Consumers Energy
Count on Us

POWER UP

GENERATING IDEAS
for Learners Like You

SCHOOL YEAR 2014 – 2015

Programs Ready to Visit Schools

Respect the Flags and THINK! ENERGY

Respect the Flags is a free 45-minute, in-class program geared for second-, third-, and fourth-grade students. It teaches students through a hands-on and interactive presentation about the colored flags used to mark underground pipes and wires, and how to recognize, react to and report a natural gas leak.

For a free 45-minute presentation, email us at education@cmsenergy.com.

Our **THINK! ENERGY** programs are free 60-minute, interactive, hands-on presentations with energy efficiency kits for each participating student and teacher to take home.

The programs teach the importance of renewable resources and environmental stewardship, and give each student's family energy efficient technologies to install at home.

The **Take Action** program is geared for fourth– to sixth-grade students and the **Innovation** program is designed for high school students. Innovation is currently offered in Muskegon County. Take Action

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EmPOWERed Kids program teaches students about electricity and natural gas.

EmPOWERed Kids

Making students smarter, safer

A FREE INTERACTIVE program that teaches students about safety and the benefits of energy is now available for classrooms.

The EmPOWERed Kids program, endorsed by the Michigan Department of Education, is a 45- to 60-minute, app-driven presentation designed to educate kindergarten to sixth-grade students about energy topics such as:

- The dangerous consequences of touching electric power lines or acting carelessly with electrical appliances.
- Learning the 3 Rs: recognize, react and report natural gas leaks.
- The role of utility flags and why safe digging is important.

Familiar technology is used to show students how to become safety heroes.

"Throughout our 127-year history, Consumers Energy has been dedicated to supporting education in the communities we serve," said Tara Ragauss, Education Programs Manager.

During the last five years, the Consumers Energy Foundation has donated more than $3.8 million to educational organizations and initiatives because we know that education is the key to creating safe, successful communities throughout our state.

Our educational outreach programs have reached more than 330,000 students over 22 years.

Our educational outreach programs have reached more than 330,000 students over 22 years.

"Our EmPOWERed Kids program shows that we plan to continue educating kids for many years to come," Ragauss said.

To sign up for the program, email us at education@cmsenergy.com or visit us at ConsumersEnergy.com/teachers.

ConsumersEnergy.com/teachers also has lesson plans, educational games and other resources for teachers.

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Ask An Expert

Students: Do you have a question about energy that you can't answer or do you want to hear more about what it's like to work at an energy company from a real employee?

Well, now you have the chance.

Just go to ConsumersEnergy.com/kids and click on the "Students" tab at the top. Then click "Ask an Expert" on the left side of the screen.

Fill out the form and an expert will follow up with you to answer your question.

Wires and Trees JUST THE FACTS

Trees account for about **30 percent** of all power outages, and fallen trees or limbs can cut power to hundreds or thousands of people at a time.

About **700 workers** are currently in the field trimming or removing trees that come in contact with electric lines. They plan to work along **6,375 miles** of lines, enough to travel from the Michigan-Ohio border to the Mackinac Bridge more than 10 times there and back.

An important part of our forestry work is sustainability and planting the right tree in the right place.

We provided more than **$50,000 in grants** last year to help plant more than **390 trees** in more than **40 communities.** This year, the company is **doubling that amount** to $100,000, with maximum grants to communities of $2,000.

CAREER CORNER

To learn more about career and internship opportunities at Consumers Energy, visit ConsumersEnergy.com/careers

Clay McAndrews

Graphic Designer for Strategic Communications

What is your typical day like?
There isn't a typical day in the office for me, and that's one reason I love my job so much. Each day, I am faced with a new problem to solve; I just do it in a visual way. Whether it's advertisements, social media graphics or building signage, no two projects are the same. I work with many areas of the company and make ideas come to life in a visual and creative way.

What is your favorite part of your job?
The best part about my job is seeing my work in the public and seeing how people react to it. Art and design have always been my passion. In high school, I won the most "artsy fartsy" award and was in the National Art Honor Society. I love coming to work every day knowing that my design makes an impact on our employees and customers.

