

Summer 2018

EfficiencyToday™

Profiles in energy efficiency for business



An AEP Company

Banking on efficiency

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Huntington Bank's
Gateway Center
glows green

Weastec leads with NEBs

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GOJO cleans up

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Grading the paper

Page 18





Julie Sloat
President and COO
AEP Ohio

President's Perspective

Committed Newcomers Welcome

Our research and experience shows that when it comes to energy efficiency programs, it's the first time that's the charm.

That's because when a customer tries one of our programs, they tend to try others and add them to their efficiency repertoire.

But there are always a few that are reluctant to take the plunge on that first one. That's especially true for some of our industrial customers, who are justifiably wary of any potential process changes that energy efficiency upgrades might bring.

Since we're all about customer experience at AEP Ohio, we looked for a solution from their point of view. One that would give them the confidence to try our programs, and to head off any concerns they might have.

We call it our Business Concierge Service, and if you're committed to becoming energy efficient, I encourage you to look into it.

Here's how it works. We do an initial assessment at your facility, a "walk with me, talk with me" sort of thing with one of our Energy Advisors. From this dialogue, we craft a study for you that's full of valuable insights that go from paper to practice almost immediately. We also make recommendations for capital upgrades and incentives to help with any capital expenditures.

As you read this issue of Efficiency Today™, you will see story after story about how energy efficiency programs have made a big difference in the bottom line for our commercial customers. Some of the very biggest impacts are made by our industrial customers.

If you're inspired to join them but don't know how to take that first step, I encourage you to take advantage of our Business Concierge Service.

You have my word that if you're committed to the efficiency cause, we'll make you feel welcome, confident and productive.

And, of course, efficient. ■

EfficiencyToday™

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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).

Summer 2018

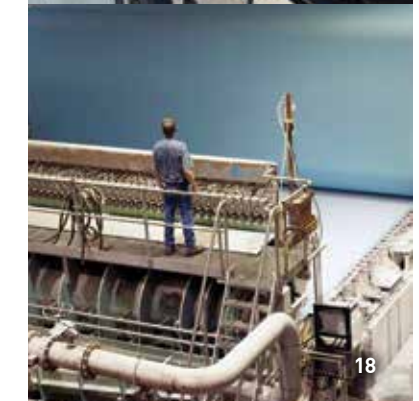


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Andy McCabe
Energy Efficiency and Commercial Programs Manager
AEP Ohio

Andy's Angle

Beyond kWh

Shining a light on non-energy benefits

You might think that the benefits of our energy efficiency programs are only spoken of in terms of kilowatt hours (kWh) saved.

I hope to change your thinking on that.

At AEP Ohio, we're always on the lookout for new ways to deliver value to you, our customers. During the search process, we found that kilowatt hours and incentive dollar figures might not always be enough to help projects make the jump from consideration to completion.

One important factor that is almost always overlooked when evaluating energy efficiency projects are the non-energy benefits (NEBs). A familiar example of an NEB is when an LED installation brings a reduction in maintenance costs, improves productivity and increases safety.

Through careful surveying and calculation, these NEBs can be monetized in a very accurate and tangible way. That's why we've undertaken a study of the most frequently utilized past projects, incorporating customer feedback on the benefits they've experienced, and calculated a monetized value where possible.

Our preliminary analysis of our own study results has found the value of NEBs to be up to 40 percent of the energy cost, so it's worth your while to learn more.

On page 10 of this issue of Efficiency Today™, you'll find a story of a customer that was way ahead of the curve in calculating NEBs and using the results to build a solid and complete business case to make facility improvements. And, you'll find NEB facts and examples throughout the magazine.

A high-level summary of these benefits by sector (Commercial and Industrial) will be available from our Customer Services Team, Outreach Team and Solution Providers working in our programs. Please contact any of those individuals if you need to estimate the NEBs for your potential project.

I think you'll find that it's important to understand that, as much as we like saving them, the work we do together isn't all about the kWh. ■

Non-energy Benefits: LEDs

Evidence that natural light improves learning, mood, and attention dates back over 100 years.

Recent studies have shown that LED lighting can mimic natural morning light, resulting in increased attention, performance and mood.*

In contrast, fluorescent lighting can suppress melatonin release toward the end of the worker's shift, which can result in sleep disorders such as insomnia—a common problem for second- and third-shift workers.

Evidence of this is shown in hospitals, where LED lighting upgrades are shown to increase surgical and nursing staff performance by enhancing mood and alertness, particularly during night shifts.



* "Natural Light and Productivity: Analyzing the Impacts of Daylighting on Students' and Workers' Health and Alertness"

Int'l Journal of Advances in Chemical Eng., & Biological Sciences Vol. 3, Issue 1 (2016)

Award Announcements

Sixth Annual AEP Ohio Energy Efficiency Awards

Ohio businesses, schools, organizations and hospitals were recognized for their high-efficiency standards at the sixth annual AEP Ohio Energy Efficiency Awards. The 20 honorees received their awards at a luncheon held on April 17 at Villa Milano in Columbus.



Trish Demeter (second from left), the Ohio Environmental Council's Vice President of Energy Policy, accepts the 2018 AEP Ohio Energy Efficiency Leadership Award. L to R: Jon Williams, Director Distribution Technology and Innovation, AEP Ohio; Trish Demeter, OEC; Miranda Leppla, Clean Energy Attorney, OEC; Heather Taylor-Misele, Executive Director, OEC

Leadership

The Leadership Award is given to a single business or organization that stands out for its ongoing involvement and the establishment of sincere and effective partnerships and relationships.

Ohio Environmental Council (OEC)

OEC was instrumental in the creation of our Combined Heat and Power/Waste Energy Recovery (CHP/WER) Program.

Sustained Excellence

As its name implies, the Sustained Excellence Award is given to companies that maintain their involvement on a consistent basis over time.

The Kroger Company

Kroger has demonstrated constant commitment to energy efficiency through past performance and its proactive stance toward future upgrades.

Efficiency Champion

The Efficiency Champion Award is an honor roll of companies and organizations based on program participation and the establishment of an energy efficiency culture.

- Abbott Nutrition**
- All-Phase Electric Supply**
- Amazon**
- American Fine Sinter**
- Amy Boone**
- Bluffton University**
- Cloverleaf Cold Storage**
- Dollar General**
- Findlay Board of Education**
- General Mills**
- Glatfelter**
- Highland Board of Education**
- Lancaster-Fairfield Community Action Agency**
- OCLC**
- OhioHealth**
- Olentangy Local Schools**
- The NRP Group**
- Weastec, Inc**

"It's always a pleasure to recognize companies, hospitals, schools and organizations who dare to innovate and take energy efficiency to the next level."

Jon Williams,
Director of Distribution
Technology and Innovation,
AEP Ohio

A Big Green “Welcome”

Huntington Bank finds efficiency in a renovated supermarket

The tasteful application of its verdant primary brand color is your first clue that something very green is going on at Huntington’s Gateway Center.

Once inside, you find an environment—and people—completely immersed in all things energy efficient.

Leading the charge for Huntington’s efficiency efforts is Rebecca Karason, who serves as Huntington’s Director of Energy & Sustainability and is a Senior Vice President. Karason, who once worked with AEP Ohio as an efficiency

consultant, knows the ins and outs of the technologies and incentive programs to help fund upgrades. “We consider Rebecca an alum, and we’re very proud of her accomplishments at Huntington,” said Andy McCabe, AEP Ohio’s Energy Efficiency Commercial Programs Manager.

A passionate advocate for everything that efficiency brings to the table—cost savings, sustainability and such non-energy benefits as productivity improvements and increased safety in the work environment, Karason has been part of a team that transformed

first walk through. The massive project was led start to finish and beyond by Jason Vallance, Huntington’s Director of Corporate Real Estate, Facilities and Space Management. “Gateway literally has a life of it’s own,” said Vallance, pointing with pride to the building’s sense of comfort and constantly evolving efficiency features.

Everyone in the building, from the call center staff to upper management, works in large communal spaces. Convenient private conferencing areas are dotted throughout the Center when quiet or discretion is needed.

“We consider Rebecca an alum, and we’re very proud of her accomplishments at Huntington.”

