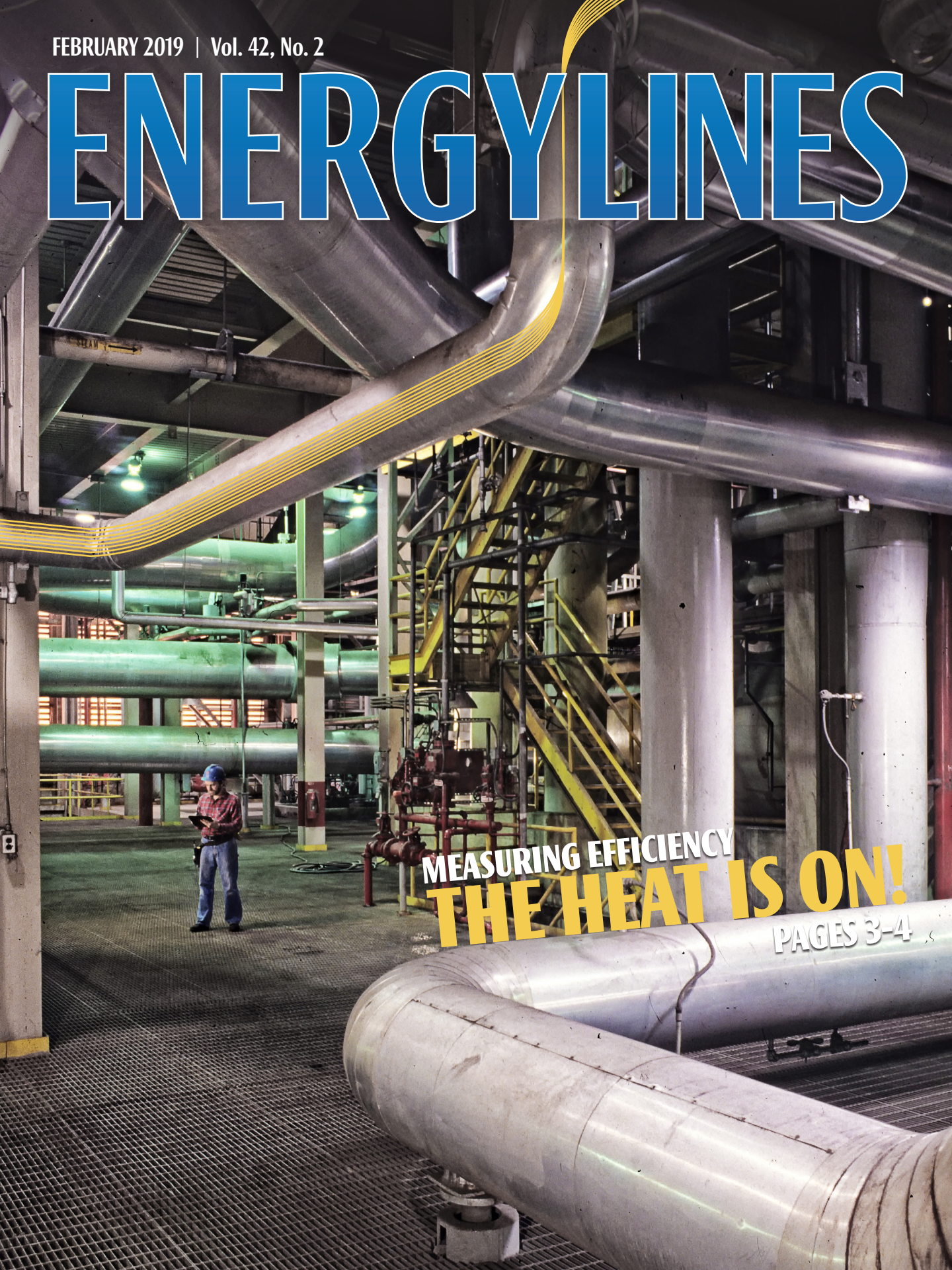
FEBRUARY 2019 | Vol. 42, No. 2

# ENERGYLINES



MEASURING EFFICIENCY

## THE HEAT IS ON!

PAGES 3–4

COMMITMENT TO COMMUNITY

HE photo

## Boys and Girls Clubs board training

As part of Hoosier Energy's commitment to community, the cooperative provides the use of its board room for local events. On Jan. 7, the Boys and Girls Clubs of Bloomington conducted training for their board of directors. Every year the group fundraises its operating dollars and this training session helped the board improve how it requests funds from community groups and businesses.

