‘Green power’ gets second wind

Tight supply, high demand for electricity renew USA’s interest — and investment — in an ancient energy source

By Patrick McMahon
USA TODAY

Photos by Jeff Horner for USA TODAY

Windmills by the hundreds: Turbines cut the sky at the Stateline Wind Energy Project along the Washington-Oregon border.

WALLULA, Wash. — Blue-gray windmills 242 feet tall are sprouting almost daily across 50 square miles of clipped wheat fields and grazing lands near the Columbia River.

Here in Walla Walla County, once best known for its sweet onions and the state penitentiary, the Stateline Wind Energy Project is taking shape. By late fall, the project straddling the Washington-Oregon border will unleash the electricity generated by 396 turbines.

With the wind blowing here at an average 17 mph, the farm at its peak will generate 261 megawatts of electricity. On an average day, the farm will be able to power 60,000 homes. It is the largest wind-power project in this drought-plagued and energy-hungry region, which is leading a national drive to harness a renewable resource.

“The Pacific Northwest is well on its way to becoming the wind capital of the U.S.,” says Tom Gray, deputy director of the American Wind Energy Association in Washington, D.C.

Wind generates barely 0.1% of the nation’s electricity, but that share is growing fast.

A record 1,500 megawatts of wind-power capacity is expected to go on line this year across the country. One megawatt powers about 1,000 homes, but windmills rarely operate at full capacity. The new operations will be enough to power more than 300,000 homes.

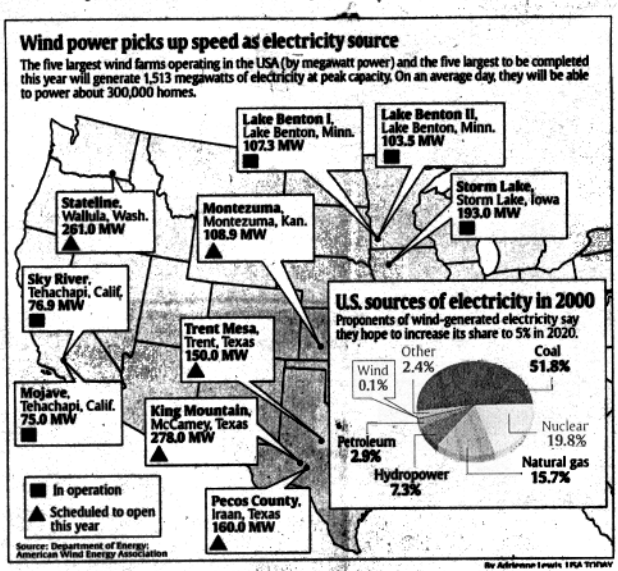
In 1999, the federal government set a goal of making wind power 5% of the nation’s electricity output by 2020. In peak demand periods, that could mean the difference between lights and rolling blackouts.

“Wind has arrived,” says David Garman, assistant U.S. Energy secretary for energy efficiency and renewable energy. “Wind is competitive with other power sources, and that’s the important thing.”

More than a fad

The resurgence of wind power coincides with tightening energy supplies and increasing demand. The combination has rekindled public interest and investment potential in renewable energy sources, making wind power more than a fad in the land of flannel shirts and espresso drinks:

- The nation’s first offshore wind farm is being considered for Nantucket Sound, anchored in the seabed 5 miles off Cape Cod in Massachusetts. The envisioned wind farm would produce 420 megawatts to serve Cape Cod and the Northeast.
- A 3,000-megawatt wind plant called Rolling Thunder is in development on 350 square miles in central South Dakota. Owners of the plant, more than 10 times the size of Stateline in Washington state, hope to deliver wind power to the Chicago area as early as 2006.
- The Tennessee Valley Authority, the nation’s largest public power producer, plans to expand its first wind park, near Oliver Springs, Tenn., from 2 megawatts to 20.



“Every utility in the United States is looking at wind right now as a generating option,” says industry consultant Karen Conover of Bellevue, Wash.

