

Summer 2017

EfficiencyToday™

Profiles in energy efficiency for business



An AEP Company

Breakthrough in Barnesville

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How a small hospital
became an efficiency leader



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New programs: full steam ahead

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Julie Sloat
President and COO
AEP Ohio

President's Perspective

Finding our center

Our center is you. This means we do our best to evaluate everything we do from your point of view.

For our commercial customers, this means we work to constantly tweak, invent or reinvent our incentive and training programs to stay ahead of the evolving energy-efficiency needs of businesses and institutions. You will see evidence of our efforts in the stories of this edition of Efficiency Today™ that showcase commercial customers improving efficiency through cutting-edge programs, as well as some new and improved and tried-and-true ones.

On the pages that follow, you will read about a hospital in Barnesville that is able to redirect energy savings toward making patient care improvements. You also will read about a semi-truck manufacturing plant in Chillicothe that has lowered its per-truck manufacturing cost, saving big during an uptick in demand for overland deliveries. It is amazing how big a difference energy efficiency makes for commercial customers of every size and type.

Our residential customers are benefiting from reductions in energy usage as we make access to energy-efficiency programs and tools a more user-friendly experience. Our tried-and-true rebate programs are easier to use, and you will still see discounts on LEDs in stores across Ohio.

Smart meter installations are scheduled to begin this fall throughout our service territory, which will place in your hands some powerful new efficiency technologies.

We are excited about the impact our energy-efficiency programs are making for all of our customers. And we are proud of the rise in customer satisfaction of our energy-efficiency programs. This is all about better serving you, as you take your rightful place at the center of everything we do. ■

EfficiencyToday™

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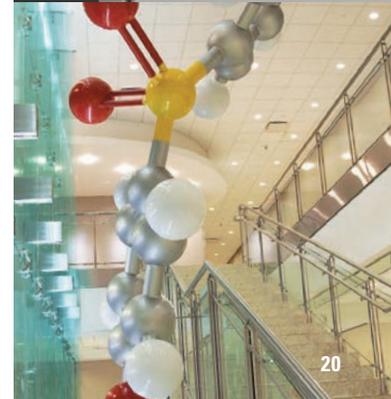
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Note: All energy-savings calculations used throughout Efficiency Today™ are based on AEP Ohio's deemed estimated calculations. The annual energy savings are calculated using an electric rate of \$0.08 per kilowatt hour (kWh).



Andy McCabe
Manager of Business Programs Energy Efficiency
AEP Ohio

Andy's Angle

How I slowly became energy efficient at home—without really trying

I admire people who read about something, and then go off on a mission to apply it to their lives like they were shot out of a cannon.

I am not one of those people. My approach is more watch and wait. It's my job here to find energy-efficiency solutions for our commercial customers, so you'd think I'd override my low-and-slow tendencies when it came to reducing my personal electricity usage by 40 percent. It just didn't happen that way.

Back in 2010, my decrepit 8 Seasonal Energy Efficient Ratio (SEER) air conditioner turned on and never turned off, producing a \$250 electric bill. The unit had leaked coolant and was in poor condition. I could either pay \$170 to recharge for next year, or upgrade to a high efficiency (15.5 SEER) before next summer. I opted for the new AC. The house was more comfortable than ever and my electric bill was less than half the previous August in spite of a nasty heat wave.

A couple of years later, I updated the kitchen. Naturally I went with all new ENERGY STAR® Certified appliances, which was made easy with AEP Ohio rebates. I also replaced old inefficient fluorescent tube lights with LED cans—they just look better, plain and simple.

Soon after, I replaced my almost 100 pound 34-inch CRT high-def TV from 2002 with a crystal clear 60-inch LED HDTV flat screen to enhance my Steeler football viewing experience. The new ENERGY STAR Certified model used six times less energy.

Last year, my washing machine broke down at the tender age of 11. This time, the fix or replace choice was easy. Instead of forking over about 200 bucks to replace worn pulleys and belts, I bought a really cool direct drive ENERGY STAR Certified machine that had far fewer moving parts that could wear out. Around the house, I slowly but surely replaced the CFLs and any remaining incandescent lamps with LEDs as their price dropped dramatically, with a nudge from an AEP Ohio residential program.

So just meandering through my life, I became energy efficient at home without really trying. I am cooler and more comfortable in the summer. The kitchen looks great, and the new dishwasher operates so quietly that it doesn't drown out the sound of the TV in the next room. Speaking of which, the Penguins look great on a 60-inch screen. It's also nice that my clothes take less time to dry, thanks to the superior spin cycle of the new washing machine.

I'm sorry that I'm not one of those people that jumps right into mission mode. I would have been able to enjoy the positive changes to my home environment much sooner. ■

Business Energy Tips

Switch to LEDs: LEDs last up to 10 times longer and use at least 75 percent less energy than incandescent lamps while providing better light. They work in practically all applications, and their price has come down significantly.

Install lighting controls: Depending on existing operating conditions and the strategies used, lighting controls can reduce lighting energy use by up to 60 percent.

Cut down on over-lit parking lots: High efficiency light sources and occupancy-sensing lighting controls can cut energy usage by up to 40 percent.



Award Announcements

Fifth Annual AEP Ohio Energy Efficiency Awards

Beautiful Franklin Park Conservatory was the backdrop for AEP Ohio's 2016 Energy Efficiency Awards presented on April 19. A total of 27 awards were presented to businesses, individuals and educators who continuously set high standards in energy efficiency.



Scott Haverty (second from right) accepts the Innovation Award on behalf of Kraton. (L to R) Bruce Evans, AEP senior vice president chief customer officer, Julie Sloat, AEP Ohio president and COO, Scott Haverty, Kraton, Paul Chodak III, AEP executive vice president utilities.

Sustained Excellence Awards

Awards given based on sustained involvement, typically requires high involvement in back-to-back years as a measure of sustained/consistent involvement.

Bridgestone APM Company
The Kroger Company
Energy Management Solutions, Inc
Greene Life Corporation
Habitat for Humanity - MidOhio
State Electric Supply Company
Loeb Electric
Big Sandy Superstore

Efficiency Champion Awards

Awards given based on annual participation in our programs.

Mahle Engine Components
Dispatch Printing Company
Royal Building Products
Diebold Nixdorf
Nationwide Realty Investors
Abercrombie & Fitch
Columbus Regional Airport Authority
Capital University
Riesbeck Food Markets

Village of Mingo Junction
Pulte Homes
Technical Consumer Products
Weaver Appliance Sales & Service
Facilitec
MORPC
Michelle Rupp

Leadership Award

The leadership award is designed to be given to one entity annually based on ongoing involvement and a sincere partnership relationship. Previous winners include Ohio Hospital Association (OHA), Ohio Manufacturing Association (OMA), Ohio Partners for Affordable Energy (OPAE) and Ohio Energy Project.

