

[EF Online Latest News](#)[News Last Issue](#)[Features Last Issue](#)[Subscribe](#)[Conferences](#)[Advertising](#)[Bookshop](#)[Archive](#)[Links](#)[About Environmental
Finance](#)[Home](#)

Clearing the wind breaks

With 13 US states mandating significant amounts of power production from renewable resources, wind energy looks set for explosive growth. But the market faces serious impediments, including the reluctance of US banks to invest. David Biello investigates

Between Abilene and Sweetwater in west Texas, 100 giant wind turbines – each taller than a 20-storey building – sit on a flat-top hill covered in green scrub. Electricity giant American Electric Power (AEP) put up the money to construct the 150MW Trent Mesa Wind Project, and Texas-based utility TXU has purchased the output. But it is a series of European banks, led by Belgo-Dutch bank Fortis and Manulife, a Canadian insurer, that has raised nearly half the \$150 million to finance the completion of the project and its operating costs.

Meanwhile, in south-eastern Colorado, PPM Energy and Shell WindEnergy partnered to purchase a 162MW wind farm – Colorado Green – being built by GE Wind Energy, the wind turbine manufacturing and wind power producing subsidiary of General Electric (GE). Minneapolis-based Xcel Energy has contracted to buy the power for its Colorado customers. PPM and Shell are now looking to raise \$128 million, helped in their efforts by ANZ, an Australian bank, and Netherlands-based Rabobank.

“It’s our first project in Colorado, the first project we’ve done on a joint basis and the first project that we’ve project financed,” says Deborah Gronvold, director of financial projects for PPM, a US subsidiary of British firm Scottish Power. Meanwhile, in July, FPL Energy – a Florida-based energy company with assets across the country – raised \$380 million with the first US wind farm-linked bond offering. The 20-year bonds, designed to repay some of the investment, acquisition and construction costs of seven wind projects across the country, garnered investment-grade ratings from Moody’s and Standard & Poor’s.

“This transaction is verification that wind generation is now viewed as more than a niche business by the financial markets and the credit rating agencies,” said Moray Dewhurst, chief financial officer for the FPL Group,

in a statement.

“Before, capital markets or bonds were not a source” of wind farm-financing, says Mohammed Alam, Connecticut-based vice president at Fortis Capital Corp. Previously, most were financed on balance sheet, by the developer, without recourse to external investors. “Now there is at least a precedent,” he notes.

Despite this progress, the fact remains that it is difficult to finance a wind farm in the US, particularly if you want money from major US financial institutions. A number are now exploring the market, says Michelle Vensel, managing principal at Connecticut-based Protean Energy Advisors and the leader of a new American Wind Energy Association (AWEA) initiative to attract US financial institutions to the industry. “But we don’t see any real active participation yet.”

Most of that is down to history – the collapse of several wind projects in the 1980s followed by the failure in 1996 of US wind turbine manufacturer Kenetech. “There is a great deal of misperception associated with wind generation,” Vensel continues. “Old technologies ended up tanking and people lost money. But those projects weren’t economically viable. People don’t realise that there are wind farms that are economically viable even without the [federal] production tax credit. The technology is now proven.”

Of course, the production tax credit (PTC), the US government’s programme to reimburse producers of wind power – and some other renewable energy – by 1.8¢ per kWh goes a long way to making wind farms attractive to investors. For example, an 80MW project that cost \$88 million to build and produces 3,329MWh/year could expect a subsidy of more than \$29 million over the course of the decade-long span of the PTC, according to Keith Martin, a partner in the project finance group of law firm Chadbourne & Parke.

Of course, there is a catch: the PTC is only available to those that generate certain types of income, effectively limiting PTC recipients to large companies based in the US or with significant tax liabilities in the country. “Basically, you’re only allowed to use these credits to offset passive income,” Vensel explains. “Usually only large corporates have that type of income.”



AEP's Trent Mesa wind farm – made in America, backed by Europeans

The renewable credit is also set to expire at the end of 2003 and, with the failure of the Energy Bill in the US Senate in late November, it will not be renewed before the end of the year. Unfortunately for the wind industry, this means the potential for a repeat of the 'bust' of 2002 when the US added only 410 MW of new wind power – compared to a projected 1,600 MW in 2003 – thanks to the expiration of the PTC at the end of 2001 and a delay in reinstating it until March 2002.

“The PTC is both a terribly important incentive and, at the same time, because it has expired twice in the past five years and is going to expire soon, it provides an artificial constraint on the market,” says Randall Swisher, AWEA’s executive director. “If you had a 10-year PTC in place, billions of dollars of investment would be unleashed.”

But the credit also serves to keep some participants, particularly financial institutions without a US tax base, from investing even more heavily in wind development.

“Frankly, the PTC might be the worst thing that ever happened to the industry in the US. It has really restricted the number of potential equity investors,” argues Bill Sutherland, vice president of project finance at Canadian insurer Manulife Financial Corp. “Most of these projects can’t go ahead unless the tax effective equity is lined up. Raising the equity has been much tougher than raising the debt and raising the debt has not been an easy task.”

