





TRUST IN THE WIND

MU law graduate Tom Carnahan sees opportunity, sustainability and prosperity blowing in the wind. Story by Sona Pai. Photos by Nicholas Benner.

THE WIND IN MISSOURI

has multiple personalities. It's the gentle breeze that delivers cool relief from a summer scorcher and the icy blast that brings tears to your eyes in the dead of winter. It can be delicate as a whisper. And it can be fierce, churning with enough force to level an entire town. To Tom Carnahan, JD '95, above all, it's an opportunity.

AS FOUNDER AND PRESIDENT of Wind Capital Group, an energy wholesaler based in St. Louis, Carnahan has led the charge to harness Missouri's wind and turn it into power for Missouri residents. In the process, he's creating energy, jobs and economic prosperity for the state's rural areas — all out of thin air.

Carnahan founded Wind Capital Group in 2005. In 2007, the company dedicated Missouri's first wind farm in Gentry County, near King City, Mo. The Bluegrass Ridge Wind Farm's 27 wind turbines have already provided an economic boost to the King City area and a new energy source for a potential 34,000 homes, including homes in Columbia, which purchases power from three of the turbines. In 2008, Carnahan and his company made national headlines with the Loess Hills Wind Farm. The project consists of four wind turbines that provide power directly to the city of Rock Port, Mo., the first city in the country to meet 100 percent of its energy demands with wind power.

"Missouri is now on the radar in the push to develop alternative energy sources," Carnahan says. "With growing concerns about climate change and energy security, now is the right time to invest in our communities and become a leader in wind power."

Put another way, in a Chinese proverb Carnahan likes to quote, "When the winds of change blow, some people build walls and others build windmills."

CAUTION TO THE WIND

Carnahan, son of former U.S. Sen. Jean Carnahan and the late Missouri Gov. Mel Carnahan, JD '59, grew up on a farm near Rolla, Mo. He remembers sitting at the dinner table with his family and listening to his father talk about his travels around the state.

"After he toured ethanol plants, he talked about how great it was that we could produce energy at home and help our farmers," Carnahan says. "That stuck with me."

Carnahan earned his undergraduate degree from William Jewell College in Liberty, Mo., and then attended the MU School of Law. After graduating, he practiced law — first as a staff attorney for the St. Louis City counselor's office and then with his own firm, Carnahan and Garvin — with a focus on land use and urban redevelopment issues. He enjoyed law, but he knew it wasn't the right career for him.

"I spent a lot of time daydreaming about new business opportunities," he says. "I had always been fascinated with renewable energy and its promise for changing the way we do things in America. I decided wind was the way to go."

He began reading up on wind energy and talking to industry experts and businesspeople about the feasibility of building wind farms in Missouri. At the time, he says, common wisdom warned that wind power wouldn't work in the state.

Critics cautioned that Missouri just wasn't windy enough, and that the winds that did blow weren't predictable. They

also pointed out that, because of Missouri's relatively low coal energy prices, demand for new, cleaner sources wasn't high enough. At one of several wind energy conferences he attended in 2004, Carnahan approached a leading expert in the industry with his idea. "He patted me on the shoulder and said, 'Sorry to tell you this, but you're never going to get it off the ground in Missouri.'"

Carnahan encountered such overwhelming skepticism and even ridicule that he stopped telling people about his plans. But he never let the nay-saying or the eye rolling discourage him. In his initial research, he remembers looking at a map of wind energy projects in the United States. He saw projects in Kansas, Nebraska, Iowa and Illinois, but nothing in Missouri, which the American Wind Energy Association (AWEA) ranks 20th in the nation for wind energy potential.

"I'm pretty sure the wind doesn't know state boundaries," Carnahan says. "That kept me going."

At the same time, the idea of ending the nation's reliance — or addiction as Carnahan puts it — on fossil fuels by replacing them with renewable energy sources began wafting from the fringes of American politics to the mainstream. As the 2008 presidential campaigns made clear, developing new energy sources has become a hot-button political issue with implications for the economy, the job market and national security.

"When people went to wind conferences six or seven years ago, there were about 300 to 400 people — most of them in ponytails and sandals," Carnahan says. "At the last conference I attended, there were 12,000 people from all over the world, and most of them were in pin-striped suits."

According to the AWEA, wind power

Today's wind turbines look sleeker than their rustic ancestors, but they work in much the same way. The wind pushes the turbine blades, which turn an internal shaft. A generator then transforms the rotational energy into electricity. The photo on Pages 32–33 was taken at the Cow Branch Wind Energy Center in Atchison County, Mo.



Before building a wind farm, companies like Wind Capital Group gather data of all sorts — economic, social, political and geologic. The large structures require substantial foundations. But how big is big enough? Andrew Strutynsky and Johnathan Henning, above, piece together surface probe data to perform cone penetration testing outside of King City, Mo. Using a hydraulic ram mounted on a truck, they'll hammer a penetrometer into the ground while measuring the resistance of the soil. This minimally intrusive method produces resistance data that tell engineers how deep to build the windmills' foundations.



contributes slightly more than 1 percent of the nation's electrical supply. That may not sound like much, but Carnahan points to the industry's rapid growth as a more relevant statistic. AWEA says that wind projects developed in 2007 accounted for 30 percent of new power generation in the country.