Andy McCabe,
Energy Efficiency and
Commercial Programs Manager,
AEP Ohio

the Gateway Center into a sort of wondrous efficiency laboratory. “The whole structure has become a pilot,” she says proudly, pointing to the artful solar tree arrays that helped generate 526,000 kilowatt hours (kWh) annually for the facility, and the **free charging stations for early adopters** driving to work in electric vehicles (EVs).

The Gateway Center, once a sprawling Meijer supercenter on Cleveland Avenue, has been reimaged and renovated into an employee-centric space with a vibe that makes you want to work there from the very

There’s also a cafeteria, a Starbucks®, and a fully-equipped fitness center. **Unobtrusive energy efficiency touches such as motion detection lights and daylight harvesting, are woven throughout.**

“It’s all very exciting—Rebecca’s very passionate about efficiency, and she’s good at directing her passion and knowledge toward getting things done and inspiring others to jump on board,” said Rhonda Knight, who serves as Vice President and Inclusion Manager at Huntington. “She’s the linchpin for everything that’s going on,” she said.



Huntington’s efficiency guru, *Rebecca Karason*



A large, sunlit common area inside Huntington’s Gateway Center

The energy efficiency upgrades were made with the help of AEP Ohio's New Construction/Major Renovation Program, and the Continuous Energy Improvement (CEI) Program disseminated ongoing expertise and incentivized cultural change.

Karason worked with Knight toward the elimination of "silos"—a common communication affliction among departmentalized corporations. She credits Knight for paving the way toward the establishment of an interdepartmental "Green Team," whose monthly meetings are well attended and productive. "It's a very engaged, diverse group that works together seamlessly," said Knight, who loves the way the team "pushes through ideas without being pushy."

While Karason has generated much of Huntington's internal momentum, Knight explains that two factors have helped energy efficiency take hold there. "Our upper management is squarely behind her efforts," said Knight, pointing to Huntington's participation in the Smart Cities program as evidence of their corporate commitment.

The other factor that Knight credits for the tidal wave of green at Huntington is the glove-like fit of efficiency and mission. "Our focus is to make our customers' lives better," said Knight. "Cost savings and taking care of the environment are two outcomes that we're comfortable focusing on." The best evidence of this "better lives" approach is to take a trip to any Huntington branch. You won't be greeted with pitches for new accounts and low interest rates. Instead, you'll encounter a big green "Welcome."

Speaking of branches, the engagement and excitement that runs through the Gateway Center has now started to flow in their direction. Efficiency upgrades have begun, and the first Central Ohio location to benefit is the new branch at Sawmill Road and State Route 161 in Northwest Columbus. The efficiency



L to R: Huntington Senior Vice President and Director of Energy & Sustainability Rebecca Karason, Vice President and Inclusion Manager Rhonda Knight, Director of Corporate Real Estate Jason Vallance

installations at the branch include very high-efficiency HVAC systems with variable frequency drives (VFDs), daylight harvesting, and controlled LED lighting inside and out. The combination has reduced kWh usage about 36 percent at Sawmill, and similar results are expected at other Huntington branches.

Joshua Lloyd, who works with AEP Ohio as a lead technical account manager on the Huntington Sawmill branch project, is a big believer in what Huntington is doing and makes a confession with more than a little pride.

"I'm glad they're my bank," he said. ■



Left: Solar "trees" at Huntington Gateway; Right: Huntington's very energy-efficient branch near Dublin

Savings Snapshot

Huntington

Total kWh Savings
2,611,875.59

Incentives
\$256,281

Estimated Energy Savings
\$208,950

Non-energy Benefits: Efficient HVAC systems

Improved HVAC systems do a better job of regulating temperature and humidity.

In manufacturing processes, this often results in improved product quality and less product loss. The more pleasant working environment makes a positive impact on employee productivity and retention.

In retail areas, the HVAC improvements also help maintain product quality and increase customer comfort. This encourages a longer browse through the store, which likely translates into increased revenue.



Non-energy Benefits: Variable frequency and variable speed drives (VFDs/VSDs)

VFD/VSD's reduce wear on pumps and motor driven equipment by matching motor operation to the variable output required, thereby reducing equipment failures and downtime.

Integrating VDF controls into a production process can help even more, allowing for better predictive maintenance of equipment, and reductions in equipment/system failure, product/material loss and downtime.

This is especially important for chemical and petrochemical manufacturers, where system failure results in a critical loss of material inputs, causing protracted downtime periods.



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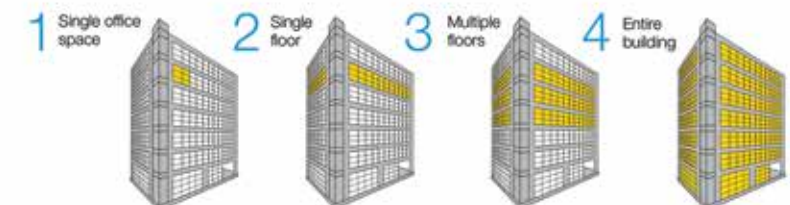


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The sun rises over Weastec's energy-efficient facility in Hillsboro

New Efficiency Horizons At Weastec

Finding savings beyond the kilowatts

Among the picturesque rolling hills and meandering streams of southwest Ohio, where U.S. Routes 50 and 62 converge with five state routes, you'll find the aptly named town of Hillsboro.

Take High Street to the edge of town and you'll find another significant convergence—the Hillsboro plant of Weastec. The name, pronounced Wees-teck, reflects the company's divergent roots from both east and west.

Weastec's parent company is Tokyo-based Toyo Denso Group, whose owners selected the Hillsboro site for a new manufacturing facility in the mid-1980s.

They found the people of the area to be kindred spirits in their work ethic and craftsmanship, which aligns perfectly with meticulous Japanese production processes.

One of those kindred spirits is Robert Moots, Weastec's Senior Manager of Cost Planning and Purchasing at the Hillsboro plant. He's overseen the installation of energy efficiency upgrades in virtually every corner of the 125,000-square-foot facility, which produces electronic components for vehicle manufacturers worldwide.

Moots has a knack for finding savings opportunities from every conceivable direction. While he appreciates how saving kilowatt hours (kWh) helps Weastec's bottom line, he takes great pride in finding and quantifying non-energy benefits (NEBs). **Examples of quantifiable NEBs include reductions in insurance or maintenance costs.** "Non-

"Non-energy benefits add up very quickly."

Robert Moots,
Senior Manager of Cost Planning and Purchasing,
Weastec

energy benefits add up very quickly," said Moots, proudly pointing to the whopping \$224,507 tax deduction that Weastec earned from the U.S. Department of Energy in 2016.

He credits the enthusiastic support of Nick Ida, Weastec's president, for giving the project a rolling start. **"The upgrades were in perfect alignment with our core values of process improvement and environmental stewardship,"** said Ida. "The potential savings and AEP Ohio's incentives made it an easy decision from a business standpoint," he said.

Moots leaned on the expertise of Art Beem and Doug Hood from AEP Ohio to work through all of the upgrade and incentive possibilities. "They've been great partners," said Moots. **"They found efficiency opportunities that otherwise would have gone unnoticed,"** he said.

The upgrades began with the plant's heating and cooling. HVAC software controls were put online, and variable air volume (VAV) boxes were strategically placed where needed. The result was better temperature control throughout the facility, and the system could be programmed for daily operation as well as weekends.

Additional software upgrades in 2016 allowed for real-time monitoring of electrical usage of the HVAC system, which provided insight for money-saving changes to plant protocols like timing forklift chargers to come on at 6 pm daily.

Next, a pair of high-efficiency boilers took the place of six older ones at a significant cost savings, and two water-cooled air conditioning units were put out to pasture in favor of a new air-cooled efficient unit. The elimination of water paid big NEB dividends according to Moots. "We saved a ton on insurance costs with the new air-cooled A/C system, he said, "and we cancelled our water treatment chemical contract."

The elimination of the water system led to another NEB that puts Weastec in rare company. **They are one of 28 Ohio businesses to be recognized by the Occupational Safety and Health Administration (OSHA) as SHARP Certified.** SHARP stands for Safety and Health Achievement Recognition Program, and achieving this special OSHA designation exempts the company from planned inspections.

