The San Diego Union-Tribune.

July 3, 2005

Whither the wind?

Fuel costs for turbines are free, but regulatory and environmental concerns could thwart development of the renewable energy resource

By Craig D. Rose
UNION-TRIBUNE STAFF WRITER

Inland from Southern California's gentle coastal breezes, a surge of commercial activity is building to tap the stronger winds blowing across the state's great desert for electricity.

Prodded by state requirements to boost renewable electricity sources, scores of applications for wind energy testing and development have poured in to federal offices that regulate development on public lands, including those in San Diego and Imperial counties.

All told, there are about 60 applications.

The concept is simple, seductive and clean: Use massive, modern wind turbines – some approaching 300 feet in wingspan – to produce electricity without pollution or the release of gases that contribute to global warming.

A single turbine, under the best of conditions, can provide enough power to supply 400 homes or more, with a fuel cost of zero. Within five years, San Diego Gas & Electric says wind could supply 5 to 10 percent of the electricity needed by its customers.

California now has about 2,000 megawatts of wind turbines, enough to power about 600,000 homes, or the equivalent of a single modern natural-gas-fired power plant.

But by 2010, the state could have 7,000 to 8,000 megawatts, according to official estimates. Perhaps 4,000 of those megawatts will be built near the large wind farms in place near Tehachapi and Palm Springs. But the Southern California desert, including parts of eastern San Diego and Imperial counties has many sites under exploration for wind energy development.

But if the concept of wind power is simple and attractive, the road to constructing windmills around the great desert region in California's southwest corner is likely to be complex, uncertain and fraught with regulatory, technical and environmental issues.

The biggest incentive for greater use of wind energy comes from California's landmark renewable portfolio standard, which requires that utilities derive 20 percent of their electricity from renewable sources by 2010.

Of the state's major utilities, SDG&E has the furthest to travel to reach the target, with just 5.5 percent of its power now generated from green sources.

James Avery, senior vice president of electricity for the utility, says eastern San Diego County and Imperial County someday might have 400 to 500 megawatts of wind turbines, or about 400 of the modern machines.

Although that's nearly equivalent to the output of a modern gas-fired electric generating plant, the intermittent nature of wind means that the expected output from wind turbines would probably be just 30 to 35 percent of the maximum capacity.

In other words, wind turbines with rated capacity of 500 megawatts can be counted on to produce about 150 to 175 megawatts of electricity under San Diego County wind conditions.

But Avery is quick to add that wind development on this scale couldn't yet be tapped because the utility lacks the transmission capacity to move the power from East County to the west, where the bulk of SDG&E's electricity is used.

The transmission upgrade SDG&E proposes to tap the potential wind resources, along with other possible green power projects in the desert and supplies of conventionally produced power from Arizona and Mexico, could cost $1 billion or more, he said.

The transmission upgrade underscores an often overlooked problem with wind development, namely that the resource can be most plentiful in remote areas, far from the existing power grid and requiring costly new power lines.

Michael Shames, executive director of the Utility Consumers' Action Network, says there may be cheaper routes for a new transmission line than the one proposed

by SDG&E. But the consumer advocate also noted that the wind power is problematic because of the way state grid officials factor in that resource.

The California Independent System Operator is the nonprofit agency charged with overseeing electric reliability. Dave Hawkins, a manager with the ISO, notes that on the day last September when California reached its peak electricity demand and needed every electron it could produce or import, the state's 2,000 megawatts of wind turbines were generating about 100 megawatts.

On blustery days in April or May, the same turbines might generate 1,400 megawatts, he added. Although electricity is not a storable commodity on a mass scale, wind-generated electricity can allow California to reduce the release of water from reservoirs that drive the state's big hydropower systems.

Saving water is like saving electricity in that context.

But wind energy is not as reliably available as other sources, as was demonstrated on that record demand day last September. So for planning purposes wind energy could never fully displace other generating sources but it can be a key resource for reducing the amount of coal or natural gas needed for electric generation. That helps reduce emissions and helps diversify the generating base for California, which most experts believe is too dependent on burning natural gas for its electricity.

