



BULLETIN

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Unused Potential: Renewable Energy Sources in Ukraine

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The crisis in the East of Europe has highlighted a number of weaknesses of the Ukrainian energy sector: excessive dependence on Russia, grid instability, economic inefficiency and lack of flexibility. Paradoxically, renewable energy sources, discussed until recently in terms of unnecessary luxury, can become part of the solution of the Ukrainian energy equation. Increasing the share of renewable energy will translate into an increase in Ukraine's energy security, which is also in the interests of Poland and the European Union.

Favourable Conditions. Ukraine has a huge technical potential for renewable energy sources (RES), although the ongoing conflict weakens it significantly. According to the European Bank for Reconstruction and Development, wind energy potential in Ukraine may amount to 40 TWh/year (compared with current total electricity production of around 200 TWh/year), thanks to an average wind speed of 7 m/s. The greatest prospects for wind energy are in the regions adjacent to the Black Sea and the Azov Sea, as well as the Carpathian regions. The photovoltaic market is relatively new, but equally promising. The average annual insolation amounts to 1200 kWh/m², more than the European solar leader, Germany (1055 kWh/m²). The most sunlit parts of the country are the extreme northern and southern regions. Solar energy can be used to produce both electricity and thermal energy, with a potential of 5.6 TWh/year, and 32.5 TWh/year for these respectively. The possibilities of using geothermal resources are significant (mainly in district heating and agriculture), expected to reach 97 TWh/year. So far used mainly in Crimea, geothermal sources are likely to develop in the Transcarpathian region too. The relatively low number of rivers in Ukraine (22,000, of which only around 100 are longer than 100 kilometres) means that, even after investment in new plants and modernisation of the existing 150 small and micro power plants, hydroenergy production might amount to 8 TWh/year (compared to 12 TWh/year in Poland). Given the size of the agricultural sector, including unused arable land in the country, there is significant potential for the production of biomass and biogas, estimated at around 120 TWh/year (similar to Poland). It is estimated that almost 9 bln m³ of gas per year can be replaced by alternative energy sources.

Imperfect Incentives. The existing potential gave rise to expectations of a fast technological leap and the rapid development of renewable energy portfolio in Ukraine. In 2011, the country was ranked 32 (before Austria, the Czech Republic and Bulgaria) in Ernst & Young's Renewable Energy Country Attractive Index. A major contribution to this was undoubtedly the developed, though imperfect, legislation aimed at implementation of the 2006 Energy Strategy, which aims to provide 19% of energy production from renewable sources by 2030 (11% by 2020, according to last government guidelines). The most important incentive for investors, the so-called green tariff, was introduced in Ukraine in 2009. It assumes guaranteed subsidies for the production of electricity from wind, solar, small hydro (up to 10MW), biomass and biogas (from 2013), established by the National Electricity Regulatory Commission of Ukraine (NERC). There is an obligation for the state to provide access to the network, and to purchase all electricity covered by these guarantees. The Ukrainian green tariff, one of the highest in Europe, was further accompanied by a system of incentives and tax benefits, including exemption from VAT and import duties for RES components, reduction in property tax and rent, and more. Despite these encouragements, investors face a number of barriers. The green tariff is selective: for some RES it is determined case by case by the NERC (for example, waste from households), for others is not even foreseen (such as for hydroelectric plants above 10MW). The investment risk is increased by the

fact that the regulator determines the tariff for each individual project, and does so only after its completion. The long and complicated process of obtaining permits and licences for the production of electricity from RES also constitutes an obstacle for investors.