INDUSTRY TECHNOLOGY

## Pilot project to test energy-dense nuclear fuel

A three-year nuclear energy pilot project has been put in place by the Energy Department. According to a January Wall Street Journal report, the department plans to spend $115 million to develop advanced fuel such as an energy-dense uranium that could be used in small reactors. This pilot stems from the nuclear industry facing a shrinking workforce, safety concerns, regulation and competition from other fuel sources.

**ONLINE**EXTRA

>> Read about the Energy Department nuclear fuel initiative online.

**WSJ.com**

INDUSTRY IN TRANSITION

## Nuclear power workforce continues to decline

Jobs for those working at nuclear power plants are shrinking. The Wall Street Journal reports that Three Mile Island in Pennsylvania is scheduled to close in September. This closure is one of nine nuclear power plants scheduled to shut down by 2025.

The Nuclear Energy Institute estimates that 23,000 people will retire or leave the industry during the next five years.

45

**YEARS OF FESTIVAL GUIDE SUPPORT**

Hoosier Energy and member cooperatives have supported the Indiana Festival Guide publication for more than four decades.

# Co-ops support Indiana tourism

For nearly 45 years, Hoosier Energy and member cooperatives have supported Indiana tourism by sponsoring the Indiana Festival Guide. The popular and comprehensive tourism publication, which includes more than 600 festivals, craft fairs, holiday shows, historical re-enactments and community celebrations, is available free of charge from co-ops.

Indiana's Touchstone Energy cooperatives are committed to the communities they serve. That is why co-ops are pleased to help highlight some of the best and most exciting events coming to communities throughout the state. EL

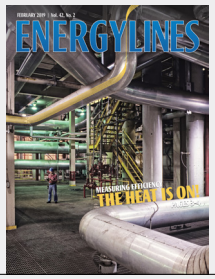

**FIND US ONLINE**

To subscribe or to read back issues, visit HoosierEnergy.com/news/energylines

ENERGYLINES

## ON THE COVER

Hoosier Energy employees work hard to ensure our generating units run safely and efficiently. One way to monitor this is known as heat rate.

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HOOSIER ENERGY LEADERSHIP

# Get to know

## ROB HORTON, CHIEF OPERATING OFFICER

*EnergyLines sat down with Rob Horton to learn about his career at Hoosier Energy, what challenges the utility might face in the next few years and his love for the great American pastime – baseball.*

**▶ What are the top priorities you are focusing on?**

Because of my background, my focus is always rooted in safety. I feel that strategic priorities can be aligned and promoted via safety. If you can do safety right, then you will have a good culture, do things more efficiently, more reliably and more competitively. It starts and ends with safety.

**▶ What have you learned from your experience working in the electric industry that applies to your position?**

I started as an intern and had no idea the path it would lead me on. As I began my path, I was very green, not knowing much about the Merom Generating Station. I made several lateral moves to learn all aspects of the plant. Boiler House Auxiliary Operator was my first permanent position. This was one of my best opportunities because I was working swing shift and was able to learn a lot of the aspects of different positions. I do know more about the generation side than the transmission side. That's what excites me about where I am; I get to learn more about transmission.

We are all working toward a common end result. Being out in the field opens up more of those doors for conversation and collaboration. We have a huge number of great people who are willing to step up to the plate and do what needs to be done for greater outcomes for our members.