P & D Builders

P & D Builders has supported AEP Ohio's Energy Efficiency programs for numerous years and has consistently built homes with low HERS scores.

Innovation Awards

Awards recognizing outstanding innovation in pilot or special programs.

Solvay Specialty Polymers
Kraton



OHA's **Rick Sites** (far left) and Barnesville Hospital's **Wes Doudna, Michael Carpenter** and **Dave Phillips** (L to R), review blueprints for the hospital's new ER.

Barnesville Breakthrough

A small hospital shows the healing power of efficiency

In the universe of commercial energy-efficiency efforts, the stakes are at their very highest for hospitals.

According to a recent U.S. Department of Energy study, hospitals use an average of 600 billion British Thermal Units (BTUs) of energy per year on a per building basis—significantly higher than any other building type.

Then, there is the work that hospitals do that is beyond measure. They save lives, and they heal the ill and injured. There is no such thing as closing for the evening, the weekend or for holidays. And they must do this in an increasingly complex and challenging financial landscape.

Particularly vulnerable in these difficult conditions are small community hospitals that are consolidating or closing at an alarming rate.

One hospital, in one very proud small town in eastern Ohio, bucked this troubling trend. Barnesville Hospital in Belmont County found a way to promote healing, in every sense of the word, through energy efficiency.

“AEP Ohio’s help took energy efficiency from our wish list to our to-do list.”

Dave Phillips,
Administrator & CEO,
Barnesville Hospital

Humble beginnings

In 2013, Dave Phillips was named Barnesville Hospital's administrator and chief executive officer. Phillips made it his mission to carry on the hospital's focus on sustainability begun by his renowned predecessor, Richard L. Doan, who passed away earlier in 2015. "Dave was all-in on day one," said Gary Enama, an energy efficiency business program coordinator at AEP Ohio.

Like many hospitals, efficiency improvements in buildings built in different decades were a challenge for Barnesville.

Phillips didn't know at the time that the hospital had a big hill to climb in terms of energy efficiency. They had participated in the Ohio Hospital Association (OHA) Energy and Sustainability Program that supports free ENERGY STAR® benchmarking studies for hospitals.

The results of the ENERGY STAR® study were, in short, humbling. Barnesville had scored a 19 out of a possible 100 points. "It was a painful discovery, but it was reality and it was something we had to face," said Phillips. He says the low score was the symptom of a condition many hospitals suffer from: older facilities and lack of capitalization.

While the study results stung a bit, the hospital's response was an intense focus on planning and working hard to turning the situation around. "They took it (the study) personally," said Rick Sites, the OHA's Regulatory Counsel who takes the lead on the organization's energy and sustainability programs. Sites is the OHA's resident guru on efficiency, helping Ohio hospitals see the light on energy-saving measures and programs.

Breaking ground on a turnaround

In 2014, Barnesville Hospital broke ground on a major renovation of their ancient emergency room. Phillips was determined that every inch of the 6,000-square-foot facility would be energy-efficient. He credits guidance from Enama and the Business Efficiency team at AEP Ohio to help fund the approach. "AEP Ohio's help took energy efficiency from our wish list to our to-do list," he said.

While he led the charge to build state-of-the-art efficiency into the new ER, Phillips redirects any praise toward Sites and Barnesville Hospital staffers Michael Carpenter and Wes Doudna. Carpenter oversaw material procurement and managed the overall project—"my right hand man" recalls



Phillips. And he leaned heavily on the highly skilled Doudna, the hospital's 2015 *Employee of the Year* who is renowned throughout the hospital for his prowess in solving all kinds of technical difficulties. "He was MacGyver before there was a MacGyver," quips Phillips.

He also credits PCS, a local construction management firm, with understanding the workarounds that are specific to ERs. "We can't just close," said Phillips, recounting the occasional work stoppages and muted jackhammers.

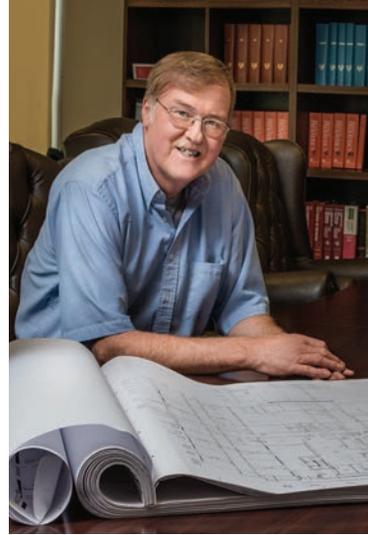
Beyond the new ER, energy-efficiency upgrades were made throughout the hospital, including LED lighting and control systems inside the hospital and for the parking lot outside. Additionally, the lab refrigerators were replaced.

By the numbers

Barnesville Hospital – ENERGY STAR scores*



* highest possible score = 100



Far left and above: signage on the hospital grounds

Left: **Wes Doudna**, Barnesville Hospital's resident MacGyver and master of all things technical

A rising ENERGY STAR is born

When the Richard L. Doan Emergency Room was completed in 2015, and some other efficiency improvements were made throughout the hospital, the ENERGY STAR scores took a steep upward turn. Barnesville Hospital scored a 50 in 2015, and in 2016, the score jumped to 99—the highest ranking hospital in Ohio. They are one of only 12 Ohio hospitals designated as ENERGY STAR and one of 68 nationally.

Right: The main entrance at Barnesville Hospital



“They’re exhibit A on what energy efficiency can do for a hospital.”
Rick Sites,
Regulatory Counsel,
Ohio Hospital Association

Barnesville also won the OHA’s own Energy Cup in 2017. “They’re exhibit A on what energy efficiency can do for a hospital,” said the OHA’s Sites, citing statistics that show annual savings of about \$3,000 per bed. “Those savings provide opportunities for hospitals to improve patient care by adding nursing staff or imaging equipment,” he said.

Then, there are the improvements that numbers don’t show, what efficiency experts call “non-energy impacts.” Patients at Barnesville Hospital breathe better because of the improved ventilation system, and they’re more comfortable because of better temperature control.

“When it’s all said and done, it’s just a better environment for patients to heal,” said Enama. ■

By the numbers

Barnesville Hospital

Total Project Cost
\$32,941

Incentives Paid
\$10,477

Annual Energy Savings (projected)
\$16,499

Annual kWh Savings (estimated)
206,245

Project Payback Time with AEP Ohio Incentives
1.2 years

Value Added
Improved patient care;
Enhanced patient and staff comfort

Solvay's Great Solution

An innovative approach gathers steam and re-energizes their Marietta plant



DTE Marietta COGEN Facility

A few years ago, Solvay Specialty Polymers went looking for an energy-efficiency solution for a plant that sits on the edge of the Ohio River.