“It’s almost like a drug. The industry has to go through a period of withdrawal,” says Mike Davies, managing director at new London-based investment fund Freestream Capital, which specialises in helping European investors enter the US wind market. “The industry needs an incentive mechanism; wind isn’t commercially viable without an incentive. But that incentive reduces outside investment. Ultimately, its a bad thing.”

But it looks as if the PTC will decline in importance as a long-term driver of the business. Instead, the mandatory renewable portfolio standards (RPS) and purchase obligations in place in 13 states, with more under consideration, look set to spur long-term growth. “There is 10GW of mandated capacity in 13 states with RPS,” notes Hunt Allcott of the environmental strategy practice at Boston-based consultant Cambridge Energy Research Associates. This compares to the current 5,325MW of installed capacity, he notes.

Standards vary from state to state – from 20% by 2017 in California to 2.2% by 2011 in Wisconsin – but all require energy companies to begin sourcing a portion of their power from renewable resources. Since wind is currently the most economically viable technology (the treatment of hydropower varies from state to state), prices have fallen from 30¢ per kWh in the 1980s to less than 5¢ per kWh in 2002, according to the AWEA – it is likely this will fuel an explosion in the growth of wind farms.

It’s not as if the industry isn’t growing already. Despite the PTC-related busts in the building of wind farms, the industry has grown by roughly 25% per year since 1997. And, from the utility perspective, high natural gas prices provide another incentive to

turn to the wind.

But credit issues dog the sector. "The most important aspect of a wind transaction is a long-term power purchase agreement signed with a good, stable, creditworthy party," says Fortis Capital's Alam.

"One of the biggest impediments [to growth] is the lack of quality offtakers," says Jay Godfrey, director of business development for AEP Wind Energy. "Unless you get a power purchase agreement from a creditworthy offtaker, it is difficult to finance [wind farms]."

It can be difficult to find a creditworthy long-term purchase partner in today's energy landscape. Nevertheless, banks oversubscribed AEP's and Fortis's Trent Mesa offering by 35% despite some mixed feelings about TXU. "TXU walked out of TXU Europe recently," Alam explains, referring to the parent allowing its European subsidiary to go bust last year. "That created a lot of emotional concerns among bankers, especially the European bankers that typically invest in the wind market."

On the other hand, the energy credit landscape is improving – not least in the renewables sector. Analysts point to FPL's bond issue, and the purchase of Enron's wind assets by General Electric. "The entrance by companies like GE is a positive for the industry," Godfrey says. "It shows that this is a grown-up business."

"GE is one of the prime suppliers of wind turbines," Alam adds. "That has made a tremendous difference because you really want a really good reputation behind the technology, and you need stable credit behind the warranties."

"That also creates a more competitive environment for wind turbine technology," Alam continues. "Other turbine manufacturers must be as good. It has been a very good catalyst."

With confidence in the technology, the long-term PPAs themselves provide an attraction to the wind market for experienced energy investors. "PPAs are hard to come by in a deregulating environment," says Manulife's Sutherland. "The renewables sector has become more attractive because it is one of the few areas where PPAs are still available," partly because electricity suppliers favour them as a means for them to comply with RPSs.

But, ultimately, it may be transmission issues more than financial considerations that limit wind development. The bulk of US wind resources are in the middle of the country while the most demand for power is on the coasts. The AWEA plans to address the problem – with a three-phase development of 'wind pipelines' that would export energy from the interior of the country.

The first phase of the association's plan involves transmission tariff reform, allowing existing power to flow more freely. The second phase calls for some smaller transmission lines to be installed to eliminate existing bottlenecks and facilitate new wind capacity. The final phase calls for a \$10 billion–20 billion investment in two major

high-voltage lines from the northern plains to the east – dubbed the Trans-Prairie Wind Pipeline – and to the west – the Interior West Wind Pipeline.

But current regulations make it difficult to get any new transmission lines built. “[The rules] puts the large utilities in the driver’s seat. If they want transmission built, they’ll be able to get it built,” AWEA’s Swisher says. “We are thankful that PPM and AEP are excited about wind and in a position to drive some of the investment in transmission that needs to get built. In those areas, it will get built. In other areas, if the dominant utility does not get involved, it will not get done.”

And, of course, the construction of new transmission lines requires money. So AWEA is also launching an education effort to bring more US financial institutions into the wind financing game. “We now have long histories of good operating conditions. We are starting to dispel a lot of the negative rumours about the wind market,” Vensel explains. “Basically, we’re going to hand feed the financial market.”

With existing support mechanisms, AWEA projects that wind power will account for 6% of US power generation by 2020, or 100,000MW of capacity. “Wind is going to become cheaper over time. The technology has become more efficient each year by 5%. The other trend we see – concern about the environment – is not going to go away and that’s an advantage for wind.”

But, warns Swisher: “We will not continue our growth at the current rate without the infusion of new players and substantial new capital.” EF

[SUBSCRIBE](#) for the full story each month Updated Mon, 16 February 2004