substations, utility lines, pipelines and gas meters are essential for meeting our energy needs and it is important that we know how to be safe around them. But what about when hazards are underground and out of sight? The Common Ground Alliance (CGA) has taken the lead in a national effort to reduce accidents involving underground utilities. The CGA is a nonprofit organization comprised of members devoted to encouraging recognition and adoption of best practices for damage prevention and safety initiatives.

CGA stakeholders from the utility industry promote the "Know what's below. Call 811 before you dig" national initiative to reduce damage to utility infrastructure by focusing on safety.

Before any project that involves digging begins, it is important to know exactly what you will find underground. According to CGA, "an underground utility line is damaged once every 6 minutes nationwide because someone decided to dig without first calling 811." When you call 811, a member of the national CGA network is sent to mark the approximate locations of underground lines and pipes. Utility companies that potentially have equipment underground are notified of your project.

National Student 811 Safety Contests with PHMSA

Contests are fun! Contests are even more fun when they share an important message and have chances to win outstanding prizes. This spring, students have opportunities to share and promote the Common Ground Alliance's (CGA) Call 811 message: "Know what's below. Call 811 before you dig." Students may participate in a poster contest or video contest sponsored by the Pipeline and Hazardous Materials Safety Administration (PHMSA) and conducted by the National Energy Foundation (NEF). PHMSA is a U.S. Department of Transportation agency committed to advancing the safe transportation of energy and other hazardous, yet essential, materials throughout the country. PHMSA is also a key stakeholder and supporter of CGA and its Call 811 message.

The poster contest is designed for students in grades 4-6 and the video contest is open to students from grades 9-12, with prize winners to

be announced by June 1, 2016. One grand prize winner from the poster contest (and a parent/guardian) will be awarded a trip to Washington, D.C. to attend a Washington Nationals baseball game in August 2016 supporting 811 Day. One video contest grand prize winner (or winners in teams of two) will each receive an \$811 scholarship and a laptop computer. Other prizes will be awarded to honorable mention students from both contests.

"The 811 Poster Contest and 811 Video Contest are wonderful and exciting experiences for teachers and students alike," said Stephanie Dorman, Program Manager at NEF. "Each student learns the importance of the Call 811 message and there are new ideas brought to us in a creative fashion from both contests." Visit energysafekids.org/poster and energysafekids.org/video for more information.

Energy Efficiency Tech at Home

An important element of energy literacy is knowing how energy is used and what we can do to use it more wisely. Efforts in conservation and efficiency combine wise energy behaviors and energy-efficient products. Unplugging devices that are not in use is a behavior for saving energy from plug load, but what if those plugs are hard to get to or there are too many to unplug conveniently? Tier 2 advanced power strips are a great technology you can use at home, school or the office to automatically reduce the amount of energy you consume.



Tier 2 advanced power strips recognize when a plugged in device is being used and automatically cuts power to outlets that are not in use. Timers and sensors monitor when power is needed, which means that electricity will not be wasted when devices are not needed or being actively used.

Tier 2 advanced power strips can be combined with a traditional power strip to take your energy management to the next level. When you take a stroll through your local home improvement store, consider being an early adopter of this awesome new technology.

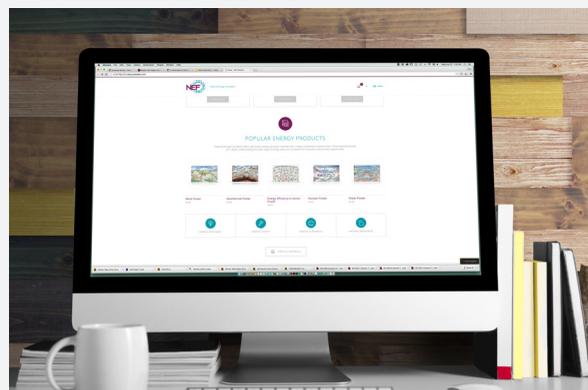
2015 was a year of exciting advancements to the National Energy Foundation's (NEF) visual brand identity. A major part of NEF's new visual identity was the launch of its new website, helping it become a powerful tool in maximizing the effectiveness of NEF's educational efforts.

This website helps visitors learn about NEF's mission to cultivate and promote energy literacy while showcasing the services used to fulfill that mission. The new nef1.org demonstrates NEF's ability to reach a diverse audience with the latest developments in energy literacy.

The NEF online store has also undergone a renovation to put a spotlight on NEF's educational materials. Engaging posters, interactive multimedia and other educational materials allow students, teachers and families to access fun and simple tools to learn about energy.

As the NEF team reflects on the organization's 40 year history, it is apparent that innovative technology has played a large part in successfully reaching thousands of people with energy education.

NEF Online Makeover



Natural Gas Helping Achieve National Goals



WASHINGTON, DC- Amazing technological advancements have enabled us to extract natural gas from sources we never dreamed possible ten years ago. We now have more than 100 years' worth of clean natural gas in the United States. This abundance has kept the cost of natural gas low and stable for several years, and it is expected to stay that way for decades into the future.

The low price of natural gas and its ability to replace coal for electricity generation has been widely touted for its environmental impact, but there is more good news. 177 million Americans have natural gas delivered directly to their homes for heating, water heating, cooking and clothes drying.

More homes and businesses use natural gas today than ever before and the numbers continue to increase.

In fact, one third of the natural gas used nationwide goes to the residential and commercial sector.

