

Clean and Green

Profiles of Ohio Companies Profiting from Clean Energy • June 2017





Clean and Green

Clean energy has a “face” in Ohio. It is the face of entrepreneurs, business executives and employees who are tapping the potential of wind, solar and energy efficiency to expand market share, hire and retain talent, and increase profitability. From a local bakery to a larger retailer, policies that promote clean energy can improve the bottom line.

This report, “Clean and Green,” profiles the experiences of 16 small to large businesses across Ohio as they have embraced clean energy. They represent a diverse mix. Some are household names like Costco and Honda. Others are smaller family-owned businesses that are seeking an edge to continue operating into the future. Although many explain that it is the right thing to do for the environment, all of these companies point to the economic benefits as the driving motivation for making the investment.

Their stories are supported by research conducted by The Nature Conservancy and Environmental Defense Fund, which found that Ohio’s clean energy standards make a significant contribution to the state’s economy. The findings, published in a 2016 report called “Grounds for Optimism,” contrasted the continuation of these standards, as well as a more lenient rule for placing new wind development, against several legislative proposals that would discourage new investments in clean energy. The results were eye-opening.

- Renewable energy is a proven job creator. The research found an average increase of 5,900 to 9,700 jobs annually if utilities are required to source more power from wind and solar. As the many solar-related stories in this report suggest, there are more U.S. jobs in solar energy today than in coal mining.
- Clean energy standards also mean electricity savings. Investments in energy efficiency would result in electricity bill savings to consumers of \$29 million to \$51 million each year by 2030.
- Clean energy standards contribute to public health by reducing cases of asthma and other respiratory conditions. As health insurance costs continue to rise for employers, the research found that promoting lower-polluting energy sources and energy efficiency could result in health care savings starting at \$800 million and reaching \$3 billion by 2030.

These numbers are large and impressive, but they are no substitute for the stories of owners and employees of businesses who are taking advantage of the promise of clean energy. Their experiences illustrate why clean energy - and consistent state policies to encourage its growth - matter to the future of Ohio’s economy.

Denison University

Granville – Licking County

Denison University in Granville is building a 10-acre, 2.3 MW solar array near campus – for business reasons.

Jeremy King, the university’s sustainability coordinator and community liaison, says the giant array will be completed this fall, immediately after which benefits will begin to accrue.

The Denison campus is a huge energy user, and it has been working steadily to reduce its energy consumption through new efficiency practices. Those efforts already have reduced annual electricity usage to 19,000 MWh from a previous 23,000 MWh during the past five years, even while adding nearly 60,000 square feet of new building space.



While the solar field will reduce the university’s carbon footprint by 10 percent – something King says is important to Denison – it will also lock in predictable electricity rates that, over the long term, are expected to be lower than energy purchased from the grid. More reliable energy prices is something that Ohio’s renewable portfolio standard and energy efficiency standard, passed in 2008, were meant to provide.

“Without the array, we could expect our grid power rates to go up annually. It will offset our peak demand charges by reducing grid power consumed during peak usage periods, on which peak usage rates are based.” He says that could result in an additional savings of \$100,000 a year.

Denison buys solar-generated electricity under a power purchase agreement with American Electric Power. Under the arrangement, AEP owns and operates the solar array and sells the electricity to Denison. Because of calls among some policymakers to do away with net metering – which gives those who generate their own electricity a credit for extra energy diverted back to a utility – it made no sense to build a system that produces extra energy.

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“Without the array, we could expect our grid power rates to go up annually.”

— Jeremy King
Sustainability Coordinator and
Community Liaison, Denison University

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King notes that Denison is not alone among Licking County entities installing solar projects. The City of Newark has its own project, and Lakewood Local School District installed solar to save on energy costs.

While sustainability and environmental factors are a good reason to pursue renewable energy, King notes that “economics is the real, deciding factor. We can save money in the long run, with no upfront costs. There is a lot of value in being able to budget effectively. We can model with a high level of accuracy how much energy we will produce each year and how much we will pay in the next 25 years.”