Once the air handling was complete, Moots turned his attention to the lights. On the interior, over 3,500 older fluorescent fixtures with ballast were replaced with about 2,600 linear LED units. The exterior lighting saw 45 mercury vapor fixtures retired in favor of LED replacements. The LED upgrade provided yet another NEB—the cancellation of an annual \$12,500 maintenance contract.

The air and light upgrades were a hit with Weastec's employees. Seasonal hot and cold spots at the sprawling facility were virtually eliminated by the HVAC improvements, and the increase in illumination quality from the LEDs reduced eyestrain. "It feels good to hear my teammates say how pleasant our plant environment



Weastec President Nick Ida (L) confers with Hillsboro plant management



Product ready to ship from Weastec's Hillsboro plant

is," said Moots. **"This is a happier and more productive place to work,"** he said.

With guidance from AEP Ohio's Beem and Hood, Moots went back to the air—the compressed kind—for Weastec's most recent upgrade. He determined that their existing 75-horsepower compressor was about 60 horses too many. A new "right-sized" 15-horsepower unit has taken its place.

The four-year totals on the kWh savings are eye-catching to say the least. By the end of calendar year 2017, over 900,000 kWh were saved. The proof can be seen on Moots' office wall which is crowded with framed certificates and newspaper clippings of incentive check presentations from AEP Ohio.

From every vantage point—east and west, energy and non-energy, air and water—Weastec has turned

Savings Snapshot	
Weastec	
Total kWh Savings	641,953.31
Incentives	\$32,819
Estimated Energy Savings	\$51,356

energy efficiency from a positive balance sheet line item to a core business essential that impacts every aspect of a successful operation. ■



“The drive toward EVs is unstoppable, and we’re working to stay ahead of the curve.”

Ryan Houk,
Distribution Projects Manager,
AEP Ohio

An EV Charging Station in use outside of AEP Ohio’s Gahanna Headquarters

Charging Ahead

As more EVs roll down Ohio’s streets and highways, a new incentive program helps bridge the range gap

They don’t use a drop of gas, and their emissions are zilch. Whisper quiet, they deliver immediate torque for faster acceleration when merging onto freeways. And, they do it all with fewer moving parts.

Electric vehicles (EVs) have a lot going for them, and their sales have increased as automakers add more models and vehicle types.

“The drive toward EVs is unstoppable, and we’re working to stay ahead of the curve,” said Ryan Houk, a Distribution Project Manager for AEP Ohio and point person for their new EV Charging Program. The program **provides incentives to help fund the purchase and installation of 375 EV charging stations across Ohio.**

The program will target public and workplace settings, and large multifamily apartment/condo complexes. “We’re looking for municipalities, businesses with large workforces, hospitals, universities and multi-unit housing developers to participate,” said Houk. The incentives vary according to the type of commercial entity and are based on project cost percentages with spending caps.

EVs have faced a major detour to more widespread acceptance. “It’s called ‘range anxiety,’ and it’s a genuine concern,” explains Houk. “Our program is designed to help eliminate that fear by making more charging stations available,” he said.

75 of the EV charging stations will be the “Fast Charging” variety, which are intended for quick recharges for EV motorists on the go. The plan is to concentrate these special stations in high traffic areas across the state.

The remaining 300 units will be Level Two charging stations, which provide 20-30 miles of range per hour of charge.





Houk encourages commercial customers that are interested in the EV Charging Program to visit AEPOhio.com/EV or email questions to OhioEVCharging@AEP.com.

AEP Ohio EV Charging Program

TYPES OF CHARGING STATIONS

<p>Level 2</p> <ul style="list-style-type: none"> • Ideal where vehicles are parked for several hours/overnight • Provide 20-30 range miles per charging hour 	<p>Fast Charging</p> <ul style="list-style-type: none"> • Ideal where vehicles are parked for recreation/events • Provide 100 range miles per charging hour
--	--

INCENTIVE LEVELS

<p>Local government</p>  <p>Level 2—up to \$50,000 Fast Charging—up to \$150,000</p>	<p>Workplace</p>  <p>Level 2—Up to \$30,000</p>	<p>Other public spaces</p>  <p>Level 2—Up to \$50,000 Fast Charging—up to \$100,000</p>	<p>Multi-family</p>  <p>Level 2—Up to \$45,000</p>
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*Incentives vary by installation category.



The phasing in of LED lighting at the GOJO® Wooster Campus shows the night and day difference between old and new technology



Boxes of GOJO® Hand Medic® Skin Conditioner await shipment to industrial environments around the world



L to R: Tom Marting, Facilities and Resource Management Director, GOJO Industries; and Harry Ritenour, Facilities Manager at the GOJO Wooster Campus

GOJO Takes Hands-on Approach

Pumping out energy savings in Wooster

When you hear the GOJO brand name, you immediately think of that familiar pump bottle on workshop or factory sinks, where hard-working hands require a cleaning product to match.

The image is accurate, but it's far from a complete picture. GOJO has always changed the way we clean our hands. Not only did the company invent PURELL® Hand Sanitizer, it created the hand sanitizer market.

Established in 1946, GOJO Industries is a family enterprise headquartered in Akron. The company's U.S. manufacturing and distribution operations are in Cuyahoga Falls and Wooster, Ohio. Globally, GOJO operates in the United Kingdom, France, Australia, Japan, Mexico, Canada and Brazil.

GOJO announced its expansion into Wooster in 2015 to add manufacturing capabilities for PURELL® products. In addition, this expansion allowed them to integrate operations such as pump, bottle and dispenser molding. The GOJO Wooster Campus move also greatly expanded their warehousing and distribution operations.

An enterprise-wide commitment to sustainability through reducing greenhouse gas emissions and improving energy efficiency drove the decision to replace an outdated lighting system at the facility. The GOJO Wooster Campus project, which included the installation of lighting controls and LED

lighting upgrades, received incentives from AEP Ohio's Advanced Lighting Controls Program. The project was completed in two short weeks, as it ran smoothly with no obstacles or setbacks.

On the inside of the Campus buildings, HID lights were replaced with brighter LEDs, which improved color quality and enhanced illumination. "Everyone, from the factory floor workers to our leadership team, is amazed at the difference the LEDs have made," said Tom Marting, Facilities and Resource Management Director at GOJO Industries. "It's very striking," he said. Marting explains that the clear visibility provided is essential for an efficient and safe work environment. **"Workers here have plenty of light everywhere they need it and are not reporting any eyestrains," he said.**

The GOJO Wooster Campus LED makeover also encompassed exteriors, where 115 LED wall-mounted lighting fixtures around the building perimeter replaced 1000 watt HID lamps, and several pole-mounted fixtures were converted to LEDs. "It's a major upgrade that allowed us to run shipping and receiving operations across three shifts," said Harry Ritenour, Facilities Manager, GOJO Wooster Campus.

Ritenour credits AEP Ohio's John Rufener, who serves as an AEP Ohio Customer Service Engineer for the

"It's a major upgrade that allowed us to run shipping and receiving operations across three shifts."

Harry Ritenour,
Facilities Manager,
GOJO Wooster Campus

Wooster area, for the success of the project. "John's knowledge and experience helped us every step of the way—we literally couldn't have done all this without him," he said. Enhancing the efficiency of the LEDs was the installation of lighting controls such as occupancy sensors, zone control, and daylight dimming controls. The lights are monitored and controlled via Wi-Fi and the system runs on a local intranet so that the only wiring needed is from the power source. This type of on-site connectivity allows GOJO to detect any issues with fixtures before they fail, adding security and reliability to the system, as well as a big boost in overall efficiency.

So far, this hands-on approach to lighting is pumping out the savings very quickly—over 2,315,914.55 kilowatt hours (kWh). ■

Savings Snapshot

GOJO Industries

Total kWh Savings
2,315,914.55

Incentives
\$201,082

Estimated Energy Savings
\$185,273



LEDs provide efficient and high quality illumination to the distribution area of ProVia's Cherry Ridge facility near Sugarcreek



Energy-saving occupancy sensors light the way as ProVia products await shipment

“We are all about maintaining a high standard of quality and being mindful of our use of materials and energy.”

Mike Burch,
Director of Business Improvement,
ProVia

saving variable frequency drives (VFDs).

