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"U.S. wind power: Gales of opportunity,"

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Despite an on-again, off-again federal tax incentive structure that has hampered growth, the US wind power industry has been gaining momentum as advances in wind technology and wind studies, combined with state level renewable portfolio standards, tax incentives and high oil and natural gas prices, have made wind projects a competitive generation source. This, in turn, has brought the capital of lenders and institutional investors, who have become more versed in wind risk, and attracted the attention of major utilities and development companies. 2005 is expected to be a record year.

Another wind storm is sweeping the United States' wind power industry in 2005 as developer's race to get their projects completed before the expiration, yet again, of the US federal production tax credit (PTC) at the end of 2005. The PTC currently provides new wind power plants, which are placed in service prior to the end of the year, a US\$0.018 tax credit against income tax for each kilowatt hour the plant produces in its first 10 years of operation and generally makes the difference between whether or not a project will be lucrative enough to entice investors and lenders to the table to help front the high, up-front capital cost to build the plant.

The PTC, which recently expired in December 2003, was renewed in October 2004 and expires again in December 2005. This is the third such expiration and renewal cycle over the past six years. As a result, the industry has sputtered in years when the PTC's renewal has been uncertain, as was the case in 2004 when, according to the American Wind Energy Association, only 389 MW of wind power was installed. By contrast, in 2005 with the PTC in effect, over 2,000 MW of wind farm capacity is expected to come on line as stalled projects from 2004 are revived and brought to commercial operation.

Wind industry gaining critical mass

Despite this see-saw growth brought on by the fickleness of the US Congress, the US wind power industry had been gaining critical mass with both advances in wind equipment technology and in the sophistication and reliability of wind studies. These advances, coupled with the PTC and the implementation at the state level of renewable portfolio standards, which require local utilities to purchase a portion of their electricity from renewable sources, have helped make wind projects economic and facilitated, since the late 1990's, the financing of large-scale wind farms.

Further, high natural gas prices have caused the United States' extensive gas-fired generation plants to become a more expensive generation source and made wind power more attractive in the overall generation mix.

Finally, the developing track record of wind project successes in the US and Europe has caused lenders and institutional investors to become more versed in the risks and more comfortable investing in wind.

2005 expected to be a record year

All of this culminates into what is expected to be a record year for installed wind capacity. According to the American Wind Energy Association, the US currently has 6,740 MW of installed wind power generation in 30 different states, with the bulk of such capacity located in California (2,114 MW), Texas (1,288 MW), Minnesota (595 MW) and Iowa (472 MW). Following the PTC-induced boom-bust cycle, 2001 and 2003 each had in excess of 1,600 MW installed, and as mentioned above, 2005 is expected to exceed 2,000 MW, with some predicting as much as 2,500 MW. This would equal roughly a third of presently existing US wind capacity. The size of the wind farms are also growing, with at least four projects in 2005 expected to come in over 200 MW.

Of course, if the PTC is not timely renewed, 2006 may bring another off year. The drop-off, however, may be somewhat reduced by the expanding sophistication of the industry, the continuing improvement in technology and the high oil and gas price environment. For example, some developers such as Babcock & Brown, which developed a couple of 60 MW+ wind projects in 2004 despite the uncertainty of whether or not the PTC would be extended, appear to have come up with a

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formula for making their wind projects financeable with or without the PTC. Nevertheless, until the PTC becomes a more permanent fixture or the US government provides some other type of reliable incentive, such as a nationwide renewable energy portfolio standard, the wind power industry may continue to grow in fits and starts. Even with this uncertain regulatory environment, the US Department of Energy has forecasted that wind power capacity will grow from currently about 1% of total generation to about 6% by 2020.