OHIO POTENTIAL

Clean energy provides businesses of all types
with increased choice and greater control
over their operations.

Little Fish Brewing Co.

Athens – Athens County

While many businesses adopt renewables after being in business for awhile, Little Fish Brewing was hooked from the start.

The company, whose philosophy is to “brew simple, rustic and beautiful beers,” opened in July 2015 using 100 percent wind power purchased through credits.

In early May, Little Fish also turned on a new 19.1 kW solar array, which will supply one third of the business’s total electricity needs.

To build the brewery’s solar array, Little Fish received a 25 percent grant from the United States Department of Agriculture’s Rural Energy for America Program.



“Having our own solar array and producing our own electricity has significant long-term economic benefits. That’s why we added solar power in addition to our wind power use,” says Little Fish Co-founder Jimmy Stockwell.

While renewables make sense from a bottom line standpoint, Stockwell says they also are effective from a marketing standpoint. “Our programs are in line with the general thoughts of the community; we get a lot of comments from community members that they are happy and support renewable energy. And so, our marketing includes our sustainable practices because we know our customers like that.”

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“Having our own solar array and producing our own electricity has significant long-term economic benefits. That’s why we added solar power in addition to our wind power use.”

— Jimmy Stockwell
Co-founder, Little Fish Brewing Co.

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Stockwell says more companies would participate in renewables if they understood the clear business benefits.

“We are proof that installing these programs can be done painlessly; it does not affect the quality of products and customer experiences,” Stockwell explains. “In fact, we feel it enhances those things.”

Source: “Grounds for Optimism,” the Greenlink Group and Runnerstone, October 2016.

Third Sun Solar

Athens – Athens County

Third Sun Solar is the old man of Ohio’s renewables industry. Founded in 2000 by Geoff and Michelle Greenfield out of their Athens home, the company had few competitors at the time.

Today, Third Sun is not alone, but has risen to become the largest solar installer in Ohio and a top 100 installer nationwide.

“Last year we did about 220 projects,” Geoff Greenfield says. “They’re primarily in Ohio, but we have done projects in 13 states.”

While residential customers generally install solar panels for environmental reasons, commercial customers want solar primarily for economic reasons, he says. Today’s federal incentives, including a 30 percent tax credit, can help speed up the payback period on a solar investment, Greenfield says.



“The other incentive is accelerated depreciation. Solar is a 30-year asset. You can basically take the cost of it and write it off on your taxes for the first five years, so that means cash flow.”

Ohio’s renewable energy portfolio helped drive commercial adoption of solar after the legislation’s passage in 2008, but a subsequent two-year freeze beginning in 2014 changed the marketplace substantially, he says. Greenfield explains that four years ago, the company’s business was 90 percent commercial, as businesses found they could save money using renewables.

“Last year, it was about 90 percent residential and 10 percent commercial, largely because of the anti-solar policies in Ohio that have really impacted the industry.”

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“The anti-solar policies in Ohio ... have really impacted the industry.”

— Geoff Greenfield
President, Third Sun Solar

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With 41 employees and about 40 subcontractors, Third Sun doesn’t make the equipment, but designs and installs the systems. Greenfield says, “Third Sun provides accurate economic modeling projections to predict how much energy a customer will generate, and we can look at their utility bills and cost and tell them what their payback will be.”

“A lot of times they’ll come back and say ‘we’re making more power than we predicted,’ so that on a residential project, a simple payback recouped might be eight to 10 years and a commercial project could be two to five years.”

OHIO POTENTIAL

Clean energy is a significant source
of reductions in carbon dioxide emissions
and other pollutants.

Honda

Marysville – Union County

Honda knows the first step to getting external recognition as an environmentally responsible company is nurturing an internal philosophy that prioritizes energy efficiency.

“Building that culture is a very important part of our strategy,” says Dirk Nordberg, Green Factory leader for Honda of America. “We work to instill an environmentally conscious culture in our associates – whether it has to do with recycling materials from the lunchroom or materials from the factory floor or utilizing energy efficiency.”

