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LEGAL REGULATION OF RENEWABLE ENERGY IN RUSSIA, EEU AND CIS

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Abstract: *The research work is relevant since renewable energy is poorly developed in the Russian Federation, and there is a need for effective legal regulation of relations in the specified area. This problem is especially acute against an active use of renewable energy sources across the globe. Hence, the paper is devoted to identification of legal regulators, which would facilitate an active development of renewable energy both in Russia and other countries that are members of EEU and CIS integration associations. The basic approach to studying the problem involves analysis of statutory regulations in the area of renewable energy in Russia and worldwide to reveal shortcomings and gain an advanced experience of legal regulation of using renewable energy sources that made it possible to substantiate a number of proposals for improving the legislation in force.*

Keywords: *renewable energy, energy sources, environmental law, legal regulation.*

INTRODUCTION

Active development of the global economy and high rates of growth in population with an accompanying increase in their needs facilitate a dramatic rise in power consumption. According to the assessments of various experts, by 2030, the volume of

demand for energy resources will increase by another 40% as compared to the current situation (Scenarios "New outlook on the future"… n.d.). Nowadays, the Russian policy of national security involves, as one of the directions, the energy policy (national energy interests and priorities). Its development basically specifies the stability of national sovereignty and integrity of state, guarantees of developing social and economic sphere, wealth of population. Within the nearest ten years, in the energy sector, the problem of choosing, how new capacities will be introduced, needs to be solved: at the expense of constructing power plants based on fossil and nuclear fuel, or by effectively using renewable energy sources (Kutafin, 2017).

It is common practice to classify all energy sources as non-renewable and renewable (as per the other classification: exhaustible and non-exhaustible). Non-renewable energy sources involve natural reserves of matter and materials, used to produce energy, which are impossible to replenish after using. They include: hard coal and lignite, shale rocks and peat, oil, natural and oil-associated gas, and waste products of some industries (metallurgic, chemical) etc. Current level of consuming conventional types of fuel is million years in advance of the level of their formation. Thus, according to some data, considering the current level of production, the explored oil reserves in Russia will be sufficient for less than 30 years (Teodorovich, Isaeva, 2016). Therefore, many countries-exporters of oil and gas have been seeking to reduce energy dependence on such sources. Climate changes across the globe and an increase in the number of natural disasters are also implied to be directly connected to the active use of conventional sources of hydrocarbon, which causes constantly rising emissions of harmful contaminants into ambient air.

Hence, depletion of reserves of non-renewable raw products, unstable economic conditions of their production, substantial environmental pollution while extracting, transporting, and utilizing such energy sources led to the search for the other ways of obtaining energy. There emerged a growing demand for renewable energy sources. Many scientists, including N.G. Zhavoronkova, V.S. Belykh, M.I. Vasilieva, V.V. Romanova, D.O. Kutafin, F.Yu. Zekker, Theodoros Iliopoulos (2018), Raf Callaerts (2015), Cameron Kelly (2016) had been dealing with the problems of developing renewable and alternative energy, rational use of natural resources in the Russian energy industry. The questions of enhancing energy efficiency and energy saving are considered within the energy-related law (Kruger, 2016). However, despite theoretical and applied studies, justifying the need for the fastest introduction of RES into the Russian economy, legal regulation of relations in the sphere of using renewable types of energy is far from perfect. Hence, it is essential to identify legal regulators, which would facilitate active introduction of renewable energy sources into the Russian Federation economy, based on the analysis of law, scientific publications, involving the foreign ones, and offer the alternatives for improving legislation.

METHODS

A thorough analysis of international law, regulatory legal acts of the countries with the high level of utilizing renewable energy sources, and regulatory framework of the Russian Federation, and the European Union legal experience (Directive N 2009/28/EC; Handbuch zum deutsch-russishen Energierecht, 2010; Kruger, 2016) on the issues of introducing renewable energy allowed to reveal legal norms, indispensable for stimulating the process of renewable energy development in Russia. The obtained data enabled to specify the gaps in legal regulation in the area of using renewable energy

sources. They were summarized and used as a basis for formulating proposals concerning improvements in the Russian Federation law in the area of renewable energy.