**▶ What challenges do you see electric utilities facing in the next few years?**

One of the biggest challenges will be the pace at which things are transitioning. Whether it be from the generation component or the distribution transmission component, technology continues

**HORTON,** continues on Page 8

## A BRIEF HISTORY

Rob Horton began his career at Hoosier Energy in 1999. Since then, he has continued to learn – leading to his current position of Chief Operating Officer.

# EFFICIENT PERFORMANCE

Hoosier Energy employees work hard to ensure our generating units run safely and efficiently. One way to monitor this is known as heat rate.

*Cost savings.*

Heat rate measures the efficiency of the units at the Merom Generating Station to convert energy (BTUs of energy from coal) to megawatts of electricity. Heat rate is similar to the gas mileage of a car, except that for a car, higher numbers indicate efficiency – going more miles on fewer gallons of gas. At the Merom Generating Station, a lower number is better.

The operations and engineering staff concentrate on improving performance in three areas to ensure the plant is efficient and competitive in the electric market. These areas are:

1 **THE BOILER:** Reviewing how the boiler (car) is consuming coal (gas).

2 **THE TURBINE:** Coal is used to heat water producing steam, which turns the turbine and generator to create electricity. Wasted steam means lower efficiency. (It's like leaving your car running means lower miles per gallon.)

3 **THE AUXILIARY LOAD:** This takes into account how much of the electricity generated is actually used by the plant. This includes electricity required to run pumps, mills, environmental controls, conveyors, heaters, office HVAC, lights, etc. (How much gas it takes to run your car's air conditioning, charging system, water pump, etc.)

To make sure the plant is running smoothly, routine maintenance is performed throughout the year, including scheduled maintenance. This is akin to getting an oil change, tune up and rotating the tires on your car. Performance tune-ups are often conducted in the spring.

- Turbine and steam valves are rebuilt to ensure steam is being utilized efficiently.
- The condenser is cleaned so that the

## IDEA IN BRIEF

### THE CONCEPT

Heat rate measures the efficiency of the units to convert energy to megawatts of electricity.

### THE PROCESS

Operating unit data has been collected to benchmark the heat rate performance and establish a continuous improvement program.

### THE RESULT

Data showed that the operational changes were exceeding the historical performance on controllable parameters by $1.5 million.

steam can be condensed and the plant can control the steam pressure in the turbine for the desired loads.

- Auxiliary equipment is maintained and updated so that it consumes the least amount of the produced electricity.

Another aspect for improved heat rate is high capacity factor. The units are designed to run at full load and stay there for optimum performance. This is similar to a car being on the highway with the cruise control set. When units have to ramp up and down, it is similar to stop-and-go traffic or city driving in your car – efficiency is reduced.

The asset management team and power marketing group work together to identify projects that will best match unit performance with market conditions to meet station goals. It is like needing a car to go from a daily highway driver to a stop-and-go urban driver. Those requirements need to be evaluated for the critical equipment and then changes will need to be made. While the changes must be realistic (difficult to turn a quad-cab pickup truck into an electric car) it is worthy to note that changes can be made to make Merom Generating Station run more efficiently.

As part of the process to ensure ultimate heat-rate efficiencies, management for the generating station has researched several options to help with improvement.

In 2017, Hoosier Energy contacted a vendor that has been collecting data on the operating units for several years, with the goal to benchmark the heat rate performance and establish a continuous improvement program.

The software was launched in 2018 in conjunction with the start of a continuous-improvement program. Each operational shift was made aware of its performance versus the baseline and then was asked to record its results.

The software establishes a baseline of target efficiencies for approximately 12 operator-control parameters based on the average performance over the last two years of operation. It displays these parameters, on an accessible software screen. This program compares the performance of each shift versus the established baseline.

After several months, it was discovered that the operational changes resulted in exceeding the historical performance on the controllable parameters by a projected $1.5 million for the year.