Wind also can provide a cost savings.

Ryan Pfaff, a regional development director with locally based AES SeaWest, a unit of AES Corp., a major power producer around the world, said that in the windiest regions of the country, wind turbines are producing power for just above $30 per megawatt hour. For comparison, SDG&E customers pay the equivalent of at least $46 per megawatt hour.

But as the cost of natural gas and oil has risen – seeming to enhance wind's appeal – the natural resource has in effect suffered its own price increase.

Jan Paulin, chief executive of Padoma Wind Power in La Jolla, said over the past two years increases in steel prices and other factors have pushed the cost of a wind turbine from about $600,000 to close to $900,000.

Paulin said even more damaging to the wind industry than the commodity price hikes has been the stop-and-start nature of federal support for the renewable energy source. He noted that the resumption late in 2004 of the federal production tax credit – now the equivalent of $19 per megawatt hour – set off a frenzy of development that caused turbine shortages and pushed prices higher.

The industry would prefer a consistent policy allowing for prudent planning and production.

The version of the energy bill passed by the Senate last week includes a multi-year extension of the credit, but the House version does not. The Senate bill also includes a national requirement that 10 percent of the nation's energy come from renewable sources, while the House bill include no renewable standard.

The two versions must now be reconciled by a conference committee with the expectation that a compromise bill will go to President Bush later this year.

"The way that Congress has handled this issue is nothing short of negligent," Paulin said. "Wind energy takes pressure off our reliance on imported oil and it takes significant strides to cutting back on the release of carbon dioxide (a prime contributor to global warming)."

In San Diego, meanwhile, developers are in the earliest stages of determining the extent of wind resources. Bob Baker, a meteorologist with PPM Energy, one of the handful of companies with permits to test sites on public land in East County, said it would like about a year to determine the potential for wind power here.

Baker added that developers wanted sites that provide at least 30 percent of maximum capacity before applying for a permit to build a turbine.

"We try to find sites where you can put quite a few turbines, at least 50 megawatts," he said.

Other companies exploring sites in San Diego or Imperial counties are RES North America, SeaWest, Bio Renewable Projects and Clipper Windpower.

Matt Riley, a development coordinator with Clipper, believes SDG&E will eventually provide the transmission upgrades needed to tap the wind resources the company suspects are within the region.

"SDG&E is starting to understand where the renewable resources are," Riley said.

Advocates of wind development say the industry's newer turbines turn more slowly and are higher above ground to decrease bird kills, which had been a concern with earlier wind farms developments. But there are concerns that wind development in San Diego County could affect habitat for endangered bighorn sheep and a certain butterfly species.

While emphasizing their support for wind power, environmentalists say they are determined that turbines be appropriately sited, away from sensitive lands and the habitats of endangered animals.

"We are looking at this on a site-by-site basis," said Kelly Fuller, a Sierra Club member who has helped organize a wind energy advisory coalition.

Fuller said the group is concerned that the Bureau of Land Management, which issues permits for testing and development on public lands, has been proceeding without adequate public input in issuing permits.

"Our national policy says the public should be brought in from the very beginning," Fuller said.

BLM policy, she noted, is itself undergoing changes, with the agency recently announcing new guidelines it says should ease wind energy development.

But public lands aren't the only possible sites. Developers are also scouring private land for possible wind development.

Longtime Boulevard resident Donna Tisdale said she has had calls from developers. But she has turned down queries because of her fears about what wind development might do to the scenic vistas she now enjoys.

The unfettered views, she said, "are soothing to the soul."

"I do support green energy, but it's not totally noninvasive," Tisdale said. "To support the windmills, you would need one or two more high voltage power lines."

But some wind companies believe San Diego and Imperial counties may have only limited wind resources to develop. Pfaff of AES SeaWest speculated that the region might ultimately support just 200 megawatts of wind generation, partly because of expected transmission limits and other restrictions.

The developer emphasized his support for some of those limitations, including habitat protection for endangered species.

"I got into this business because I'm an environmentalist," said Pfaff.