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High-climbing wind turbine techs learn their trade at Lakeshore Technical College

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When Justin Barrett was performing chairlift maintenance in Colorado in the early 2000s, he enjoyed being able to work outdoors and keep things running the way they should.

So when he left the mountains to return to Wisconsin with his then-fiancée and took a retail position, the job was only for the short term.



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Students torque bolts on the pipe framework supporting the 120-foot-high wind tower used as part of Lakeshore Technical College's wind energy program. Instructor Justin Barrett oversees students learning how to maintain the components of the wind turbines. (Photo: Rick Wood / Milwaukee Journal Sentinel)

"I wanted to do something where I was outside, active, but also wanted a job I felt was a net positive," said Barrett, 37.

"I was kind of interested in renewable energy and then I found out about the LTC wind program through my mother-in-law, who had taken a tour through here. The program was just getting going but I looked into it and decided to come here and went through the program."

After graduating from Lakeshore Technical College with wind energy technology and electro mechanical degrees, Barrett worked six years as an operations and maintenance technician on wind turbines.

He joined the Lakeshore faculty in 2015, and today he leads the college's program for training wind energy technicians — an occupation that, as the emphasis on renewable energy sources heightens, is in increasing demand in the U.S.

The wind energy industry is the fastest growing segment of renewable energy production, with annual growth of 25% in the U.S. and Canada, according to the Wisconsin Technical College System.

Wind power supplies about 6% of total U.S. electricity generation, but rising numbers of projects are increasing wind power capacity, says the Wind Energy Technologies Office of the U.S. Department of Energy.

Wind energy was the source of 7% of Wisconsin total electricity sales in 2018, up from 4.3% in 2010, a report by Public Service Commission of Wisconsin shows.

"There are currently 737 megawatts of wind power in Wisconsin, and according to the regional electric grid, there are about 1,100 megawatts of potential new wind projects being explored in Wisconsin that could be built in the coming years," said Tyler Huebner, executive director of Renew Wisconsin, a Madison-based nonprofit that advocates for more electricity from wind and solar.

"Throughout the Midwest, there are approximately 32,000 megawatts of wind projects being developed, with about 28,000 megawatts already built."

Wisconsin's 737 megawatts of wind power provided enough electricity to meet the annual usage of about 186,600 Wisconsin homes, and newer turbines will be far more efficient, Huebner said.

All those wind turbines need care and maintenance. And in Wisconsin, Lakeshore Technical College, located between Sheboygan and Manitowoc in the village of Cleveland, is the only public school in the state offering a complete training program for the growing field.

The hands-on program includes training in fixing and maintaining wind turbines, and, of course, how to safely get up to them. The campus includes four wind towers that serve as labs for the program.

"First and foremost is how do we climb and how do we stay safe when we're climbing. That's where we start," Barrett said.



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Wesley Washington climbs the wind tower to join other students learning maintenance as part of Lakeshore Technical College's wind energy program. (Photo: Rick Wood / Milwaukee Journal Sentinel)

Students learn the parts of the wind turbine, how it operates and how to diagnose, fix and repair it, he said. Wind turbines work by capturing the energy of the wind with rotating propeller-like blades and using gears and a generator to turn it into electricity that can be added to a power grid.

The towers — the industrial turbines often are 280 feet high and typically have lifts or equipment that aid in the technician's climb, Barrett said — always are susceptible to weather damage such as lightning strikes and storms.

"As with any big machine, there's just going to be the small little fixes all the time," Barrett said. "The little electrical components wearing out, or loose nuts, loose wires. Just the normal wear and tear on any machine."

It helps if a student is mechanically minded, but it's not a requirement.

"I think most people can learn it and do it. If you have a mechanical aptitude it's probably more intuitive and maybe easier to learn," Barrett said.

"But I think that's the cool thing about what we get to do here at the program. Students come in and they say, 'Hey, I have never done anything like this — I don't know the first thing about it.' To me that's the exciting part — to start them at the very beginning and say here are the basics, and by the time they leave they know how to work on a turbine. That's pretty exciting."

It's also not necessarily a requirement to have no fear of heights, Barrett said.

"I've had a couple of students who actually had a fear of heights and that was part of the reason they signed up. Their personality was the type that, 'OK, this is something I know that I'm a little bit afraid of, but I'd like to work through that fear, I'd like to overcome it.' So I've had a few students who literally overcame their fear of heights by going through the program, which to me is super cool," Barrett said.

But if you like office or indoor work, wind turbine technician isn't the occupation for you.



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Students work atop a 120-foot-high wind tower used as part of Lakeshore Technical College's wind energy program, the only one in Wisconsin training people for careers in wind power. Instructor Justin Barrett oversees students learning how to maintain the components of the wind turbines. The school is in Cleveland, Wisconsin. (Photo: Rick Wood / Milwaukee Journal Sentinel)

"For the most part you have to be willing to work outside, in the cold and in the heat," Barrett said. "And obviously kind of get dirty and have a physical job."

It's not unusual for people who have started and stopped other careers to join the wind energy technician program, which takes about two years and about \$13,000 in tuition and fees to complete.

James Gutierrez, 32, of Sheboygan, was working in a hospital as a certified hyperbaric technologist when he decided he wanted to do more-rugged work outdoors.

Wind power interested him. He learned how to install, inspect, test, service and repair wind turbine components in the Lakeshore Technical College program, and graduated in May. He took a job with Vestas Wind Systems, a Denmark-based designer, manufacturer, installer and servicer of wind turbines worldwide.

"They definitely recognized the skills and education that I got," Gutierrez said.

Median salary six months after graduation for wind turbine technicians is about \$52,000, according to a Wisconsin Technical College System survey.

We Energies owns three wind parks that produce electricity for customers. Its parent company, WEC Energy Group, also owns Wisconsin Public Service Corp., or WPS, which has customers in Green Bay and the northeast part of the state. WPS owns two wind parks.

Company spokesman Brendan Conway said that in past 10 years, We Energies has more than doubled the number of wind turbines it owns to 198 from 90, while WPS has gone to 152 from 66.

"Wind is an important part of a cleaner energy future that is safe, reliable and affordable. We've set a goal to reduce carbon emissions 80% by 2050," Conway said. "Wind, solar and other carbon-free sources of energy are an important part of helping us achieve that goal."

Conway said although WEC Energy Group isn't directly involved with Lakeshore Technical College's wind energy program, "we do know from experience that careers in energy offer significant opportunities now and in the future."

"Training the next generation of energy technicians and professionals will be vital to meeting the energy needs of our customers," Conway said.

Said Renew Wisconsin's Huebner: "We continue to be very excited about Lakeshore Tech's wind training program. Wind turbine technician is expected to be the second-fastest growing job in the U.S. through 2026, so this is a program that is needed to keep up with the demand of the growing wind industry."

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Wisconsin's only training program for wind turbine techs

8 PHOTOS

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Students torque bolts on the pipe framework supporting a 120-foot-high wind tower used as part of Lakeshore Technical College's wind energy program, the only one in Wisconsin training people for careers in wind power.

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Wind turbine components include blades as well as wind-driven generators that are massive when seen on the ground.

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