

Bulgaria's burgeoning wind market

Rob Whitford, Sofia

In Bulgaria, wind is in fashion. Not five years ago, the country's wind power industry was confined to a single, 150-kW turbine installed on a pig farm near Aitos in eastern Bulgaria by its notably eco-friendly owner. Today, installed capacity is still not significant with at present around 72 MW installed, mostly in the form of single turbines or small wind parks. That will rise to 107 MW by mid-year, with the commissioning of the 35-MW Kaliakra wind park in the northeast by a joint venture between local INOS-1 and Japan's Mitsubishi.

But the list of those working on projects, or with declared intentions, is impressive. There are the big power generalists, often already present in Bulgaria such as AES, Enel, or E.ON. Then there are the international wind specialists like Spain's Eolica Navarra, Denmark's Global Wind Power, Austria's Windkraft Simonsfeld, and Germany's ABO Wind. And then there are the "local heroes", some already with foreign partners, others developing projects independently, no doubt hoping to sell them on. "Bulgaria's wind scene is like the Klondike," says Velizar Kiriakov, president of the Association of Producers of Ecological Energy (APEE) and owner of local developer KAN. "Everyone's hoping to strike gold when foreigners with loads of money turn up!"

Great expectations

Figures are impressive too, though caution is indicated. At a recent APEE conference, Todor Todorov, responsible for grid assets at NEK, said his company had received requests from developers to connect 2,470 MW of wind power capacity to the national grid. Developers submit a request for a grid connection study to the grid operator NEK for projects over 5 MW and to regional distributors for projects of smaller capacity

That's impressive for a country with under 12,000 MW total installed capacity. And it's not relevant only to a distant future. Judging by investors' own declarations, almost two-thirds of it is planned to come on stream by the end of 2010, including around 700 MW in each of 2009 and 2010. And it would represent a good deal of electricity – rising from 380 GWh in 2008 to over 4.3 TWh in 2011, assuming annual average operation of 2,300 hours.

It's optimistic. Not all this capacity will actually be built: some schemes undoubtedly represent alternatives, tentative projects with grid applications "to be on the safe side", or marginal ones which won't find finance. This said, the figures – and the investors involved – still imply quite a pipeline.

A fair wind

Investors' interest in Bulgaria's burgeoning wind market is hardly surprising. In many respects conditions are auspicious for wind development.

Favorable wind: For a start, there are a number of regions where wind conditions are suitable for project development; most notably the country's northeast, its Black Sea coast generally, the Balkan Mountains, and the windy environs of Sliven in the southeast. "Bulgaria's wind resources are generally underestimated. They're not well surveyed, but are certainly stronger than they are perceived to be," says Ken Lefkowitz, the director of NECA, a Sofia-based M&A boutique keenly interested in renewables. "Unfortunately most developers we have seen have not invested in truly bankable wind measurement and wind resource assessment."

Investment incentives: Along with manufacturing and provision of high-tech services, "production of electricity from renewable sources" rates preferential treatment under current investment promotion law (as amended in mid-2007). Invest over Lev 70 million and you're a Class A investor; over Lev 45 million and it's Class B. If local unemployment's above the national average, both thresholds are lower. Class B investors are entitled to shortened waiting time for administrative services, relaxed requirements on land acquisition, and financial support for training young staff. Class A investors rate all that plus "individualized" administrative services and financial support for infrastructural construction. Lefkowitz is skeptical: "A Class A Investor certificate is a nice piece of paper to stick on the wall, but I haven't heard anyone raving about it." Maybe. But most big wind investors licensed so far have thought it worth applying for.

Stable, guaranteed offtake: Operators of wind parks that start to produce before end-2010 are well placed: as much power as they produce must legally be bought at preferential prices (see below) by NEK or the relevant "final supplier" (i.e. the unbundled supply component of the former discos). There are minor exceptions related to self-consumption and balancing energy contracts, but essentially it's a guaranteed market. And the obligation is embodied in 12-year contracts, so it's guaranteed for some while.

Compulsory connections: Moreover, the relevant grid company has no choice about connecting up wind parks. It must treat such connections as "priority". It must include financial provisions for relevant investments in its annual plans. It must respond within 90 days to requests for preliminary studies with a statement of proposed method and conditions. It must propose the shortest possible connection and ensure said connection is in place by the date when the investor says production will start. The investor is responsible for installations on its own property, typically including a substation. It must also reimburse the grid company for its expenses in building the connection (though in practice many investors prefer to do the job themselves). But it's the

grid company that must pay for any grid expansion or reinforcement necessitated.