For Honda, sustainability is not a new focus. Since its inception, Honda has sought to make energy efficient automobiles through an environmentally sound manufacturing process.

“We work really hard to not use more utilities than we need, and that starts with the way we operate our plant and our equipment,” Nordberg says. “So there are a lot of systems we put in place to help us not waste energy, whether it’s turning off lights or fans or HVAC equipment as soon as it’s not needed and not starting until needed.”

Nordberg is particularly proud of the results he has seen at the company’s East Liberty plant, where Honda has reduced its carbon dioxide emissions by 1,132 metric tons over the past three years thanks to its purchase of better equipment.



“We have systems in place in our procurement, in our engineering and in our designing that require us to search for energy efficient solutions to whatever challenge that we have,” he says. “We definitely are concerned with how much it will cost to start, but we also consider the life cycle cost. Often the initial cost is only 10 percent of the life cycle cost. The other 90 percent is the operating cost.”

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“We have systems in place in our procurement, in our engineering and in our designing that require us to search for energy efficient solutions to whatever challenge that we have.”

— Dirk Nordberg
Green Factory Leader, Honda of America

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The carbon dioxide reductions the East Liberty plant has achieved have saved almost \$105,000 over that same three-year span.

“It’s usually good business to do these things,” Nordberg says. “It’s a win-win for everybody.”

Source: “Grounds for Optimism,” the Greenlink Group and Runnerstone, October 2016.

Levin Furniture

Mentor – Lake County

One of the oldest businesses in northeast Ohio is using some of the newest technologies to save money and help the environment.

Levin Furniture, a 97-year-old, third-generation enterprise with 32 stores in Ohio and Pennsylvania, began looking into solar panels several years ago and began installing them in 2013.

Levin has now installed solar systems on four of its stores: two 20 kW systems in Pennsylvania, a 65 kW system in Mentor and a 68 kW project in Avon.

“We’re thrilled to be adding environmentally friendly solar power to our stores,” Levin Furniture President Robert Levin says.

Levin’s early adoption of solar reduces the electric bill, and it does a lot more: it lowers the company’s carbon footprint by turning sunlight into clean energy with no emissions, noise or pollution.

The Avon solar panels were installed in 2016 and provide approximately 8 percent of the store’s power usage.

The system on the Levin Furniture store in Mentor will offset 61 tons of CO2 per year, which equates to planting 1,428 trees. It was designed to provide a portion of its total energy use for the year and allow for solar expansion later.



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“Like any good business, we’ve got to save money. That’s why we do what we do.”

— Scott Frazier

Director of Operations, Levin Furniture

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In addition to utilizing solar power, Levin Furniture has implemented other green initiatives at the location, including: energy efficient light bulbs, programmable digital thermostats, motion-sensitive lighting, environmentally friendly cleaning products, and recycled napkins, paper towels, and printing paper.

And, as other businesses that have adopted renewable energy have found, many customers appreciate doing business with a green company.

OHIO POTENTIAL

An increase in clean energy payroll of
\$4.6 billion to \$7.6 billion by 2030.

Solar Power & Light

Miamisburg - Montgomery County

For the past seven years, Neil Chaudhry, CEO and co-founder of Solar Power & Light, has personally seen the economic benefits his customers reap from adopting renewable energy.

“There’s a lot of economic benefits now that the costs have come down so much,” Chaudhry explains. “In Ohio, their payback might be five years, seven years at the most. After that, they’re getting free electricity. So when we show them the economic benefits, the solar cost is below the utility cost and every year that gap increases.”

Chaudhry, a materials engineer, spun Solar Power & Light off of buyCASTINGS.com, Inc. in 2010 to meet a growing demand for renewable energy. Since then, the company has focused on public customers such as schools, colleges, cities and villages, helping them reduce costs, hedge risk and meet their sustainability goals. Solar Power & Light typically does this by installing, owning and operating solar photovoltaic systems under power purchase agreements.