Consumers are benefitting from this abundance and the affordable and stable prices it has created. The two-year average cost of an individual household natural gas bill has dropped about \$250 since 2007. Households that use natural gas for heating, water heating, cooking and clothes drying spend an average of \$693 less per year than homes using electricity for those applications. That is more than the cost of a brand new iPhone 6s.

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Customer growth has required additions to distribution pipeline infrastructure in order to ensure reliable service.

Safety is our core value and the top priority for natural gas utilities, and every utility has a program to upgrade pipelines that are no longer fit for service. This ongoing modernization

of our infrastructure creates good, paying jobs in our communities.

Also, our environment is benefitting from greater use of this domestic fuel directly in homes and businesses. A household with natural gas versus all-electric appliances produces 37 percent less greenhouse gas emissions.

As you can see, greater use of natural gas can help us achieve our national goals of boosting our economy, enhancing our security and improving our environment.

About American Gas Association

American Gas Association's (AGA) vision is to be the most effective and influential energy trade association in the United States while providing clear value to its membership.

For more information about AGA, visit: aga.org.

Teachers' Corner

This educational activity can be shared with students to demonstrate how opposite charges attract when two objects stick together through friction! Many of NEF's posters include similar activities at nef1.org/store.



Student activity – STUCK ON YOU

All objects are composed of positively charged particles called protons and negatively charged particles called electrons. Normally, the protons and electrons are evenly distributed in an object. Thus, the object is neutral or has no charge. When some objects are rubbed, their charged particles are redistributed. The object being rubbed picks up electrons from the object doing the rubbing. Thus, the object being rubbed becomes negatively charged and the object doing the rubbing becomes positively charged. Since unlike charges attract, the two objects will stick together.

Materials:

- 2 balloons
- 2 pieces of wool, fur or a sweater

Procedure:

1. Blow up a balloon and tie it.
2. Rub the balloon against a piece of wool, fur or a sweater.
3. Place the balloon against the wall; the balloon should stick to the wall.
4. Now blow up the other balloon and repeat step 2. Place it next to the first balloon.

Questions:

1. What have you observed?
2. What type of electricity is illustrated?
3. What causes the balloon to stick to the wall?



The national K-12 science standards were almost 15 years old before the Next Generation Science Standards (NGSS) were finalized and released in April 2013. In that 15 year period, tremendous advances occurred in science and science education. The NGSS are improved science standards that build interest and deeper understanding in science, technology, engineering and mathematics (STEM).

The NGSS were created through a collaborative state-led process (26 states involved) based on the "Framework for K-12 Science Education" created by the National Research

Council (NRC). This means that the federal government was not involved in development or sponsorship and that states decide whether or not to adopt the standards. The standards were developed in partnership with several organizations: the NRC, the National Science Teachers Association, the American Association for the Advancement of Sciences and Achieve Inc.

As of February 2016, 16 states have adopted the NGSS as their states' science standards with several other states showing interest in adopting them. The goal is for states to adopt the NGSS, develop new curricula based on them, revise standardized exams and train teachers to implement the standards, all to better prepare K-12 students for post-secondary education and future careers. In fact, the NEF program curriculum is correlated to the NGSS.

Learn more about the Next Generation Science Standards at: nextgenscience.org

Faces at NEF



Elena plays a big role as a program administrator, assisting with promotional pieces and program materials for many programs across the country. Elena was born and raised in South

America and Arizona is her home state. Elena enjoys traveling, baking, hiking, running in beautiful Utah canyons and spending time with her family. NEF values Elena's work and appreciates the way she helps things run so efficiently.



Shauna is the newest member of the Production Team as an editor and proofreader at NEF. She is originally from the Bay Area, California. She is also a big help to the Operations Team

with data entry. Shauna's favorite things include camping, hiking, ice skating, snowshoeing, reading, drawing and painting. She has been an asset to the NEF team with her editing skills, including with this edition of InterNEF!



Danielle is NEF's newest marketing and development assistant. She does great work in the material sales and layout departments. When Danielle is not at work, she loves rock climbing (indoors and outdoors), skiing at Park City, mountain biking, hiking and camping. NEF is grateful to have Danielle on the team as she finishes up a communication studies degree at the University of Utah.



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InterNEF provides insights from the energy industry,
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On a recent flight from Phoenix to Salt Lake City, I got a real treat. Within the space of 10 minutes, I peered down through a crisp blue February sky at the Grand Canyon and the Grand Staircase, followed by distant aerial glimpses of Zion and Bryce national parks. The good Earth and her beautiful natural resources were truly on display!

Of course, enjoying this eyeful of earthly wonder would have been impossible without the intersection of energy and technology.

The new Boeing 737 that transported me northwards is a marvel of technology, as is the complex system of air traffic control that keeps our skies safe.

And then there is the energy. We often take for granted the energy necessary for any number of typical daily activities, and

not-so-daily activities like flying over spectacular portions of the American Southwest. Thousands of gallons of jet fuel were required to get me and the other 150 travelers from the Valley of the Sun (Greater Phoenix) to Salt Lake International Airport. Factored into this fuel usage: impressive energy efficiency gains realized by Boeing in its development of new 737 models.

If you really think about it, energy, natural resources and technology are a part of pretty much everything we do. Helping teachers, students and families understand this is the core of NEF's energy literacy mission, and it is my privilege to be a part of achieving this great mission.