

ENERGY EXCHANGE

YOUTH AWARDS 2012



What do over 700 kids, teachers, and parents do to celebrate energy education on a weekend in June? They come to Washington, D.C. for the annual NEED Youth Awards for Energy Achievement! Since 1980, NEED has hosted this annual celebration of youth leadership in energy. The NEED Youth Awards Program is the only national recognition program designed to reward and share the energy work of students and teachers in the classroom and the local community. NEED is proud of its long history and the NEED staff and many volunteers work hard to make the Youth Awards Program a year-long opportunity for learning, student engagement, and community education. NEED students and teachers are extraordinary. They don't simply learn about energy from textbooks. NEED students are learning about the Science of Energy and then teaching their parents at family energy nights at school. They are completing home energy audits of their own homes and of others in their communities. They are organizing recycling drives and compact fluorescent lightbulb and LED sales. NEED students are hosting energy workshops for other local schools. They are learning the ENTIRE time.



Schools that are successful entrants to the Youth Awards Program track and document their energy activities all year long. Not just the classroom energy work, but everything they do. They take photos, they make videos, they create websites, they work HARD! Throughout the year, they strive to reach the energy and education goals they set early in the school year. For this one weekend in June, NEED harnessed the energy of its great NEED students and teachers. It is that energy that makes NEED successful and that will make energy a community discussion across the country. **SEE YOUTH AWARDS RECAP, PAGE 15**