But Glenn Schleede, an energy consultant from Reston, Va., and a former utility company executive, says wind power is an inefficient, unreliable, unsightly and overblown source of electricity — one buoyed by wasteful government subsidies.

“Look at California,” Schleede says. A single new gas-fired power plant that opened last month in Pittsburg, Calif., will generate more electricity “than all the state’s 13,000-plus windmills produced in 1999,” he says. “The California situation illustrates dramatically the small amount of electricity produced by large windmills and the small role wind energy can play in supplying U.S. requirements.”

An energy source for centuries, windmills dotted the American West in the late 1800s and early 1900s. They pumped water and provided power before cheap electricity arrived. Europeans have been proponents of harnessing wind energy since the 1500s, when windmills became an icon in Holland. Last year, European countries led by Germany installed 3,200 megawatts of wind power, compared with 53 megawatts in the USA.

Going on line: Joan Brown, left, and C.S. “Collie” Powell of FPL Energy at the Stateline site.

Wind power made a comeback in the USA during the energy crisis of the 1970s, when wind farms were built along California freeways between Los Angeles and Palm Springs and east of San Francisco. But the incentive for renewable energy faded in the 1980s when power plant construction put electricity supplies ahead of demand.

The wind projects now underway in the Northwest represent the next major production spurt.

“It’s a region with good wind,” says Gray of the wind trade group. “The projects slated for the next two years will easily surpass the California wind rush of 1981 to 1985.”

Today’s windmills are sleek, sophisticated wind catchers. At Stateline — selected for its windy location — turbines with 77-foot blades sit atop towers. With the help of wind sensors, the blades shift, rotate and change direction automatically to capture the most wind. The blades start to turn and the turbines begin generating power at wind speeds of 8 mph. The turbines shut down automatically when wind gusts reach 55 mph.

The electricity generated is sent to the bottom of the towers, where it travels underground to a substation and joins the regional power grid crisscrossing the Northwest.

Quieter, less threatening to birds and more efficient, today’s windmills still require federal tax subsidies to be profitable, proponents acknowledge. A 5-year extension of tax credits for wind production is part of President Bush’s energy package that passed the House last month.

With those subsidies, the per-kilowatt-hour cost of wind-generated electricity is more competitive with other fuels, energy official Garman says. That makes it even more attractive in today’s topsy-turvy energy market.

Last month, the Bonneville Power Administration, a federal agency based in Portland, Ore., announced plans to buy 830 megawatts of wind power from seven plants — five to be built in Washington and two in Oregon. BPA, already the nation’s biggest supplier of hydroelectric power, will be the largest wind energy supplier.

“By aggressively pursuing this resource for electricity, we hope to be able to meet the demand for energy with a clean, economical, non-polluting resource,” says Steve Wright, BPA acting administrator.

Wind has its problems

Wind power faces two principal hurdles. Sometimes, the wind stops. When that happens, so do the turbines, meaning that wind is not a guaranteed source of 24-hour power. Also, places such as the Dakotas, the nation’s windiest region, will need huge investments in transmission lines to export the region’s vast wind resources effectively.

As a result, power-marketing companies are looking at ways to package wind power with other sources of electricity to make wind a consistent part of the energy mix. More than 85 utilities in 29 states also give consumers the option of paying extra for “green power.” About 350,000 households have joined these programs nationwide, says the federal National Renewable Energy Laboratory in Golden, Colo.

Major utilities and energy companies also are pursuing wind power. FPL Energy, sister company of Florida Power and Light, which serves densely populated South Florida, is the largest owner of wind farms. Enron Wind, a division of the Texas natural-gas giant, is the largest U.S maker of wind turbines. Last month, Shell Oil bought its first U.S. wind farm, a project under construction in Wyoming. Stateline is owned and being built by FPL Energy, which has sold all the plant’s output for 25 years to an affiliate of PacifiCorp of Portland.

