



## Wind power bolsters renewable energy production in San Diego

By SYDNIE MOORE, Special to the Daily Transcript

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Blowing the roof off all previous records, the U.S. wind energy industry expanded the nation's total wind power generating capacity by 45 percent last year, infusing more than \$9 billion into the economy.

According to recent reports from the American Wind Energy Association (AWEA), the new wind projects account for about 30 percent of the entire new power-producing capacity added nationally in 2007, and will power the equivalent of 1.5 million American households annually -- strengthening U.S. energy supply with clean electric power.

"This is the third consecutive year of record-setting growth, establishing wind power as one of the largest sources of new electricity supply for the country," said AWEA Executive Director Randall Swisher.

And although San Diego isn't known for blustery winds or vast expanses of open land like the Midwest or Texas -- there have been considerable efforts here to generate energy via wind power.

Three years ago, SDG&E worked a deal with the Kumeyaay Band of Indians to install 25 massive windmills on its Campo land. According to SDG&E spokesperson Jennifer Briscoe, each of these turbines is taller than a 20-story building -- with three enormous blades each spanning the length of half a football field.

Located on a remote ridge 70 miles east of San Diego, the Campo Wind Farm is the first of its kind ever developed on Indian land. Perched atop a two-mile row of cylindrical towers, these powerful windmills fuel up to 30,000 homes per year.

"This saves 110,000 tons a year in greenhouse gas emissions (compared with equivalent fossil fuel generation)," Briscoe said.

It's a win-win situation, she said. "We pay the tribe for the electricity generated, and in turn we are building our renewable energy portfolio and bringing in green sources of energy."

Ultimately, the wind farm helps SDG&E meet the state mandate that power companies generate 20 percent of their energy from renewable sources by 2010.



While the term "wind energy" typically conjures images of expansive commercial farms like the one in Campo, wind energy systems also come on a much smaller scale. San Diego-based **Helix Wind** has developed a single-use helical turbine for both commercial and residential purposes.

Traditional wind turbines, which use a paddle-shaped blade, make a racket because the blades spin up to 10 times faster than the surrounding wind. Vertical helical turbines, such as those produced by Helix Wind, are nearly noiseless because they spin at the same speed as the wind blowing into them.

These inventive twisted-ribbon shaped turbines are making simple home and urban wind production a reality. According to Ken Morgan, the chief technical officer and chairman of Helix Wind, the product has met much enthusiasm -- and interest is skyrocketing.

"We are talking to developers, engineers, homeowners, architects, schools, government entities and scientific organizations all over the country and throughout the world," he said.

Morgan, a self-described "serial entrepreneur" with a background in engineering, helped identify this unique wind power solution several years ago. "It needed to exist, so we set out to develop it," he says matter-of-factly.

The company now produces four small wind turbine systems -- varying in size from six feet to 20 feet high -- of varying power production levels for homes and businesses. These systems have the capacity to produce 50 percent of a home or business's energy needs, depending on the wind conditions and the structure's overall energy efficiency.

According to Morgan, the first commercial Helix Wind generation system was recently installed at a Barrio Logan project -- built and masterminded by **New Earth**, a Nevada-based green developer -- in which a 5,000-square-foot warehouse was redeveloped into creative commercial office space using a variety of green materials and technologies. In keeping with the building's sustainable bent, electricity consumption is offset by the rooftop Helix Wind system.

Morgan said his company has many more projects in the pipeline. Most recently, the company inked a deal to sell 1,500 ! units to New York-based real estate developer **Vanderbuilt Properties**, for the development of residential small wind energy systems in western New York state.

Business is also booming at **Knight & Carver Wind Group**, a blade manufacturer and repair company headquartered in National City.

"We tripled our revenue from 2006 to 2007, and plan to double that this year," said Director of Business Development ! Gary Kanaby. To accommodate its explosive growth, the comp any will move into larger offices next month.

In addition to expanded San Diego headquarters, last year the company unveiled a new 26,000-square-foot blade repair and production facility in South Dakota. "A lot of the wind farms are in the Midwest," Kanaby said. "With this facility, we'll be able to base repair operations closer to where they are needed, allowing us to provide better service at a lower costs."



Knight & Carver Wind Group, headquartered in National City, last year unveiled a new 26,000-square-foot blade repair and production facility in South Dakota. Photo courtesy Knight & Carver

Originally a division of Knight & Carver, a long-time San Diego Yacht builder, the company has been repairing and building replacements for wind machine blades for 10 years. Most recently, the company developed a new blade, the STAR (Sweep Twist Adaptive Rotor) with plans to roll it out later this year. The blade is revolutionary, Kanaby said, as it is designed for low wind speed regions, and can produce electricity from wind blowing one to three miles slower than conventional blades. Ultimately, hesaid, "it will make! wind machines more efficient and lower the cost of energy."

To help fund such breakthrough projects and keep pace with demand, the company just received a hefty \$12 million investment from Global Environment Fund, a leading environmental private equity firm. With this new capital, the company is focused on maintaining its leadership position in the blade business and "making strategic investments that will build our enterprise into a larger, more global entity," Kanaby said.

New products and ideas from forward-thinking companies like Knight & Carver and Helix Wind will only continue to bolster San Diego's contributions to renewable energy production.

With soaring energy prices, growing environmental awareness and state mandates for renewable energy, wind power in San Diego -- and beyond -- is poised for gale force growth.

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