YOUTH AWARDS BY THE NUMBERS

627,304

MEMBERS OF THE COMMUNITY REACHED BY THE SCHOOLS WHO SUBMITTED PROJECTS TO THE NEED YOUTH AWARDS PROGRAM

750

STUDENTS, TEACHERS, AND PARENTS

60

POUNDS OF SPAGHETTI SERVED AT FRIDAY NIGHT'S WELCOME DINNER

20

GALLONS OF ICE CREAM SERVED AT THE ICE CREAM SOCIAL

20

NEED YOUTH AWARDS STAFF

2

SPIRIT CRUISE SHIPS FILLED WITH DANCING, HAPPY YOUTH AWARDS WINNERS

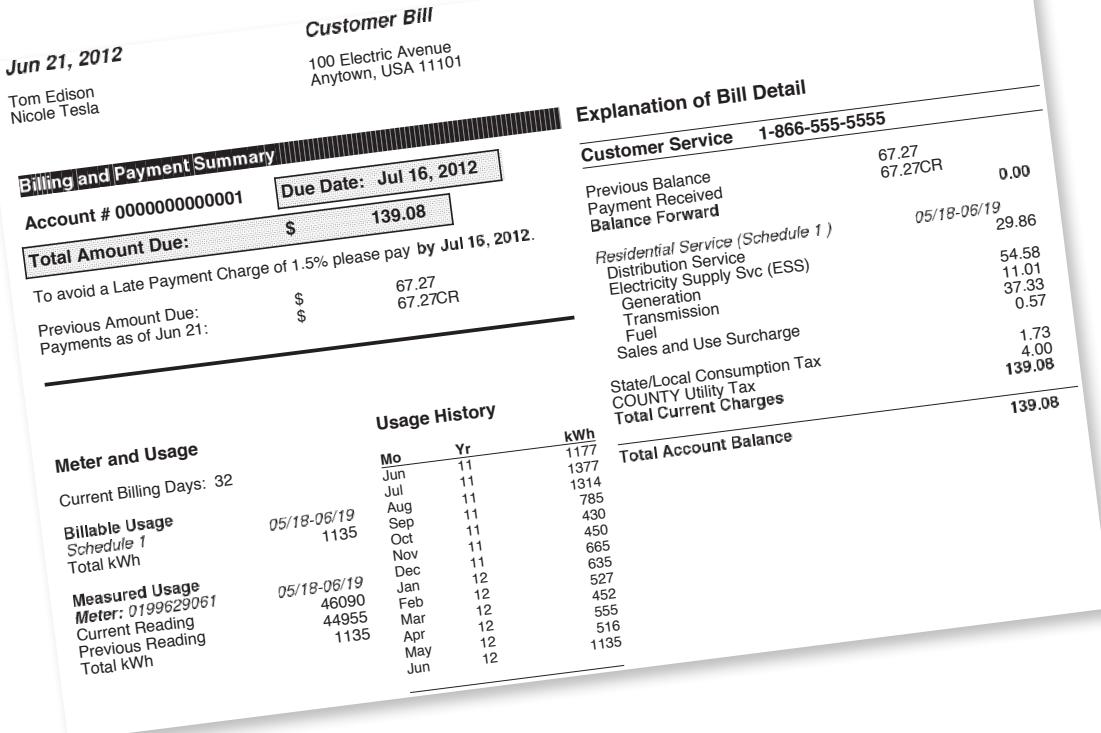
1 GOAL

CELEBRATE ENERGY EDUCATION AND PLAN FOR THE 2012-2013 SCHOOL YEAR!

FOR SOME OF OUR FAVORITE PHOTOS FROM YOUTH AWARDS WEEKEND, SEE PAGES 8 AND 9.

ELEMENTARY ACTIVITY

INTERPRETING AND REPRESENTING DATA



BACKGROUND

Students analyze the power bill for one year's time for their area. This activity provides an avenue to reinforce graphing as well as median, mode, range, and mean.

MATERIALS

- A copy of one year's power bill for your area (most power companies allow you to view and print one year's history on-line) – Make sure it gives the cost of electricity for each month, and not just the budgeted amount if you or your students' families are using a budget plan with the utility company
 - Have each child bring in one from home
 - Have your bill available for students who don't bring one or use it for all students in your class
 - Contact your power company and ask for 1-2 average bills (per month for one year).
- Graph paper and rulers for each child
- Calculators or paper and pencil to do the math
- Science notebook or blank paper
- Either project or copy the questions for each student

TIME

- 1 class period, plus the advance time to get the bills in from home

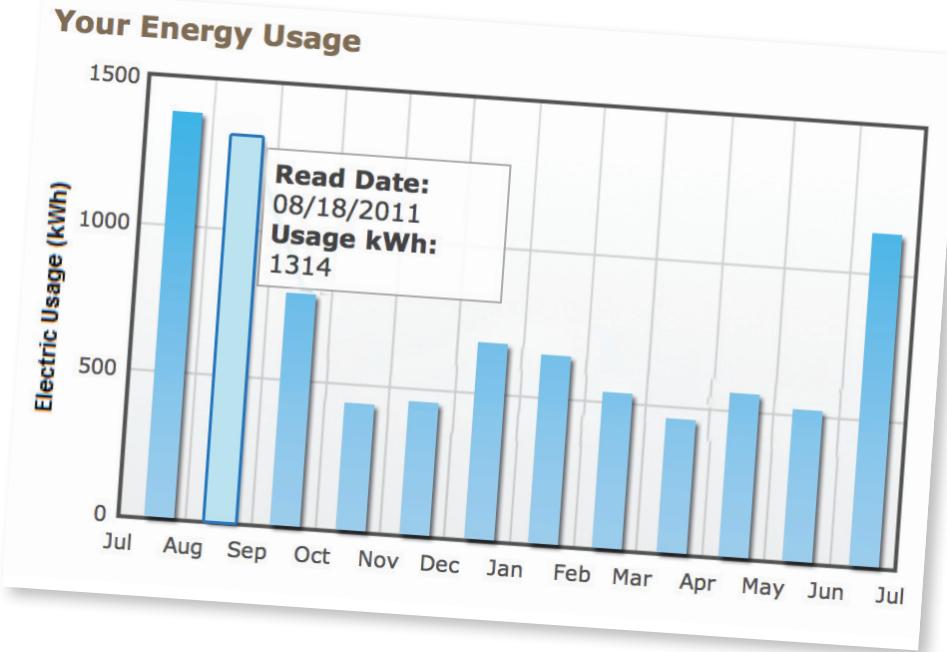
STUDENT BACKGROUND INFORMATION

One bill that adults pay each month is for the electricity used in their home. Do you think your power bill stays the same each month? Does everyone have the same power bill? What factors might help determine the size of a power bill?