The station plans to keep adjusting the baseline according to each year's performance in order to foster continuous heat-rate awareness and improvement, thus providing the members with the most efficient, reliable and competitive power the Merom Generating Station can produce. EL

*Did you know?*

### BATTERY ENERGY STORAGE REPORT

This report looks at early-stage, utility-scale battery energy storage projects deployed in the United States since 2015 and discusses the applications they are serving and rationale for their use.

**WHERE TO FIND IT:**
Cooperative.com

### THE ELECTRIC POWER SYSTEM – RTO

Regional Transmission Organizations (RTO) are independent, membership-based, non-profit organizations that ensure reliability and optimize supply and demand bids for wholesale electric power.

**LEARN MORE AT:**
Eia.gov/todayinenergy

# Ice + power lines + wind = lines

## How the perfect conditions of ice and wind can cause power lines to move beyond their limit

When ice storms coat power lines, high winds can lead to lines that bounce and buck around. While rare, this movement is known as galloping lines.

Power lines are designed to sway, but if a wire is weighted down with ice and is pushed around from wind it could move close to a grounded component or an energized conductor and a short will occur.

Galloping lines are a dangerous situation as power lines can touch one another or break and fall to the ground while energized.

Another safety concern is the ice that can form on the lines. Ice can form around power lines in a teardrop shape. This shape acts like a wing, causing the line to gain lift and rise with winds. With high winds the ice could break off, causing unsafe conditions on the ground.

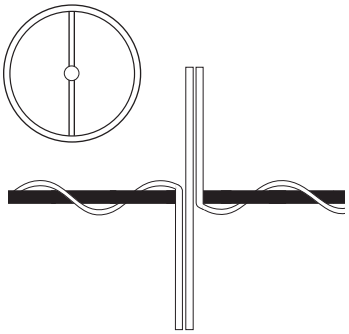
The powerlines that Hoosier Energy uses to transmit power from 69KV on up are designed to withstand up to 1.25 inches of ice and 60-MPH winds.

If you see power lines moving around forcefully, stay away and call the police or local electric utility. EL