Who is your favorite artist?
Saul Bass

What is your educational background?
I graduated from Central Michigan University with a degree in graphic design and a minor in advertising. One of my favorite projects while at CMU was a gateway to the city of Mount Pleasant, where a weathered, rusty train bridge once was located. I designed a graphic to paint on the refurbished bridge that now welcomes visitors to the city. Whenever anyone passes under the bridge, they can see my artwork (above). It's cool just to be able to say that I did that.

Allison Buell Senior Environmental Planner for Forestry

What is the Forestry Department responsible for?
Our Forestry Department is responsible for vegetation management along our electric wires and natural gas pipelines. We provide our customers with safe, reliable service through routine maintenance trimming, tree removal for construction projects, assisting customers and storm restoration work.

What is your typical day like?
In the field, interacting with customers, crews, forestry planners, and members of the engineering and line departments.

What does reliability mean for your team?
Due to the storms of 2013, it's a busier year than normal. Additional tree crews have been added to our system, as well as an increase in hours worked. These factors will enable us to trim more circuit miles than we have in past years with a goal of increasing the reliability of our system.

What is the best part of your job?
Working on emergency storm restoration efforts. During these critical times you realize the importance of the service we provide. I am always impressed with the way our company and contractors work together to keep everyone safe and restore service to those in need.

Cheering on Success

Company Supports FIRST Robotics State Championship

Consumers Energy along with Gov. Rick Snyder, the Girl Scouts of Southeastern Michigan and the Women's Engineering Network (WEN), teamed up at the recent FIRST in Michigan Robotics State Championship with commitments to continue that support in the future.

Consumers Energy vice presidents Patti Poppe and Garrick Rochow were among the more than 2,000 people who attended the three-day event to watch 64 teams compete for the title at Eastern Michigan University.

Student teams work with professional engineering mentors to design and build robots.

Consumers Energy is empowering students to become the future science, technology, engineering and math (STEM) leaders in Michigan. Some students have the potential to succeed in engineering and other STEM fields, but are bored with those subjects.

The FIRST (For Inspiration and Recognition of Sciences and Technology) Robotics national competition combines hands-on STEM training with the excitement of a varsity sport.

Student teams work with professional engineering mentors to design and build robots that go head-to-head in two-minute arena games cheered on by screaming fans.

With the help of a $3 million grant from the state and sponsorships from companies such as Consumers Energy:

- Michigan added 75 new high school FIRST Robotics teams this year – more than the other 49 states combined.
- Michigan now has 277 registered high school teams, the most teams of any state in the country.
- FIRST in Michigan and Gov. Snyder announced a new goal of fielding 450 teams by 2017, or one team for every city in Michigan.
- FIRST in Michigan offers four levels of competition covering grades K-12.

For more information on how to start a team visit FIRSTinMichigan.org.

Largest Intern Group in History

A record 183 interns attended the annual Consumers Energy Intern Luncheon in Lansing on June 18.

The luncheon was a full-day event, with speakers from across the company.

Cindy Westerhof, Director of People Services, welcomed all of the interns, followed by presentations on renewable energy from Jack Hanson, Senior Vice President of Energy Resources; Tim Sparks, Vice President of Energy Supply; and Aaron Parker, General Engineer.

Interns from across the state then networked over lunch. They shared their experiences with the company and learned about one another's internships.

"I enjoy all the responsibility I have here, and I get to play a big role in the project that I am working on," said Adeline Ford, Energy Delivery Project & Gas Asset Management intern.

Another important part of company internships is the intern challenge, which was kicked off by Carolyn Bloodworth, Director of Corporate Giving. Interns were split into groups based on work location and asked to participate in a community service project.

"I am excited to see the impact they have on their communities," Bloodworth said.

