

Global Power Report

February 12, 2009

Marketing arm of Russia's Gazprom wants to sell power in UK within next few months

Gazprom Marketing & Trading hopes to start supplying power to UK businesses and industrial customers within the next few months, a company spokesman said in an interview February 10.

The UK-based arm of Russia's Gazprom, which currently supplies natural gas to UK commercial users, applied last week to energy regulator Ofgem for a UK electricity supply license.

Ofgem is expected to give its consent by early May, when the company will enter into discussions with its customers and offer them an electricity deal.

Gazprom M&T spokesman Philip Dewhurst said the company was already gearing up to sell power from its retail operations office in Manchester.

It is in the process of purchasing the IT system of former independent supplier BizzEnergy, which collapsed in November 2008, citing the financial constraints imposed by the credit crunch and an industry dominated by energy majors.

"We're looking to acquire BizzEnergy's IT system, which will enable our traders to buy and sell power," Dewhurst said. "It's

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On top of other concerns, wind power industry has to contend with forecast underperformance

As if the wind power industry did not have enough problems — a scarcity of tax equity players and a dearth of willing lenders, to name two — the sector is also wrestling with the fact that wind farms have not been performing as well as previously estimated.

Studies by at least three different consulting firms have found that wind farms on average fall as much as 10% below expectations.

That may not seem like a big number when trying to predict how hard the wind might blow, but "it is a significant issue in terms of financial performance," said Steve Jones, head of investor services, energy assessments and data, with wind consulting firm DNV Global Energy Concepts Inc.

Jones declined to translate wind performance into financial terms, but he pointed out that project capital costs are the same whether a wind farm is producing at 100% or 90%. On the other hand, if a gas-fired power plant is not dispatched, the owner at least does not have to pay fuel charges. But for a wind farm, the "cost" of the wind is based on performance forecasts that are built into the project's financial structure.

Equally important is the effect skepticism about the accuracy of wind power performance projections could have on the market. Increased uncertainty could trigger higher hurdle rates

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Brazil's energy minister says the country needs to add 50,000 MW over next decade

Brazil needs to install more than 50,000 MW of capacity during the next 10 years, implying major challenges for the country's electricity industry, Energy and Mines Minister Edison Lobao said February 6.

Presenting the government's 2008-2017 Energy Expansion Plan, the minister said the country needs to add the extra capacity to keep the economy expanding at the 5% rate seen in recent years and to cover an estimated population increase of 15.5 million people.

"Brazil cannot stop growing and developing for the lack of energy," Labao noted.

The expansion in installed capacity will cost an estimated *Real* 181 billion (\$75 billion), according to Mauricio Tolmasquim, head of the government's energy research unit, Empresa de Pesquisa Energética.

The next decade is likely to see a sharp rise in the addition of thermal power plants and a fall in the addition of hydroelectric plants. Hydro's share of the country's total installed capacity is expected to fall to 75% by 2017 from 85% in 2007. Much of the

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new thermoelectric power has already been contracted through recent electricity tender offers.

Of the 38,000 MW yet to be contracted, just 2.5%, or 900 MW, will come from fossil fuel-fired generation, noted Tolmasquim, with hydropower and renewable energy sources providing the remainder.

Meanwhile, the rise of thermoelectric generation will make an increase in Brazil's carbon footprint inevitable.

"Brazil has the world's cleanest energy, a point of pride for all of us ... But we all know how difficult it is to make better use of the country's hydroelectric potential," the minister said.

Some of these emissions will be offset by bringing isolated communities that are currently dependent on oil-fired generation into the national grid, which would reduce around 52 million tons of carbon dioxide, and the construction of gas-fired power plants, as new gas pipelines are built, he added.

He said around half of the *Real* 142 billion (\$63 billion) approved in the last round of the government's accelerated growth program would be spent in the energy sector. — *Tom Azzopardi*

Russia's Gazprom wants to sell electricity in the UK in the coming months ... from page 1

been our ambition to enter the power market for some time, and we're doing it organically."

Dewhurst said the company currently employs a team of about 30 retail specialists up in Manchester, but would be looking to add power specialists to the team shortly.

"We'll get the license first, then start marketing to our

customers. We hope to start supplying power in the next few months," Dewhurst said.

Supplying electricity to business customers marks a change of strategy for the company, which currently only operates in the UK's wholesale, rather than the retail, power market.

The company, which is based in Kingston-upon-Thames, Surrey, has grown rapidly over the past two years in the UK commercial gas market, now boasting 14,000 customers in the UK and Ireland, or about 4% of market share.

It entered the UK business supply gas market in 2006, when it bought a small supplier called Pennine Natural Gas and has been growing its business organically since then.

