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THE USED OF RENEWABLE ENERGY AS EDUCATIONAL SPACE DEVELOPMENT TREND

Renewables are now cost-competitive with fossil fuels in many markets and are established around the world as mainstream sources of energy. Renewable power generating capacity saw its largest increase ever. Modern renewable heat capacity also continued to rise, and renewables use expanded in the transport sector. Distributed renewable energy is advancing rapidly to close the gap between the energy haves and have-nots [1, p.7].

According the renewable energy policy network for the 21st century (REN-21), renewables are now established around the world as mainstream sources of energy. Rapid growth, particularly in the power sector, is driven by several factors, including the improving cost-competiveness of renewable technologies, dedicated policy initiatives, better access to financing, energy security and environmental concerns, growing demand for energy in developing and emerging economies, and the need for access to modern energy. Consequently, new markets for both centralized and distributed renewable energy are emerging in all regions [1, p.17].

By the end of 2015, the top countries for total installed renewable electric capacity continued to be China, the United States, Brazil, Germany and Canada. China was home to more than one-quarter of the world's renewable power capacity – totaling approximately 495 GW, including about 296 GW of hydropower. Considering only non-hydro capacity, the top countries were China, the United States and Germany; they were followed by Japan, India, Italy and Spain (see Figure 1). Among the world's top 20 countries for non-hydro renewable power capacity, those with the highest capacity amounts per inhabitant were Denmark, Germany, Sweden, Spain and Portugal [1, p.33].

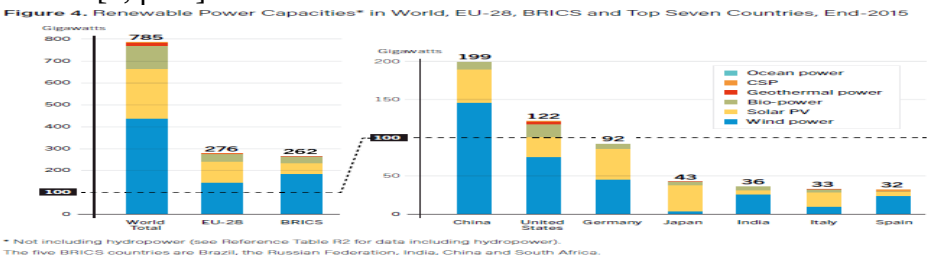

Figure 1 – Renewable Power Capacities in World, EU-28 (European Union), BRICS (Brazil, the Russian Federation, India, China and South Africa) and Top Seven Countries, End-2015 (not including hydropower)

The questions of energy efficiency and energy independence have become very topical in Ukraine in recent years. Increasing the cost of imported energy, the instability of the national currency and the policy of energy is currently the main factors that require decision making.

The structure of the renewable energy capacity of Ukraine as of December 2015 is presented in Figure 2 [2].

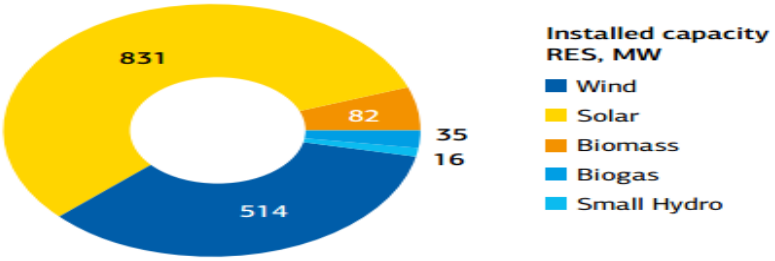

Figure 2 –Installed Renewable Energy Capacities of Ukraine

The total installed capacity of electric stations of Ukraine on December 2015 amounted to 54,892 MW, of which 2,7% came from power stations working on renewable energy sources.

In January and February 2016 the most significant contribution to the production of ecologically clean renewable energy in Ukraine are made by manufacturers in the wind power plants. In total they managed to generate 178 million kWh (63%) of the summary 284 million kWh (at 200 million kWh for the same period of 2015), indicating a significant potential of this type of renewable energy sources in Ukraine, which, however, is not always fully utilized [3]. Positive results showed bio-energy sector, which in the 1st quarter of 2016 produced 35 million kWh, compared with 30 million kWh for the same period of 2015. Development of small hydro power plants, compared to the previous year, on the contrary decreased from 66 million kWh in 2015 to almost 60 in 2016.

Thus, the potential of renewables is enormous. Renewable energy provided an estimated 19,2% of global final energy consumption in 2014, and growth in capacity and generation continued in 2015. An estimated 147 gigawatts (GW) of renewable power capacity was added in 2015, the largest annual increase ever, while renewable heat capacity increased by around 38 gigawattsthermal (GWth), and total biofuels production also rose. This growth occurred despite tumbling global prices for all fossil fuels, ongoing fossil fuel subsidies and other challenges facing renewables, including the integration of rising shares of renewable generation, policy and political instability, regulatory barriers and fiscal constraints.

However, to accelerate the transition to a healthier, more secure and climate-safe future, we need to build a smarter, more flexible system that maximises the use of variable sources of renewable energy and that accommodates both centralised and decentralised as well as community-based generation.

According to the D / 2012/04 / MC-EnC Ukraine undertook to 2020 to reach the level of 11 percent of the energy produced from renewable energy in the total energy consumption of the country. Therefore, the basic ways of development of the market of renewable energy is:

• support for technological and energy startups;
• transfer of innovative technologies;
• cultivating professionals for the industry;
•educational programs (participation in technological competitions, opening hubs, laboratories at the technical universities, support for educational projects);
• equipment production in Ukraine;
• the creation of favorable conditions for attracting investments;
• the social program for energy consumers [4, p.37].

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