Lake Winds Energy Park

Energy Park Updates

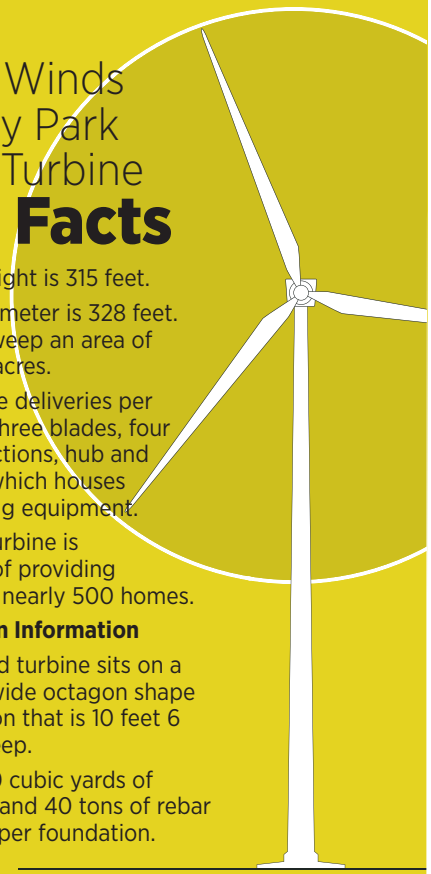
Construction continues this fall at Cross Winds Energy Park in Tuscola County. The wind farm will expand our supply of Michigan-based renewable energy for our 1.8 million customers.

The park is comprised of 43 turbines in Akron Township and 19 turbines in Columbia Township.

Our first wind farm, the Lake Winds Energy Park in Mason County, began generating electricity in late 2012.

Special tours of the wind farms can be scheduled.

- **Cross Winds® Energy Park**
  Contact the Caro Chamber of Commerce at 989-673-5211 for availability and information
- **Lake Winds® Energy Park**
  Visit Genesventures.com or call 231-690-1775 for availability and information



Cross Winds Energy Park Wind Turbine **Fun Facts**

- Tower height is 315 feet.
- Rotor diameter is 328 feet. Rotors sweep an area of nearly 2 acres.
- Nine large deliveries per turbine: three blades, four tower sections, hub and nacelle, which houses generating equipment.
- A wind turbine is capable of providing power to nearly 500 homes.

Foundation Information

- Each wind turbine sits on a 58-foot wide octagon shape foundation that is 10 feet 6 inches deep.
- Over 400 cubic yards of concrete and 40 tons of rebar are used per foundation.

Ludington Pumped Storage

The Hidden Gem

THOUSANDS FIND themselves canoeing our state's many rivers each year, perhaps glimpsing bald eagles soaring high above.

If they are paddling down the Grand, Muskegon, Kalamazoo, Manistee or Au Sable rivers, they may come upon one of our 13 hydroelectric plants.

"Our hydro facilities are hidden gems in Michigan," said Rich Castle, Natural Resource Administrator. "They are an escape from the daily grind where you can bond with and gain an appreciation of nature."

During the last two decades, we have invested $2.8 million in upgrades to recreational facilities at the hydros, which provide opportunities for camping, fishing, hunting or hiking.

Our Mio, Alcona, Loud, Five Channels, Cooke and Foote hydros are located on a 60-mile stretch of the Au Sable where visitors can float down the river, canoe or paddlewheel.

Supporting 'Rails-to-Trails' th

Michigan provides many opportunities for families and friends to not only stay fit, but to make memories.

Over the years, the Consumers Energy Foundation has sponsored trails throughout Michigan to bike, skate, walk, run and hike.

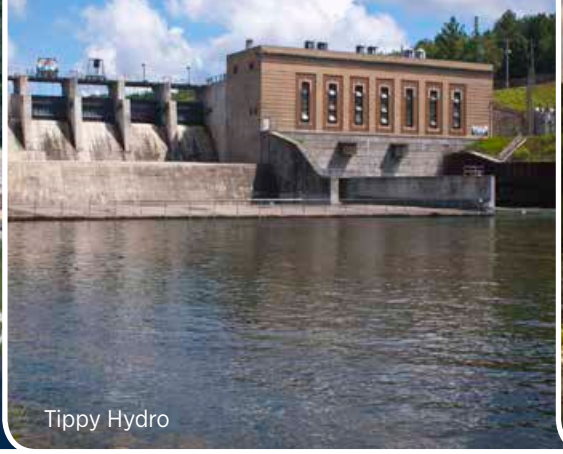
"We have contributed $238,000 to Michigan trails because we value them