Where they ended up placed their Marietta plant at the leading edge of energy technology, allowing them to not only drastically cut costs but also receive a reliable and consistent flow of steam and power.

“We landed in a much better place than where we started,” said Alan Wanosky, who serves as an operations manager at the Marietta facility. The facility has two specialty polymer units critical to the manufacture of parts for the medical, aerospace and mobile electronics industries, to name a few.

The polymer production process was very energy intensive, using massive amounts of steam and electricity, so any hitches in delivery and cost make a big impact.

Solvay huddled with the AEP Ohio Business Incentive Team, and together, they approached DTE Energy Services. The Michigan-based subsidiary knows its

way around energy-intensive industrial, commercial and institutional facilities, having completed a variety of such projects in 17 states.

The solution they came up with was the building of a cogeneration plant and distribution system to provide steam and electricity to the plant. Cogeneration (COGEN) technology, also called Combined Heat and Power or CHP for short, involves the use of a heat engine or power station to generate electricity and useful heat simultaneously.

If you think that sounds like a capital and human resource outlay that makes no sense for many companies, you're right. That is why DTE Energy Services, with the help of incentives from AEP Ohio's Business Incentive Program, designed, built, and currently operates and owns the CHP technology that fuels Solvay's Marietta plant. **“Because they own and operate the CHP system, we can focus on what we do best,”** adds Wanosky. **“And AEP Ohio's incentives helped give the whole project a boost.”**

The CHP system in Marietta is a complex but well-honed blend of technologies that includes a natural gas-fired turbine generator, a heat recovery steam generator, two gas-fired boilers and a black start (recovery) generator.

Since it was brought on line in February 2015, the results have been nothing short of spectacular. The CHP system now provides 100% of Solvay's steam needs, and 97 percent of their electrical requirements. **“Many months, it handles**

100% of our electricity needs,” said Wanosky. DTE Energy Services estimates that the energy costs Solvay will save should total over \$12 million during the life of their agreement.

This all comes as great news for Solvay as the polymers they produce are in high demand and the plant runs 24/7. Expansion plans are in the works, and the hope is to add to the roster of the more than 250 full-time employees at the Marietta plant.

It appears that as their CHP system continues to gather steam, Solvay's solution in Marietta will have a great impact on the company and the area's economy for years to come. ■

By the numbers

Solvay Specialty Polymers

Total Project Cost
\$34,000,000

Incentives Paid
\$1,445,125

Annual kWh Generated
57,805,000

Value Added
Reduced energy cost; Increase in reliability of steam and energy sources; Economic development

“AEP Ohio's incentives gave the whole project a boost.”

Alan Wanosky,
Operations Manager,
Solvay Specialty Polymers,
Marietta



Greenbound And Down

Kenworth's busy but energy-efficient Chillicothe plant has significantly lowered their electrical costs per truck.

Kenworth's Chillicothe plant goes full throttle on efficiency

As you might expect, Kenworth doesn't ever go small.

One of America's leading manufacturers of heavy-duty trucks put the hammer down on energy-efficiency goals for their Chillicothe plant, a 499,988-square-foot structure built in 1974 on a 119-acre site. A major driver of the southern Ohio economy, Kenworth employs about 2,300 and does business with hundreds of area suppliers.

At the wheel of the plant's energy-efficiency efforts is Curtis Crego, who serves as facilities engineer in Chillicothe. Crego approaches his work with commitment and is a believer in what energy efficiency does for Kenworth's bottom line.

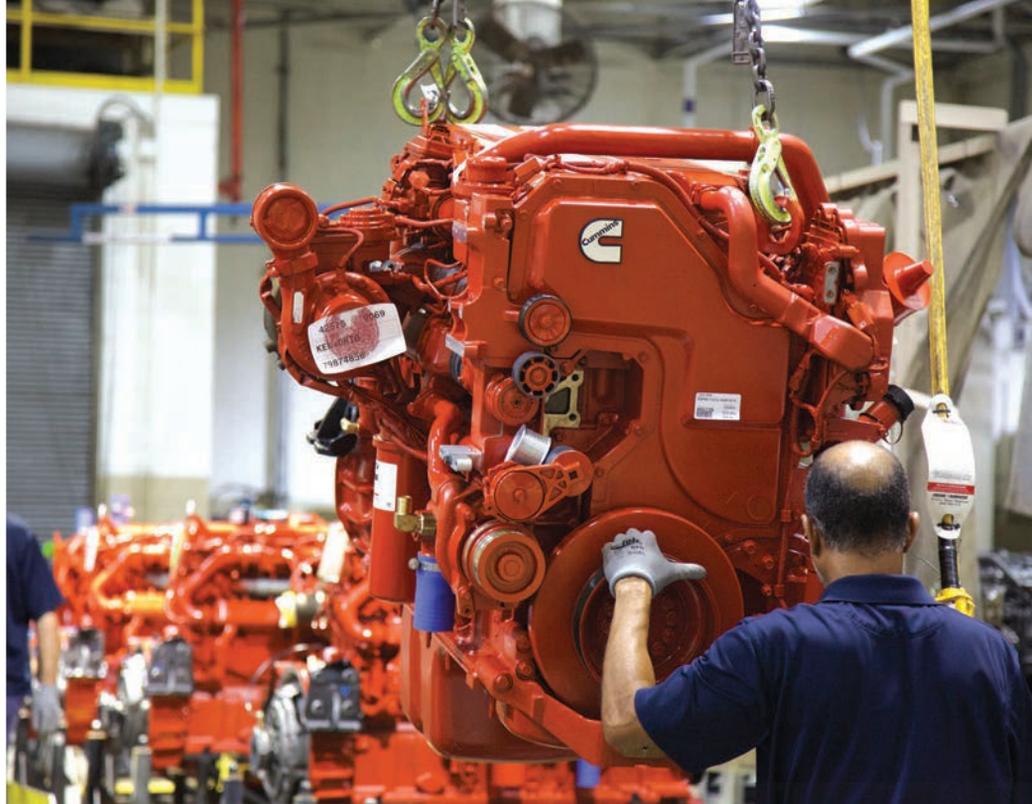
With the support of management at PACCAR, the international company that owns Kenworth, Crego worked out an ambitious plan with AEP Ohio's Continuous Energy Improvement (CEI) Team. The goal was to significantly reduce electrical usage over a three-year period beginning in 2014 through a series of equipment upgrades as well as training and cultural changes.

In year one, the focus was on air and light. On the factory floor, a high-pressure air compressor was replaced with air multipliers or boosters, and the compressed air setpoint was reduced. In offices and conference rooms, more than 120 occupancy sensors were installed to save on lighting costs.