### Equipment used to reduce galloping lines

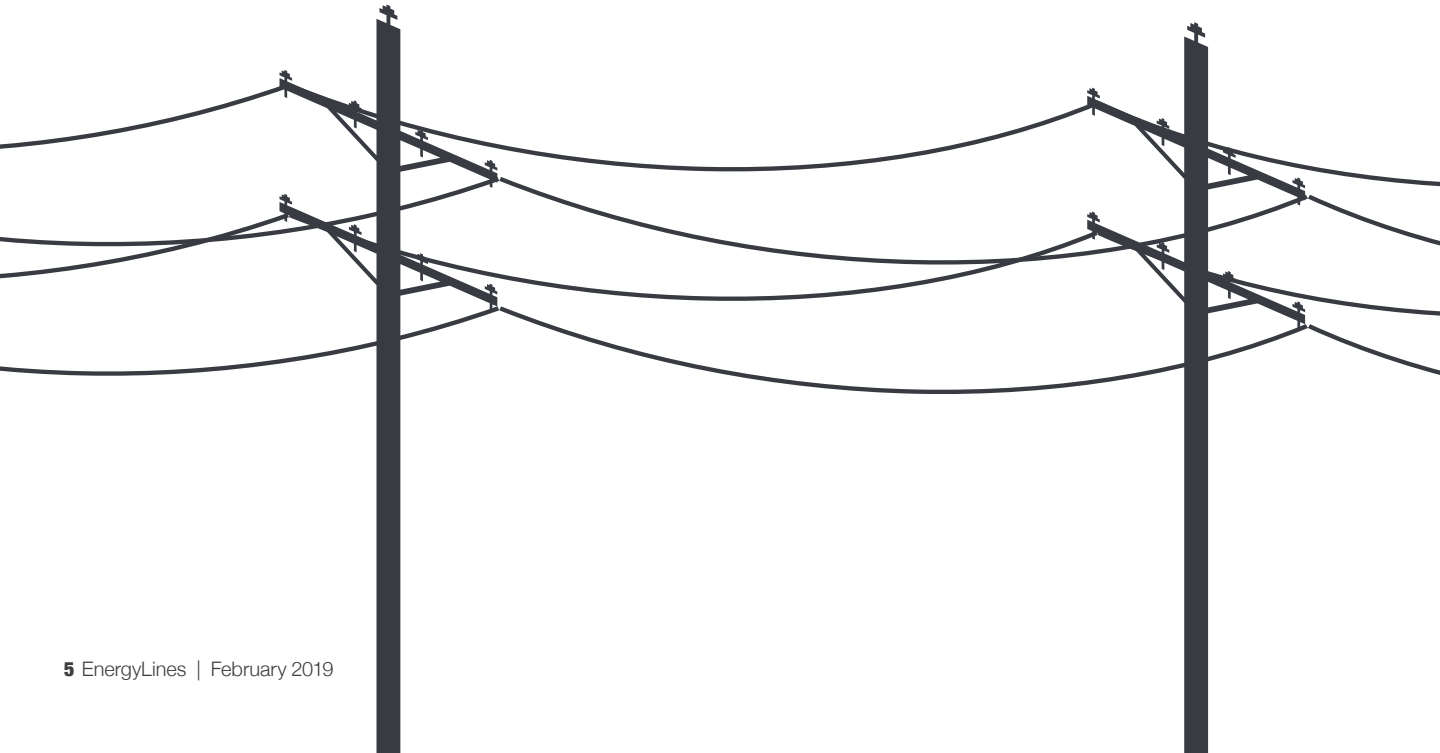
**HOOP SPACERS**

These spacers work by attaching to a sub-conductor using an armor rod. This spacer provides proper space without changing the line's geometry.



**INTERPHASE SPACERS**

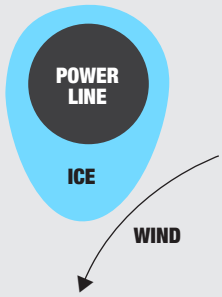
These spacers are used to provide a mechanical connection between phases. When these spacers are used, they help stabilize lines through mechanical damping. This helps avoid flashovers – an electric short circuit made through the air between exposed conductors.

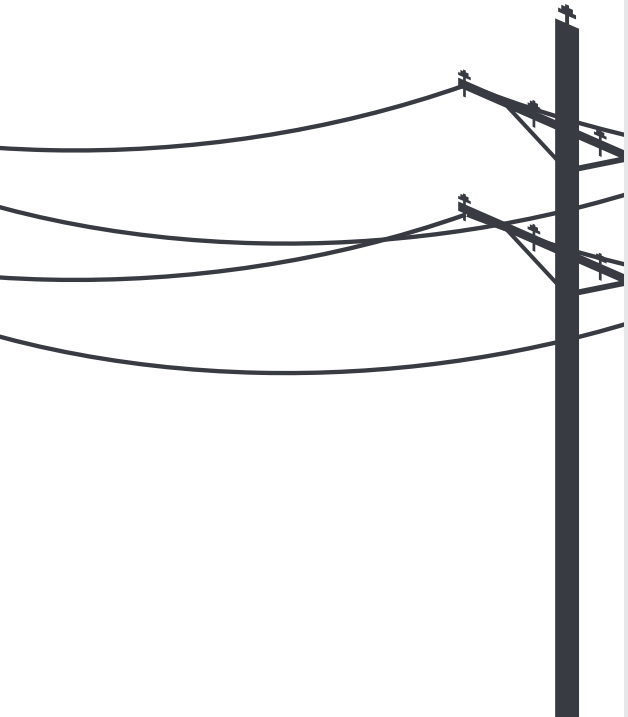


that gallop

**ICE ON POWER LINES**

As ice forms on power lines, gravity pulls them downward, leading to an egg-shaped form. This form, when pushed by winds, can cause movement leading to galloping lines.