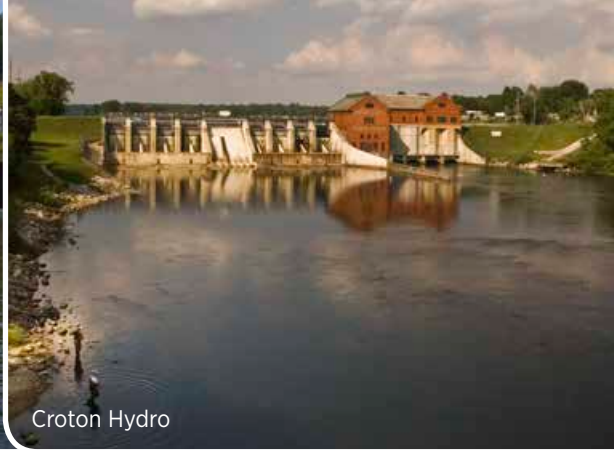
The six hydros provide great wildlife viewing of bald eagles and trumpeter swans, among others.

On the Muskegon River, the Hardy hydro has a 4,000-acre pond and numerous campgrounds providing more than 1,000 campsites near the site of the former hydro operators' homes.

Also on a 35-mile stretch of the 227-mile river, we own and operate the Rogers and Croton hydros. The two facilities produce 65 million kilowatt hours (kWh) of clean, renewable electricity annually.


Five Channels Hydro


Tippy Hydro


Croton Hydro

s of Michigan

rough Fitness, Stewardship

as a sustainable way to bolster and connect the communities we serve," said Carolyn Bloodworth, Director of Corporate Giving. "In addition, visitors get to enjoy our state's great natural beauty in their own backyards."

Visit a trail nearby and create memories while taking the steps to a healthier you.

The Manistee River is home to the Hodenpyl and Tippy hydros, which, combined can generate up to 37,000 kWh. The Manistee offers some of the state's best fishing opportunities with steelhead, salmon and trout. Reservoirs at both sites offer pike, bass, walleye, panfish and trout fishing.

"The hydros have something for everyone," Castle said. "We are lucky to have them."

The Ludington Pumped Storage Plant sits on 1,000 acres along Michigan's shoreline just south of the city of Ludington and attracts tourists and campers year-round. It is currently undergoing an $800 million upgrade to expand its generating capabilities.

Which hydro, wind farm or trail is closest to your school?

Students share solutions in the classroom.

EmPOWERed Kids

from front page

Twelve $500 grants for technology purchases or upgrades will be awarded during the 2014-2015 school year. Six recipients will be selected at random on Jan. 15, 2015. An additional six recipients will be selected at random on May 20, 2015. Teachers who have an EmPOWERed Kids presentation in their 2nd-6th grade classroom will automatically be entered in the drawing.

NO PURCHASE NECESSARY. A purchase will not increase your chances of winning. Current Michigan teachers, who are legal residents of Michigan, who are Consumers Energy customers as of 9/1/14 and are at least 18 years old. Void where prohibited. Sweepstakes ends 5/15/15. For Official Rules, alternate method of entry, prize descriptions and odds disclosure, contact education@cmsenergy.com. Sponsor: Consumers Energy Company.

We have Patches

Did you know that Girl Scouts and Cub Scouts in Michigan can earn a special Energy Expert patch from Consumers Energy?