More upgrades, this time in compressed air and HVAC, were implemented in 2015. A building operations system made it possible to set the plant's HVAC equipment to unoccupied mode to control costs during downtime. New compressed air equipment with sequencing capabilities was brought on line.

The biggest changes came in year three, 2016, as five new 105-ton rooftop units (RTUs) were installed. A pair of 850-ton centrifugal chillers were introduced. And the building operations system from the previous year was optimized.

Taking advantage of AEP Ohio's Self-Direct, Efficient Products for Business and Process Efficiency Business Incentive Programs, Kenworth was able to put incentives totaling \$122,300 toward the purchase of capital upgrades between 2014 and 2016. During the same time period, Kenworth earned a total of \$193,400 performance-based incentives by making



An engine build in process at Kenworth's Chillicothe plant.

“Our build rate has increased almost 40 percent in 2017, but because our fixed electrical costs stay about the same, our cost per truck is driven even lower.”

Curtis Crego,
Facilities Engineer,
Kenworth Chillicothe

no-cost or low-cost improvements through the CEI program. “The AEP Ohio folks were tremendous—their expertise and incentives really gave us a boost,” said Crego.

The results of Kenworth's efforts in Chillicothe were as spectacular as they were timely. Daily usage at the plant dropped an average of 26,000 kilowatt hours (kWh). And the amount of electricity used to build each truck fell to 1,200 kWh, a 200 kWh savings.

Because business is booming at Kenworth, these savings hit the bottom line at full throttle at the best possible time. “Our build rate has increased almost 40 percent in 2017,” said Crego. “But because our fixed electrical costs stay about the same, our cost per truck is driven even lower.”

As much as Crego enjoys his work, it's not all about money and goals. “We try to be good stewards of our community, and being environmentally and fiscally responsible is part of that,” he said. ■

By the numbers

Kenworth

Total Project Cost
\$853,584

Incentives Paid
\$359,048

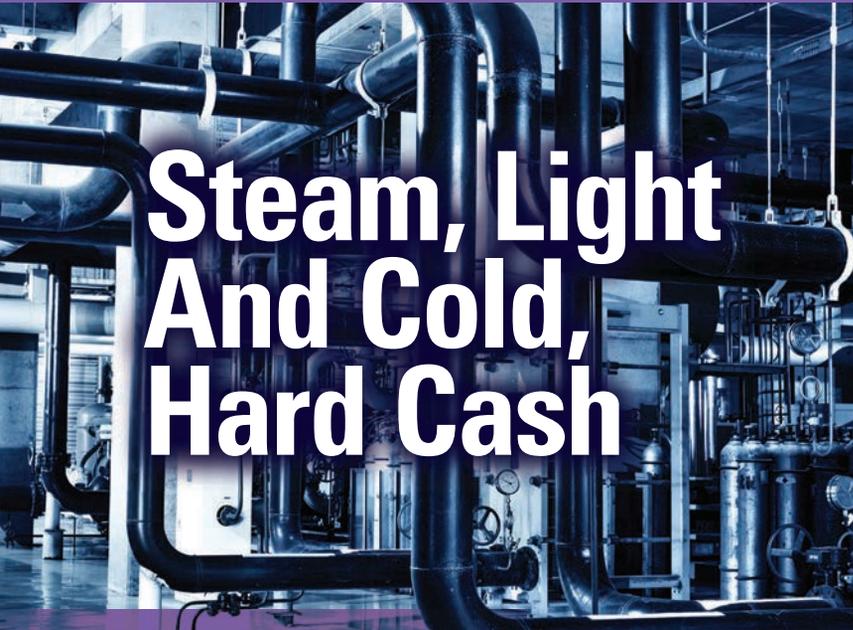
Annual Energy Savings (projected)
\$585,558

Annual kWh Savings (estimated)
7,319,478

Project Payback Time with AEP Ohio Incentives
<1 year

Value Added

Increase in production without increase in cost; Optimized building operations



Steam, Light And Cold, Hard Cash



All about our newest efficiency programs

Let's say you're an industrial plant or a hospital that relies on steam for a variety of processes. Or you're a business that has robust lighting needs that require full control. Perhaps you need some tailored financing help to fund efficiency upgrades.

If you said yes to any of the above, AEP Ohio has a new program option that's a perfect fit.

Full steam ahead: AEP Ohio's Combined Heat and Power/Waste Energy Recovery Program (CHP/WER)

But the new AEP Ohio's CHP/WER Program is letter perfect for businesses that rely heavily on steam, hot or chilled waters for their ongoing processes.

"CHP" refers to Combined Heat and Power, a cogeneration strategy that involves the use of both energy and useful heating or cooling. The WER stands for Waste Energy Recovery, an alternative approach of generating electricity through the capture and reuse of waste heat.

This new program supports the installation of high-efficiency, sustainable and cost-effective CHP/WER projects. It provides performance-based incentives based on kilowatt hours (kWh) generated by each project.

Luminary performance: AEP Ohio's Advanced Lighting and Controls Program

If your business is looking for the best and the brightest approach to lighting upgrades, AEP Ohio's Advanced Lighting and Controls Program is a shining example of what can be achieved.

AEP Ohio has a new program option that's a perfect fit.

The program is designed to help businesses with diverse lighting needs reduce their lighting energy use up to 70 percent or more. It provides cash incentives for eligible high-performance lighting upgrades used in combination with networked lighting controls.

Fast and flexible: AEP Ohio's Efficient Financing Program

Financing for efficiency upgrades isn't a one-size-fits-all proposition.

That's the thinking behind the new AEP Ohio's Efficient Financing Program. Developed in partnership with HBC Energy Capital, it matches each project with a lender and program based on its size and scope.

Available for projects eligible in AEP Ohio's Efficient Products for Business, Process Efficiency, Data Center and New Construction/Major Renovation Programs, the AEP Ohio's Efficient Financing Program provides fast answers—typically within two days.

The rates are competitive, and usually, a variety of financing options are available. The loans are serviced through HBC Energy Capital, a leader in efficiency lending, so businesses experience world-class service and guidance.

Many program participants report an immediate improvement in cash flow with no up-front costs. ■

Efficiency Update: Wendy's

Beefed up efficiency efforts yield tasty results

In the Summer 2016 edition of Efficiency Today™, we reported on Wendy's energy-efficiency improvements and upgrades, and the estimated savings were promising.

Here are some just released, hot-off-the-grill numbers that are very tasty indeed.

As a whole, Wendy's company-owned restaurants and the Dublin Restaurant Support Center reported a 12 percent reduction in energy per transaction. That's impressive progress toward their 2025 goal of 20 percent.

The Dublin Restaurant Support Center—Wendy's headquarters—has reduced energy usage by an impressive 34 percent, thereby lowering greenhouse gas emissions by 24 percent over the 2013 baseline year.