Although a few residents have expressed concern about birds flying into the turbines and the effect on scenic vistas, the wind farm seems to have broad local support, Walla Walla City Council member Barbara Clark says. Construction has created 150-plus jobs. Farmers are leasing their land for wind turbines.

If more power plants must be built for increased consumption, Clark says she favors green power over fossil fuels: “It’s better than pollution.”

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Wind turbines, part of FPL Energy's Stateline Wind Project near Wallula Junction, Wash., are seen in this July photo. Once all of the proposed 450 wind turbines are up and running, the site will be one of the largest wind farms in the world.

Winds of change: electric power courtesy of nature

By H. Josef Hebert
Associated Press

WALLULA JUNCTION, WASH. | Like many ranchers facing pressure from developers, Shirley Hindman worries that one day she might have to break up her Nine Mile Ranch, one of the largest spreads in the Walla Walla Valley.

"That would make me sick," she says.

But now she and her father, Billy, have found another way to protect their 14,000 acres of sagebrush-covered hills and canyonland.

The answer has come in the wind – something "we have plenty of," she says.

And something also in growing demand.

Soon the ridgelines across Highway 12 from Hindman's corrals will be dotted by windmills. By next year the Hindmans and several other property owners, including a nearby college, expect to be landlords to the world's largest wind farm.

Along southeastern Washington and into neighboring Oregon, 450 Danish-built windmills – sleek white towers 200 feet high with rotors 200 feet across – will churn out enough power for 75,000 families served by Pacificorp, one of the Northwest's leading electric utilities.

Nearly 100 of the wind turbines already are producing. Gravel roads and concrete slabs for the others are in place. "It will help us keep Nine Mile. It will help us sustain a way of life," says Hugh Preston, Ms. Hindman's husband.

THE WINDIEST

The 10 states with the greatest energy potential from wind power, according to the American Wind Energy Association.

1. North Dakota
2. Texas
3. Kansas
4. South Dakota
5. Montana
6. Nebraska
7. Wyoming
8. Oklahoma
9. Minnesota
10. Iowa

More than just an economic hedge for farmers and ranchers, wind farms across the West and upper Midwest are emerging as a growing part of the nation's electricity picture. Major projects are operating or earmarked for completion within a year in Texas, Montana, Minnesota, Kansas and Nevada.

While windmills still account for only a fraction of one percent of the electricity produced in the United States, they no longer are the exotic playthings of a few dreamers.

"Wind is a technology that's now reliable and proven," says Robert Morrison, vice president for renewable business development at FPL Energy, the Florida-based company building the 300-megawatt Oregon-Washington project.

The cost of generating electricity from wind has declined from 38 cents a kilowatt-hour 20 years ago, to 3 to 5 cents a kilowatt hour in today's larger projects, says the industry. That's competitive with natural gas.

"Suddenly this stuff is economical," says Mr. Morrison, whose company has other wind projects under way or being planned in a half-dozen states including Texas, Kansas and Wisconsin.

Windmills now account for only about 2,500 megawatts of generating capacity nationwide, but the production is expected almost to double by the end of 2001 to provide enough electricity for 1.3 million households. The industry anticipates that in two decades wind power will grow to 100,000 megawatts and account for 6 percent of the country's electricity.

In comparison, nuclear power currently provides about 20 percent of U.S. electricity, coal-fired plants 52 percent.

What some call the "Saudi Arabia of wind" stretches from eastern Montana and the Dakotas, through Nebraska, Kansas and into Texas – a region with enough wind potential to power the nation, according to the Energy Department.

James Dehlsen, an early wind energy pioneer, dreams of putting together a massive wind complex of 2,000 turbines stretching over 90 miles of prairie in South Dakota.

It would be 10 times as large as the Washington-Oregon project and produce a staggering 3,000 megawatts of electricity.

"We're at the early stages of the project," said Mr. Dehlsen, founder of the Zond Corp., a U.S. wind turbine manufacturer that