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**The concept of renewable energy sources**

In this article, the author examines the concept of renewable energy. The development of renewable energy is a key factor in the growth of energy and sustainable development of the Republic of Kazakhstan. Renewable energy sources – energy sources is continuously renewed by natural processes, including the following types: solar energy, wind energy, hydrodynamic water energy; Geothermal energy: heat the soil, groundwater, rivers, reservoirs and anthropogenic sources of primary energy: biomass, biogas and other fuel from organic waste used to produce electricity and (or) thermal energy.

**Key words:** ecology, law, law, environmental protection, renewable energy.

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**Жаңартылатын энергия көздерінің түсінігі**

Берілген мақалада автор жаңартылатын энергия көздерінің түсінігін қарастырады. Жаңартылатын энергетиканы дамыту энергетика саласын дамытудың және Қазақстан Республикасының тұрақты дамуының негізгі факторларының бірі болып табылады. Жаңартылатын энергия көздері – табиғи жаратылыс процестері есебінен үздіксіз жаңартылатын энергия көздері, олар мынадай түрлерді қамтиды: күн сәулесінің энергиясы, жел энергиясы, гидродинамикалық су энергиясы; геотермальдық энергия: топырақтың, жерасты суларының, өзендердің, су айдындарының жылуы, сондай-ақ бастапқы энергия ресурстарының антропогендік көздері: биомасса, биогаз және электр және (немесе) жылу энергиясын өндіру үшін пайдаланылатын органикалық қалдықтардан алынатын өзге де отын.

**Түйін сөздер:** экология, құқық, заң, қоршаған ортаны қорғау, жаңартылатын энергия көздері.

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**Понятие возобновляемых источников энергии**

В данной статье авторы рассматривает понятие возобновляемых источников энергии. Развитие возобновляемой энергетики является ключевым фактором роста энергетики и устойчивого развития Республики Казахстан. Возобновляемые источники энергии – источники энергии, непрерывно возобновляемые за счет естественно протекающих природных процессов, включающие в себя энергию солнечного излучения, энергию ветра, гидродинамическую энергию воды; геотермальную энергию: тепло грунта, подземных вод, рек, водоемов, а также антропогенные источники первичных энергоресурсов: биомассу, биогаз и иное топливо из органических отходов, используемые для производства электрической и (или) тепловой энергии.

**Ключевые слова:** экология, право, закон, охрана окружающей среды, возобновляемые источники энергии.

## **THE CONCEPT OF RENEWABLE ENERGY SOURCES**

Renewable energy resources call the whole scale of energy resources which main characteristic is that they constantly renew, despite their use.

Alternative energy sources are sources on the basis of the energy streams which are constantly existing or periodically arising in environment. Renewable energy isn't a consequence of purposeful activity of the person, and it is its distinctive sign.

According to the resolution No. 33/148 of the United Nations General Assembly (1978) treat AIE: solar, wind, geothermal, energy of sea waves, inflow and ocean, energy of biomass, wood, charcoal, peat, draft cattle, slates, bituminous sandstones and hydraulic power of big and small water currents [1].

The structure of our planet rather difficult includes a lithosphere, the hydrosphere and the atmosphere from which everyone possesses specific qualities and differently reacts to influence of solar radiation. Along with uneven distribution of sunlight on a terrestrial surface all this causes a difference in pressure, temperature, chemical potential and the level of salinity of water. These distinctions maintained by sunlight are also potential power sources. Under natural conditions these distinctions gradually smooth out owing to irreversible dispersion, and some certain part of energy, eventually, goes to space.

Use of the renewing power sources, in fact, is intervention in process of distribution of solar energy and use of this energy for needs of the person. Fortunately in most cases between absorption of solar energy this or that object and its allocation in space in the form of infrared radiations pass a lot of time. It gives the chance to use above the mentioned energy.

As Earth is on average at distance of 150 million km from the Sun, only the small part of radiation depending on a hade gets to Earth. However even this quantity is rather big and supports practically all processes happening on Earth including life.

To renewables which take into account now, belong:

- geothermal energy of the earth;
- solar energy;
- biomass within renewability;
- hydraulic power;
- energy of the World Ocean;
- Wind power.

At the moment in the world the increase in a share of alternative energy sources in power balance is observed.

Laws on renewable power are in Belarus, Kazakhstan and Kyrgyzstan, there is an adopted Law of the Republic of Sakha (Yakutia) «About renewables of the Republic of Sakha (Yakutia)» [2], Ukraine has the Law of Ukraine «About alternative energy sources» [3], the Law of Germany on renewables [4], isn't present the Federal law of Russia on renewables.