PROCEDURE

Review the different types of graphs with your students. Tell them they are going to create a graph to show each month's electricity usage in kWh over the course of the year. Steer students towards creating a bar graph to showcase their data. If needed, review how to decide on the range for the vertical axis.

1. Have students graph the data and work on the questions. Depending on your level, you may want to make this a partner activity, pairing up your younger students.



ANALYSIS

1. During which months was the power bill the highest? What factors contribute to this?
2. During which months was the power bill the lowest? What factors contribute to this?
3. Do you think the power bill in other areas of the country would look the same as this one? Why or why not?
4. Find the mode of your data.
5. Find the median of your data.
6. Find the range of your data.
7. Find the mean of your data.
8. A family is moving to your area and is curious about the power bills they will be paying. Would the mode, median, range, or mean be the best measure to give them? Why do you think that is the best measure to tell them about a typical power bill for your area?
9. Do you think this is the best measure no matter where you live in the country? Explain.
10. Is there anything you could do to lower your power bill? Make a plan to show your parents.

EXTENSIONS

- Calculate the cost of your electricity use for the entire year.
- Give students two different power bills to make a double bar graph.
 1. What patterns do you notice about the two bills?
 2. What might account for these patterns?
 3. These bills are not identical, but are both for our area. What might explain the differences in the bills?
- Go to www.weather.com. Enter your zip code. Click on Monthly on the left menu. Select Averages from the bottom tabs. This will give you a month by month line graph for the high and low temperatures for your zip code. Make a handout for the students or write the information on the board in chart format (you want them to do the graphing, so don't just copy the graph for them). Direct your students to either put the two line graphs (high and low temperatures for your area) on top of their bar graphs or on a separate sheet of graph paper.
 1. What patterns do you notice when you compare the temperature graph with the power bill graph?
 2. Try to explain these patterns.
 3. You cannot change the outdoor temperature. Is there anything you can do to work with the outdoor temperature to lower your power bill?

INTERMEDIATE AND SECONDARY ACTIVITY

INTERPRETING AND REPRESENTING DATA

BACKGROUND

Students use recent statistics published by the Energy Information Administration (www.eia.gov) to graphically represent shifts in the amount of energy acquired from renewable and nonrenewable energy sources. This activity provides an avenue to reinforce the different types of graphs.