RESULTS

Among renewable energy sources are constantly existing and regularly emerging flows of energy. Russian law-making bodies do not enshrine definition of this concept, limited to only the list of the types of renewable energy sources (RES). Thus, RES in art.3 of the Federal law of the Russian Federation law "On electric power industry" dated March 26, 2003 № 35-FL (Federal Law of the Russian Federation "On electric…2003) imply the energy of the sun, wind, energy of water (including energy of waste water), excluding the cases of using such energy at the pumped storage plants, tidal energy, energy of waves of water bodies, involving water basins, rivers, seas, oceans, geothermal energy with the use of natural underground heat-transfer fluids, low-potential thermal energy of the Earth, air, water with the use of special heat carriers, biomass, which involves plants especially cultivated to obtain energy, among them trees, and wastes of production and consumption, excluding waste, obtained in the process of using raw hydrocarbons and hydrocarbon fuel, biogas, gas, emitted by the production and consumption waste at the waste deposits of such waste; gas formed at the coal excavation sites.

This definition of renewable energy sources, enshrined in the regulations, includes an exhaustive enumeration of the types of the appropriate energy and, based on what the norm means, does not imply expand interpretation. Respectively, the energy types not included in the list may not be considered renewable. However, it reduces the potential for studies in the area of searching and developing other renewable energy sources. Two alternatives for improving this legal norm should be suggested. First, the limited list of RES can be made non-exhaustive by adding a phrase "… and some others". Second, certain criteria can be specified, according to which energy sources may be classified as renewable. Renewable fuel and energy resources in the national standard of the Russian Federation "Power supply. Terms and definitions" imply natural energy carriers, constantly renewed as a result of natural processes.

Thus, the following definition of renewable energy sources should be enshrined in the law: "RES are natural energy carriers, constantly renewed as a result of natural processes. They include: energy of the sun, wind, energy of water (including energy of waste water), excluding the cases of using such energy at the pumped storage plants, tidal energy, energy of waves of water bodies, involving water basins, rivers, seas, oceans, geothermal energy using natural underground heat-transfer fluids, low-potential thermal energy of the Earth, air, water with the use of special heat carriers, biomass, which involves plants especially cultivated to obtain energy, among them trees, and wastes of production and consumption, excluding wastes, obtained in the process of using raw hydrocarbons and hydrocarbon fuel, biogas, gas, emitted by the production and consumption waste at the waste deposits of such waste; gas formed at the coal excavation sites, and some others."

It is supposed that renewable resources are inexhaustible and highly ecologically effective; that they will raise living standards, improve ecological situation, result in developing high-technology industries, increasing process-related energy efficiency, and eliminating energy deficit. So called "green economy" is brought to the fore. First, this term was used in 1989 in the report of the group of leading economists, which was

addressed to the government of the Great Britain and Northern Ireland (Pearce, 1989). Nowadays, “green economy” means “economic activity that enhances well-being of the persons and ensures social equity and, at the same time, substantially reduces risks for environment and slows down deterioration of nature” (Tumarkin, 2018). The key role in “green economy” should be given to reduction of consuming non-renewable energy and other resources, of producing waste and, respectively, emissions of contaminants, reversal of processes related to land and natural eco-systems degradation and biodiversity reduction (Arzhenovsky, Sinyavskaya, Rudyaga, n.d.). A principal role in “green economy” belongs to the development of renewable energy sources, extension of this sector, through reduction in the volumes of producing energy form “dirty” non-renewable sources.

Official sources and literature may contain, in addition to term “renewable energy sources”, others: “alternative energy sources”, “non-traditional energy sources”, “green energy”, and so on. Here, it should be noted that the concept of alternative energy sources differs from that of renewables and includes all other methods of obtaining energy, except for traditional and hydrocarbon. For example, such type of RES as water energy of large HPPs (of more than 25MW capacity) is not classified as alternative energy source, since it is commonly used. Despite enormous advantages, introduction of renewable energy involves several difficulties and dangers. The main of them shall be considered. To develop wind energy, large areas are needed to build wind-powered generators. They cannot be placed close to each other to avoid mutual interference while working and reduction in efficiency of the entire wind generator. Ecological problems shall involve noise and infra-sonic pollution, harmful to humans. In addition, wind machines scare birds and animals, disarrange their natural way of living. When many wind machines are located within one area, they might considerably change natural movement of air masses and cause unpredictable consequences. A variable velocity of wind that causes instability in obtaining energy, is also an obstacle.

