

RENEWABLES IN UKRAINE

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The future of Ukraine is in renewable energy. At the moment there is a so-called "energy blackmail". This is one of the elements of Russia waging war against Ukraine. The main purpose of this blackmail is to make as many countries as possible complicit in this war by selling oil and gas. So far, this scheme has not succeeded, but only accelerated the transition of all civilized countries to alternative energy. Ukraine can partially replace Russian fuel and transfer its "green" electricity, which have been rapidly developing in the country over the past few years and has a big potential, to European leaders.

The main goal of renewable energy is to reduce the number of wastes and the transition from burning fossil fuels to "green" energy is a key to overcoming the climate crisis. There are 4 main types of renewable energy sources: wind, solar radiation, water and bio-resources.

1. Wind as a renewable energy source.

The working rule of a wind turbine is simple: the wind rotates the turbine's

propeller-like blades around a rotor, which drives a generator to get electricity. Wind turbines convert wind energy into electricity. When wind blows over the blade, the atmospheric pressure on one-side decreases. The difference in atmospheric pressure across the wings creates lift and drag. Lift is bigger than drag, which causes the rotor to show. The rotor is connected on to the generator (if it's a direct drive turbine), or via a shaft and a series of gears (gearboxes) that speed up the rotation and permit the generator to be physically reduced in size. This process of converting the force into the rotation of the generator produces electricity. (Office of energy efficiency & renewable energy, 2014, March 6)

2. The use of solar power.

Solar technology is concerned with capturing radiation and converting it into useful forms of energy such as heat and electricity. The most commonly used types of solar power are photovoltaic (PV) and concentrating solar thermal energy (CSP).

Photovoltaic (PV). These technologies include solar panels and batteries. When the sun shines on the solar array, the energy from the daylight is absorbed by the photovoltaic cells in the panel. This energy creates electrical charges that move in response to the cell's internal electrical field, causing electricity to flow.

Concentrating solar-thermal power (CSP) systems use mirrors to reflect and concentrate sunlight onto receivers that collect solar power and convert it to heat which may then be used to produce electricity or stored for later use its used primarily in very large power plants. (Office of energy efficiency & renewable energy, 2013, November 9)

3. Tide Energy.

Hydroelectricity is a form of energy that uses moving water to generate electricity. The potential energy is converted into kinetic energy as the water flows downhill. The water can be used to turn the blades of a turbine to generate electricity, which is distributed to the consumers of the power plant. Another type of hydroelectric power plant is a diversion facility. What is unique about this plant is that it does not use a dam. Instead, it uses a series of channels to direct flowing river water to turbines that power generators.

liquid fuels through gasification and pyrolysis. (Office of energy efficiency & renewable energy, 2014, October 28)

As it was noted in the introduction to the work, alternative energy has been actively developing in Ukraine over the past few years. Having conducted some research, we noticed that preference in Ukraine is given to wind power plants, and least of all to solar ones. (Ukrainian Association of Renewable Energy, 2018). It is related to economic benefit. Due to geographical features, most green energy facilities in Ukraine are concentrated in the southern and southeastern regions of Ukraine, that is, in regions that are temporarily occupied or where active hostilities are underway. Wind and solar power plants have become hostages of the Russian troops. At least 2 wind turbines were destroyed. Bioenergy capacities also suffered from the Russian invasion. First of all, this applies to cities with ruined infrastructure and regions of active hostilities. In conclusion, we can say that renewable sources of electricity make sense. They solve the problem of the climate crisis and are safer than traditional ones. Also, the presence of a large number of stations solves the issue of employment of power engineers, managers, IT specialists and many others.

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