MATERIALS

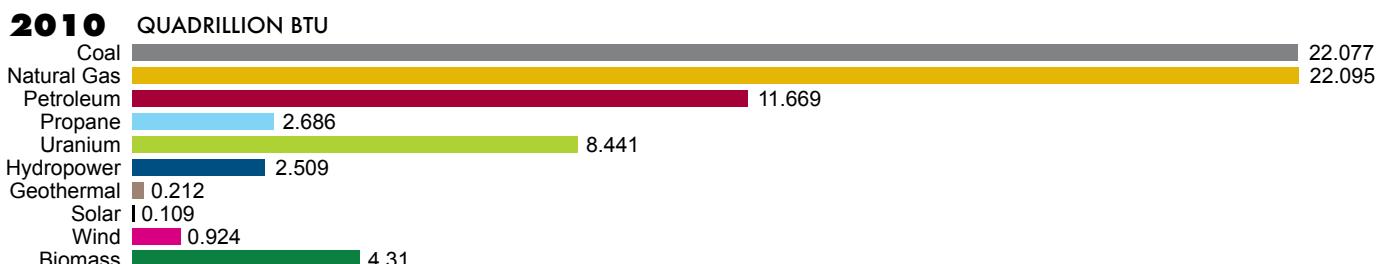
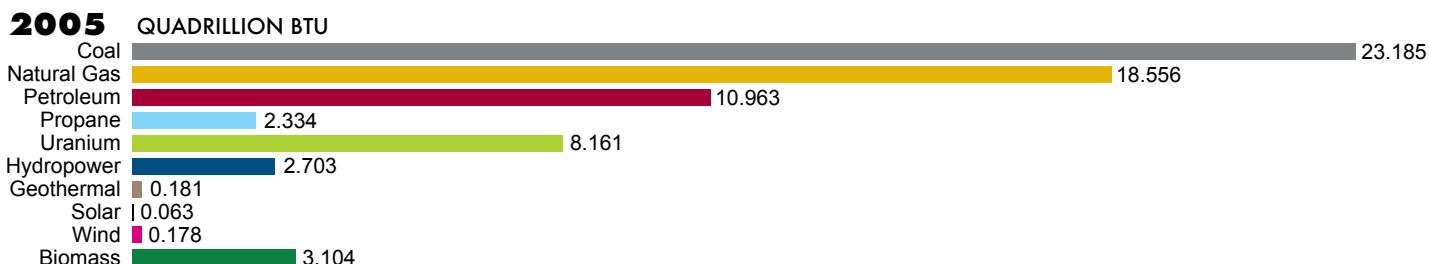
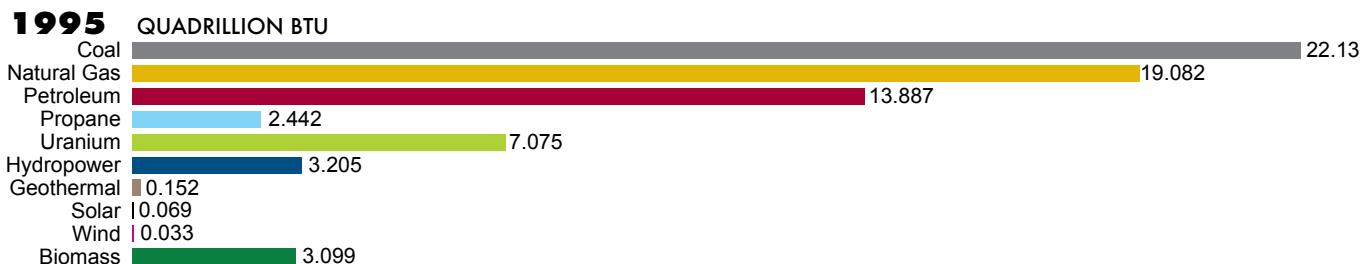
- Science notebook or blank paper
- Internet access to Energy Information Administration website
- Calculator
- Graph paper (alternately, you can have your students use computers to construct their graphs)

TIME FRAME

1-2 class periods, plus homework

STUDENT BACKGROUND INFORMATION:

Every year, the amount of energy we use as a nation changes. Factors such as weather, economic conditions, and our attitudes toward the environment all influence our energy usage. The following graphs represent the total amount of energy produced for all uses, given by source.



The purpose of this activity is to show how the amount of energy provided by each energy source has changed, and to better understand how much electrical energy each source provides within your own state.





teacher **TALK**



CONNIE JOSVAI

» Kennedy Elementary School in Manistee, Michigan

Connie Josvai teaches all 5th grade subjects at Kennedy Elementary School in Manistee, Michigan. Connie completed her Associates of Arts Degree from Southwestern Michigan College as well her Bachelor's of Arts Degree from Western Michigan University. Connie went on to complete a Master of Arts Degree in Administration, from Central Michigan University.

WHAT IS UNIQUE ABOUT YOUR TEACHING STYLE?

My teaching style is unique because I differentiate my instruction for all learning styles. Corresponding to NEED and its philosophy, I will allow "kids to teach kids", which gives them the opportunity to lead, take initiative, and have some ownership in their learning. I introduce opportunities for students to be successful as well as prepare the students for jobs that don't exist yet. What is unique about me is my unwavering dedication to my family and my students. My ambition to continue to learn as a lifelong learner, I feel, makes me unique. I attempt to instill this passion into my students, so hopefully they will be able to adapt in such a dynamic world.

WHY DO YOU SPEND TIME FOCUSING ON ENERGY IN YOUR CURRICULUM?

Energy is used throughout all aspects of life and can be taught through just about any subject. It's important for students to know and understand not only where we get energy but also how we utilize it every second of every day. Teaching energy conservation to students is important in order to conserve our resources by reusing, recycling, and becoming stewards of the land.

HOW DOES THE USE OF NEED MATERIALS AID YOU IN TEACHING ABOUT ENERGY? WHAT NEED MATERIALS AND TOOLS DO YOU USE?