Wendy's spent nearly \$1 million less in energy in 2016 at their owned and operated restaurants compared to 2012. This was a result of strategic changes including remodels, upgrades—like installing new HVAC systems, more efficient walk-in cooler motors and LED lights—and operational focus on energy conservation.

Congratulations to Wendy's for their outstanding results.

Wendy's Restaurant Support Center in Dublin features many efficiency upgrades. Photo courtesy of Loeb Electric



Greenprint For Success

How P & D Builders positioned their business for today's homebuyer

Mac Roberts remembers a time in the not-so-distant past when green construction practices were asked about once in a blue moon.

Today, he reports that customer requests for energy-efficient homes are the norm versus the exception. "We build about 25 homes per year—all of them ENERGY STAR® Certified," said Roberts, an owner/principal at Central Ohio's P & D Builders. "In fact, we're in the process of building net-zero houses for two customers."

For readers green in the ways of efficient home-building lingo, "net-zero" refers to a home that at least creates as much energy as it uses.

About 75 percent of the homes built by P & D in 2016 were in AEP Ohio's service footprint. For those homes, they were able to take advantage of the AEP Ohio EfficiencyCrafted™ Program, which supports a homebuilder's green building efforts and provides third-party efficiency verification.

"AEP Ohio's program definitely factored into our efficiency approach," said Roberts. "Our company is always looking for ways to perfect our craft of homebuilding, and the support we received helped position us for the uptick in demand for efficient homes."

Led by Roberts, who spearheads the company's emphasis on efficiency, P & D won a coveted *AEP Leadership Award* in 2016 for their sustained excellence. And they're regular winners at the annual EfficiencyCrafted™ Recognition Lunch for builders and raters. "They win so many awards, they've practically

"AEP Ohio's program definitely factored into our efficiency approach...Our company is always looking for ways to perfect our craft of homebuilding, and the support we received helped position us for the uptick in demand for efficient homes."

Mac Roberts,
Owner/Principal,
P & D Builders

worn a place in the winners circle," said Jim Miller, energy efficiency program manager at AEP Ohio. "They deserve every piece of hardware on what must be a very crowded shelf."

A glance at the history of P & D Builders lets you know that this is a company that is used

Left: Energy efficiency and curb appeal in one beautiful package

to peer and customer recognition. Founded in 1962 by Richard E. Dillon, P & D has built relationships as rock-solid as their homes.

"It's all about trust, respect, communication and the mutual exchange of ideas," explains Roberts. Roberts is one of a four-person dream team at P & D, along with owner/principals, Dan Dillon, Darin Hilt and Ed Snodgrass, each a specialist with a different homebuilding expertise.

With hundreds of happy clients living in homes built to uniquely high efficiency standards, an overcrowded award shelf, and a habit of never resting on their laurels, the future at P & D looks to be a very bright green. ■



P & D Builders has earned an impressive list of awards for both design excellence and energy efficiency.





**“Their (AEP Ohio’s)
CEI Program
really helped
keep us focused
and on track.”**

Jeff Reinmann,
Program Coordinator,
Corporate Social
Responsibility &
Sustainability,
Diebold Nixdorf

*North Canton’s Diebold Nixdorf is
known around the world for their
self-service transaction systems.*

Bold Moves At Diebold Nixdorf

Global self-service transaction leader brings efficiency home to North Canton



LED upgrades enhance workspaces at Diebold Nixdorf's North Canton headquarters.

It's not that Diebold Nixdorf is new to the ways of energy efficiency. The world leader in digital commerce systems and touchpoints has offered power-saving technologies in their always-on ATMs and self-service retail and postal kiosks for years.

"We're always looking for ways to enhance sustainability and energy efficiency in our products, and now we're bringing it home," said Jeff Reinmann, who serves as Diebold's program coordinator for corporate social responsibility and sustainability.

Home, in this case, happens to be their 262,000-square-foot world headquarters in North Canton. "We've ramped up our efficiency efforts as a culture, and made some facility upgrades as well," said Reinmann. The cultural push for energy efficiency was a natural byproduct of Diebold's transformative focus on global sustainability and social responsibility that was launched in 2014.

Building an efficiency culture is all about employee engagement, and Reinmann credits Diebold's collaboration with AEP Ohio's Continuous Improvement (CEI) Program for their successes so far. "Their CEI program really helped keep us focused and on track," he said.

Reinmann says that the cultural changes have been an effective combination of new daily habits and thoughtful interaction. "It starts with small things like turning off unnecessary lights and turning off monitors—something our employees took to almost immediately," he said. The CEI program also inspired the establishment of an energy team that attended specialized workshops with other businesses to encourage the sharing of ideas.

In addition to cultural and employee engagement efforts, Diebold took advantage of other AEP Ohio Business Incentive Programs, such as Efficient Products, Process Efficiency and Self-Direct to make efficiency upgrades.

Inside offices and conference rooms, they've swapped out incandescent and fluorescent lighting for cool, energy-sipping

LEDs. They've also upgraded to LED lighting in the employee parking areas, timed to maximize efficiency and safety. Throughout the headquarters, Diebold is in the process of phasing in high-efficiency rooftop HVAC systems.

Diebold's goals are ambitious, and it's going well so far. "We're being aggressive, and that's our style," said Reinmann, who forecasts a 10 percent reduction in electrical usages over a three year period that began in 2015.

It's all part of a bold sustainability push that makes Diebold boldly confident that they'll reach their goal. ■

By the numbers

Diebold Nixdorf

Incentives Paid

\$149,613

Annual Energy Savings (projected)

\$217,643

Annual kWh Savings (estimated)

2,720,547

Project Payback Time with AEP Ohio Incentives

1.9 years

Value Added

Low energy usage; Employee safety; Culture of energy efficiency

Battelle's Science Of Saving Energy

How efficiency became invention's other mother

You'd think it would be a bit intimidating for AEP Ohio's Continuous Energy Improvement (CEI) Team to take on training for a customer like Battelle.

After all, they are the ultimate go-to resource for businesses, governments and organizations around the world seeking solutions.

Whether it's research and development, laboratory management, product design and manufacture, and other critical services, **the Battelle name is synonymous with innovation.** One envisions trying to teach science-based efficiency principles to a room full of skeptics in lab coats.

"Actually, they really took to energy efficiency," reports Mark Farrell, who heads up AEP Ohio's CEI Team. "It was a great fit."

"We have a culture where pursuit of knowledge and innovation is second nature," said Bruce Walker, energy manager at Battelle. "We're always ready to learn something new and the AEP Ohio folks were great teachers."