Burch credits AEP Ohio for simplifying the application process for the funding of energy efficiency upgrades. “They helped us develop a baseline to compare the efficiency of our new Cherry Ridge facility with our Zanesville plant, where we originally manufactured stone,” he said.

So far, the results are promising. The comparative data shows a savings of .0108 kilowatt hours (kWh) per square foot of stone product produced. This generated an incentive of \$95,000 from AEP Ohio. The great results, plus a growth in manufactured stone demand, helped add 17 new jobs at the plant.

Burch said the rock-solid results will spread to other ProVia facilities in the near future. “We’re excited about what we’re doing at Cherry Ridge, and we’re looking to apply what we learned there to our other plants,” he said. ■



ProVia manufactured stone products come in a variety of styles and colors for a very natural look

Principles Written In Stone

ProVia’s new manufacturing plant gets rock solid results

When the decision was made to add manufactured stone to their highly regarded line of windows and doors, Sugarcreek-based ProVia took a familiar path.

Over the years, the company had established a reputation in the building products industry for quality, old-world craftsmanship and complete devotion to their customers. **At ProVia, attention to detail is high art, a core value easily traceable to their Christian faith.**

The privately owned company had purchased a stone manufacturing company in 2011, and had begun producing stone at their existing facility in Zanesville. Always looking to improve and stay true to their guiding principles, ProVia decided to build a brand-new, energy-efficient plant near their Sugarcreek headquarters.

“We are all about maintaining a high standard of quality and being mindful of our use of materials and energy,” said Mike Burch, ProVia’s Director of Business Improvement.

Ground broke on the new facility in January of 2015, and it was up and running by April 2016 with energy efficiency features operating throughout. Over 500 LED lights provide efficient and high-quality illumination. **“Our workers love the lights because they can really see the details,”** said Burch. The lights in the offices and the warehousing area floor are controlled by occupancy and motion sensors. **A high-efficiency air conditioning unit near the mold manufacturing area enhances product quality by providing humidity control.** The facility’s primary manufacturing equipment is fitted with energy-



ProVia stone sample boards

Savings Snapshot	
ProVia	
Total kWh Savings	3,154,107.45
Incentives	\$171,605
Estimated Energy Savings	\$252,329



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Grading The Paper

Glatfelter's Chillicothe plant comes up aces on energy efficiency

If you live outside of Chillicothe, Ohio or Spring Grove, Pennsylvania, there's a good chance you've never heard of Glatfelter.

But if you've curled up with a book and a warm cup of coffee or tea, mailed a letter, or played a few hands of poker, you've been up close and personal with their products.

Glatfelter is a global supplier of specialty papers and engineered materials with annual sales of \$1.6 billion, and they've been at it for 154 years. They employ approximately 4,200 employees around the world in their mills in the U.S., Germany, United Kingdom, Canada, France and the Philippines, and sales and distribution offices in China and

Russia. "On any given day, it is estimated that 40 percent of the population in the U.S. has touched one of our products," said Sean Wallace, the Chillicothe mill manager.

When it comes to economic impact on the Chillicothe area, Glatfelter is no paper tiger. The plant employs approximately 1,100 people and does business with 2,000 area suppliers, pouring more than \$100,000,000 into the local economy each year.

Left: #12 paper machine wet end-Chillicothe, OH



Right: iconic Glatfelter stack in Chillicothe, OH

Making paper products is an energy-intensive pursuit that requires plenty of electricity. Finding ways to turn down the energy intensity becomes a priority, given Glatfelter's focus on environmental sustainability.

"Energy has a large impact on the cost structure of our industry due to the volume we consume and generate," said Mark Hauke, Director of Fiber and Utilities at Glatfelter's Chillicothe mill. "We need to be on point every minute to ensure we are minimizing our energy consumption."

Finding out what those right things are and helping to instill them into the Glatfelter workforce is part of the mission of AEP Ohio's Continuous Energy Improvement (CEI) Program.

During the course of a few workshops, about 42 no-cost or low-cost energy efficiency projects were defined that generate both savings and program incentives. Air compressor waste was addressed through metering and optimization, facilitating shutdowns during low-demand time, saving about 600 horsepower. The Glatfelter workforce reviewed its water usage and found a way to shut down a 100-horsepower pump/motor without impacting operations.

Beyond the competitive boost it provides, Hauke feels that energy efficiency is a perfect fit with Glatfelter's values. "We strive to positively impact our community, customers, and suppliers through

"Energy has a large impact on the cost structure of our industry due to the volume we consume and generate."

Mark Hauke,
Director of Fiber and Utilities,
Glatfelter Chillicothe Plant

The program began with the establishment of a roadmap of goals and structure, and the development of tools to evaluate results past, present and future.

Also under the program, a series of classes and workshops were developed specifically for Glatfelter's needs to train management and employees to find efficiency opportunities. "We want our team to look at our processes 24/7 and focus on safety, energy, and operational excellence," said Hauke.

"By moving in this direction, we can make these efforts and learnings sustainable," he said.

innovation, continuous improvement, and environmental and social responsibility. We are stewards of our resources."

Glatfelter and AEP Ohio have formed a strong bond over the years. "They're lifelong learners of energy efficiency," said AEP Ohio's Michelle Cross, Program Manager, CEI. "We continue to work with Glatfelter through an alumni program—a sort of efficiency master class."

"We learn just as much from them as they do from us," she said. ■



A coating machine at work

Savings Snapshot

Glatfelter

Total kWh Savings
36,547,756.98

Incentives
\$1,181,163

Estimated Energy Savings
\$2,923,821

Well-designed Wellness

A new energy-efficient outpatient center makes a healthy difference in Wooster

When Wooster Community Hospital broke ground for their new Outpatient Pavilion in the summer of 2015, they looked for ways to build in cost savings. “Reimbursement isn’t the same as it was ten years ago,” stated Craig Sherman, the health system’s Director of Outpatient and Support Services. **“Anywhere we can find savings—including efficiency—is a good thing.”**

For the hospital, efficiency savings came in the form of building design, as well as a variety of different energy strategies. LED fixtures were used in both interior and exterior lighting systems. Ventilation and setback controls reduce the

building’s heating and cooling load by adjusting temperature and ventilation levels when the facility is not in use. An optimized chiller plant provides efficiency without sacrificing performance.

Bob Medziuch, Vice President of Hasenstab Architects, the firm that helped design the addition along with CJL Engineering, commends the hospital for its efforts. “They really went all-out on energy efficiency,” he said.

The hospital also took advantage of AEP Ohio’s New Construction/Major Renovation Program, giving them the opportunity to enlist AEP Ohio’s

expertise early in the planning process. Logistics were particularly important in this project, since the Outpatient Pavilion site is on the part of the hospital complex where many integral systems—utilities and oxygen, for example—are housed. John Rufener, AEP Ohio’s Customer Service Engineer for the Wooster area, ensured interruptions were kept to a minimum. “Shutting down the old systems and ramping up the new ones had to be carefully planned,” explained Medziuch. “John was a big help in making the switchover happen smoothly.”

The Outpatient Pavilion celebrated its Grand Opening in November of 2017. The first floor of the 88,000-square-foot

addition is home to the hospital’s cancer center, which includes 17 wellness suites with infusion bays that overlook a garden, as well as 11 exam rooms, associated support areas and space to accommodate program expansion for a Women’s Center, Physicians Suite, and Central Sterile Processing. **The pavilion’s second floor—originally intended for future growth—quickly drew the attention of providers in the fields of pulmonology, surgery and obstetrics.** “Patients and providers want to come to a place where all the equipment is up and running, and that’s well lit,” said Sherman. “It’s all about feeling better—and this building feels healthy.”

In January of 2018, AEP Ohio presented the hospital’s board of governors with an incentive check in recognition for their efficiency efforts related to the addition and chiller plant. ■



Wooster Community Hospital offers complete health care services to greater Wayne County

“It’s all about feeling better—and this building feels healthy.”

Craig Sherman,
Director of Outpatient and Support Services,
Wooster Community Hospital



The new Outpatient Pavilion at Wooster Community Hospital



AEP Ohio presents WCH with an incentive check for efficiency upgrades

Savings Snapshot

Wooster Community Hospital

Total kWh Savings
1,178,686

Incentives
\$100,561

Estimated Energy Savings
\$94,295



The Outpatient Pavilion’s lobby is designed to provide patients with an immediate sense of comfort



Executive Director Keshia Drake stands in front of a colorful lobby mural

in Lima, Drake left town after graduating from high school to earn a bachelor's degree in accounting at Eastern Michigan University. She then built a career as a grant writer at the world-famous Cleveland Clinic.