The company initially served schools and universities, cities and municipalities, but now also serves residential customers.

While the company typically owns and operates the solar systems and sells energy to the client Chaudhry says, “A for-profit entity might want to own it because then they could get all the tax benefits. A not-for-profit can’t take advantage of all the tax benefits, so it’s better to let the third party own it to avoid upfront capital expenditures.”

Like other energy providers, Solar Power & Light took a hit when the Ohio General Assembly froze the state’s clean energy standards in 2014.



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“It’s unfortunate when so many states are doing solar and accelerating their programs that the Ohio legislature took steps back in 2014 and continues to do so now.”

— Neil Chaudhry

CEO and Co-founder, Solar Power & Light

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“There was a huge drop in business,” Chaudhry says. “Ohio took a step back and lost lots of jobs and lost a lot of investment dollars that were ready to go to work in Ohio. It’s unfortunate when so many states are doing solar and accelerating their programs that the Ohio legislature took steps back in 2014 and continues to do so now.”

Chaudhry adds that, depending on the size of the system, solar can generate accumulated savings in the millions of dollars and last between 30 and 35 years.

Source: “Grounds for Optimism,” the Greenlink Group and Runnerstone, October 2016.

Village Bakery

Athens - Athens County

Village Bakery in Athens has been a successful business for 15 years. For most of that time, the company used natural gas to bake its bread and enormous amounts of electricity to heat and light the building.

Today, Village Bakery uses solar and wind energy to power the bakery and a geothermal pump for heating and cooling.

While environmental considerations were part of the reason for the switch, Co-owner Bob O'Neil says, the transformation of the bakery's energy usage has allowed it to save money while growing the business and appealing to new customers.

Village Bakery installed its first solar panels in 2010 and added an additional system in 2012.

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“With our solar and energy efficiency, we dropped our kilowatt use while growing our business. We are pretty close to 50 percent of the energy use we had in 2010.”

— Bob O'Neil
Co-owner, Village Bakery

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“The first solar system took four years to pay for itself,” O'Neil says, “and the second solar system will pay for itself in another a year or two.” At that time, O'Neil expects to save about \$1,250 per year from the use of solar energy.



The bakery switched to a geothermal heating and cooling system for energy efficiency reasons in 2014, and also began purchasing wind energy five years ago for all electricity not produced on-site.

Village Bakery benefited from a State of Ohio grant that halved the cost of its first solar system along with a 25 percent federal renewable energy grant.

O'Neil says switching to renewables has saved on energy costs, and has helped Village Bakery attract and retain customers.

“There's a good public payback,” he explains. “The public wants to do business with renewable energy users.”

OHIO POTENTIAL

An increase in Ohio's GDP of
\$6.7 billion to \$10.7 billion by 2030.

Source: “Grounds for Optimism,” the Greenlink Group and Runnerstone, October 2016.

Solar Integrated Resources

Moraine - Montgomery County

When Mark Wiley launched Solar Integrated Resources at the start of 2010, he wanted firsthand knowledge of how solar energy works.

“We decided to design a solar array that would offset 100 percent of our consumption on-site,” he says. “We wanted to actually do a live installation of something that we could manage, maintain and analyze over time to make sure that we understood how everything worked, how we could put it together and what the good practices were.”

The system exceeded Wiley's expectations, producing more energy than is consumed in the building shared with Kastle Electric, the company with whom it partners on all its solar energy projects.

Solar Integrated Resources designs solar energy systems and then works closely with Kastle and other contractors to get projects financed, permitted and built.

Solar Integrated Resources has hired approximately 200 people on a part-time basis for various projects over the past seven years.

Wiley was long intrigued by solar technology before approaching Kastle CEO Andy Stuhlmiller with an idea for a partnership almost a decade ago.

“In 2008 and 2009, it looked like solar industry was going to take hold, maybe find some traction and become commercialized in a substantial way,” Wiley says.