The NEED materials are great materials to incorporate in my lessons especially when it comes to experiments and hands on activities. The materials correlate with the National Standards as well as our State Standards. NEED materials that I use include; Science of Energy Kit, Mentoring and Monitoring Kit, Energy Carnival Kit, the Elementary and Intermediate Infobooks, along with the extremely informative and useful NEED website and the eia.gov kids website.



Connie Josvai's class at John F. Kennedy Elementary School in Manistee was selected the Elementary School of the Year in the 32nd Annual NEED Youth Awards for Energy Achievement. To learn more about their project visit www.need.org. Congratulations Connie!

DO YOU INCORPORATE ENERGY INTO ANY OTHER SUBJECTS TAUGHT AT YOUR SCHOOL?

Yes, I incorporate energy lessons in our English Language Arts by reading energy books and informational text articles. Also, the students do research on energy sources and topics and write reports to present to other students. The students have made their own energy books in the past and have written persuasive essays about current energy topics.



HOW DO YOU INVOLVE YOUR COMMUNITY WITH YOUR ACTIVITIES AND CLASSES?

My students teach other students, teachers and parents about energy through the Science of Energy kit, and hosting an Energy Carnival at our school where parents, students, and teachers can play some fun activities while learning all about energy. The students maintain our school's recycling program with Packing Corporation of America Recycling, where we recycle cardboard and newspapers and the students participate in the Cartridges for Kids Program. To get current and relevant energy information out to the rest of our community we have a link to the NEED website on our class page. Also, to have some other sources of knowledge for the students, we'll invite community leaders involved in some aspect of energy to be guest speakers at our school.



DISTINGUISHED SERVICE AWARD

JOHN DAVIES

» Kentucky Department for Energy Development and Independence

In June 2012, NEED wraps-up several years of energy education programming funded by American Recovery and Reinvestment Act funds in the Commonwealth of Kentucky. As the ARRA funding comes to a close, NEED looks back on over a decade of strong support from the Kentucky Department of Energy Development and Independence and the support of extraordinary individuals within that department. Today, Kentucky teachers are better equipped to teach energy in the classroom, Kentucky students understand the role they play in the future of Kentucky energy, and Kentucky schools are more energy efficient than ever before.

John Davies serves as Deputy Commissioner within the Kentucky Department for Energy Development and Independence. Prior to this appointment he served as the department's director for the Division of Energy Efficiency and Conservation. Mr. Davies has managed energy programs for the Commonwealth since 2000, and throughout his tenure at the Department he has been a tried and true advocate for energy education in all

aspects – for students, for families, and for school district energy professionals. Much of what NEED does today, in Kentucky and beyond, have been tried and tested in the Commonwealth of Kentucky under John's dedicated oversight. NEED's EnergyStar Change the World Mini-Grants, High Performance Schools Conferences, and Energy Management for Schools training all achieved greater success because of his support.

In his spare time, he has served as a board member for the National Association of State Energy Officials, Kentucky Clean Fuels Coalition, the Southern States Energy Board Biobased Alliance, the Southeast Energy Efficiency Alliance, and is an ex-officio member on the Kentucky Farm Bureau's Energy and Transportation Advisory Committee. Mr. Davies also serves as board secretary to the U.S. Department of Energy State Energy Advisory Board.

Prior to joining the department he was employed by Ferrellgas, Inc. as an Area Manager for Kentucky, Tennessee and

West Virginia. Mr. Davies is a retired U.S. Army lieutenant colonel having served in Europe, the Far East and Washington D.C. He obtained his bachelor's degree and commission while attending the University of Illinois. He also holds a master's degree from the Florida Institute of Technology and is a graduate of the U.S. Army Command and General Staff College.

John's support and friendship to NEED are among NEED's greatest achievements and assets. We are honored to have him among our strongest advisors and supporters. Congratulations and thank you, John!