Drake saw the value of partnership building firsthand during her time in Cleveland. "Nothing happened without corporate sponsorship," she said.

She knew great things would happen as Enema worked out a community partnership plan to provide the needed efficiency upgrades.

Some AEP Ohio incentive dollars were provided to get the ball rolling, and two stalwart Lima area businesses stepped in to help in a big way. Lima's All-Phase Electrical Supply Co. donated Westinghouse LED tubes and Lithonia LED fixtures which were a significant expense—thanks to the efforts of their outside sales Account Manager Wayne Mason. Sidney Electric generously provided installation services free of charge.

Inside the Center, the LEDs were installed in class and meeting rooms, as well as in the gymnasium, where they were a big hit. "The new ones come on right away—everyone loves them," said Drake, recalling the

long warm up time of the old lights. Occupancy sensors took the place of polite signs, automating the process of turning out lights when not in use.

On the exterior, perimeter lighting provided an added measure of safety at night.

And, plans are in the works to add LEDs to the outdoor basketball court.

Drake said that the best outcome of the energy efficiency savings from the upgrades was the Center could extend its reach. It once closed at 4 pm, but now has added after-school and work programs, as well as adult and senior education classes. It now stays open until 8 pm. "We're open four additional hours almost every day and our costs haven't gone up at all—it's amazing what efficiency can do," she said.

Enema says that the LED installation has reduced the amount of electricity it takes to light the Center by 54 percent. "It's the ultimate efficiency benefit—serving the community better," he said.

As it turns out, what Enema saw on the wall next to the light switch was truly a sign of better things to come. ■

A Hopeful Sign In Lima

A unique partnership brightens futures at a community cornerstone



The sign that started it all

The irony of the situation didn't escape Gary Enema.

A program coordinator for AEP Ohio's Business Energy Efficiency programs, Enema had just wrapped up an annual conference of energy efficiency solution providers in Lima.

As he was leaving the room, he noticed a sign next to the switch that kindly read

"please turn off lights when you leave the room."

On a day full of presentations about the sizable impact that energy efficiency upgrades

can make on operating costs, he thought to himself: "This of all places should have occupancy sensors."

That place was Lima's renowned Bradfield Community Center.

A community cornerstone for decades, the Bradfield Center began life in segregation-era Lima as the Bradfield Community Association in 1938. Named for Dr. J.C. Bradfield, a pioneering African-American World War I veteran and physician at two local hospitals, the Association's goal was to provide the area's underserved African-American community complete access to programs and activities that encouraged personal development and growth. They outgrew the original facility and moved into the current location in 1949.

Today, the Center is a vibrant, all-inclusive place that focuses on health, education and youth development. It provides classes, seminars, meeting spaces for companies and organizations, and facilities that encourage art and athletics.

The Center is run by Keshia Drake, who came home to become its Executive Director in 2014. Born and raised



Local children enjoy Bradfield's summer learning programs



L to R: Local basketball greats Lemar Pughley and Xavier Simpson honed their skills on Bradfield's courts

"It's the ultimate energy efficiency benefit—serving the community better."

Gary Enema,
Program Coordinator for Business Energy Efficiency Programs,
AEP Ohio



The hands of children make an artful wall display at Bradfield



Abercrombie's conveyor belt system in Distribution Center 2 is optimized for energy efficiency

Abercrombie's Looking Sharp

Efficiency outfitting includes an IT/Data Center reboot and some smart new belts

For decades, New Albany's Abercrombie & Fitch Co. has been the go-to apparel retailer for men, women and kids through its flagship namesake brands, as well as Hollister, abercrombie kids and Gilly Hicks. The company's youthful but timeless designs practically invented the casual clothing category for millennials.

Behind the scenes at its New Albany headquarters, there's a very different kind of fashion sense. Since 2010, Abercrombie has been outfitting its distribution facilities and offices with the newest arrivals in energy efficiency technology. And, they've approached it with the same reverence for design and attention to detail as its casual clothing lines.

"We like to be on the leading edge, but not the bleeding edge."

Andrew Stroh,
Energy Manager,
Abercrombie & Fitch Co.

Andrew Stroh, who is an energy manager at the retailer, works with a variety of stakeholders across the organization, all of whom take energy efficiency and operational improvement seriously. Stroh has worked closely with AEP Ohio's Tony Greve to design a careful, thorough implementation plan. **"You have to be careful to use the right technologies at the right time or you can get burned,"** said Greve.

Stroh agrees. "We like to be on the leading edge, but not on the bleeding edge," he adds.

Recently, the focus has been on Abercrombie's massive distribution centers. One was retrofitted with efficiency measures (DC1), the other (DC2) underwent a major renovation. Both facilities were designed with the ENERGY STAR® guidelines in mind.

In both, attention was paid to an area of the facility often taken for granted—the conveyor belts. **Through AEP Ohio's Continuous Energy Improvement (CEI) Program, the belt operations were optimized for smart energy management** through a variety of new procedures. Complete shutoff times were reduced by more than half. To accommodate post-holiday rush periods, more aggressive timing setbacks were implemented, and an optimized unoccupied mode stopped sections of the belt unless a package tripped a sensor.

New LED lighting was used in certain areas within both DC1 and DC2. LEDs were also the fixture of choice on both facilities' exteriors, illuminating the parking lot for employees.



The wood and corrugated metal motif of Abercrombie's offices in New Albany

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Inside Abercrombie's main corporate offices, older tech lighting was also replaced by LEDs.

Abercrombie's Data Center and IT operations received new efficiency measures of their own. A move to server virtualization, which centralizes computer memory and processing into right-sized servers, replaces energy intensive individual desktop computers. **The addition of efficient new cooling equipment in the form of air exchanging economizers, do the important work of maintaining ideal server temperatures while using significantly less energy.**

"The economizers have made a big impact on our electrical usage," said Stroh.

In the tough world of retail clothing, it's a sharp look that's sure to make a big difference.

As for results, Abercrombie's efficiency efforts have paid off. Over the years, the company has rung up an impressive total of \$648,790 in annual savings using AEP Ohio energy efficiency programs.

Such numbers will help keep this legendary retailer looking sharp for many seasons to come. ■

Savings Snapshot

Abercrombie & Fitch

Total kWh Savings

8,109,869.51

Incentives

\$417,136

Estimated Energy Savings

\$648,790



LED-lit office spaces ease eye strain for A&F Co. operations and design associates



The aptly-named Economizer cools the company's data center in a dramatically efficient way



Seminars For Staying Sharp

Maintaining an efficiency edge for commercial and industrial customers

For energy-intensive businesses, efficiency education is hardly a one and done proposition.

"Keeping a competitive edge is critical as technology continues to advance," said Michael LaScola, who serves as Training and Education Coordinator for AEP Ohio's Energy Efficiency Programs. "You can go from ahead of the curve to behind the 8 ball very quickly," he advises.

To keep customers sharp, LaScola brings together specialists and experts for multiple events each year at locations throughout AEP Ohio's service area.

At the most recent event in May, experts covered such topics as energy audits, LED technology advances, regulatory changes, and how to use compressed air more efficiently.

The all-day events include continental breakfast and lunch, and attendees usually earn continuing professional education credits. Watch your email for seminar date and location information throughout the year.

LaScola adds that he's always looking for topic ideas. "Don't hesitate to contact me if you have any thoughts about a subject we should focus on," he said. To submit topic ideas, email him at mtlascola@aep.com.

Advanced (Re)placement

Morgan Local School District's lighting project makes the grade

When McConnelsville's Morgan High School was renovated in 2010, LED lighting wasn't part of the plan. "The technology wasn't to the point where we could use it," said Roger Calendine, Tech Consultant for the Morgan Local School District. "We tried."