That doesn't mean that there weren't obstacles that were unique to Battelle. Because of their intense focus and diverse work schedules, trying to corral their researchers for meetings and training was challenging. And solutions that apply to most workplaces don't compute at Battelle. "Lab workers have to be fiercely protective of certain processes," said Walker. "Experiments need to run continuously—sometimes there's no such thing as shutting down equipment or a fan," he adds.

One AEP Ohio recommended approach to reach the less reachable Battelle associates was to participate with employee engagement events and pass out energy-efficiency information and giveaways.

The CEI Team also created and circulated an energy charter, invited staff to a lunch-and-learn presentation, and produced an energy-efficiency awareness video for Earth Day. **The team solicited efficiency ideas from the Battelle employees** by encouraging them to submit their solutions via email and phone videos. One of the submitted ideas led to several changes with the building automation and control system. AEP Ohio and the CEI team also conducted an energy Kaizen event to identify additional energy saving opportunities.



Battelle's resident efficiency expert, **Bruce Walker**

By the numbers

Battelle

Total Project Cost
\$2,402,990

Incentives Paid
\$522,681

Annual Energy Savings (projected)
\$519,068

Annual kWh Savings (estimated)
6,488,349

Project Payback Time with AEP Ohio Incentives
2.3 years

Value Added

Increased employee awareness, desire, knowledge, and ability to use energy more efficiently



Model of a Battelle-developed molecule on display in the lobby of their corporate headquarters.

Walker said that Battelle took advantage of other AEP Ohio Business Incentive Programs beyond CEI. **“We added high-efficiency chillers, variable speed motor controls, efficient air compressors, and improved the efficiency of our data center equipment,”** he said. “This was a big help, because the HVAC and lighting needs of the various buildings on our campus vary significantly.” Walker said that energy-efficient lighting was installed throughout the buildings, along with occupancy sensors.

Since CEI incentives are based on performance, you’d have to label the science of saving energy at Battelle an unqualified success. Over 6,488,349 kilowatt hours (kWh) have been saved since 2010, and the financial benefits have totaled \$1,042,000.

With numbers like that, it appears that efficiency, as well as necessity, are both mothers of invention at Battelle. ■

“We have a culture where pursuit of knowledge and innovation is second nature... We’re always ready to learn something new and the AEP Ohio folks were great teachers.”

Bruce Walker,
Energy Manager,
Battelle

Breaking The Mold



Tigerpoly Manufacturing
roars ahead with
efficiency improvements

*(L to R) Tigerpoly's Chief Engineer **Brian Klei**,
Production Associate **Tomika Jackson** and
Vice President **Tim Voght** at the Grove City complex*



Tigerpoly's 265,000-square-foot Grove City complex employs over 350 associates.

When you open the hood of today's vehicles, you may have noticed that the engine compartment has a sleek and tidy look. The tangle of wires and plugs of the cars of yesteryear have gone the way of tail fins and cassette players, replaced by a system of plastic covers and housings.

Tigerpoly Manufacturing is in the business of manufacturing such components for automakers foreign and domestic, and they do it well. In May, their Grove City manufacturing and research and development complex was singled out for an *Award of Excellence* from Honda. The facility was one of a small handful of original equipment manufacturers out of roughly 420 North American suppliers to be so honored.

"The parts we make here aren't just for show," said Brian Klei, who serves as Tigerpoly's chief engineer at the 265,000-square-foot Grove City site. "They enhance and control engine intake noise and direct airflow to the engine needed for combustion."

Also in the "not just for show" category are Tigerpoly's award-winning energy efficiency efforts, which Klei leads. One of the cornerstones of his approach is the establishment of a winning alliance with AEP Ohio's Business Incentive Team. **"Whenever we're even considering making a capital expenditure for an efficiency improvement or upgrade, we check in with Tim Bray and the AEP Ohio folks,"** he said. "Our work has gone so well in the past, we always include them early and often in our discussions and decision making."

Tim Bray, an AEP Ohio customer services engineer who works on Tigerpoly projects,

insists that the company's **culture helps drive the energy efficiency successes.** "They're driven to make constant improvements—it's who they are," said Bray.

The capital improvements included a new plant that was built from the ground up

is lower—and the commitment toward upgrades is a perfect fit for our corporate constant improvement mission," said Klei.

It looks like even more savings are on the road ahead for Tigerpoly. ■

"Whenever we're even considering making a capital expenditure for an efficiency improvement or upgrade, we check in with Tim Bray and the AEP Ohio folks."

Brian Klei,
Chief Engineer,
Tigerpoly Manufacturing

through AEP Ohio's New Construction and Major Renovation Program, and HVAC and lighting upgrades to an existing plant through the Efficient Products Program.

To help facilitate efficiency training and gathering ideas from associates, AEP Ohio's Continuous Efficiency Improvement (CEI) Program was a natural progression. The Tigerpoly management and workforce already had an open and honest work environment where gathering feedback from associates was always given a high priority. One idea that came out of the CEI sessions was shift planning to avoid unnecessary activation of injection molding equipment, which take a long time, and a lot of energy, to heat up. **"Our shift planning has been a big help in lowering our usage,"** said Klei.

The net result of all of Tigerpoly's efficiency improvements? "Our overhead

By the numbers

Tigerpoly Manufacturing, Inc.

Total Project Cost
\$235,382

Incentives Paid
\$103,785

Annual Energy Savings (projected)
\$103,666

Annual kWh Savings (estimated)
1,295,835

Value Added
Lower kWh usage; Culture of energy efficiency; Enhanced employee engagement



“Our staff is like family. It feels good to know we’ve made this a safer place for them.”

Jared Holman,
Owner,
Newlon Tire

Newlon Tire’s storefront in New Lexington

Gaining Traction

Newlon Tire gets a grip on efficiency and safety

When Pearly Newlon first started the family tire business in 1911, the latest tech in tires and electricity were the inflatable inner tube and neon. Fast-forward a century, and it’s all about precision engineering and energy efficiency.

“We’ve kept current with advances in tires, but the lighting in the shop was really out of date,” said Richard Newlon of New Lexington-based Newlon Tire. “It was costing us money, and frankly it was a bit of a safety issue too.”

Hassle-free process

When the time came to make a change, Newlon reached out to AEP Ohio’s Express Program for help. “It was really easy,” stated Newlon. “The team came in and did an assessment, then gave us a proposal for a lighting upgrade.” The AEP Ohio Express proposal highlighted the potential impact an energy-efficient lighting upgrade would have on their property. According to Newlon, the upgrade itself was efficient too. “It went really smoothly, and they didn’t interfere with our work.”

Brighter days, safer nights

Implementing LEDs on both the interior and exterior of the building had benefits beyond energy efficiency. Inside, they created a brighter, safer work environment for Newlon Tire’s mechanics, technicians and office staff. Outside, they added another level of security to the property. “We’re a small

business, and our staff is like family. It feels good to know we’ve made this a safer place for them,” said current owner Jared Holman.