A PERFECT STORM OF SUPPORT

Carnahan says the key to propelling his idea from a daydream to reality has been building solid partnerships. Partners include John Deere Credit, which financed the wind farms; Associated Electric Cooperative Inc., which purchases the power generated by the farms and distributes it through its network of regional and local rural electric cooperatives; MU Extension specialists, who have helped educate the public about wind energy; and citizens in local communities.

"You can have the windiest place in the world, but without community support and partnerships, it won't work," Carnahan says. "In law school at MU, we learned how to bring groups with different opinions together through alternative dispute resolution. That's a lot like bringing groups with different interests together to back a project."

People who have worked with Carnahan know him as a responsive, community-oriented leader who generates grass-roots support for his projects. Before developing the project in Rock Port, Carnahan held a public meeting at the MU Extension building in town to talk to community members about his plans and address any concerns.

"When Tom and his crew were preparing for the meeting, I asked him, 'What are you going to tell the people that will make them believe in you?'" says Jerry Baker, a community development specialist with MU Extension. "His response was also what he shared with the audience that evening: 'I want to do business with folks who want to do

Tom Carnahan's Wind Capital Group has established four wind farms in Missouri and is currently developing wind energy projects in 16 states.



business with Wind Capital Group.' That spirit of cooperation so typifies how Tom operates."

Carnahan's company has established four wind farms in Missouri: The Bluegrass Ridge Wind Farm in Gentry County, the Cow Branch Wind Energy Center in Atchison County, the Conception Wind Farm in Nodaway County and the Loess Hills Wind Farm, which powers the city of Rock Port.

After reviewing data from wind studies conducted by Neil Fox, MU assistant professor of atmospheric science, Carnahan settled on northwest Missouri as the site for his wind turbines. The largest of the 79 turbines in Missouri stand nearly 260 feet tall, each with three 140-foot-long blades. At the Loess Hills project in Rock Port, four turbines generate enough power for all of the city's 1,300 residents and then some.

"The project in Rock Port is working beyond our expectations," Carnahan says. In fact, the project has been so successful that on most days, the turbines produce more power than the city needs. "They are actually offsetting their consumption with wind power," he says.

Baker, who helped inform local citizens about wind power, says the response has been positive on all accounts. "Landowners get annual revenue for leasing the sites for the wind turbines [\$2,000 to \$5,000 per turbine per year], and each county Wind Capital Group operates in gets approximately \$400,000 in tax revenue each year," he says. "In rural America, you don't often see large, successful projects like this just come to you."

When the wind is still, the town reverts to purchasing energy from the traditional power grid, but Baker says so far, it's more common for Rock Port to sell excess energy than to buy power. Baker says wind projects in Missouri have created new construction jobs and hopes that future projects will bring new manufacturing business to the state's iron and steel industries.

FULL TILT AHEAD

In the 1605 novel *Don Quixote* by Miguel de Cervantes, the delusional knight-errant Don Quixote mistakes windmills for

'WHEN I FIRST STARTED TALKING ABOUT THIS IDEA, PEOPLE THOUGHT I WAS CRAZY. NOBODY THINKS I'M CRAZY NOW.'

hostile giants and prepares for a battle. He charges, or tilts, at the windmills, and the phrase "tilting at windmills" has come to mean fighting a battle that can't be won or engaging in a futile activity.

It's a phrase Carnahan hears a lot, and ironically, one that often appears in news stories about his success in bringing wind power to Missouri. His mother, Jean, gave him a small statue of Don Quixote, which he keeps in his office as a reminder of that irony.

Now, with four wind farms in operation in Missouri, 15 more under development across the Midwest from Minnesota to Texas, and more in the works, Carnahan is no longer reluctant to talk about wind power to anyone who will listen. He has been featured on the Fox Business Network, ABC's *World News* and National Public Radio's *All Things Considered*.

Critics in other states have opposed wind farm developments on the grounds that windmills are aesthetic eyesores, wind power is unpredictable and therefore unreliable, and that the need for fossil fuel backup makes wind power less green than it seems. Carnahan meets each point with a counterpoint, noting that some people find windmills beautiful and see them as symbols of progress.

"And, wind is more predictable than you might think," he says. "You can't predict any given hour how the wind is going to blow, but you can predict over time. Communities do have to balance wind with other sources of energy, but on a windy day, you don't have to burn fossil fuels."

Carnahan, who serves on the policy committee of the AWEA and works with the state

legislature to advocate for wind-friendly government policy, says the main reason communities should welcome wind power is simple: It works. He hopes his company's success will blow a ripple through Missouri, encouraging new wind power developments and stirring up economic benefits and a renewed sense of pride in rural communities.

"When I first started talking about this idea, people by and large thought I was crazy," he says. "Nobody thinks I'm crazy now." ■

About the author: Sona Pai, BJ, BA '99, is a freelance writer in Portland, Ore.



Four wind turbines stand on farmland in Rock Port, Mo., where they generate more than enough power to meet the city's annual electricity demands. This photo was taken at the Loess Hills Wind Farm in Rock Port.