Fortunately, they didn't stop trying. In 2012, MHS undertook Phase I of an LED lighting project, replacing all 82 300- to 500-watt incandescent lights

in their theater with dimmable, 23-watt LED lamps. **This change alone reduced kilowatt hour (kWh) usage in the theater by 94.6 percent. In addition to the energy savings, they reduced the costs and time involved to keep the theater well lit.** Prior to the upgrade, Calendine estimates the school replaced one or more of the theater's bulbs every week. "It kept our maintenance team hopping," he said. "We've only replaced seven of the LEDs since 2012."

The savings realized from Phase I galvanized the administration. "Everyone—the maintenance department, the board, the superintendent—was pretty enthusiastic about it," Calendine said. So in 2015, after the test installation of a 4x2 LED troffer fixture, the school implemented Phase II—retrofitting the 45 troffers in their cafeteria with LED bulbs.

But they didn't stop there. "Everyone was really impressed with the brightness of the light and the ease of installation," said Calendine. Spurred by the improved look, reduced maintenance, and rebates received from AEP Ohio—which covered about half the cost of Phase II—the school began Phase III by upgrading all the troffers in the entrance hall. Then they took on the rest of the school.

Morgan Local's enthusiasm for LED lighting is supported by recent research on the potential impact on student performance. It shows that an increase in daylight and luminance, which LED lighting mimics, enhances mood and improves cognitive function and focus.

After creating an inventory of the school's remaining bulbs, MHS turned to the experts at Linden Lighting & Supply Company to determine the best replacement bulbs for their parking lot, gym and other parts of the building. "They helped us with the research, allowing us to test different bulbs for lumens, size, et cetera to find the right replacements," said Calendine.

AEP Ohio rebate programs offset approximately \$27,000 of the \$58,000 spent converting the rest of the school. Comparing kWh usage for the month of

December 2017 to that of December 2015, **Calendine reported a reduction of 97,608 kWh. He estimates a yearly savings of 1,052,000 kWh.**

In March of 2018, the school joined AEP Ohio's Continuous Energy Improvement (CEI) Program. A committee comprised of administrators, teachers, maintenance staff and students brainstormed large and small ways to reduce energy usage. Actionable ideas include turning off projectors when they're not in use, removing one-third of the LED bulbs in the hallways over the summer,

changing the settings on the school's occupancy sensors, and evaluating ways to make their HVAC and lighting control systems more efficient.

They set a goal to save 5 percent by March of 2019. They are currently on track for savings of 7.5 percent.

The final phases of the project, which will upgrade the lighting in the junior high, three elementary schools and bus garage, are in the planning stages. "I can't wait until we get all the buildings converted to LED," said Calendine. ■

"Everyone was really impressed with the brightness of the light and the ease of installation."

Roger Calendine,
Tech Consultant,
Morgan Local School District

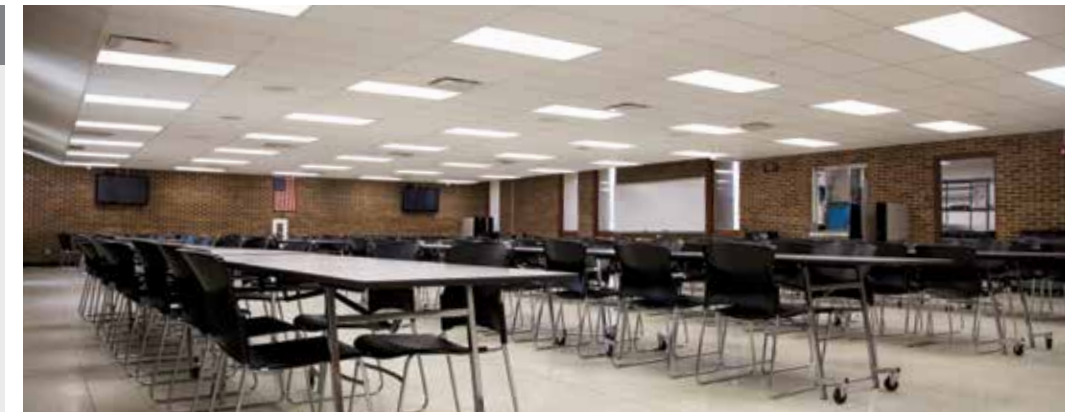
Savings Snapshot

Morgan Local School District

Total kWh Savings
464,782.62

Incentives
\$47,175

Estimated Energy Savings
\$37,183



Top: LEDs in high school cafeteria; Bottom: The well-lit gymnasium, the "Home of the Raiders"



Where it all began: Roger Calendine in the high school's theater

Business Incentive Program Update

Efficiency Focus: Non-Energy Benefits



Benchmarking Breakthrough

A new program automates a time-consuming process for building owners

If you own or manage a portfolio of buildings, consistent benchmarking is essential. But, the online enrollment process does require painstaking amounts of accurate data to be uploaded, which can be an obstacle for owners or managers.

AEP Ohio's new Automated Benchmarking Program was designed to ease the pain.

"Our program provides easy access to upload-ready data that's essential to the benchmarking process," said program lead Rick Sullivan, EE/PDR Business Program Coordinator Principal for AEP Ohio. "We've done the prep work to give our customers a head start," he said.

The Automated Benchmarking Program makes available historical utility data in a visual, graphic form, automates ENERGY STAR® scoring, and verifies pre- and post-project energy use. The ready-to-use verified data means there's less error from manual data collection and upload efforts. The program also helps measure efficiency progress by facilitating the setting of goals and targets, and establishing timelines.

Sullivan emphasizes the value of benchmarking for institutional and commercial buildings of every size and type. **"If you don't benchmark, you're leaving money on the table,"** he said. Sullivan explains that, according to an Energy Use Intensity (EUI) study, benchmarked buildings save 7% on their energy bills over a four-year period.

If you're interested in our Automated Benchmarking, email support@benchmarking.energy or contact Rick Sullivan at 330-438-7825 or RWSullivan@aep.com.

How the Program works

Go to www.benchmarking.energy and follow the prompts.

Don't Forget:

The Bid4Efficiency online reverse auction Request for Qualifications (RFQ) is coming **August 2018**. Check for updates at AEPOhio.com/Solutions.

Efficiency's New Tipping Point

Once a consideration, Non-energy Benefits are now a deal closer

The incentives from AEP Ohio's Business Efficiency Programs are designed to tip any cost-benefit analysis in favor of the purchase and installation of energy efficiency measures.

The decrease in capital outlay helps build a compelling financial case for these upgrades in the short term, and the kilowatt hour (kWh) savings help provide a positive outlook for years to come.

But in many cases, it's the Non-Energy Benefits, or NEBs, that really push the analysis needle in favor of greenlighting efficiency projects. They've gone from important consideration to deciding factor.

What are NEBs? They're the kind of savings associated with the implementation of energy efficiency measures that have nothing to do with lowering energy consumption. The elimination of the cost associated with the

cancellation of a maintenance contract for a facility's lighting due to an LED makeover is a common NEB. Another example is improved worker productivity and product quality courtesy of an energy-efficient HVAC installation.

A new survey of AEP Ohio Commercial Customers that captures NEBs is now available to help. The NEBs for each customer were quantified by calculating their annual operational and maintenance (O&M) cost savings.

The customers surveyed had completed projects in 2016. The study showed that NEBs gave virtually every customer plenty of reason to make energy efficiency upgrades, though some stand to gain more than others. Savings in the commercial, manufacturing/industrial, and public sectors are shown below. Contact an AEP Ohio Energy Advisor at **(877) 541-3048** for a NEB breakdown for your particular business category.

Sector	NEB \$/kWh savings	Average of kWh savings	Incentives	Average of Energy cost savings	NEB \$/yr	Average of Measure Cost	Average of Payback Years
Commercial Total	\$0.0188	19,345	\$1,549	\$2,321	\$297	\$10,097	2.07
Manufacturing and Industrial Total	\$0.0168	86,690	\$5,457	\$10,390	\$987	\$25,249	1.54
Public Total	\$0.0204	27,322	\$1,983	\$3,279	\$327	\$11,208	2.82
Grand Total	\$0.0183	29,565	\$2,331	\$3,547	\$381	\$12,211	1.95



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If you're interested in a check presentation photo similar to those shown on these two pages, contact the AEP Ohio Business Incentives Team at **877-541-3048** or email aepohiosolutions@cleareresult.com.