Attractive prices: The preferential prices mentioned above mean there's none of the uncertainty connected with "green certificate" markets, as in Romania. And since they are fixed annually for all wind producers by the State Energy and Water Regulation Commission (SEWRC), notes Lefkowitz, there are none of the headaches associated with negotiating individual feed-in tariffs, as in Hungary.

Bulgaria's feed-in tariff has reasonable though not total visibility, says Lefkowitz, in that "it's set by administrative decision but within bounds that are narrow enough to give comfort as to what the tariff will be". It comprises two elements, base and premium. The base component is transparent, being 80% of last year's average end-user prices. And the premium component is based on SEWRC rate-of-return calculations – with the added reassurance it can't fall more than 5% year-on-year.

The upshot, at present, is a tariff of Lev 185.95/MWh for turbines working up to 2,250 full operating hours a year, and Lev 167.90/MWh above that limit – unless your turbines are under 800 kW, in which case it's a flat Lev 139.96/MWh. Which is "reasonably high", says Lefkowitz. "It's not as high as in Spain, for instance. And the way they calculate the premium element means you need a better than average rate of return to do well out of these prices. But they're high enough for good projects to be profitable."

Problems, problems

A pretty picture? Indeed, but there are negatives as well as positives:

Pricing perplexities: As noted above, wind parks that start producing by end-2010 are, under the renewables law, covered by 12-year contracts governed by current preferential price arrangements. What happens to those coming on stream after that isn't clear, except that said law obliges the Minister of Economy and Energy, "by 31 December 2011", submit a draft law to the government for a "market mechanism" to incentivize them. So those able to complete investments by end-2010 have good reason to hurry. Those that can't – and a big wind park typically takes four years from inception to start-up – face uncertainty, and may well delay investment decisions. So it's to be hoped that the minister acts much earlier than his deadline. But Kiriakov, for one, is not optimistic that there will be a decision soon. "This year we're waiting for a Brussels directive. Next year, we'll be waiting for Bulgarian parliamentary elections [due June 2009]. Maybe they'll get round to legislating in early 2010!"

Troubles with terrain: Land can be a problem, notes Lefkowitz. Getting your hands on it at all can be difficult: Bulgaria's variant of post-communist restitution fragmented landholdings greatly, and it still shows, so assembling enough of it for a wind park can take time. Getting it at a reasonable price can be even harder: "In areas which have wind potential (especially the

northeast), the word is out and farmers are asking very high prices. In the most bid-up places, land prices are as high as €3 per sq m, around 12 times higher than normal agricultural land in the same areas."

Permitting paper chase: Even once you have your land, says Lefkowitz, your troubles aren't over. Add together the Law on Territorial Planning, environmental permissions and (if your wind park is over 5 MW in capacity) SEWRC licensing requirements, and, all in all, "you'll need to have more than 30 different bits of paper, each signed and stamped by some public official." No wonder investors nowadays seem to prefer buying into a project where locals have already dealt with all or most of the permitting activities.

A deficit of developers: But climbing on board an existing project isn't without its problems either. "There are some professional developers around, notably German firms, but there aren't many. So projects will typically have big holes in them," says Lefkowitz. Often they will lack grid connections or adequate wind measurements, for instance. Generally, you should assume that you'll have to do things yourself, cautions Lefkowitz.

Act and omission: There's also a peculiarity of Bulgarian regulations that can cause delays if your turbine supplier isn't aware of it. Once built, a house in Bulgaria can't be put into use without the issue of "Act 16" – effectively, officials' confirmation that they've seen proof that everything is in order and has been done by properly qualified experts. Under current legislation, this applies to wind turbines as well as houses, and calls for documentation that isn't internationally standard and may not be understood by foreign suppliers – even quite distinguished ones! – unless it's explained.

More serious, however, are two other problems. One concerns the environment, while the other relates to the grid – and especially the concentration of wind capacity in the country's northeast.

Ruffled feathers

The environmental problem is that many of the places with the highest wind speeds are also ornithologically tricky. Important bird migration routes cross Bulgaria, including the Via Pontica on the Black Sea Coast, a corridor of varying width along which birds come down from Central and Eastern Europe, explains Irina Mateeva, EU Policy Officer at the Bulgarian Society for the Protection of Birds (BSPB). There's also the smaller Via Aristotelis, which follows the River Struma (Strymon) to the Aegean. Migration apart, some areas are important for breeding birds, especially raptors – for instance, the imperial eagle near Sliven (where geese also winter). Some areas along the Danube are also sensitive because of their water fowl populations, she adds.

