

Wind is at the back of West Michigan's fledgling renewable energy industry

by Julia Bauer | The Grand Rapids Press
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Wind power is a growing segment for Cascade Engineering in Cascade Township. Employee Emily Weber checks the blade-forming template for the rooftop wind turbine that can produce electricity at the rate of 1.5 kilowatts per hour.

GRAND RAPIDS -- Solar power is hot. Wind turbines are terrific. But will renewable energy power up jobs as fast as Michigan's auto industry is switching them off?

"I don't think it's a complete solution, a silver bullet," Grand Rapids lawyer Scott Watson said of the region's growing energy industry.

"But it's one component of silver buckshot."

As alternative energy gathers momentum, area manufacturers are dipping their toes into a widening pool of opportunity.

What they're hoping to find is an incoming tide of customers and a boatload of tax breaks from state and federal coffers.

In the past six months, big wins blew in for Michigan manufacturers contemplating the energy industry: The state set a goal to tap 10 percent of its energy needs from alternate fuels by 2015.

Then last month, renewable energy projects got a boost in the federal stimulus package

Most West Michigan manufacturers still are mulling the impact of those programs. But they're feeling optimistic.

"I think it certainly will help create a market for wind power, in particular, but also for renewables across the board," Watson said of the state and federal incentives.

"When you have a market for installing this, you have a market for manufacturing components." No one expects renewable energy to single-handedly replace the automotive jobs lost in West Michigan. The hope is that it has the potential to supplement a company's bottom line.

"We're still going to build cars," said Rick Chapla, of the Grand Rapids economic development agency, The Right Place Inc. "But (with these new products) it's a more diversified base. The state's car-making muscle will in fact be a leg up for these startups.

"Turbines are not terribly different from the supply chain associated with the auto industry," Chapla said. "It is a very big opportunity."



Blades for Swift wind turbines are produced by Cascade Engineering in Cascade Township. Two high-profile endeavors already are tapping wind and solar.

United Solar Ovonix, a division of Energy Conversion Devices in Auburn Hills, has two plants, each 280,000 square feet, in Greenville.

The maker of flexible solar film is running a healthy backlog and employs more than 400 in the Montcalm County town.

Although solar power is hot, the best bet for Michigan is wind-driven, said Watson. He has studied the tax breaks written into the federal stimulus package to nurture the nation's bid for energy independence.

"We've got great wind, particularly offshore," Watson said. "It's all about the resource."

"With the current technology, the resource (in Michigan) is better for wind technology than solar." Wind power made big news last week.

On Wednesday, Spanish logistics firm Berge Logistica Energetica and Rockford Construction of Grand Rapids formed Rockford Berge.

It expects to find sites and build wind farms in Michigan and eventually around the Great Lakes. The new venture plans to advise and manage projects with wind turbines from 150 to 350 feet tall, or higher.

Roof-top power

Smaller, roof-top units are being developed by Swift and WindTronics, targeting the home and business markets. Those designs supplement electrical demand on site.

Blade units for the Swift are built by Cascade Engineering Inc., and a Scottish company imports other parts to Cascade for assembly.

New Tax Incentives

- Renewable energy tax breaks are not new, but the federal stimulus package adds and expands them this way:
- Per-kilowatt-hour-production tax credit extended through 2012 or 2013.
- Expansion of 30 percent investment tax credit, based on cost of constructing facilities that generate electricity from renewable sources. That credit now extended to all facilities that already qualify for the per-kilowatt production tax credit, including commercial-scale wind power. They can also trade in the investment tax credit for a cash grant.

What's new:

- \$2.3 billion set aside for 30 percent tax credit to manufacturers of renewable energy products, through competitive application that considers job creation, impact on greenhouse gases, innovation, commercial prospects and time to completion.

"We make the rotor and get the mast from Michigan, and the rest of it comes from Scotland," Cascade Engineering Sales Manager Jessica Lehti said.

Meijer Inc. and local schools are among the first to install the 1.5-kilowatt Swift turbines in West Michigan. They cost about \$10,000 installed.

An even newer home-sized turbine is being developed in Muskegon by EarthTronics and Grand Valley State University's Michigan Alternative and Renewable Energy Center, or MAREC.

WindTronics is a gearless, 200-watt unit expected to be sold through home supply stores for about \$2,000.

Talking trash

Solar and wind power grab most headlines, but energy also can be found in trash.

HTI, a 3-year-old company in Dutton, is reviving a century-old technology. It specializes in biomass gasification -- heating trash and waste in a "starved air" environment until the waste turns into a gas.



HTI chief scientist and engineer Robert Graham, left and President Dave Prouty stand next to a turbine part used in turning waste into natural gas.

Dave Prouty, president of [HTI](#), tapped the expertise of 77-year-old engineer Bob Graham, after a patent attorney brought the two together.

Graham used his knowledge of gasification to run his own business north of Alpena for 40 years, applying the technology to destroy hazardous materials.

When Prouty bought Graham's intellectual property, he also moved the expert to Grand Rapids, at his request, and Graham continues to work in the endeavor. The company is moving to Kentwood this year.

HTI has expanded on Graham's technology. Starting in August, HTI will set up its first biomass-powered turbine for electricity.

That's when a Howard City turkey farm will burn droppings from its 1.3 million fowl to generate electricity for Seitsema Farm Feeds.

Other customers could be companies with high volumes of trash -- carpet scraps, sawdust, sludge, even solid waste from animals or humans.