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“They’re in an energy-intensive business, and Jim has built a team that matches that intensity.”

Don Stemple,
Customer Services
Engineering Principal,
AEP Ohio

Front, L to R: MAHLE Engineer Fred Hannon, MAHLE Engineer Jim Krotkiewicz, MAHLE Supervisor of Maintenance Gary Zumbro, MAHLE Supervisor of Engineering Brian Gulla, ; Middle, L to R: AEP Ohio CEI Energy Coach Gary Hendrickson, AEP Ohio CEI Energy Engineer Clair Hessmer; Back, L to R: AEP Ohio Energy Advisor Outreach Representative Darren Sears, AEP Ohio Customer Services Engineering Principal Don Stemple

Momentum At MAHLE

Efficiency is in the air in McConnellsville

Jim Krotkiewicz loves to build things.

Nearly thirty years ago, he oversaw the building of what is now MAHLE’s McConnellsville plant near the Muskingum River, a remarkable achievement that he looks back on with justifiable pride. From a footprint of less than 100,000-square-feet, the small but mighty facility produces over eight million pounds of material annually for the production of engine bearings, bushings and washers.

But this longtime engineer is most proud of something he put together without brick, mortar or schematics—the plant’s energy efficiency team. Krotkiewicz has led a band of engineers and plant managers whose work has saved an astonishing 3,444,432 kilowatt hours (kWh) and \$309,997 over a five-year period.

The plant’s stellar energy efficiency results have earned recognition from within MAHLE, an international corporation based in Germany; and AEP Ohio, who honored MAHLE McConnellsville as an Energy Champion in April 2017.

“We’re not afraid to bring in expertise when we need to,” said Krotkiewicz, “and AEP Ohio has delivered experts to our team—they’re the best partners you can imagine.”

“They’re in an energy-intensive business, and Jim has built a team that matches that intensity,” said Don Stemple, who serves as a Customer Services Engineering Principal for AEP Ohio. “There’s a true sense of collaboration at MAHLE.”

Krotkiewicz and his team enrolled in AEP Ohio’s Continuous Energy Improvement (CEI) Program in 2014. While the energy efficiency returns were relatively small in year one,

important groundwork was laid for future success in the form of building a measurement model. “It’s important to get the modeling right so you can get a truly reliable measure of the results,” said Gary Hendrickson, who runs the CEI program at MAHLE McConnellsville for AEP Ohio.

From 2015 on, Krotkiewicz’s team really got rolling. **“Things started to snowball,”** he said.

Fueled by their intense training and willingness to collaborate, Krotkiewicz’s team carried out a series of no-cost and low-cost projects throughout the facility. The projects include creating extensive shutdown lists for compressors and presses on weekends and other idle periods, installing automated shut off devices to turn off presses that idle for more than five minutes, phasing in LED lighting in place of antiquated metal halide, and installing heat exchangers so that hot quench oil can be used to heat water used in the plant’s washers.

Krotkiewicz’s team keeps tabs on the plant’s performance through its process control software (PCS), which shows real-time reports of energy usage throughout the facility through a virtual interface. “We’re now taking advantage of all that our PCS can do,” said MAHLE’s Brian Gulla, an engineering supervisor at the McConnellsville plant. “It really helps us to see and eliminate waste quickly.”

Much of the team’s efforts have focused on one of Krotkiewicz’s pet peeves—the waste and overuse of compressed air. In later years, three 75-horsepower air compressors and two 100-horsepower air make up fans were replaced with a single, 125-horsepower compressor motor. **“I consider reducing compressed air usage job one,”**



The MAHLE McConnellsville plant’s external signage along Route 60 near the Muskingum River

said Krotkiewicz. **“The savings you can find there are tremendous,”** he adds.

As much as he dislikes compressed air overuse, Krotkiewicz does appreciate the air of collaboration among his team. “Everyone who has an idea knows they can speak up, and be heard,” he said.

That collaborative atmosphere speaks volumes for the results they’ve achieved in McConnellsville. ■

Savings Snapshot

MAHLE

Total kWh Savings
3,379,958.88

Incentives
\$103,129

Estimated Energy Savings
\$270,397

Residential Spotlight

e3smartSM Program

Want to learn more about efficiency? Ask a kid.

If you want to download an app, upload a photo to Instagram, or sort through the jungle of streaming video or music subscription services, who's your go-to expert?

Chances are, it's a student. Many adults ask a young person for advice on all things technological.

AEP Ohio's e3smart Program aims to build on this expertise to create a new generation of efficiency experts and citizens.

Now in its ninth year, the e3smart Program educates about 25,000 students in grades 4 through 12 throughout AEP Ohio's service area. Participating educators—usually science teachers—receive free training, lab materials, and other support. AEP Ohio provides a take-home efficiency kit with an LED nightlight and faucet aerators.

The program's curriculum was developed by the Ohio Energy Project (OEP), a non-profit organization that seeks to advance energy efficiency education in the classroom.

"We're seeing engaged students at every grade level," said Michael LaScola, AEP Ohio's Energy Efficiency Training and Education Coordinator. "And, it's no surprise that they're teaching their parents about efficiency when they get home."



Designed by teachers for teachers, e3smart meets Ohio and National Science Standards. In its very first year, it was recognized as an Outstanding Energy Education Project by the Ohio EPA.

Marjorie "Marj" O'Brien, Tanner's teacher, believes the program makes a real difference, and feels good about what it does in the short and long run.

a real difference, and feels good about what it does in the short and long run.

"I'm not only helping them learn now, I'm teaching them skills that will last a lifetime," she said.

Talk to almost any e3smart student, and you'll see what LaScola is talking about.

Tanner Stevenson, a student from Wheelersburg Middle School in Scioto County, provides a glowing example. "My mom and I were shocked to see how much brighter the LED was than the incandescent bulb," said Stevenson, "and we were also happy because we got more lighting for a better price."

"I'm not only helping them learn now, I'm teaching them skills that will last a lifetime."

Majorie "Marj" O'Brien,
Science Teacher,
Wheelersburg Middle School

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Let **GLW** be Your **GREEN** Ohio Solutions Provider
Lighting Wholesale

Value Engineering | LED Lighting Design | Lighting Layouts



Green Lighting Wholesale is an Approved AEP Solution Provider.

Lighting Solutions:
*Residential
*Commercial
*Specialty lighting needs

Specializing In:
*Lighting Audits
*Advanced Lighting Controls
*Lighting Layouts

Family owned located in Gahanna, Ohio with a combined thirty year's experience in energy efficient lighting.