Gazprom has long declared its intention to enter European power markets. The company already has signed memoranda of understanding for joint ventures to build two new natural gas-fired combined-cycle turbine plants in Germany. It does not have any electricity generation in the UK. — *James Allen*

On top of other concerns, wind power sector has to deal with underperformance ... from page 1

for new equity investors, raising the overall costs of wind power projects.

Joshua Magee, senior analyst at Emerging Energy Research in Cambridge, Massachusetts, called the underperformance data "a troubling development," but noted that the wind power market is an evolving industry.

A banker at a large financial institution active in financing wind projects, who requested anonymity, said that the debt portion of the wind power deal is usually structured to take into account variations in wind performance. In addition, he said, lenders are less concerned about underperformance because debt

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is paid first and is less sensitive to variations in top line revenue. For those reasons, he said that the underperformance of wind projects is much more of an issue for providers of tax equity.

Tax equity usually is set at a fixed rate, but the payouts, including the tax credits, are determined by the actual energy production of a wind farm. So if a wind farm is not performing up to expectations, the tax equity partner might not get a lesser return, but he could take longer for the tax equity partner to earn out his full return, which would eat into the returns available for the project sponsor.

Most wind farms in the United States are financed using a structure known as a “partnership flip.” The structure was devised to make use of the tax credits that wind farms receive but that many sponsors cannot use because they do not generate enough taxable income. To solve that problem, a financial intermediary takes an equity stake in the project, which entitles the intermediary to the tax credits. When the 10-year life of the tax credit expires, the structure “flips” with the sponsor taking ownership of the project. But the economic crisis has reduced many companies’ taxable income and has decimated the ranks of institutions that structure tax equity deals.

Over the past couple of years, several equity partners have raised the performance issue at various industry meetings, said Eric White, head of the engineering department at wind forecasting firm AWS Truewind.

White and others in the industry said John Eber, a managing director at JP Morgan Capital, has been one of the most vocal critics of wind underperformance, calling it the top issue facing the industry at one forum, said White.

Eber declined to comment on the wind performance issue, and a JP Morgan spokesman did not respond to repeated requests for comment.

Linda Crothers, president of Banc of America Public Capital Corp., noted that although BofA is a relative newcomer to the wind power tax equity market, she has seen a shift toward a more conservative approach on the part of tax equity. “We take a conservative approach,” she said. “We assume a P75 level of production” rather than the P50 standard that many bankers have tended to use.

P50 is a reference to a commonly used measure of how often a given wind project will meet target performance. A P50 project will meet its performance target 50% of the time. In other words, it has a 50% chance of meeting — or missing — performance targets. A P75 assessment would be more conservative, indicating that a project has 75% chance of meeting its performance targets, while a P25 project would have a 25% chance of meeting its performance targets.

Crothers says tax equity partners are now tending to take a

less aggressive approach to funding wind projects by using a P70 or P75 level of production.

In a paper presented last June at a conference in Houston, Jones of GEC concluded that “As a whole, the wind power industry has tended to over-estimate energy generation by wind power projects.” The reasons, he said, vary from project to project and are attributable to a combination of factors.

A Garrad Hassan analysis from the same period said that underperformance of about 10% is “typical and prevalent across the industry.”

While all three firms have different combinations of reasons for the shortfall, they all agree on one significant source of deviation: availability.

In an e-mail response to questions, Clint Johnson, vice president of the US energy group at Garrad Hassan, said that a significant proportion of the observed results was caused by “deteriorating levels of wind farm availability being achieved by US projects.”

“Wind farm availability levels in the US are now materially lower than those which are routinely being achieved in Europe,” he wrote.

As a result, Johnson, while steering clear of grand generalizations, said he is predicting slightly lower net capacity factors on average. And, based on that, “developers should take our recommendations on board and make similar revisions to their own assumptions,” he wrote.

Steve Jones of GEC, in his paper, wrote that while many facilities achieved 95%, 97%, or 98% availability, the majority fell short of these assumptions. The mean value was 93%, with a median of 94%.

The simple reason why availability is lower than predicted is that things break. As Jones explained in an interview, a typical problem is that a gear box on a wind turbine breaks, and there is no crane available to fix it, or the ground is too wet to support the crane. Project owners also face a dilemma regarding spare parts. Should they stock parts or should they use them to build more projects? In addition, “Service has been a challenge,” said Jones.

Michael Goggin, electric industry analyst at the American Wind Energy Association, said that turbine downtime has been estimated to account for about half of total underperformance. He noted, however, that the reliability of wind turbine components continues to improve, while the amount of time needed to repair a turbine is likely to decrease as the industry grows and more turbine maintenance professionals and replacement turbine parts become available.

He also noted that the largest performance shortfalls tend to occur in the first year of wind plant operations, so this should not be a lingering concern over the 20-year or longer life of a wind plant.

General Electric, one of the larger suppliers of wind turbines, with 12,000 1.5-MW units installed globally, says it has invested \$800 million since 2002 to improve its technology, which has resulted in increasing the capacity factor and reliability of its 1.5-MW fleet by nine to 12 points.