DISTINGUISHED SERVICE AWARD

GREG GUESS

» Kentucky Department for Energy Development and Independence

It is not often that two individuals from the same organization make such a profound impact on NEED programs and offerings to teachers and students. In 2012, we are especially honored to bestow the 2012 Distinguished Service Award on Greg Guess. Greg's long-time support of NEED programs has made the Kentucky NEED Project the powerhouse it is today – reaching hundreds of teachers each year, providing technical training to school energy managers, and encouraging schools to harness the best energy they can – the energy of teachers and students. Throughout his work with NEED, now spanning over a decade, Greg has been a thoughtful advisor, confidant, and proponent – encouraging the Kentucky NEED team and NEED's national team, to try new things, explore new opportunities, and to refine many of our programs, especially in energy conservation and efficiency for schools.

In his official role, Mr. Guess serves

as the Director for the Division of Efficiency and Conservation within the Kentucky Department for Energy Development and Independence. He has over 30 years' experience working in state government with much of it in executive level administration and management positions. He has been with the department since 2009 where he manages Kentucky's energy efficiency and conservation programs. Prior to starting his directorship in 2009, he served as an Assistant Director for the Governor's Office of Energy Policy where he worked with similar programs and provided strong support to NEED as well. He first began his work with the Commonwealth's energy programs in 1975 where he served as a senior development representative for the Kentucky Energy Office. During this time he helped design and execute Kentucky's first comprehensive energy conservation programs. Greg was working to make Kentucky energy efficient even before NEED existed!

A graduate of the University of Kentucky, Greg has spent his career educating and making people understand the importance of energy and the importance of a clear understanding of energy. NEED is lucky to have his wise counsel, good humor, and strong support. We are honored to have him among our strongest advisors and supporters.

Greg, we are grateful to you for your commitment to NEED, your dedication to students and teachers, and your boundless energy. Congratulations and thank you, Greg!



STUDENT OF THE YEAR

ALYSHA ANDERSON

Much of what makes Alysha NEED's Student of the Year for 2012 is explained so well by her Air Force Junior ROTC teacher and NEED teacher, Everett Smith. In his words, "Alysha's enthusiasm shared during lessons learned at the 2011 Youth Awards inspired her to bring even more NEED focus to the school and community. She was selected to be her high school's AFJROTC Commander out of 54 possible candidates. She was chosen for her leadership abilities. She sets and reaches overall unit goals based on teamwork through plans formed with the help of fellow cadets in leadership positions. She is able to work with a diverse group of students and form an effective team." Alysha's passion for leadership and energy is evident in her work and that of the NEED team at Franklin County High School in Winchester, Tennessee. The energy she brought to NEED is

unstoppable – and pulls all those around her into learning more, achieving more, and having fun at the same time.

Through her NEED work in Tennessee, she is quick to bring people together, to teach about energy, and to seek opportunities to learn more. From planning field trips to learn about biodiesel to organizing an electronic waste drive and collecting 4,500 pounds of e-waste, Alysha is always working to make her community a more efficient and energy educated place.

Alysha's ability to encourage others to learn and think about energy makes her a deserving recipient of the 2012 Student of the Year Award. She joins the ranks of NEED's best and brightest – who have made an impact on NEED for many years. NEED is also pleased to present her with the NEED Youth Leadership Award – a \$1,500 scholarship for outstanding NEED students. Congratulations Alysha!



STATE PROGRAM OF THE YEAR

ILLINOIS

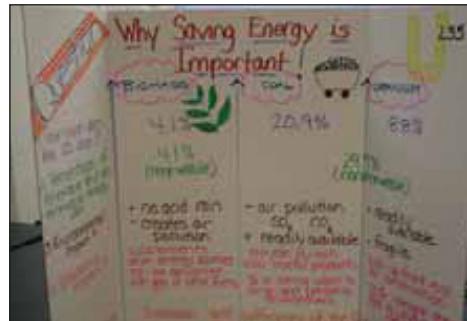
Each year, NEED selects a state program that has shown extraordinary growth and success in reaching more teachers than ever before, providing more resources to classroom teachers, and gaining the support of a diverse and engaged groups of partners. In the 2011-2012 school-year, Illinois programming grew exponentially, with over 1,200 teachers trained and thousands of students reached with hands-on energy curriculum.