Wiley was encouraged by the General Assembly's passage in 2008 of the renewable portfolio standard and energy efficiency standard, one of the best in the country at the time.

When the state legislature froze those standards in 2014, there was a discernible decrease in projects.

“They just pulled the rug out from under the industry,” Wiley says. “It's had a very negative effect on our business. We refer to this business in a joking sort of way as a *solarcoaster*; it's so up and down.”

While he is frustrated about the present state of solar energy policies in Ohio, Wiley remains bullish on the potential of the industry.

“I think it's unfortunate that the legislators haven't seen the big picture.”

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“We refer to this business in a joking sort of way as a *solarcoaster*; it's so up and down.”

— Mark Wiley
President, Solar Integrated Resources

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Melink Corporation

Milford – Clermont County

Melink Corporation has provided energy efficiency products for commercial buildings for 30 years. So it made sense that eight years ago, it went one step further and began offering solar photovoltaic systems to its customers.

“Integrating a renewable energy policy into a company is a vertical integration strategy,” says Steve Melink, CEO of Melink Corporation. “The business becomes its own energy provider. While companies want to do the right things, they also want to do the things that have a financial return.”

Melink says customers often have sustainability core values and want to explore energy efficiency and renewable energy in broad and specific ways. But they also want to appeal to a younger generation of employees by embracing sustainability.

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“Integrating a renewable energy policy into a company is a vertical integration strategy. The business becomes its own energy provider.”

— Steve Melink
CEO, Melink Corporation

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“Sustainability sends your employees a powerful message that goes beyond profits to integrity and respect for future generations,” Melink says. “It sends your customers that same message – that you care about them; that they are more than merely a transaction. This attracts and retains customers.”

While Melink sees growth in the future, he’s hedging his bets. When the Ohio General Assembly froze 2008’s renewable energy mandates beginning in 2014, he branched out to other states because of the hit new business took in Ohio.

Thanks to his operations in other states, he sees great potential for renewables in the future.

“Our long-term trajectory is double digit growth, as solar and wind are growing faster than the economy,” he explains.

Melink Corporation has put its money where its mouth is by constructing a “super green” headquarters building. Melink says it was the first LEED Gold new construction in Ohio and later became LEED Platinum certified. In 2011, the headquarters achieved zero energy consumption status using geothermal HVAC and solar photovoltaics. The company’s vehicle fleet also consists of all hybrid and electric cars.

Klopfenstein Farms

Haviland – Paulding County

Roy Klopfenstein runs a family farm in southern Paulding County, where his family has worked the land since his father established the farm in the mid-1960s. So, he’s used to harvesting corn, soybeans and other crops.

But now, he’s been harvesting something entirely different: the sun.

Klopfenstein’s 156-panel, 40 kW solar system went on line in 2014.

“The decision was based on the belief that electrical costs will continue to increase,” he says. “It’s good for the environment, and the return on investment made sense.”

Klopfenstein benefited from a \$50,000 grant from the United States Department of Agriculture’s Rural Energy for America Program, which helps farmers and small businesses in rural areas with energy audits and development of renewable energy.

In addition to using electricity on the farm, he was able, under Ohio’s renewable portfolio standards, to sell 10 years of Solar Renewable Energy Credits (SREC) to a utility.

SRECs are vouchers for tradeable electricity credits from solar panels. Solar generators receive one SREC for every 1,000 kWh of electricity produced by a solar system. Because many utilities are required to purchase a certain number of SRECs each year, they can bring additional value to the owner of a solar system.

Klopfenstein is not alone. Many farmers, especially in Ohio, have explored the possibility of leasing their lands for new wind development.



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“The decision was based on the belief that electrical costs will continue to increase.”

— Roy Klopfenstein
Owner, Klopfenstein Farms

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OHIO POTENTIAL

82,000 to 136,000
new clean energy jobs by 2030.

Source: “Grounds for Optimism,” the Greenlink Group and Runnerstone, October 2016.

Talan Products Inc.