“GE works closely with consultants and customers throughout the project planning process to ensure accurate and consistent

Quote of the week

“They don’t have my vote on this. ... I’m going to be fiercely arguing for another approach.” — Senator Mary Landrieu, a Louisiana Democrat, on a proposed national renewable energy standard, which is being opposed by states lacking wind and solar resources (see story, page 29).

assessments of wind plant performance,” said Thomas Rumsey, communications manager for GE’s power and water business.

Other factors that contribute to lower than expected performance include topographic effects and wake effects.

An example of a topographic effect is that an analyst might measure the wind by putting up meteorological towers at five locations — human nature being what it is, they would usually be put at an optimal location, such as a hill top — but when the wind farm is actually built all 100 wind turbines cannot occupy the five test sites, so performance can be less than what was measured at the optimal sites.

A wake effect, or wake loss, is the effect the “wash” from a spinning turbine has on a downwind turbine. Various computer models are used to estimate losses from wake effects, but as Jones noted, the results vary widely depending on atmospheric conditions and on actual real life conditions. In short, it is difficult to validate estimates of wake effects without having real world data and, even with real data, it can be difficult to apply the data consistently across locations with widely diverging conditions. As Jones said, “you don’t know until you build it.”

Part of the problem, according to the forecasters, is that it has been difficult to obtain actual field data that could be used to verify and adjust models. Aside from the fact wind farms have changed over the years — data from older wind farms, which are smaller and less sophisticated than today’s, is often not applicable to large, modern wind farms — owners and operators of wind farms have been reluctant to share data they often consider confidential and competitive.

To address these issues, the forecasters have been back testing their data and testing their assumptions to improve their models. They have also been seeking data, and cooperation, from wind farm owners. The forecasters are particularly interested in data from wind farms of similar size, technology and topography that have been operating for three to five years.

White of AWS says that he has been getting some cooperation from developers and operators who are willing to share their data. “It’s in their interest.” Overall, he says, “We understand about 6% of the 10% shortfall, and we hope to close that gap in the first half of this year.”

Before the credit crisis, these studies and issues were a great topic of conversation among tax equity parties, and investors were becoming more conservative, said Edwin Feo, a partner with Milbank, Tweed, Hadley & McCloy. But as the tax equity market continues to shrink, just finding investors at all is an issue. And, as a result of the credit crisis, terms have gone up on sponsors, and deals are now much more conservative. “So this issue has already been addressed, but under a different heading.”

“What will be interesting is when a recovery comes, what will be the effect, how will the data be taken into account?” he asked. — *Peter Maloney*

COMPANY NEWS

France’s GDF Suez, Spain’s Iberdrola form consortium to build nuclear plants in the UK

France’s GDF Suez and Spanish utility Iberdrola have formed a consortium to jointly develop nuclear plants in the UK, the companies said in a February 4 statement.

UK energy company Scottish and Southern Energy will be included in the consortium, and GDF Suez and Iberdrola “may consider additional partners,” they said. Iberdrola and SSE had already said they would work together on building reactors in the UK.

In March, the consortium plan to bid in an auction to buy land from the Nuclear Decommissioning Authority for siting a nuclear plant, the companies said.

The agreement represented a “50:50 industrial partnership,” GDF Suez and Iberdrola said. A source close to the deal said GDF Suez and Iberdrola would each hold a 40% stake in the consortium, while SSE would hold 20%. If other companies come on board, these stake amounts could change, but GDF and Iberdrola would retain an equal, highest stake in the consortium, he said.

GDF spokesman Antoine Lenoir said the company was in direct discussions with Iberdrola, but would not comment on whether the company planned any buyouts in the process.

GDF Suez operates nuclear plants in Belgium through its Electrabel subsidiary and Iberdrola owns shares in nuclear plants in Spain.

Last month, the French government said EDF would build a second EPR nuclear power plant at the Penly site in France, and that GDF Suez would participate in the project. GDF Suez said oil and gas major Total would also be involved.

Lenoir said GDF Suez’s nuclear plans in France were moving in parallel to its UK expansion plans, and the alliances are different.

“We have discussed with Total the project in France, so we will all work together with EDF for the French project, but that is another subject — in the UK, effectively, our partner is Iberdrola,” he said.

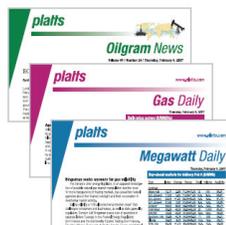
The UK offers GDF Suez a different area of expansion. It will face stiff competition, as EDF’s recent takeover of the UK’s nuclear generator British Energy sent clear signals that it plans a large fleet of new reactors and gives it access to prime nuclear build sites.

Centrica wants to be involved in new plants and European

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