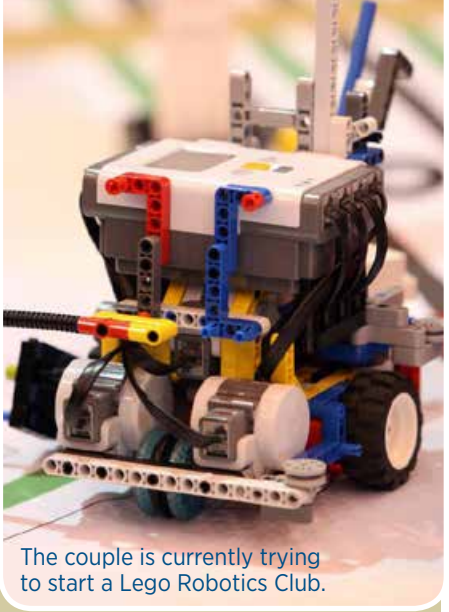
Visit our website at ConsumersEnergy.com/scouts to find out more about our free Energy Expert patch programs.

It works like this:

1. Download and print workbooks for each Scout and a leader guide.
2. Complete the activities as a group.
3. Request your free patches.

The Weight of a Smile

Employees Step Up to Volunteer



The couple is currently trying to start a Lego Robotics Club.

WHEN CONSUMERS ENERGY employees Kevin and Patti Blazejewski began volunteering with their son's Cub Scout pack 15 years ago, they had no idea that volunteerism would turn into a lifelong passion.

The Saginaw couple is active in St. Paul Lutheran School's PTO, basketball and baseball programs.

"We step up to the plate depending on what the school needs," said Kevin, adding the couple is currently working on helping to try and start a Lego Robotics Club and Rocket Club. "Throughout our involvement with other organizations, it occurred to us that there's an opportunity here. Kids seem to relate best to interactive, hands-on learning in relation to science."

We're not in it for anything else other than to help the kids grow.

The couple has earned volunteer grants from the company since 2001 to support the school and other organizations. To date, they've earned more than $7,000 in grants, which are one way Consumers Energy helps communities. Last year the company, the Foundation and employees and retirees gave $8 million to Michigan nonprofits.

"It's nice to know the company has a stake in the well-being of our communities," Kevin said. "They have a commitment to support these activities around the state."

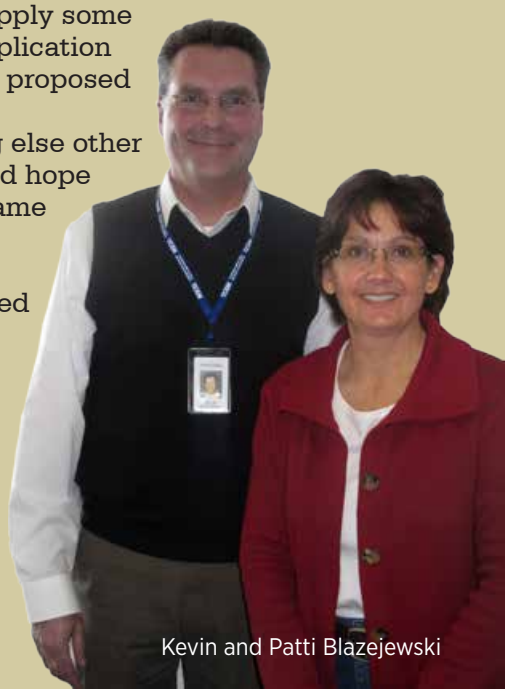
The Blazejewski's plan to apply some recent grant dollars to the application fees and material costs of the proposed Lego Robotics Club.

"We're not in it for anything else other than to help the kids grow and hope it motivates them to do the same someday," Kevin said.

Kevin has simple advice for those who want to get involved in their communities: "Find your passion, something you know you can help with, and go do it."

For Kevin, the reason to volunteer is as simple today as it was 15 years ago.

"My reward is in the smiles on the kids' faces."



Kevin and Patti Blazejewski

Where Does Wind Come From?

If your student is curious about how weather works, then this experiment is a great place to start. It is easy to create and show how the rising movement of warm air creates wind.

MATERIALS:

- Paper
- Pencil
- Thumbtack
- Scissors
- Thread
- Clothing hanger
- A heat source (sun-heated pan, table lamp with shade removed, etc.)

WHAT YOU DO:

Draw a spiral shape on a piece of paper and cut it out.