In compliance of Art. 1 of item 1 of the Law RK «About Support of Use of Renewables» renewables it is power sources, continuously renewable due to naturally proceeding natural processes, the including following types: energy of sunlight, wind power, hydrodynamic energy of water; geothermal energy: heat of soil, underground waters, rivers, reservoirs, and also anthropogenic sources of primary energy resources: the biomass, biogas and other fuel from organic waste used for production of electric and (or) thermal energy [5].

According to article 3 of the law of the Kyrgyz Republic of December 31, 2008, N 283 «About renewables», renewable energy – the environmentally friendly energy received by use of renewables including from renewable fuel. Renewables – sources of continuously renewable types of energy:

- Solar, energy of Earth, energy of vacuum, wind power, energy of water;
- Power sources of not fossil and not carbon origin, energy of decomposition (fermentation) of biomass of any organic waste and/or materials;
- Energy of secondary heat (the cooler, transformer substations, other plants and units as a result of which work secondary thermal energy) is emitted [6].

The concept of renewable sources of power is enshrined in the Federal law of the Russian Federation of 26.03.2003 N 35-FL «About power industry», renewables – energy of the sun, wind power, energy of waters (including energy of sewage), except for cases of use of such energy at hydro heat-sink electrical power stations, energy of inflow, energy of waves of water objects, including reservoirs, the rivers, seas, oceans, geothermal energy with use of natural underground heat carriers, low-potential thermal energy of the earth, air, water with use of special heat carriers, the biomass including the plants which are specially grown up for obtaining energy, including trees, and also production wastes and consumption except for the waste received in the course of use of hydro carbonic raw materials

and fuel, the biogas, gas emitted by production wastes and consumption on dumps of such waste, gas formed on coal development [7].

The law of Ukraine on alternative energy sources N 555-IV consolidated on February 20, 2003 such concepts as alternative energy sources, the alternative power engineering, energy developed from alternative sources, the sphere of alternative energy sources and objects of alternative power engineering [3].

Alternative energy sources – the restored power sources to which belong energy solar, wind, geothermal, energy of waves and inflow, hydraulic power, energy of biomass, gas from organic waste, gas draining of cleaning stations, biogases, and secondary energy resources to which domain and coke gases, gas methane of decontamination of coal fields, transformations of waste power potential of technological processes belong.

Alternative power engineering – the sphere of power which provides development of electric, thermal and mechanical energy from alternative energy sources.

The energy developed from alternative sources – electric, thermal and mechanical energy which is made on objects of alternative power engineering and can act as the products intended for purchase sale.

Objects of alternative power engineering – the power generating and other equipment which makes energy due to use of alternative energy sources.

The sphere of alternative energy sources – a field of activity which is connected with use of alternative energy sources for production, supply, transportation, storage, transfer and consumption of the energy developed from alternative sources.

The concept of renewables is enshrined in the Law of Republic of Belarus of December 27, 2010 No. 204-Z O renewables [8]. According to article 1, renewables – energy of the sun, a wind, heat of the earth, the natural movement of water streams, wood fuel, other types of biomass, biogas, and also other power sources which aren't relating to non-renewable.

Having analyzed laws of the different countries we came to a conclusion that renewable energy resources call the whole scale of energy resources which main characteristic is that they constantly renew, despite their use.

Kazakhstan is one of world leaders in a variety and quantity of mineral resources. As one of the resources, most important for national economy, is oil and gas, coal other fossil minerals and regulation in these branches of economy very developed,

the government historically paid less attention to development of alternative energy sources. For example, now the majority of power plants in Kazakhstan work at natural gas, coal and oil products. However the last world financial crisis and awareness of need to reduce a support by energy resources and impact on environment induced the country leaders to concentrate actively on creating favorable conditions for use of renewables [9].

In the Republic of Kazakhstan high potential of renewables and suitable conditions for development of renewables, in particular, hydropower and wind

power. Today, one of the priority directions of development of power industry and the solution of environmental problems of Kazakhstan is use of renewable energy resources and implementation of programs power – and resource-saving.

So, among alternative energy sources the renewables (R), namely energy of the sun, a wind, and heat of the earth, the small rivers, the ocean, biomass and peat are of special interest.

Big advantage in use of nonconventional renewables is their high environmental friendliness providing purity of environment.

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