The technologies of utilizing solar energy are also not perfect. Use of solar batteries is possible only through applying lead and cadmium, harmful to nature and humans. Shadowing of lands occurs in the places of their installation, which causes changes in soils, death of plants, and, as a result, has a negative influence on the animal world. Biofuel uses industrial crops cultivated as raw products for its production. They replace food and forage crops from the fields, facilitating a rise in prices for food products, deforestation for cleaning up farmlands. When cultivating crops for biofuel, fertilizers are used that contaminate environment and affect human health more than gasoline and diesel fuel. Geothermal energy (energy of underground waters) is tightly linked to geographical and geological attributes of a region. In addition, waste water needs to flow back to the aquiferous stratum, since it contains a great number of salts of various toxic metals and chemical compounds, and it prevents water from discharging to the surface water bodies. These processes involve substantial technical and economic expenses.

A percentage of renewable energy sources (including water power) within the global system of producing electricity, which, in its turn, is rapidly growing from late 2000’s, has risen by almost 1% in 2017, having reached nearly 25%. Wind and solar energies have gained steam. Global energy economy has seen maximum progress in the sphere of RES (in 2016, growth by 14.4 %). Wind energy is the sector leader. In 2017, it accounted for about 50% of the generated RES-energy, while the unit weight of solar energy amounted to 18% (with no regard for large HPPs) (Astakhov, 2017). This is contributed by an ambitious climate policy in the European Union, USA, China, India,

Japan, and Australia, and a dramatic reduction in the cost of constructing solar and wind power stations, which enabled developing countries to expand their renewable capacities. Solar stations were responsible for 20% of additional electricity generation in 2017, wind stations – for 30%. Renewable energy sources now cover 1/3 of energy mix in Europe, 1/4 – in China, and 1/6 – in USA, India, and Japan. In the European Union, a percentage of renewable energy sources remained stable in 2017, since a substantial increase in production of renewable energy in Germany and Great Britain was compensated by unfavorable waterpower conditions in the Southern Europe (France, Italy, Spain) (As per the data of statistics yearbook, 2018). Generation of energy using renewable energy sources has actively been underway in most countries of the European Union and worldwide. In Germany, even now such amount of biofuel may be produced, which will amount to 20% of the current level of consuming organic fuel by automobile transport. It is planned that in 2030 this level will already be 35%, and the production costs of such fuel will be less than 0.8 euro per liter.

Russian scientists also note that it is supposed to reach maximum values of RES growth from 2030 to 2050. By 2050, most part of electricity will be generated based on renewable energy sources. Rising consumption of electricity by transport will facilitate development of RES (Kutafin, 2017). As per the official data, presented by the Ministry of Energy of the Russian Federation, Russia has the highest potential of energy in the world, generated by alternative and renewable sources. Thus, the volume of technically accessible resources of renewable energy sources in the Russian Federation amounts to at least 24 bln.t. of fuel equivalent. It should be noted that the Soviet Union had a great experience of developing projects in the area of renewable energy sources. It was related to large hydropower and wind energy projects. However, from 1970, low oil prices led to stepwise refusal of this energy sector. New projects ceased to be commissioned.

In Russia, solar and wind energy sectors have actively been developed in the last few years. In 2015, the Ministry of Energy of the Russian Federation announced the system for promoting renewable energy sources, which was prolonged for 2018-2021. Finally, the total capacity expansion to 2GW is expected. And although such capacity is not sufficient for the scale of Russia, it constitutes a certain step towards developing “green energy” (Burenina, Evtushenko, Kotov et al., 2017). Legal regulation of this sphere on the part of state and creation of favourable conditions for its development and functioning are the essential prerequisites to an increase in the use of renewable energy sources. In the countries, where the rates of introducing RES are high, state conceptual and program documents in RES active development and use are adopted for implementation. The most essential international acts are as follows: UNEP report (UN environmental program) “Towards green economy”, where the main directions and practical recommendations on implementation are presented for the countries; OECD report (Organization for Economic Cooperation and Development) “On the way towards green growth”; IMF documents (International Monetary Fund), which contain suggestions developed to finance low-carbon model of development; Environmental Policy of the World Bank 2012-2020 (Report “Green employment”, 2008).

