In order to follow “green” trends in world energy and secure the energy dependence, Ukraine is forced to focus on reform of the energy market in general and development of hydropower potentials in particular.

According to the “Energy balance of Ukraine in 2013” prepared by the State Statistics Service, the share of renewable energy sources (RES) accounted for 2.7% of total primary energy supply, while hydropower provided 91.7% of all renewable energy sources. At the end of 2014, State Statistics Committee of Ukraine published the following figures: the share of renewable energy increased to 5.88%, HPPs accounts for 86.9%. The total hydropower energy system is only 5.1%.

The plans of Ukraine till 2030 is to increase the share of hydropower up to 15-17%, “- says the vice-president of the Association” Ukrhydroenergo “Alexander Karamushka.

Large hydropower
The basis for this plan is development of a large hydropower complex which Ukraine can make with hydroelectric and pumped storage, located on the Dnieper and Dniester rivers, and Tashlykskaya HPP on the Southern Bug River. Their total capacity at the end of 2014, according to the association Ukrhydroenergo is 5693.8 MW.

“Energy Strategy of Ukraine for the period till 2030” aims at the development of economically and environmentally sound hydropower potential of the country. Increased electricity production will be achieved through the construction of hydroelectric power stations of Dnieper river cascade primarily Kaniv HPP, Kakhovka HPP-2, completion of the second stage of the Dniester HPP.

The next step – a large-scale modernization of the Dnieper and Dniester HPPs. According to Alexander Karamushka, “rehabilitation of all equipment will extend the life of hydropower plants for at least fifty years” and will increase the total installed capacity of 245 MW.

With regard to capital construction, the highly important might be Kaniv HPP. One of the largest infrastructural projects of the country is extremely important from a technical, economic and social points of view.

Expert mission of EBRD, World Bank, European Investment Bank and the German bank KfW, who worked at the end of March in Kiev in preparation for the project, has confirmed its intention to secure availability of financial participation in construction.

This gives hope that later this year will begin the project with a 30-year-old pre-history (the work started in 1984 and were suspended after the collapse of the USSR). Complete construction of Kanev HPP pumped storage power plant is planned in 6.5 years. The total capacity of the four units will be 1000 MW.

Small hydro
Current capacity of small-scale hydropower is about 75 MW. Due to the small share in the total energy mix small hydropower plants today cannot influence the structure of energy supply of the country. However, the natural potential resources of small rivers, particularly...
in the western regions of the country today are not fully implemented. Its use would achieve savings of energy resources, will contribute to the decentralization of the overall system, which is able to solve problems in the power supply of remote and inaccessible regions of the Western Ukraine, and for some areas of Chernivtsi and Transcarpathian regions will be a source of complete energy supply.

According to the National Action Plan on renewable energy up to 2020, which is designed in accordance with the Directive of the European Parliament, Ukraine can ensure the production of electricity from small HPPs to 130 GW / h (total capacity of 55 MW), small hydro power plants – up to 210 GW / h (total capacity 95 MW). The implementation of the plan is not possible without modernization of existing facilities, restoring previously worked and building new ones.

In the middle of the last century on the territory of Ukraine were about thousands of small hydropower plants. By the end of the century, the degradation of small hydropower has led to the fact that the operation was up to fifty hydropower plants. Today, according to “Ukrhydroenergo”, the country has 98 small hydropower plants.

For example, Sednev HPP was commissioned in 1955 and abandoned in the early 80s, renewed in 1999 HPP by “Chernigivoblenergo.” Its capacity of 235 kW allows to generate about 900 thousand KWh of electricity per year.

“There are incentives and the potential is huge, but a small hydropower plants should be developed not only for electricity generation, but above all for infrastructure development of the western regions of the country. This should be the policy of the state”, – said Karamushka.

With all the advantages and relative environmental friendliness of small hydropower plants, encouraging the construction in violation of the rule of law has led to an ambiguous perception of the general public. This underlines the need for a holistic approach, a thorough consultation process and good governance.

Thus, despite all the constraints (the need for significant investment, the negative attitude of society, regular change of officials), on the development of large and small-scale hydropower government has high hopes. And if the full energy independence of Ukraine’s industry is unlikely to materially affect, the electricity supply for the domestic market is there.

Ultimately, the planned development of the sector will increase the share of energy from renewable sources, will contribute towards energy independence of the country and optimize the structure of the fuel and energy balance of Ukraine, reducing the use of traditional sources.