Environmental protection trends

With the recent entering into effect of the Kyoto Protocol, which was ratified by 141 countries, but not the US, there is a world-wide trend toward the reduction of carbon emissions. Although the US has been a little slow in coming to the party, increased concerns of the environmental impact of greenhouse gases will likely cause the federal government over time to shift its policies more in favour of renewable technologies. Wind power does not generate any emissions of hazardous wastes, and according to the American Wind Energy Association, in 2004 alone saved billions of pounds of carbon dioxide and tens of thousands of tons of sulfur dioxide and nitrogen oxides from being released into the air. Further, multinational energy companies will run into these emissions restrictions abroad and will likely need to be proactive in finding ways to reduce emissions.

As mentioned above, the wind power industry has not been completely successful at the federal level in establishing a stable environment to propagate growth. The renewal and expiration of the PTC has hampered the industry, and the PTC itself benefits more the larger utility developers and institutional investors that have sufficiently high income to fully apply the PTC to income tax above the alternative minimum tax. As a result, smaller developers historically have been regulated more to the role of doing the initial legwork on a project by, for example, obtaining the anchor power purchase agreement, land rights and permitting, before selling an interest to some of the more dominant players, such as FPL Energy, Babcock & Brown, AEP and Shell WindEnergy.

As public awareness of the need for renewal energy grows, the industry may have more influence on the federal government to make the PTC more permanent or to institute a national renewable energy portfolio standard, which would require a portion, such as 10%, of the United States' generation to be from renewable sources.

The states, themselves, have been active in establishing their own renewable portfolio standards. Currently, 19 states and the District of Columbia have instituted such standards. Texas, for example, has had so much success with its programme that installed renewable energy capacity, especially from wind, is outpacing the goals originally established by the state.

Maturing market

As wind power matures, more and more utilities and large development companies are turning their attention to the industry. For example, AES Corp.; which operated in 27 countries and generates about 44,000 MW of electricity, announced in January 2005 that it had agreed to purchase SeaWest, which owns 500 MW of wind projects in California, and thereby enter the wind generation business. Moreover, US lenders and institutional investors, who have lagged behind their European counterparts, are also becoming much more comfortable with wind power, and pricing on US deals has begun to drop. Today, institutional investors, depending on the project, can expect returns that 50 to 150 basis points less this year.

Development expertise

To stay competitive in the market, developers will need to keep abreast of the latest regulatory incentives and financing structures, hone their wind power development skills and avoid some of wind's unique development pitfalls. Depending on the location, for example, one or more types of property tax abatements or investment incentives may be available to aid a project. Since most wind farms are located in rural areas, there may be incentives available for bringing investment and jobs to the region.

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Transmission problems may go unnoticed if the proper studies are not conducted. Being in a rural area can also mean being far from load centers, which may increase the risk of curtailment if there is not sufficient capacity available on the transmission system. Even if there is sufficient capacity at the time of interconnection, an open access rule may cause that transmission system's capacity to shrink as other power plants hook up. Also, the transmission rate structure may discriminate against wind power, which is not dispatchable, by not providing capacity value recognition, imposing scheduling imbalance penalties or in the way transmission losses are calculated.

Some projects might also consider adding gas-fired peakers to offset low wind periods and improve overall economics. Further, land rights can be tricky, if for instance, the proposed site is owned by multitudes of small land owners, since signing up the necessary agreements can be time consuming and labour intensive, or if sufficient land is not acquired to prevent wind interference from competing projects that might be built.

Other intangibles may also impact a project, such as the personalities, pricing and relative equipment reliability of the turbine manufacturers or the expertise of the balance of plant contractor. Those developers with strong balance-sheets and demonstrated expertise in closing wind project transactions, even during the lean times, will have an advantage in a field where the big money players are closing in.

Wind power in 2005 will likely reach a new benchmark both in terms of record installed capacity and institutional investor participation. Advances in turbine technology, led by GE Wind, Mitsubishi and Vestas, when coupled with the PTC, has made wind projects competitive with new coal and gas-fired generation and offers a genuine way to reduce emissions, as well as reliance on fossil fuels. Despite this, the federal regulatory environment currently creates on-again off-again tax incentives that stilt the industry's growth. Nevertheless, the industry is unmistakably seeing its sails fill as lenders and investors have become comfortable with the risks, and as more utilities and development companies have taken notice of the opportunities.

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