All this has ruled out some schemes, or at least put them on hold. For instance, in 2004 Universum Energy announced plans for a park near Kavarna, one very

sensitive Via Pontica location. It's still the subject of an environmentally-based local court case. Further south, near Balchik, a scheme mooted by Tessa Energy around the same time provoked an international outcry and a Bern Convention filing. As a result, neither project has been started, though Mateeva reports that, last time she spoke to them, neither investor had definitively given up its plans.

It also means uncertainty for other projects. Notably the BSPB's least favorite wind park, that of INOS-1/Mitsubishi JV Kaliakra Wind Power (KWP). Apart from an SEWRC licence (2006), a First Class Investor Certificate (2006), and joint implementation finance from JBIC (2007), this got a favorable decision from the regional environmental inspectorate in 2005. When the BSPB appealed in the regional court, KWP an inspectorate decision allowing "preliminary implementation" – effectively, permission to go ahead and build while the case was pending. It's done just that, and – with the court case still unfinished – plans to start commercial production at mid-year. In response, the BSPB has filed a complaint with the European Commission, and fumes about of an "extremely poor" EIA and the "procedurally dubious" nature of the preliminary implementation ruling. "Construction just shouldn't have proceeded while there was a court case," complains Mateeva. "The project shouldn't be happening, but none of our institutions is stopping it."

This isn't the only project in the northeast about which the BSPB is complaining to Brussels. Nor its only gripe about Bulgarian institutions: the list of Natura-2000 protected sites approved by the government last autumn also has, from the environmentalists' standpoint, some important omissions (for instance, the site of AES' Kavarna project) and this list could still also be challenged in Brussels, she says.

So there's much uncertainty. On the bright side, the BSPB is always ready to give advice in advance (even if, Mateeva complains, Eolica's park at Suvorovo is the only major project in the northeast to be following BSPB recommendations "in most cases"). Also, notes Kiriakov, advances in wind turbine technology mean that there's more geographical flexibility: today there are turbines (for instance the V-90) that can operate in locations which don't have the highest wind speeds.

Pain in the NEK

Those investor-friendly rules for grid connections and the impressive pipeline of applications mentioned above might seem to bode well for wind power development. But there's another side to the argument, put with some passion by NEK's Todor Todorov at the recent APEE conference.

Proposed wind capacity is heavily concentrated in Bulgaria's northeast (chiefly the Balchik-Kavarna-Shabla and Ovcharovo-Krushari areas), which accounts for 2,220 MW of the 2,470 MW of grid connection requests received by NEK. The transmission grid in this

area just doesn't have the capacity so heavy spending on expansion and reconstruction will be needed, putting additional pressure on NEK's already strained finances. Money has been found for the five transmission line and substation projects NEK plans to build by end-2009. But projects to be implemented thereafter, and now in the planning stage, include around 320 km of transmission lines and six substation or transformer units. And it's an open question where the necessary Lev 175 million will come from.

NEK is also worried at the one-sidedness of the regulations. It has almost no legal grounds for refusing connection to a renewables-based power projects, nor for prioritizing between such projects, nor, since it's legally bound to prioritize RES-based projects, for giving priority to connecting even very important non-renewables project. And NEK faces penalties for non-compliance with all manner of deadlines and requirements.

By contrast, there's no procedure for penalizing investors, even though – Todorov's presentation suggested – some of them don't behave too well. Some fail to square the technical details of their equipment with NEK. Some change plans – or addresses – without notifying NEK. Some just withdraw from projects, or intend from the start to sell on the projects rather than actually implement them, making stated schedules irrelevant. Which leaves NEK with little basis for planning – and potentially with large resources tied up in investments that turn out to be premature or just unnecessary.

Finally, complained Todorov, NEK is required to give responses on a project-by-project basis, which he said doesn't make sense, and obstructs optimal overall solutions, given the regional factor and its implications for grid expansion. Similarly, a piecemeal approach is going to make it hard to integrate wind parks into the system of operational management by Territorial Dispatcher Units.

Well, a little skepticism is usually in order when players as big as NEK complain of victimization. But one doesn't need to accept all NEK's arguments to recognize two things. First, grid limitations could prove a constraint on wind power expansion. And second, if wind power is set to realize anything like its apparent potential, a lot of questions will have to be addressed.

This includes equitable distribution of the burden of preferential pricing and grid expansion once that burden has become more than marginal: NEK apart, E.ON, as disco owner in the northeast, stands to bear more than its fair share. Or such as limitation of wind farm output when the grid is overloaded. Or such as balancing generation capacity for times when the wind is weak: what sort should it be and who should pay for it? It remains to be seen how far wind power will succeed in Bulgaria. But even success would have its price.