Illinois teachers and students have access to teacher training across the state thanks to the support of ComEd, ConocoPhillips, the Illinois Clean Energy Community Foundation and the Walmart Foundation. ComEd's substantial support of over 30 teacher work-shops per year reaches over 700 educators and provides NEED Science of Energy kits, curriculum, and Energy Management kits to schools. Connected to the ComEd Smart Ideas initiative, the program helps teachers and students understand energy use in the classroom and to take those lessons home to share with their families – helping ComEd families save energy every day. For over six years, ComEd has made energy education a priority in its service area in northern and central Illinois – consistently

evolving and improving the program to meet teacher and student needs.

Over the past 10 years, NEED has supported the Illinois Solar Schools program funded by the Illinois Clean Energy Community Foundation as part of a partnership with the Foundation for Environmental Education. In 2012, this program expanded to provide wind turbines to selected schools and boasts dozens of solar schools across the state. NEED provides teacher training and solar kits and curriculum to participating schools. This solar program, in addition to NEED's Walmart Foundation supported Solar Schools program, brings solar installations to schools and integrates the systems into the classroom with hands-on solar curriculum kits and lessons using the data produced by the photovoltaic system. Working with the Foundation for Environmental Education, the Walmart Solar Schools program installed photovoltaic systems on schools in the Chicago Public School District, celebrated solar with a Solarbration and Ribbon Cutting, and hosted Chicago teachers for training on solar power.

The success of NEED programs in Illinois



illustrates the impact of energy education when many partners come together to teach about energy and to provide educators with training and resources so needed in the classroom.

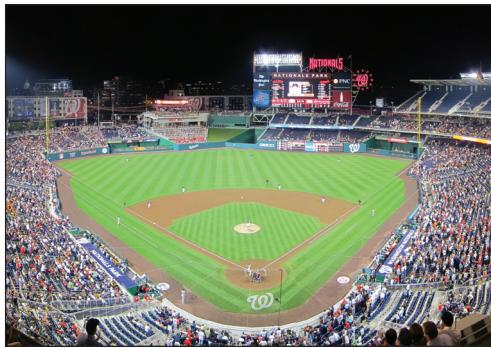
YOUTH AWARDS RECAP, CONTINUED FROM PAGE 1

This year, our participants were energized by our speaker – Dr. Frederic Bertley, Vice President of Science and Innovation at The Franklin Institute in Philadelphia, PA. People interested in energy certainly understand why a Vice President of The Franklin Institute would be a great speaker to engage and excite students and teachers of all ages. Dr. Bertley knows NEED and he appreciates the work of NEED students and teachers. He loves learning and enjoys hearing from NEED students about all they learn in the classroom and in the community. At this year's ceremony, Dr. Bertley was also an award winner – receiving recognition along with his colleague Sharon Kiefer and the team from PECO representing the PECO Energizing Education Program (PEEP) in Philadelphia. The PECO Energizing Education Program received recognition for Regional Program of the Year. As a partnership between PECO (the local Philadelphia power and gas utility), The Franklin Institute, and NEED, the PEEP program reaches over 8,000 students in the region. Teachers are trained, classroom curriculum and kits are provided to schools and participating students create a community outreach project to teach about energy.

The 32nd Annual NEED Youth Awards for Energy Achievement goes down in history as the best attended, most energy filled conference to date. The program was, as always, run by students for students. NEED's summer interns Rachael Spencer (University of Virginia) and Ian Munn (DePauw University) made the program a great success and both know they have opportunities at NEED whenever they want them! NEED kids and teachers are amazing. That's what makes the program worthwhile and sustainable.

Reminder: It isn't too early to start planning for 2012-2013 energy project NOW!

NEW AND NOTEWORTHY

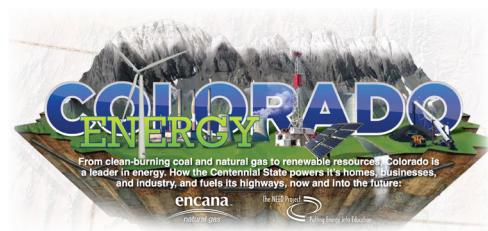


SUMMER IN THE CITY!