In addition, UNEP and UNIDO (United Nations Industrial Development Organization) started to implement the Program on ensuring resource efficient and cleaner production, and from 2016, 17 objectives in the field of sustainable development came into force, which are stated in the “Agenda in the field of sustainable development for the period until 2030” that was adopted by the leading countries in September 2015 during the UN summit (UNIDO activities… n.d.). Objective 7 of the UN Agenda in the field

of sustainable development for the period until 2030 that relates to sustainable energy, emphasizes expansion in the use of renewable energy sources. However, this process faces social and ecological problems. Here, of special interest are wind and solar projects as some of the most perspective energy sources in developing countries.

At the same time, it is the European Union that nowadays is a leader in developing and carrying out new energy and ecology policy. Directive N 2009/28/EC of the European Parliament and Council of the European Union is adopted "On stimulating the use of energy from renewable sources, introducing changes, and further cancelling Directives 2001/77/EC and 2003/30/EC", which establishes the general structure for stimulating development of energy from renewable sources (Directive N 2009/28/EC…). Road maps have been adopted to enhance the effectiveness of using resources and switching to low-carbon society by 2050. In 2016, the European Commission put forward a suggestion on revising RES Directive for the period from 2020 to 2030. Theodoros Iliopoulos in his article "Dilemma on the way of new directive on renewable energy sources" analyses the mentioned Directive in terms of the relevant judicial practice and considers the following dilemma: 1) new objective of energy policy should be defined at the level of EU or at the level of countries-EU members and 2) whether a special-purpose support should be agreed and open for the other countries-EU members (Iliopoulos, 2018).

EU countries adopt special laws on renewable energy sources. Book "Energy law of Russia and Germany. Comparative law study" under editorship of Prof. F.Y. Zekker contains an in-depth analysis of RES legislation in Germany (Handbuch zum deutsch-russishen Energierecht, 2010). Thus, for example, in Germany, from 01.04.2000 a Renewable Energy Sources Act came into effect. The Act regulates the requirements for connecting, receiving (outfeed) and remuneration, and proportional distribution of load, in effect throughout all FRG territory (Handbuch zum deutsch-russishen Energierecht, 2010). In one of his reports, Prof. F.Y. Zekker brought into focus that in Germany 30% of energy is obtained from renewable energy sources. The main direction involves enhancement of energy effectiveness and measures, which should contribute to energy effectiveness, for instance, construction of the appropriate infrastructure (Panel discussion "State regulation, 2017).

One of the main mechanisms enabling development of renewable energy sources on the territory of the European Union implies application of the reduced price (tariff) for electricity, generated using renewable sources. The reduced price (tariff) is established by government and is defined according to the norms based on tendering procedures. The types of reduced tariff are as follows: fixed tariff FiT (feed-in-tariff), used for small-scale generation facilities; reduced tariff FiP (feed-in-premium), which depends on market prices and is mostly used for large-scale generation facilities (Akhmedov, n.d.). Along with such enabling mechanism as "green tariff", "green certificates" are quite popular in the European Union. They constitute the documents, which make it possible to take into consideration and perform monitoring of production and consumption of electricity from renewable sources. Producers of such energy receive special "green certificates", which confirm that they produced and sold a certain volume of renewable energy on the market. The number of the issued certificates are linked to the volume of the produced energy, however, usually they are multiples of 1MW*hour. "Green certificates" start to circulate on some special markets.