INDUSTRY UPDATE

# EIA updates new capacity and retirements

According to the Energy Information Adminstration's (EIA) latest inventory of electric generators, 23.7 gigawatts (GW) of new capacity additions and 8.3 GW of capacity retirements are expected for the U.S. electric power sector in 2019. The utility-scale capacity additions consist primarily of wind (46%), natural gas (34%), and solar photovoltaics (18%), with the remaining 2% consisting of other renewables and battery storage capacity.

## New energy capacity by source

**WIND:** A total of 10.9 GW of wind capacity is currently scheduled to come online in 2019. Three states—Texas, Iowa, and Illinois—will be home to more than half of the 2019 planned wind capacity additions.

**NATURAL GAS:** Planned natural gas capacity additions are primarily in the form of combined-cycle plants (6.1 GW) and combustion-turbine plants (1.4 GW). Most of the natural gas capacity is scheduled to be online by June 2019 in preparation for high summer demand. Of the planned natural gas capacity additions, 60 percent will occur in Pennsylvania, Florida and Louisiana.

**SOLAR PHOTOVOLTAICS**: Nearly half of the 4.3 GW of utility-scale electric power sector solar photovoltaic (PV) capacity additions are located in three states: Texas, California and North Carolina. In addition to utility-scale capacity, EIA's Short-Term Energy Outlook expects an additional 3.9 GW of small-scale solar PV capacity to enter service by the end of 2019.

## Scheduled capacity retirements

**COAL**: Most of the coal retirements are scheduled to occur at the end of 2019. Half of the planned retirement capacity for coal is at a single plant, Navajo, located in Arizona which first came online in the 1970s. The 4.5 GW of coal-fired capacity expected to retire in 2019 is relatively small compared with the estimated 13.7 GW that retired in 2018, which was the second-highest amount of coal capacity retired in a year.

**NATURAL GAS**: The scheduled natural gas retirements (2.2 GW) consist mostly (2.0 GW) of steam turbine plants. The natural gas steam turbine plants that are scheduled to retire are all older units that came online in the 1950s or 1960s. Most of the retiring natural gas steam turbine capacity (1.6 GW) is located in California.

**SOURCE:** EIA, Cara Marcy

## An electric car original.

The 1899 Waverley Stanhope Phaeton electric vehicle was ahead of its time. Produced by the Indiana Bicycle Company in Indianapolis, the vehicle is equipped with 44 battery cells creating two horsepower and a range of 40 miles. It cost $1,500.

### SEE IT IN PERSON

**You can view this vehicle at the Auburn Cord Duesenberg Automobile Museum in Auburn, Ind.**

*HE Photo*


*HE photo*

**CARDINAL NATION:** Rob Horton and his family enjoy attending St. Louis Cardinals games. From left, Rob, son Grant, mascot Fredbird, wife Resa and son Mason.

**HORTON,**
Continued from page 2

to grow at a rapid pace. We continue to be faced with equipment changes, changes in membership's usage and membership's requests for new technology innovation. This can include electric vehicles, battery storage, solar and wind generation and much more. We will need to figure out what the next generation of membership is really wanting to see from their utility provider. Utilities have previously only been in the background; as long as lights came on, no more thought was given to it.

**▶ What do you find most exciting about working at a cooperative?**

Though some call it a cliché, I love the family atmosphere. I like the size of a cooperative, too. I like that I drive and live in our service territory, knowing that my friends' families are benefiting from a service we provide. When you get out into the rural countryside, you get a better feel for how important our service is, as you see the power lines stretch for miles at a time. It's a necessity.

**▶ What is something fun that employees and members don't know about you?**

I like the team aspect here at work, and that started in my family. I have a wife and two boys and we love baseball. My boys have always played baseball and I have been coaching for about 13 years. I started off coaching them in Little League and have now moved up to the high school with them, as an assistant coach. My wife started out as a team mom and moved into statistician as the boys got older. We love going to St. Louis Cardinal games as a family as well. I love to see a team work together and thrive. EL

# Roberts named next CFO at G&T

Following an extensive three-month search, Adam Roberts has been selected to be Hoosier Energy's next Chief Financial Officer.