Cleveland – Cuyahoga County

Founded in 1986, Talan Products Inc. began with one metal stamping die and production for a single customer. Today, the Cleveland company manufactures tooling and engineered parts for more than 150 customers in the fastener, building products, appliance, hardware, defense and transportation markets.

Since 2008, customers have included manufacturers of solar systems – a product area that has grown to become a third of Talan Products’ business, says Steve Peplin, CEO and founder.



“We make other people’s parts,” he says. “We’re a solutions provider, and this is where the solar industry has been a big fit. It’s a relatively young industry. It’s only in the last 10 years that it’s really exploded and become part of everyday culture.”

Peplin is no stranger to energy issues, starting his first company in 1977 in reaction to a Middle Eastern oil embargo.

“My first company was called Energy Efficiency, and I was an insulation retrofit contractor,” he recalls. “We retrofitted homes during the second oil embargo; that was the beginning of the energy crisis.”

When Talan Products first began making solar components, the company had about \$20 million in revenue and 50 employees. Today, the company has \$40 million in revenue and 75 employees.

“We do all aspects of solar,” Peplin says, “including residential roofing and commercial or utilities scale. We make components for all three. We make the hardware, the mechanical structure, the rack components or the mounting components. A lot of the residential stuff dovetails with our building products.”

“I imagine that there would have been more utility-scale projects in Ohio if our renewable portfolio standards were higher, and it’s a pretty fair guess that we would have been awarded more work.”
— Steve Peplin
CEO and Founder, Talan Products Inc.

Peplin suspects Talan Products could be experiencing even more success if the Ohio legislature had not frozen the state’s renewable energy standards in 2014.

“I imagine that there would have been more utility-scale projects in Ohio if our renewable portfolio standards were higher, and it’s a pretty fair guess that we would have been awarded more work,” he says. “A rising tide lifts all boats.”

Peplin predicts that today’s consumers of solar energy are “going to end up being on the right side of history. I think 20 years from now, when a major part of our energy comes from solar, the early adopters are the ones who are going to be looked at as really smart.”

OHIO POTENTIAL

Annual health care cost savings starting at
\$800 million per year and growing
to \$3 billion by 2030.

Burke, Inc.

Cincinnati – Hamilton County

Inspired by the solar array in the Cincinnati Zoo’s parking lot, marketing research and consulting firm Burke, Inc. installed solar panels on 160 covered parking spaces in 2013.

Now, Cincinnati-based Burke is generating 20 percent of its own electricity.

Mary Beth Mapstone, senior vice president of finance and administrative services, says solar was not the firm’s first foray into clean energy practices.

“In June 2010, we purchased and completely renovated a building,” she explains. “We designed the building to meet the Gold level of LEED certification, because of our commitment and dedication to the Cincinnati community, sustainability and our employees.”

She says the city’s community reinvestment program allowed Burke to benefit from a 12-year property tax abatement, and “that the energy efficiencies incorporated into our building are a huge economic benefit.”



“We realize job and salary are critical factors in a candidate’s decision-making process, but we also know company culture and values, community impact, and commitment to sustainability are huge factors in a candidate’s decision.”
— Mary Beth Mapstone
Senior Vice President of Finance
and Administrative Services, Burke, Inc.

The firm considers a focus on clean energy an integral part of the Burke brand. “We strive to positively impact the communities in which we live and work and to be responsible stewards of our environment. It is an inspiring story for our employees and clients alike – we are very proud of the green initiatives we have implemented over the years and hope they appreciate our dedication to being sustainable.”

Mapstone says Burke’s sustainability story matters to both employees and candidates.

“We have generous employee benefits to offer when recruiting,” she says. “We realize job and salary are critical factors in a candidate’s decision-making process, but we also know company culture and values, community impact, and commitment to sustainability are huge factors in a candidate’s decision.”

Source: “Grounds for Optimism,” the Greenlink Group and Runnerstone, October 2016.

