The crisis has slowed the development of Ukrainian wind power. However, since the end of the consequences of the recession, most local analysts are confident in the ability of the country’s wind power sector to become one of the fastest growing industries in the CIS region and to overtake the Russian industry in terms of further development.

At present Ukraine ranks 37th in the global ranking of countries which use wind power. However, much can change in the near future, considering the current growth rates of the industry and the status of Ukraine as the only former Soviet Union and Eastern Europe state which has its own production of wind power equipment. Among these companies are Yuzhmash, Svit Vitru and WindElectric.

During the Soviet times, the government of the USSR paid inadequate attention to the development of wind power in Ukraine and, in fact, the only major wind farm in the country was Balaclava wind farm, located in the Karansky mountains on the Crimean Peninsula. However, thanks to the collapse of the Soviet Union and the economic growth which has been observed in Ukraine this century, interest in the development of wind power in the country has considerably increased. This is reflected by the fact that the Ukrainian wind power industry was recently included in the list of national projects in Ukraine, which are personally monitored by the President of the country.

The Ukrainian wind power industry is steadily developing, amid ever-growing interest from foreign investors and support from the state. The focus thereby is on the Crimean Peninsula.

Budding peninsula

Good geographical conditions have also contributed to the development of wind power in Ukraine. According to the National Academy of Sciences of Ukraine, the current wind power potential of the country is estimated at 30,000 GWh of electricity per year.

The most promising regions for the development of wind power are the western and eastern parts of the Crimean Peninsula (which are located along the Black Sea and Azov Sea coasts), as well as the Zaporozhye, Donetsk, Kherson, Mykolaiv and Odessa regions. The total area of land suitable for the construction of wind power facilities is estimated at 8,000 to 9,000 km².

Even much larger areas suitable for the construction of wind farms are located in the offshore and inland water areas of Ukraine. For example, the area of ice-free Sivash bay alone is 2,700 km². In addition to Sivash, large water areas with good wind energy potential are located on the Azov Sea (60,000 km²), on the Black Sea (Odessa Sand Bank, with an area of 10,000 km², Karkinitsky Bay, 25,000 km²) as well as on the coastal basins and reservoirs of the Dnieper hydroelectric power chain (8,000 km²). Basically, Ukraine ranks as the world’s second country after Norway in terms of shallow water areas suitable for the construction of water-based wind farms.

Novoazovskaya wind farm is the largest project, which involves the participation of foreign investors. Fuhrländer is currently installing 43 wind turbines with a unit capacity of 2.5 MW.
The Crimean Peninsula has the largest wind energy potential in Ukraine. According to Nikita Konstantinov, Deputy Minister of Fuel and Energy of Ukraine, the total potential capacity of Crimean wind farms may reach 10 GW in the future. According to recent predictions by the Ukrainian Institute of Renewable Energy, the total capacity of wind farms in the country is expected to reach 16 GW by 2030, compared to the current 112.5 MW.

**Own way**

One of the reasons for the currently insignificant amount of wind power capacities in Ukraine could be closely related to the industry’s own specific path of development which has been observed in recent years. In contrast to the EU states and the US, where the development of wind energy industries was stimulated by the introduction of preferential tariffs for the purchase of wind power, the Ukrainian government has paid more attention to funding the production of wind turbines and the construction of wind farms.

As a result, at the beginning of the 1990s nearly UAH 500 million (US$ 62.5 million), which were invested in the domestic production of 170 units of low-power, outdated USW 56-100 wind turbines with a unit capacity of 107.5 kW, were wasted. The turbines were manufactured under the license of the US Kennetich Wind Power company and were originally designed in 1970 for the uniquely high wind power potential of California.

However, in 2008 the situation in the industry significantly improved, thanks to the introduction of a green tariff. According to this, wholesale electricity companies had to buy electricity generated from wind power at a price 2.1 times higher than for electricity generated from traditional sources.

Moreover, in addition to the green tariff, the Ukrainian government decided to abolish customs duties and VAT on imports of wind and solar equipment into Ukraine, along with energy-saving materials.

**Good prospects with high hurdles**

Back to the green tariff: it was set until January 1st 2014 even 50 %. According to Ukrainian analysts, such a requirement poses a serious barrier to the entry of foreign investors into the Ukrainian market, taking into account the fact that Ukraine currently experiences a lack of existing competitive companies producing modern wind turbines.

Andrew Konechenkov, Chairman of the Ukrainian Wind Energy Association, comments: “Currently Ukraine does not have suitable wind energy equipment of its own production. In this regard, such a requirement will prevent an active expansion of major turbine manufacturers in our market. In order to resolve this issue, we are currently lobbying for a suspension of the introduction of such a requirement until 2014, or at least reducing it up to 10 %.”