"I am extremely proud to have Adam in this new role and look forward to what he offers to the future of Hoosier Energy and our 18 member systems," said CEO Donna Walker.

Roberts has been with Hoosier Energy for six years, steadily growing in his role in the Finance area, where he most recently held the position of Manager of Financial Services.

Prior to joining Hoosier Energy, Roberts spent seven years with BKD, LLP, one of the nation's largest accounting and advisory firms.

Roberts and his wife, Andrea, live in Bloomington with their two sons. EL

## BACKGROUND BRIEF

Roberts, a certified public accountant, received his Bachelor of Science degree from Indiana University.

# Co-op fiber internet project progress

South Central Indiana Rural Electric Membership Corporation recently announced phase two of its four-phase fiber-to-the-home network, SCI fiber, across its service territory. Construction on phase one of the fiber network began in mid-2018 and phase two begins in early 2019.

"We started this fiber project because quality of life and economic development are tied to the availability of high-speed internet," said SCI REMC President and CEO James Tanneberger.

**INFO**EXTRA | >> For more information about South Central Indiana REMC's fiber internet project, visit sciremc.com

# Operation Round-up programs support organizations in co-op communities

*Co-op value.*

Electric co-ops are committed to the communities they serve.

One way they show this commitment is through Operation Round-up programs. Throughout the year, participating electric consumer energy bills are rounded up to the next dollar. The funds collected are managed by trusts that oversee the funds and their distribution to the community.

WIN Energy REMC has seen positive results from its Operation Round-up program.

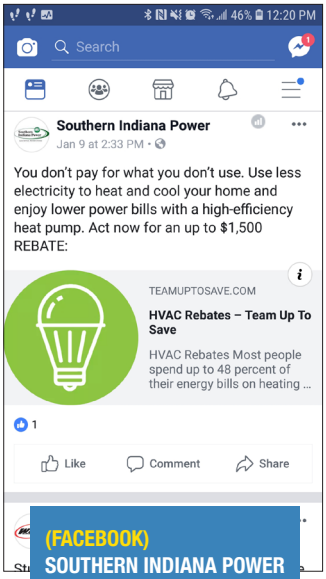
"A rewarding aspect of this program is that it is an extension of the idea that neighbors help neighbors. This is what co-ops are all about," said Director of Marketing and Member Services Leslie Beard.

Bartholomew County REMC has also seen strong support from their members.

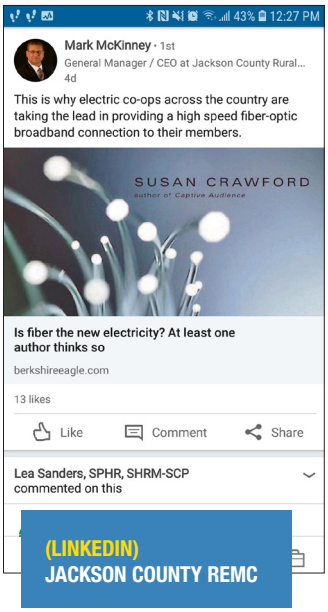
"We are pleased with the growth our program has seen through the years. Helping organizations in the communities we serve is a big part of the cooperative difference," said Vice President of Communications and Member Services Marty Lasure.

## Social session

Member cooperatives communicate on social media about a wide-range of topics. Southern Indiana Power highlighted its HVAC rebate program, asking members to Team Up to save, while Jackson County REMC provided fiber broadband research for members to read.