Burning rubber, not money

With the completion of their assessment and installation, Newlon Tire joins the more than 1,500 small businesses in Ohio that benefit from AEP Ohio’s Express Program. “We’re saving over \$600 a year now,” reports Newlon. “And it’s a much better work place for our staff too.” ■

By the numbers

Newlon Tire

Total Project Cost
\$3,967

Incentives Paid
\$1,213

Annual Energy Savings (projected)
\$602

Value Added
Lower kWh usage; Safer work environment; Increased employee security

Rewind And Renew

How one of our programs turns back time

It's a fact of factory life that electric motors wear down. The culprits are contaminants, friction and heat.

What's worse, it can be prohibitively expensive to replace large electric motors.

Fortunately, AEP Ohio's eMotor Rewind Program offers a way to turn back time.

The program offers businesses a \$2 per-horsepower incentive to help cover part of the cost of rewinding three-phase induction motors rated from 100 to 5,000 horsepower. For large motors, it's less expensive than buying new motors—but reaps many of the efficiency rewards.

The results of the program can make a big difference going forward. There is an ongoing reduction in electric energy cost, cooler operation that leads to longer life, and an estimated annual energy savings from 1,974 kWh to 116,000 kWh.

"It gives customers an opportunity to save twice on each motor rewind," said Steve Pomesky, engineering manager at Hannon Electric in Canton. "Opportunity one is the horsepower-based rebate, and the second is continued energy savings as it operates after the completed process."

Pomesky has seen the double-savings effect of the program many times over, as Hannon was the first Ohio contractor certified to do the rewind process that meets the rigorous specifications of AEP Ohio's program.

The process is monitored using customized software to ensure that every motor is restored to its original operating efficiency with documentation and testing to verify the repair. In addition to Hannon Electric, the eMotor rewind process is available through AEP Ohio's Certified Motor Centers in Columbus at Shoemaker Industrial Solutions, Electric Motor and Service in Zanesville, and Kentucky Service Center in Lexington, Kentucky. ■



**"It gives customers
an opportunity to
save twice on
each motor rewind."**

Steve Pomesky,
Engineering Manager,
Hannon Electric, Canton

Large electric motors can get a new lease on life.



“We were really surprised to see how much we could save each year by making the switch.”

Tim Fenneman,
General Manager,
RCDRV Supercenter

A row of road-ready RVs at RCDRV Supercenter in Hebron

Savings Roadtrip

One RV retailer blazes a trail toward energy efficiency

RCDRV Sales has been offering the cure for central Ohio residents’ wanderlust for more than ten years. With their gleaming chrome and promise of adventure, the RVs nestled on the lot of RCDRV Supercenter in Hebron, Ohio practically sing the song of the open road.

However, keeping their large inventory well lit was becoming a major roadblock. “People won’t buy what they can’t see,” said Tim Fenneman, a general manager at RCDRV Supercenters. “It takes a lot of light to showcase all of our stock, and it was costing us an arm and a leg.” Looking for a smarter way to save on lighting costs, he turned to AEP Ohio’s Express Program.

A roadmap to success

AEP Ohio's Express Program Team conducted a brief onsite assessment and put together a proposal that outlined the potential impact of upgrading to exterior LED lighting. "We were really surprised to see how much we could save each year by making the switch to something more energy efficient," Fenneman recounted.

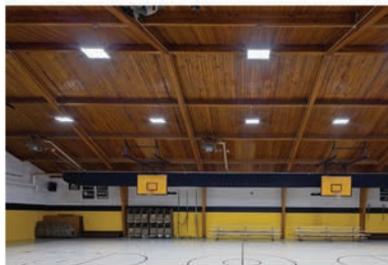
Lighting the way

According to Fenneman, the upgrade process was efficient, as well. "Everything was precise and to the point," he said.

Following the installation of their new exterior LEDs, RCDRV Supercenters is now saving over \$3,600 in annual energy costs. And their future has never looked brighter—literally. "We didn't realize how dim the old lights were," stated Fenneman. "The new LEDs are so much brighter and clearer. That was an unexpected bonus on top of our energy savings." ■



Lighting & Retrofit Solutions



By the numbers

RCDRV Supercenters

Total Project Cost

\$11,271

Incentives Paid

\$6,716

Annual Energy Savings (projected)

\$3,608

Value Added

Lower energy cost; Enhanced customer experience

LOCAL.KNOWLEDGEABLE.SUPPORT.

Solutions

- Energy Audits
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- Incentive Calculation
- Sustainability Assessment
- ROIC Analysis
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INDUSTRIAL ENERGY TIPS

TURN OFF SYSTEMS DURING EVENINGS AND WEEKENDS: Most compressed air systems only run at or near full capacity between 60-100 hours of a 168 hour week. Turning off the systems during downtimes (depending on shift patterns) can reduce energy bills up to 20 percent.

FIX EXISTING LEAKS: A quarter inch leak at 100 pounds per square inch will cost over \$2,500 per year. And, systems over five years old have about 25 percent leakage. 80 percent of air leaks are not audible, so it pays to have third-party help to find them.

PREVENT NEW LEAKS: Check the inside of your piping system to make sure it's clean and dry to ward off any corrosion issues. Dirt and moisture create sludge which can corrode the system very quickly, causing pressure drops and increased risk for product contamination.

DON'T RUN ABOVE RECOMMENDED PRESSURES: Each two pounds per square inch reduction reduces energy usage one percentage point. Keep an eye on the system pressure and resist the temptation to increase it to compensate for pressure lost due to leaks or clogs. A central supply side controller can greatly reduce the operational pressure band and increase efficiency.