Haviland Drainage Products

Haviland - Paulding County

When Craig Stoller pictures Haviland Drainage Products Co.'s anaerobic digester and three wind turbines, all he sees is green.

"The only green I'm interested in is the dollar green," explains Stoller, the company's president. "The only way renewables will work is if they economically work. Too many people lose sight of that."

Haviland, based in Paulding County, has changed dramatically since it was formed in 1903 as Haviland Clay Works to make clay tile for agricultural drainage. Today, the company employs 200 at its plastic tubing plant, recycling plant and a plant that makes tree containers.

Four years ago, the company began adding clean energy options as a way to save on electricity costs.

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"Eventually, they should save us a whole bunch of money. It's going to be somewhere between \$1 million to \$1.5 million a year."

— Craig Stoller
President, Haviland Drainage Products

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"We've got three wind turbines, 1.5 MW apiece, and then we have an anaerobic digester that's 0.8 MW," Stoller explains.

The company installed the biomass digester four or five years ago and co-owned the facility with Quasar Energy Group. Haviland bought out Quasar's share two years ago, says Stoller, who has a similar digester on his dairy farm.

The digester ferments food waste and other biomass solids from municipalities and businesses, producing methane that is used to run an electric generator. The company also earns revenue from the tipping fees contributors pay to deposit their wastes.



"We use about 35 to 40 MWh of electricity each year," Stoller says. "The biomass generator produces about 6 to 8 million kWh a year, and the wind turbines produce about 14 million. We're producing about half of what we use. We buy an additional 15 to 18 MWh a year."

His expectation is that the wind turbines and digester will pay for themselves over four to five years.

"Eventually, they should save us a whole bunch of money. It's going to be somewhere between \$1 million to \$1.5 million a year," Stoller says.

OHIO POTENTIAL

Historically, the commercial sector
has been responsible for 43% of total
savings from energy efficiency.

Greg Sweet Auto Group

Conneaut - Ashtabula County

More than 10 years ago, Greg Sweet's office manager came to him with a magazine touting the benefits of solar panels. Sweet, owner of Greg Sweet Auto Group, rejected the idea.

"It just didn't make good commercial sense," he says.

But times have changed, the cost of solar systems has come down, and Greg Sweet Auto Group today is all in.

The company, which serves customers all over northeast Ohio and northwest Pennsylvania, now has solar panels at all four of its locations, two of which are in Ohio.

The catalyst for his change of heart came almost by chance. Last year, Sweet attended an open house at a technical college. The college offered renewable energy classes, and attendees discussing the courses mentioned that the cost of solar systems had become affordable.



Soon after, Sweet met with his banker, who had noticed a big increase in queries about financing solar projects. The bank even had an employee dedicated to handling financing for those projects and helping customers find solar suppliers.

Sweet recently completed solar installations at his Conneaut Chevrolet and North Kingsville Ford dealerships.

"With tax incentives and savings on our electric bills, each of these projects should pay for itself in seven years or less. Electricity is not getting cheap, and if you want to invest money for the long run, solar makes a lot of sense," Sweet says.

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"With tax incentives and savings on our electric bills, each of these projects should pay for itself in seven years or less. Electricity is not getting cheap, and if you want to invest money for the long run, solar makes a lot of sense."

— Greg Sweet
Owner, Greg Sweet Auto Group

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While he says he has no plans to sell his business, solar enhances the value of his buildings just like other major improvements. The main point, he says, is that once his reduced energy costs offset the initial investment, he can expect a stronger bottom line.

"I learned a long time ago that if I'm looking at a big project, I look at the details. How much will it cost me per month, per year, and how much is the payback. Once I looked at those things in detail for this project, it was a no-brainer."

Source: "Grounds for Optimism," the Greenlink Group and Runnerstone, October 2016.

Costco

Columbus - Delaware County

Costco's north Columbus location received enough questions about the building's solar panels that they put up a framed poster with facts about the system inside the store.