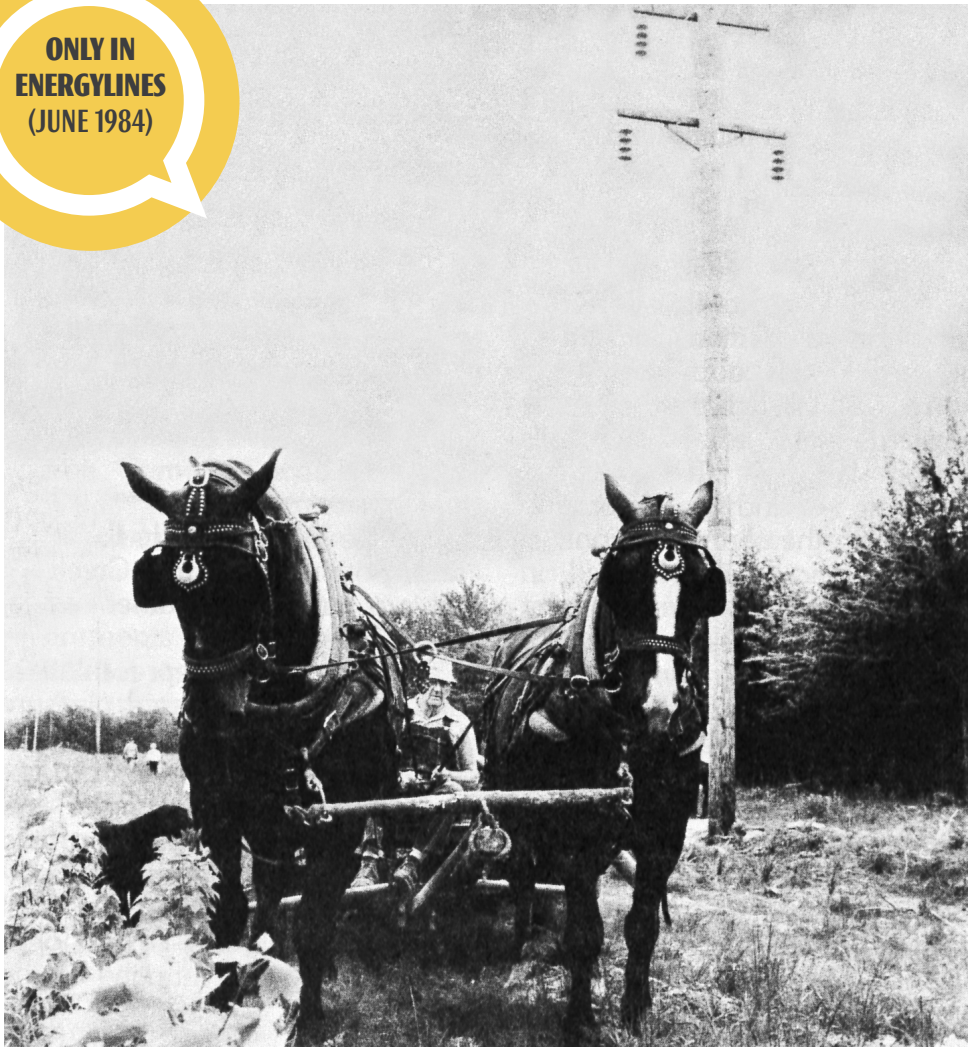



(FACEBOOK)
SOUTHERN INDIANA POWER




(LINKEDIN)
JACKSON COUNTY REMC

ONLY IN ENERGYLINES (JUNE 1984)



## Two horse team pulls power lines.

*Historic moment.*

A two-horse team of Percherons, powerful draft horses weighing more than three-quarters of a ton, helped pull lines in a 12-mile stretch of 69kV lines in Switzerland County in 1984. The horses were put to use due to muddy soil conditions making it difficult to move modern equipment into the area.

At the end of the first section of line, the horses were pulling about five tons of conductor. The use of the horses was unusual but helped keep the project on schedule. EL

# Winter weather safety tip (safety kit)

A snow-covered road in South Central Indiana REMC's service territory shows the need to be safe in winter weather. As weather conditions can change quickly in Indiana, be prepared with a winter-weather kit in your vehicle. Items to include: flashlight, jumper cables, gloves, first-aid kit, ice scraper, blanket and winter boots.