

sourcing the tower directly from the tower manufacturer," says Holman.

"The question then becomes, what if there are changes made to the turbine sometime during its life: who is responsible for making sure the changes don't cause new harmonics or vibrations that exceed the specifications of the towers?"

DEVELOPMENT

Romania deal edges closer for Iberdrola

Heather O'Brien

The Eastern European expansion strategy of Iberdrola Renovables, the renewables unit of Spanish utility Iberdrola, gathered momentum as the wind giant received the go-ahead to connect 1.5GW in Romanian wind energy projects to the grid. The agreement reached in April with the Romanian transmission system operator Transelectrica is also significant for Romania's nascent wind energy market, which comprised just 14MW of installed capacity at the end of 2009 but should see its first major projects coming online this year.

Iberdrola's should begin construction this summer of its first Romanian wind project, an 80MW facility in Mihai Viteazu, using 2MW machines from Spanish manufacturer Gamesa. The Mihai Viteazu wind farm falls outside the new grid agreement and is expected to be commissioned in January 2011. Once the 110kV grid to which this facility is linked is reinforced, Mihai Viteazu may be expanded to 140MW.

The Mihai Viteazu project and the 50-plus wind farms covered in the 1.5GW grid connection agreement are the fruit of a 2008 partnership between Iberdrola and the developer Eolica Dobrogea, in which Eolica Dobrogea is responsible for developing and gaining construction permits for its roughly 1.6GW pipeline of Romanian projects. Iberdrola will build and operate the wind farms once it receives construction permission. Mihai Viteazu and all other projects are located in Dobrogea, the south-eastern Romanian region that is the country's hot spot for development.

All the 1.5GW of projects covered by the grid agreement are still awaiting final construction permits, although none of the projects faces authorisation difficulties, according to Christoph Kapp, president of Eolica Dobrogea and NEK. Kapp foresees the first 600MW of projects will receive permits by the end of this year, allowing construction to start in early 2011.

This first 600MW round of projects would be operational by 2012, according to the grid

connection implementation agreement reached with Transelectrica. An additional 600MW should be connected by about 2014-15, while the last 300MW would be connected to Romania's grid from 2015 onward, Kapp explains. Iberdrola says it plans to build these wind farms from 2011 to 2017; its investments for developing and constructing the 1.5GW in projects amount to about €2.2 billion, according to Eolica Dobrogea.

"The first 600MW of the total 1.5GW grid connection agreement can be done without major grid enforcement — little work is needed," says Kapp. "The remaining 900MW will instead require some grid enforcement."

How the required investments will be divided between Transelectrica and Iberdrola is a matter of negotiations, he says. All of the projects will be connected to the 400kV high-tension grid. Iberdrola says the 1.5GW portfolio of wind farms will allow it to generate enough electricity in Romania to supply nearly a million households and to curb yearly CO2 emissions by about 2.6 million tonnes.

High growth potential

"For Iberdrola, it's a huge step into the Eastern European market," says Kapp. Romania, where Iberdrola opened an office in Bucharest last year, accounts for about one-third of the Spanish firm's estimated 4.7GW project pipeline in the region. Iberdrola says its international strategy focuses on markets with favourable regulatory systems and high growth potential for wind.

Javier Suarez, an analyst with UniCredit, believes Eastern Europe represents the most interesting geographical area for Iberdrola Renovables. "These are countries that have grown little in wind, while Iberdrola has a fast-mover advantage, which means it can get the windiest and most profitable sites," he says.

In 2009, Iberdrola Renovables invested €100 million throughout eastern Europe. Iberdrola already operates four wind farms with combined capacity of 161MW in Poland and a 50MW wind farm in Hungary, and is now constructing an additional 24MW in Poland and 74MW in Hungary. Iberdrola says it is also working on projects in Estonia and Bulgaria. Further afield, it has also been taking wind measurements in Russia.

The European Bank for Reconstruction and Development (EBRD) is considering purchasing a 25% stake in Iberdrola's Romanian subsidiary. The EBRD has already shown its confidence in Iberdrola, after it purchased 25% stakes in both the Polish and Hungarian units of the Spanish company earlier this year, and a 25% stake in its Estonian unit in 2008.

In the meantime, Romania's wind energy market is expected to finally take off this year.

The Romanian Wind Energy Association expects Romania could see its cumulative installed wind capacity rise to more than 550MW by the end of 2010 as the country's first significant projects, including the 348 MW Fântânele wind farm being built by Czech utility CEZ, are set to come online.

TECHNOLOGY

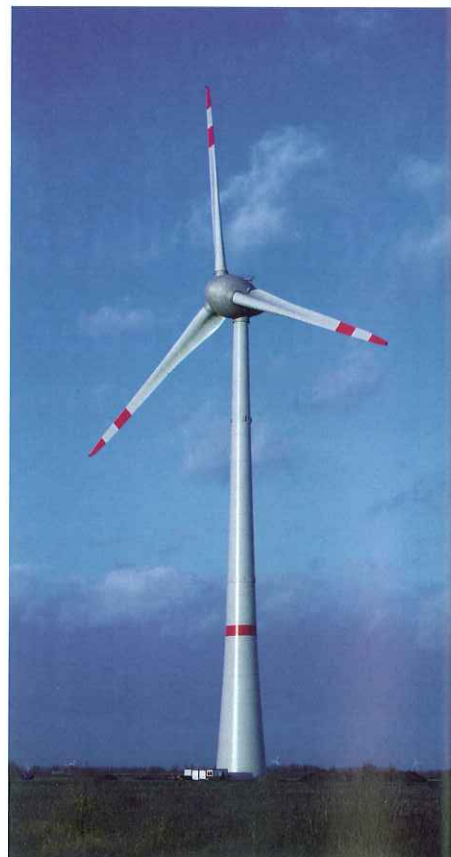
Supersize turbine spearheads rollout

Sara Knight

German turbine builder Enercon has upscaled its 6MW E-126 turbine to 7.5MW, it confirmed at the Hanover trade fair in April. This is the largest wind turbine type in the world.

It has already installed 15 of the giant machines, although it has not announced the development publicly. Some turbines are still a nominal 6MW as construction permits have to be adjusted to take account of the higher output. Enercon expects to install another 11 of the turbines in Germany this year. The most

(CONTINUED)



World's largest turbine The Enercon E-126 has a rating of 7.5MW