A low efficiency of many projects, as well as an excessive bureaucracy, associated with the need to obtain all necessary state approvals for the implementation of wind energy projects, could be considered as major problems of the Ukrainian wind power industry. There is also a problem with the lack of so-called “balancing” capacities for the connection of wind farms to integrated power systems. According to various estimates, at present it is possible to connect no more than 6 GW of installed capacity to the Ukrainian electric power system without any risk of damage. This covers about 10 % of all electricity generated in the country.

**Big steps**

As of December 31st 2010, according to “Ukrenergo”, Ukraine’s leading energy company, 39 wind power projects with a total capacity of 14 GW were declared for implementation in Ukraine. However, there is no guarantee that they will all finally be implemented. Most of them are currently at a pre-development stage.

The largest project, which involves the participation of foreign investors, in particular German Fuhrländer AG, is being implemented on the Azov Sea coast in the Donetsk region. For the construction of the Novoazovsky wind farm Fuhrländer has received permission from the Ukrainian government to import 23 wind power plants worth € 77.7 million without paying duties and VAT. The project is being implemented by the local company “Wind parks in Ukraine”, which also operates the wind farms Ochakovo and Berezenski.

On July 11th 2011 the first 10 wind turbines of the Novoazovsky wind farm were installed. The total capacity of the project is expected to reach 107.5 MW. In total, 43 wind turbines with a unit capacity of 2.5 MW will be erected. The project is expected to be completed by 2014. If everything goes ahead, the Novoazovsky Wind Farm may become the largest wind park in Ukraine, being able to sell up to 75 million kWh of power under the favourable green tariff.

The construction of the Ochakovo Wind Farm, with a planned capacity of 25 MW (10 wind turbines at 2.5 MW each) could be considered as another major
project of the Ukrainian wind power industry. As in the case of Novoazovsky, all the wind turbines for Ochakovo will be supplied by Fuhrländer. The total cost of the project is estimated at UAH 380 million (US$ 47.5 million) and the payback period is 7 years.

In addition to these major industry projects there are also plans by DTEK, the largest privately owned energy company in Ukraine, to invest UAH 23 billion (US$ 2.87 billion) in the construction of several wind farms along the coast of the Azov Sea with a total capacity of 1,200 MW. One of these projects will be implemented in the Zaporozhye region and involve the construction of Botievskaya wind farm with a capacity of 200 MW. It is scheduled for implementation starting in late 2012. By 2015 it should produce 683 GWh of electricity annually. Another DTEK project will involve the construction of a set of wind farms in the Donetsk region with an installed capacity of 700 MW.

In addition to these projects, the Ukrainian media regularly reports on the plans of other investors and in particular European ones to invest in the construction of wind farms in Ukraine. However, in most cases, they are not officially confirmed. Konechenkov comments: “Many companies announce their investment plans, but just as designers, who come here just to prepare project documentation. Foreign investors find it very difficult to enter the Ukrainian market. And therefore it’s currently impossible to say that there are a lot of investors wanting to invest in the Ukrainian wind power industry.”

Small steps

Indeed, for smaller projects no foreign investors are needed. To date, small wind turbines in Ukraine are mainly used as stand-alone back-up systems for supplying electricity. There is also an ever-growing demand for the establishment of sets of small wind farms, which can produce industrial amounts of electricity with a nominal total capacity of 100 to 300 kW.

According to data of the Ukrainian Wind Energy Association, since 1990 around 1,440 wind turbines, each with the capacity of up to 10 kW, have been installed in the country. The total installed capacity of low power wind turbines reaches 12 MW, which is 13 % of the total installed capacity of all wind turbines installed in Ukraine. Last year over 270 wind turbines with a capacity in the range of 300 W to 20 kW were installed in Ukraine.

Most experts predict rosy prospects for the Ukrainian wind power industry in the future, thanks to ever-growing demand for wind power among investors, the local state and the population. As for local consumers, most of them prefer to install small wind plants with a capacity of 1 to 2 kW and priced at US$ 5,000 to 10,000, due to a lack of centralized power supplies and in order to protect themselves from energy supply disruptions.

According to Oleg Kutyrkin, a well-known Ukrainian expert in the field of wind power, Ukrainian wind power will remain promising for foreign investors, mainly due to the state’s plans to increase the share of alternative energy sources up to 15 % of the total energy balance, the bulk of which will come from wind power.

The biggest hopes are associated with the Crimean region, where companies such as Konkord Group and Filasa International have already operated. This year the construction of 4 wind farms has already begun in the Crimea, among which are the West-Crimean wind farm in the Black Sea region, Kazantipskaya windfarm in the Leninskiy district of the region, Turgenev wind farm in the Belogorskiy area and the Bakhchisarai wind farm.

Eugene Gerden

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