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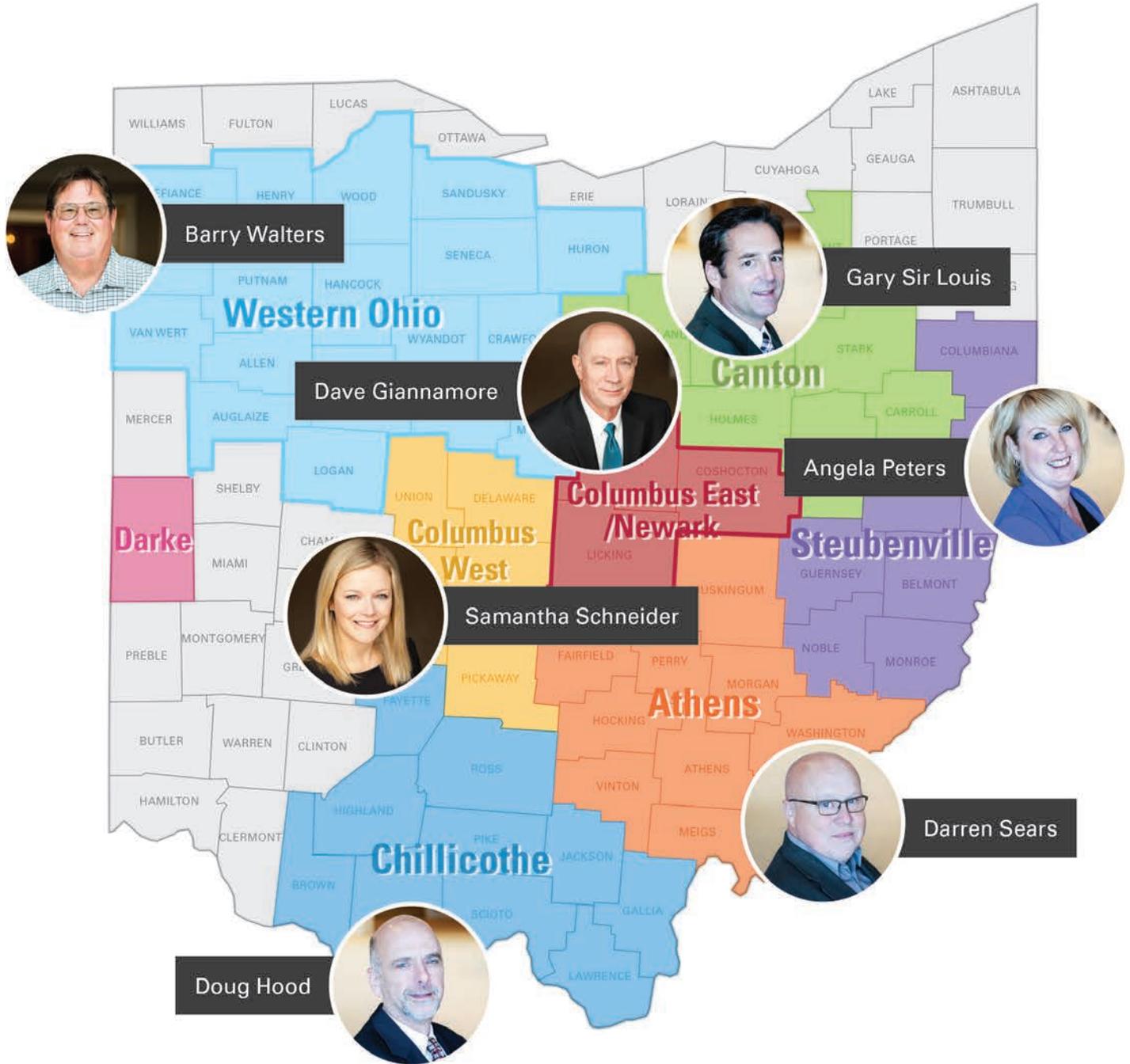
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And you can choose rebate programs on other energy efficient appliances and lighting, or opt for one of our In-Home programs that provide tailored recommendations to help you save money and energy.

If you're looking to save, turn to AEP Ohio's Energy-Efficiency Programs, visit: AEPOhio.com/Save.

Turn to our residential energy-efficiency programs



Business Incentive Programs



Small Business Express

Designed for smaller businesses using 200,000 kilowatt (kWh) hours per year or less, or <100 kWh demand annually, this program provides incentives that may cover up to 80 percent of project cost. Twelve-month zero-interest financing is available for qualifying businesses.

Perfect for: Small Businesses



Process Efficiency

A tailored program for businesses seeking incentives toward the installation of high-efficiency measures or processes that are not covered under AEP Ohio's Efficient Products for Business Program.

Perfect for: Agribusiness, Government & Non-Profit, Hospitals & Health Care, Manufacturing & Warehousing, Small Businesses, Schools & Universities



Efficient Products for Business

This versatile, simple program helps fund a wide variety of energy-saving improvements for existing buildings or those already under construction. It provides incentives that may cover up to 50 percent of project costs.

Perfect for: Agribusiness, Government & Non-Profit, Retail, Grocery & Convenience Stores, Hospitals & Health Care, Manufacturing & Warehousing, Office Buildings, Small Businesses, Schools & Universities



Self-Direct

Designed for the unique needs of large-scale or mercantile commercial/industrial customers that can benefit from energy-efficiency credits for past projects completed over a retrospective rolling 3-year period. Annual usage must exceed 700,000 kWh; or customer must be part of a national or regional account with multiple facilities in one or more states. Incentives from past projects are a great way to help fund the start of new projects.

Perfect for: Manufacturing & Warehousing, Office Buildings



New Construction/Major Renovation

Built to meet the needs of building owners, architects/designers, and engineers looking for energy-efficiency ideas and incentives. This program provides options for new construction and major renovation projects.

Perfect for: Agribusiness, Government & Non-Profit, Retail, Grocery & Convenience Stores, Hospitals & Health Care, Manufacturing & Warehousing, Office Buildings, Small Businesses, Schools & Universities

“We have programs to help businesses of every size and type use their energy efficiently.”

Andy McCabe,
Manager of Business Programs
Energy Efficiency,
AEP Ohio

These innovative programs provide a variety of incentives and expertise to help create a long-term reduction in your energy consumption and costs. There are options for commercial and industrial customers of every size and type.



Continuous Energy Improvement (CEI)

Provides tools within a structured training program to help large-scale businesses, facilities, institutions and campuses implement strategic energy management with little or no capital investment.

Perfect for: Hospitals & Health Care, Manufacturing & Warehousing, Schools & Universities



Combined Heat and Power/Waste Recovery (CHP/WER)

This new program supports the installation of high-efficiency, sustainable and cost-effective projects in AEP Ohio's service territory. CHP/WER is a cogeneration strategy, which involves the generation of both electricity and useful heating (or cooling).

Perfect for: Hospitals & Health Care, Manufacturing



Data Centers

Perfect for businesses with data centers of all sizes looking to reduce the energy intensity of their IT and cooling infrastructure. This program provides incentives for energy-efficiency improvements that may cover up to 50 percent of project costs.

Perfect for: Government & Non-Profit, Hospitals & Health Care, Schools & Universities, Commercial Retail



E-motor Rewind

For facilities depending on their current large induction motors, this program provides rewinding incentives that can improve their output and longevity.

Perfect for: Manufacturing & Warehousing



Bid4Efficiency

An innovative online reverse auction for financial incentives for pre-qualified customers using more than 200,000 kWh/year, and solution providers looking for a competitive edge.

Perfect for: Pre-qualified customers with high annual kWh consumption and the solution providers that serve them



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Our innovative programs will brighten your bottom line through a variety of incentives and expertise to help create long-term reductions in your energy consumption and costs.

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Small Business



Office Buildings



Retail



Schools & Universities



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