"About 20 tons a day," Prouty said. "A plant that creates 1,600 to 1,700 pounds of waste an hour would make enough electricity for 350 homes."

He has high hopes for the latest federal and state efforts to stimulate the industry.

"That is going to be like shooting adrenaline into the alternative energy body," Prouty said.

"If you want to be free of foreign fuel, you have to do it all -- nuclear, coal, wind, solar, biomass ..."

Powered by methane

[Zeeland Farm Services](#) Inc. is finding power in landfills.

Six years ago, Zeeland Farm President Clifford Meeuwsen said, the company realized a nearby landfill was emitting untapped methane.

"It was being wasted," Meeuwsen said.

Now, a six-mile pipeline taps the landfill's naturally occurring gas to fire three big boilers. It's about to expand to a co-generation operation, with a large motor at each end -- one for electricity, one for steam.

Meeuwsen uses the steam to process soybeans, making food for animals and humans, and still have enough power to process its trademark Zoy soybean cooking oil.

"Our process is completely renewable," Meeuwsen said. And although it's the right thing to do, the payback is still in the six- to 10-year range or longer.

"We don't realize how big a need we have. We need every bit of energy source we have in the U.S. We need them all," Meeuwsen said.

Capture the wind

Wind energy is still one of the best hopes for the state, believes Birgit Klohs.

"Lower Michigan has the second best wind regime in the U.S.," said The Right Place president. "Until last September, the state didn't have a renewable portfolio standard. "We are catching up to 28 states."

At Cascade Engineering, where Swift wind turbines are drawing attention, the renewable energy business is less than 1 percent of company sales.

"We hope to have some solar products available in six months, and additional wind turbines in a couple of years," Lehti said.

At Paragon D&E, also in Cascade Township, David Muir said his business is attracting a surprising blend of solar and wind customers.

Paragon employees created some tooling for the Swift and are working with other wind-blade customers, Muir said.

The business is also delving into tooling for solar cells.

Still, it is not clear how his company will benefit from the federal stimulus package, Muir said. "That's something we're all still trying to figure out," he said. "We have no direct contracts, no 'shovel-ready' contracts like they talked about."

Venerable industries

Longtime Grand Rapids company Burke Porter Machinery is on the brink of a big wind power contract, Sales Manager Scott Bohr said.

"Right now, it looks like our niche is the fabrication, big weldments (welded joints), and machining -- the large mainframes -- for large, utility-scale wind turbines," Bohr said.

"We're just getting into that this year."

Another industry niche is the gearbox, called a nacelle, that allows wind turbine blades to pivot, twist, and generate power atop the looming towers.

A Holland company, Genzink Steel, is delving into that control box.

"We do the fabrications inside of the rotor, and some platforms in the bottom," Sales Manager Dick Bouman said. "It's like the mobile home sitting on top of the tower."

At Walker laser manufacturer Carter Products Co., the need to accurately measure massive fan blades for wind turbines led President Peter Perez to a German peer.

Carter produced lasers that could sweep the span of a yacht under construction. So, the leap to lasers for measuring a wind-turbine blade was a natural.

The German-made Z-Laser, a \$20,000 unit, is imported and distributed by Carter to North American customers.

"Historically, hand measurement has taken over 1,000 labor hours," Perez said. "With this technology, we reduce that by 50 percent."

Beyond the labor savings, time is money for the wind industry.

"Wind turbine blades are one to two years back-ordered," Perez said. "This allows manufacturers to increase production."

Two years ago, The Right Place wrapped up a study of the West Michigan potential in alternative energy.

"Strategically, this is one of the key industries we're focusing on, because we have serious, serious capabilities, particularly in the wind industry," Klohs said.

"I hope the stimulus will help, but we were not counting on a stimulus a year and a half ago," Klohs said.

"We can't wait for governments to get their acts together, but this may be frosting on the cake," she said.

Who is in the business?

These are some West Michigan manufacturers working alternative energy into their product mix.

Burke Porter Machinery

730 Plymouth Ave. NE, Grand Rapids

- Wind sector
- Fabricate and machine components for large wind turbines

Carter Products Co.

2871 Northridge Drive NW, Walker

- Wind sector
 - Imports and sells lasers to measure massive blades
- \$20,000 per laser

Cascade Engineering

4855 37th St. SE, Cascade Township

- Wind power
- Swift wind turbines blades; assembly
- 1.5 kilowatt per hour output
- Cost estimated at \$10,000 to \$12,000 per wind turbine

EarthTronic/MAREC

Muskegon partnership

- Wind sector
- WindTronic rooftop turbine
- \$2,000, to be sold in home improvement stores

Genzink Steel

40 E 64th St., Holland

- Wind sector
- Produces nacelles (gearworks) for wind turbines

HTI (Heat Transfer International)

6871 Dutton Industrial Drive, Caledonia (moving to Kentwood)

- Biomass sector
- Transforms waste products into a burnable gas

Paragon D&E

5225 33rd St. SE, Cascade Township

- Wind and solar sectors
- Produces dies for wind turbine blades, solar cells

United Solar Ovonix

Subsidiary of Energy Conversion Devices

1 Solar Parkway, Greenville

- Solar sector
- Produces flexible solar film

Zeeland Farm Services Inc.

2525 84th Ave., Zeeland

- Biogas
- Turning methane into steam and electricity from landfill gas

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