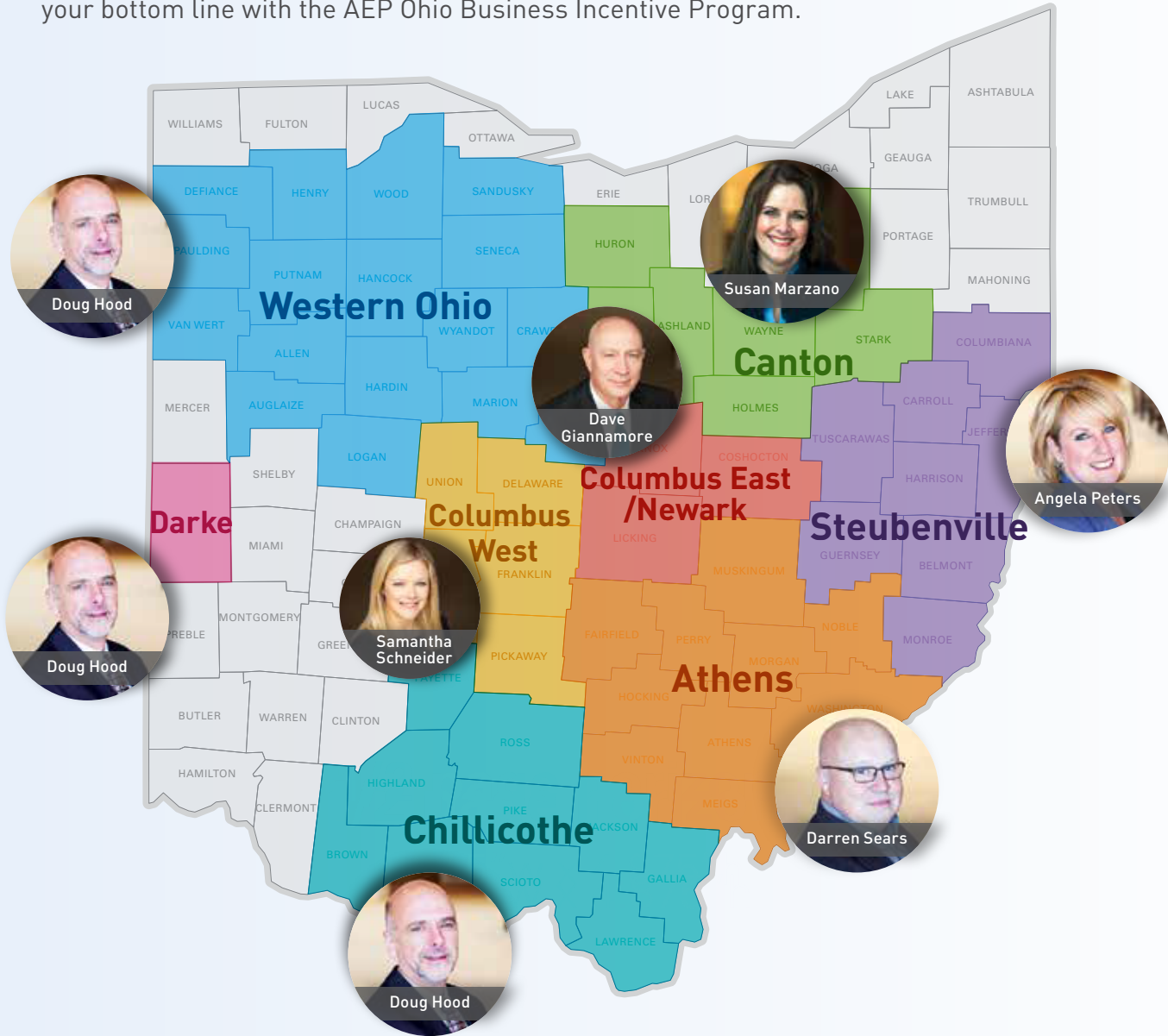
Our goal is to provide cutting edge technology that will be the Best Economic + Efficient solution

866-595-5937
www.GreenLightingWholesale.com

EFFICIENCY IS IN THE NEIGHBORHOOD.

Wherever you're located, we make it our business to help yours save energy.

Find your local Energy Advisor and see how they can help boost your bottom line with the AEP Ohio Business Incentive Program.



Get in touch.

Contact our Business Outreach team at 614-610-9649 or aepohiosolutions@clearexult.com.



A Blueprint For Maximum Efficiency

“Early birds” catch the most incentives

Have a new building on the drawing board?

Or, scanning blueprints for a major reboot of an existing structure?

If you're looking for the biggest incentives and the most efficient building possible, your timing is perfect. AEP Ohio's New Construction/Major Renovation Program truly shines when a customer comes to the table early.

“The smoothest path to a green building is at the blueprint stage,” said Gary Enama, who manages the program for AEP Ohio. “We're ready to support you from concept to ribbon cutting,” he adds.

The program provides building owners and architects/designers with opportunities to learn more about energy-efficient design strategies, technologies and

practices that will produce major renovation projects and newly-constructed buildings that consume less energy. It also provides high-impact incentives through a variety of paths throughout the building process, along with expertise and support from our energy advisors.

“The incentives really pile up nicely when you start early,” said Enama. Because the program includes incentives for AEP Ohio involvement in early design stage meetings and whole building modeling, he recommends getting in touch with his team as soon as possible during the conceptual stage.

Interested owners and architects can get started by calling 877-541-3048 or emailing aepohiosolutions@clearexult.com.

Business Incentive Programs

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.



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



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



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



Advanced Lighting Controls

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.

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



Automated Benchmarking

Provides an automated flow of data to the EPA's ENERGY STAR Portfolio Manager® to give building owners invaluable information about how their facility performs via an ENERGY STAR score.

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



Efficient Financing for Business

A business-friendly financing program that offers multiple financing options for businesses. Get started today!

Perfect for: Any business looking to finance efficiency upgrades and enhance cash flow



Small Business Express

Designed for smaller businesses with annual usage of less than 200,000 kilowatt hours (kWh) or 100 kW, 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



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

This 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



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



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



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



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



An AEP Company

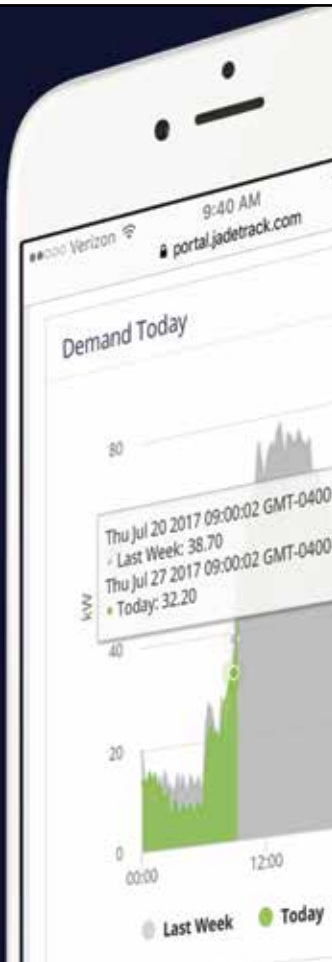


Non-energy Benefits: Lower Insurance Costs

Efficiency upgrades can cause your insurance premiums to go down. For example, an air-cooled high-efficiency air conditioning unit generally doesn't generate the need for additional liability coverage, but older water-cooled units do.

Controlling energy costs starts with reliable data.

Every watt of energy your company uses costs money. JadeTrack's technology allows you to manage your business' bottom line and your resource consumption more sustainably than ever before. JadeTrack simplifies and streamlines your utility data management, saving you resources, time and hassle.



Visit us at jadetrack.com or call (844) 327-5233.

KETCHUM WALTON co.

INTRODUCING SUSTAINABLE ENERGY-SAVING TECHNOLOGIES



VOLTAGE OPTIMIZATION TRANSFORMER TECHNOLOGY AND BATTERY STORAGE SOLUTIONS THAT REDUCES ENERGY CONSUMPTION COSTS BY UP TO 8-10%

Powerstar is the only voltage optimization technology in the world with a patent on its design. The Powerstar system matches the incoming electrical supply to the needs of the on-site equipment and returns any excess energy back to the grid. It achieves this by generating real negative power which flows towards the grid and is subtracted from the incoming power.



70%-80% of the total savings from Powerstar come from the real negative power feedback

20%-30% come from the improvement of equipment efficiencies



www.powerstar.com



CLEANING INDOOR AIR IS THE ANSWER TO REDUCING HVAC ENERGY COSTS ASSOCIATED WITH OUTSIDE AIR

- The enVerid HVAC Load Reduction (HLR) module is an intelligent scrubber that removes all indoor air contaminants, including carbon dioxide (CO2), aldehydes and volatile organic compounds (VOCs).
- Rather than rely solely on outside air ventilation, HLR modules clean and recycle indoor air, thereby reducing the required outside air by 60-80%, enabling 20-30% energy savings. Peak savings routinely exceed 40%.

www.enverid.com



Ketchum & Walton Co., 1783 Kenny Road, Columbus, Ohio 43212
Telephone: (614)-486-5961 www.ketchumandwalton.com



Non-energy Benefits: Icing on the energy efficiency cake

It's a given that our Business Incentive Programs help deliver significant kilowatt hour (kWh) savings for our commercial customers. But did you know that they often provide a sweet bonus?

They're called Non-energy Benefits, or NEBs. They are benefits found outside of kWh and cost savings, and come in many forms. The reduced maintenance costs and enhanced worker safety that result from improved illumination and longer life of an LED upgrade, for example. Or, the higher product quality that comes with greater temperature and humidity control from an energy-efficient HVAC.

Whether you're a seasoned large enterprise or a newly launched startup, our Energy Advisors are ready to help you serve up a big slice of efficiency through our programs. And you'll get some sweet NEBs to top them off.

To learn more about our programs visit [AEPOhio.com/Solutions](https://www.aepohio.com/Solutions).