The NEED Energy Conference for Educators was HOT! The Washington, D.C. temperatures cooled a bit from the record highs in early July, but the conference was HOT! Over 120 educators from sea to shining sea, Hawaii, Taiwan and the Philippines came together for a week of energy training. It was like summer camp for teachers. The conference is designed to give participants ample opportunity to learn about the science of energy, energy sources, electricity generation and efficiency. Participants break-out into groups by grade level to learn, share and discuss energy. Other sessions allow participants to choose specific energy technologies to explore. This year's conference included sessions on hydraulic fracturing; carbon capture, utilization and storage; hydrogen; the chemistry of energy efficiency; and planning energy projects for student leadership. Participants also had the opportunity to visit Washington Nationals Park home of Major League Baseball's Washington Nationals. Nationals Park is a great example of sustainability in architectural design. Go Nats!

CHALLENGE BASED LEARNING

NEED, working in partnership with Story Quest Institute of Jackson Hole, Wyoming, hosted a Challenge Based Learning workshop for a group of its workshop facilitators and Teacher Advisory Board members in late July. Dr. Julie Elledge worked with the group to more deeply understand Challenge Based Learning. This workshop prepares NEED facilitators to be involved in a special program NEED and Story Quest are working on for launch in late 2012-2013 increasing NEED's available digital assets related to energy. Stay tuned for more on this project!



FIRST VIRGINIA, NOW COLORADO

Virginia's teachers continue to rave about the Virginia Energy Map developed by NEED's Creative Advisor Tim Meko. Now, thanks to Encana, Colorado teachers will soon be able to share in the excitement of having classroom lessons and activities related to Colorado's energy geography. The Colorado Energy Map is currently in development and will launch in the 2012-2013 school year.

YOU TAUGHT, KIDS LEARNED

Thanks to all educators who used the NEED Pre and Post Polls to assess student energy knowledge gain in the 2011-2012 school year. Preliminary review of the poll data shows that students are increasing their energy knowledge by 15-20%. Keep teaching about energy! It is working!

WORKSHOPS ON THE WAY

Don't forget to check the NEED Events calendar at www.need.org to watch for workshops in your region. Did you attend a workshop last year and enjoyed it? Please share your opinions with others – we want every 2012-2013 workshop FILLED to capacity. NEED's sponsors and partners provide the resources needed to bring energy education curriculum and kits to schools across the country. We want to make sure no one ever says, "I didn't know the opportunity existed."

PECO ENERGIZING EDUCATION PROGRAM RECOGNIZED BY GOVERNOR TOM CORBETT

The PECO Energizing Education Program received the Governor's Award for Environmental Excellence in Pennsylvania. PECO, The Franklin Institute, and NEED were recognized at an awards dinner in Harrisburg, PA and received the award from Michael Krancer, Secretary of the Department of Environmental Protection. The award is extremely competitive and shows just how impactful the program has been in schools in the Greater Philadelphia region. Congratulations PECO!



THE NEED PROJECT
P.O. BOX 10101
MANASSAS, VA 20108
800-875-5029
www.NEED.org

NONPROFIT
ORGANIZATION
U.S. POSTAGE
PAID
PERMIT #201
DULLES VA

IN THIS ISSUE

Youth Awards 2012

We celebrated energy with more than 750 of our closest friends. Inside, you'll find a complete wrap-up of the 32nd annual Youth Awards for Energy Education.

What's New is Good News

Welcome back from Summer vacation. We've been busy revising and updating our curriculum with new statistics and teacher suggestions.

Try This!

NEED shows off some of our lesser-known curriculum.

Activities: Interpreting and Representing Data

Students analyze and visualize data in these activities written at the elementary and intermediate and secondary levels.

Teacher Talk

Also in this issue, NEED sits down with Connie Josvai for Teacher Talk. Connie is a teacher at Kennedy Elementary School in Manistee, Michigan.



THEY'RE ENERGIZED!

PECO's Christina Kerrigan and Mellanie Lassiter and The Franklin Institute's Dr. Frederic Bertley and Sharon Kiefer join Mary Spruill to receive the Regional Program of the Year Award.