Shady Competition. Officially, the share of RES in the total energy supply is still very low (depending on the source of information, from 1% to 4%), but the number of companies involved in RES development is constantly increasing. It is an open secret that Ukrainian oligarchs have an important impact on the renewable energy sector. The two largest companies in the field have links with influential millionaires (Activ Solar with brothers Sergei and Andrei Kluiev, and DTEK with Rinat Akhmetov). Reportedly, the oligarchs, afraid of losing their dominant position, inspired the government to set up barriers to entry onto the RES market and introduced the controversial requirement that a 50% of components used in installations aspiring to the green tariff must be of Ukrainian origin. Furthermore, the very generous support (up to €0.45 per kWh, compared to €0.12 to €0.13 in Spain and Germany) further increased prices and required even more subsidies for electricity. Hence, RES were perceived as an unnecessary luxury for Ukraine. However, the low level of experience of local businesses in the field of RES, and the market's absorption capacity, mean that foreign investors are trying to circumvent the requirements of the "local content" and open offices in Ukraine, form joint ventures, or repurchase projects from less experienced Ukrainian companies. It is still too early to talk about their success, as many of the plants are still in their initial stages. Nevertheless, the RES sector is popular among companies from China, Germany, France, Portugal, and Austria. Big Polish companies, such as Kulczyk Holding, are also willing to invest in Ukraine, while smaller ones fill market niches. At the time of writing, more than 100 Ukrainian and foreign companies that manage nearly 200 generation units were registered by the Ukrainian regulator.

Necessary Investments. RES utilisation is decreased due to the inefficient and outdated transmission network. Neither is there any clarity as to the RES capacity that can be safely connected to the grid. Ukrainians are aware that they have to modernise power lines and are taking the appropriate steps to remedy this. Development of RES and the accompanying measures to improve the energy system are supported in part by the national budget, although most capital comes from foreign investment funds. Until recently, many subsidies and loans for the implementation of private projects were provided by Russian banks. The largest financial investor in Ukraine is, however, the EBRD, which has already allocated €140 million for the development of the renewable energy sector and infrastructure. Also, the IMF and the UNIDO-GEF supported Ukraine with loans aimed at attracting investors to the sector and the promotion of renewable energy sources. Recently, USAID launched a programme designed to help 17 municipalities to reform their energy management schemes, increase efficiency, and develop RES. However, this is still not enough. In order to increase the share of RES in energy production up to 11%, Ukraine needs to invest around €15 billion.

Crisis Limitations. In response to the crisis, the Ukrainian government has recently established a state of emergency in the energy sector and has taken special measures to maintain control over energy consumption. In late February, it declared the green tariff reduction of 55% for solar power plants and 50% for other alternative energy sources, and earlier it cancelled the tax exemptions for components of renewable energy installations. Considering the fact that the growth of RES is closely linked with the existing (yet unrealistically ambitious) support mechanisms, extraordinary measures taken recently by Kyiv have provoked a significant reduction in the profitability of investments. Although the government says it wants to make use of all possibilities, including RES, in order to become independent of energy supplies from Russia, and despite promises of financial support for the use of renewables (for example, subsidies for the purchase of boilers for alternative fuels), the emerging RES sector will suffer severely. Moreover, in the manual energy management mode, one can expect further restrictions to RES development, since priority will be given to other energy sources. The situation is exacerbated by the fact that the ongoing war has led to the suspension of many planned projects, several RES installations were destroyed, and the largest, located in Crimea, were nationalised by Russia.

Indispensable Support. Strengthening the RES sector is of strategic importance both for Ukraine's energy security and for its aspirations of joining the Energy Community. In addition to climate protection, and taking into account the significant share of nuclear energy in Ukraine's energy mix (and plans for its further development), renewables can constitute an answer for energy demand at peak load. They can also decrease the role of Russian gas. However, it is necessary for Ukraine to change the approach to RES management. The RES projects implemented in Ukraine are mostly one-time, not systemic, which interferes with the consistency of the newly emerging sector. The solution may be to consolidate the experience of local businesses and to better coordinate work on the further development of renewable energy in Ukraine. What is more, renewable energy should be used by the government to increase the flexibility of the entire energy sector, although this has until recently been considered too expensive and, due to the small share of electricity produced by RES, of least importance. In view of the enormous costs incurred by the country linked to the adjustment of the energy sector to the state of emergency, the inclusion of RES in the strategy is reasonable, and, in the long run, also profitable.