The handwritten placard includes a photograph of the solar panels and a just-the-facts summary, including the estimated annual electric output of 728,300 kW hours from the 2,392 panels. It also states that the system can withstand 90 mile-per-hour winds and golf ball-sized hail at 40 miles per hour.

That's as close as Costco comes to marketing its use of renewable energy. After all, the wholesaler corporation does it not for public relations or even environmental reasons - but rather to save resources for the long term.

"Anybody can spend money and be green," says Craig Peal, Costco's national assistant vice president for energy and building controls. "The trick is doing it where it's not hurting your profitability. I'm convinced you can do all this stuff and make more money doing it, but you have to go through the drill and look at real numbers."

Costco purchased its solar panels in 2014, benefiting from the State of Ohio's Solar Renewable Energy Credits. Since clean energy standards were frozen by the state legislature that same year, Peal acknowledges that solar has become a less attractive investment.

"At the time we did the Columbus location, there was some supportive legislation, which has changed," Peal says. "We haven't done anymore because the financial environment isn't very conducive."

It takes longer for a solar system in Ohio to produce a return on investment than it does in states where the sun shines more frequently, which is one reason the state's prior incentives were helpful.

"We've got around 90 systems installed, most of them in the sun belt states," Peal says. Although the Columbus location receives less sun, Costco is still confident the solar energy system eventually will pay for itself.

"There has to be some sort of a financial gain that makes sense," Peal says. "We own most of our property so we're not bashful about spending something that may have a 12-year payback."

“At the time we did the Columbus location there was some supportive legislation, which has changed. We haven't done anymore because the financial environment isn't very conducive.”

— Craig Peal
National Assistant Vice President
for Energy and Building Controls, Costco



OHIO POTENTIAL

Customer savings of \$28.8 million
to \$50.9 million by 2030.

Cincinnati Zoo

Cincinnati - Hamilton County

Between energy efficiency measures and the installation of one of the biggest urban solar arrays in the country, Mark Fisher figures the zoo has saved or avoided \$10 million in energy costs.

Fisher, the zoo's vice president of facilities planning and sustainability, says the zoo's five solar installations generate about 1.7 MW.

"Our first one was a 20 kW array from Duke Energy in 2005," Fisher says. "In 2011, after two years of effort, we put in our 1.6 MW array in the parking lot. It was the biggest of its time and still may be."

Since then, the zoo has added several smaller arrays, but Fisher says 90 percent of the solar system can still be found as roof-like structures over the parking lot.

The solar installation was developed and designed by Melink Solar. Under the arrangement, Melink owns the solar array and the zoo buys the electricity from Melink.

"There was no capital expense for the zoo," Fisher says. "We buy the power from Melink at a rate that's essentially the same as we were paying Duke at the time. So for us there was no capital needed, and the operating costs were going to be no different than they were or slightly better."

When the deal expires next year, the zoo will buy the system from Melink. Fisher expects the \$1 million purchase to pay for itself in about four years.

"Our utility bills will be dropping about \$200,000 next year," Fisher predicts.

Lower consumer costs is an expected outcome of Ohio's renewable portfolio standard, which started again in 2017 after a two-year freeze.



"Financially, the other piece is that the number one determinant of your energy costs is not how much you use, it's how much you are going to use on the hottest day of the year," he says. "That's what sets your rates."

By generating its own electricity off the grid, the zoo's peak utility usage is much less than it otherwise would be, lowering its rates substantially, Fisher says.

“When I’m going to the board or my boss I say, ‘In our decade of effort here, we have basically saved or avoided over \$10 million in utility bills.’ That’s a lot of money.”

— Mark Fisher
Vice President, Facilities Planning and Sustainability
Cincinnati Zoo

Fisher says besides cost savings, the zoo gets "tons of public relations, and our customers love it because the moms park in the shade on a hot day. There are no negatives, and it's something we are very proud of."

Development of the zoo's solar system follows a concerted energy efficiency program that resulted in additional cost savings.

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Source: "Grounds for Optimism," the Greenlink Group and Runnerstone, October 2016.



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