Poke a hole in the center of the spiral with a thumbtack.

Push one end of the thread into the hole, tie it and attach the other end to the center of the clothing hanger.

Hold the hanging spiral several inches above the heat source.

Watch what happens. Ask your student to explain what they see happening. Did the spiral move?

Explain that when warm air rises, it pushes the bottom of the spiral and makes it spin. This is the same motion that causes wind. Warm air rises and air pressure under it reduces and cools air nearby to take its place. Wind is the sideways movement of air and is the cause of changing weather patterns.

Adapted from:
www.education.com/activity/article/where_wind_comes_from_fourth/

Wind Energy!

LESSON OBJECTIVES:

- Energy comes from many different sources.
- Power from wind can be used to make electricity and do work.

For this activity, you will work as an engineer. An engineer is a person who uses science and technology to solve problems. Your challenge is to engineer a windmill that lifts a cup. You can experiment with different weights, increasing the amount of work your windmill can do.

MATERIALS:

- Paper milk or juice container (quart works best)
- Skewer
- Foam Ball
- Index Card
- Small paper/dixie cup
- Craft sticks
- Pencils/crayons
- Scissors
- Tape
- String

WHAT YOU DO:

Poke a hole through the front and back of the milk carton about two-thirds of the way up.

Feed the dowel through the holes and fit the foam ball on the front of your windmill.

Use the string to tie the cup onto the dowel on the back of the windmill.

Design windmill blades on index cards. Color, cut out and tape each blade to a craft stick.

Insert the craft sticks into the foam ball, separated out evenly.

TEST YOUR WINDMILL

Use a fan or a windy day to see how much weight your windmill can lift. Load various objects in the cup, which will be lifted when the dowel spins in the windmill.

Scientists and engineers redesign their process all the time. What could you change on your windmill to improve your design?

Adapted from lesson by Sciencenter, Ithaca, NY

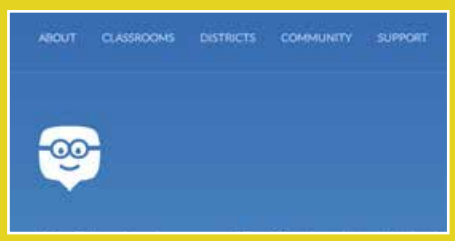
What is Edmodo?

Edmodo is an easy and free way for teachers and students to securely engage and collaborate in classroom discussions, post assignments, track grade books and share and upload files.

Some key features include an educational resource library and a professional learning network.

Edmodo is a social media platform for educators with more than 20 million users.

Follow us for free useful tools geared toward helping you engage, inform and educate your students such as: blogs, links, lesson plans and career information.



Programs Ready to Visit Schools

From front page

is available over a wide area of the state. To see if your classroom qualifies for a presentation, email tammi@nef1.org.

All programs are officially endorsed by the Michigan Department of Education and correlate with the Grade Level Content Expectations and Common Core State Standards.

Looking for More Ideas?

For lesson plans, educational games and other resources log on to ConsumersEnergy.com/teachers.

Contact us

Email the education team at education@ConsumersEnergy.com

Envirothon challenges high schoolers' knowledge about their natural surroundings.

Out to Learn

Envirothon allows high schools to compete and focus on issues

CONSUMERS ENERGY has sponsored the Michigan Envirothon for 20 years.

The Michigan Envirothon is a competition for high schools across the state. As a part of our contribution, we also provide volunteers for the event.

Employee Carol-Ann Cramer serves on the steering committee for the regional competition held in March. We also sponsor the event's awards ceremony.

"My favorite part is that we rotate locations for the state competition each year. I get to see different parts of Michigan in an environmentally focused way," Cramer said.

The competition focuses on these areas:

- Agriculture
- Aquatic ecology
- Energy
- Forestry
- Soils/geology
- Wildlife

After the regional competition, the top 24 schools compete in the state tournament in May.

Any high school in Michigan is able to compete. The Michigan Envirothon is seeking more schools to join.

For more information about the Envirothon, you can visit www.macd.org/ME/about-envirothon.html