Renewable energy has been actively developed in Japan, where the Law "On special measures to purchase electricity, generated by electric grid companies using renewable sources" is adopted and in force (Akhmedov, n.d.). Producers of such energy

have the opportunity for an unrestricted utility connection to common electricity grids and concluding agreements for purchase/sale of electricity generated using renewable sources. In addition, the first 2% target tax on electricity is in effect to create investments in developing new renewable energy sources, and national subsidies on acquiring equipment to generate energy from the renewable energy sources.

Of special interest in legal regulation of the discussed subject is CIS and EEU countries' experience. Document "Principal directions of EEU economic development till 2030" shall be given as an example, where it is emphasized that the main purpose of integration cooperation is to achieve and maintain quality and sustainable economic growth relying upon a synergy effect. Section "Resource saving and enhancement of energy efficiency" of the Principal directions focuses on the need for developing resource-saving and energy-effective technologies across the entire spectrum of economic activity to improve competitiveness of the products. As per the document, implementation of the respective policy at the supranational level is possible through stimulating "know-how" development and introduction, including the methods to increase the depth of processing energy resources; statutory establishment of tight standards and requirements as related to the produced and imported goods/services; construction of energy infrastructure objects with minimum possible negative effect on environment; development of low-carbon energy sources.

Common EEU objectives in the field of energy and other sectors of economy are specified and registered by the countries-members, taking into account even national interests in the documents of national planning (programs, strategies, plans). Such development objectives are, according to the general principle, as follows: an increase in the level of persons' well-being; development of social and economic and political spheres; boosting global credibility and positions. Here, the main problem is seen in approaching a trajectory of sustainable development through achieving and maintaining macro-economic stability, constant improvement in competitiveness of national economies. The priorities of the EU countries involve fundamental transformation of economy (system-wide transformations), transition to innovation way (towards new technological level), in performing a technological leap. In energy, countries-EEU members aim at developing traditional energy sectors, renewable energy sectors, and energy-saving sphere in the interests of domestic consumers, to enhancing reliability of energy supplies, and optimization of prices.

The resolution of the Council of the Heads of CIS states "On the role of Inter-Parliament Assembly of countries-CIS members in developing interregional cooperation among countries-CIS members", adopted in Minsk in 2014, the need had been emphasized for introducing environment-friendly innovations, alternative technologies, and energy sources to be ecologically safe. In 2013, in Saint-Petersburg, the Concept of cooperation among countries-CIS members in using renewable energy sources (Concept of cooperation between CIS…2013) was adopted, aimed at increasing interstate cooperation in utilizing RES, and further development of their use. It is essential that major terms and definitions were specified in the Concept.

- Renewable energy sources - sources of energy, constantly renewable due to obviously occurring natural processes: solar energy, wind energy, hydrodynamic energy of water, geothermal energy: heat of ground, ground waters, rivers, water basins, and man-made sources of primary energy resources: biomass, biogas, and other fuel made from organic waste, used to produce electric and (or) thermal energy, and other energy sources, specified as renewable, provided for within legislation of the countries-CIS members, that have signed the Concept;

- Use of renewable energy sources – a process that involves preparation (production), transportation, storage, preparation for use, preprocessing or other transformation of renewable energy sources, and production of electric, thermal, and other types of energy therefrom;
- Markets of renewable energy sources – markets of electric, thermal energy, fuel, produced from renewable energy sources.

CIS countries adopted the Model Law on using alternative types of motor fuel (Model Law "On using…2003), where, together with alternative types of motor fuel (compressed or liquefied natural gas, consisting of methane for at least 85%; liquefied hydrocarbon gas, and some other types of energy raw products, obtained as a result of reprocessing non-conventional sources and types of energy raw products, which were especially processed, and, by their energy and ecological parameters meet the requirements imposed on motor fuel), non-conventional sources and types of energy raw products are also specified (any sources of raw products, excluding oil, among them raw materials/products of vegetable origin, solid combustibles, biogas, suitable and economically feasible to obtain motor fuel). Virtually all countries-CIS members have been carrying out vigorous actions to develop energy efficiency, energy-saving, and use of RES based on modernization, technological development, and switching to rational use of energy resources (Protocol resolution of CIS Economic Council, n.d.).

As to certain CIS countries, in Azerbaijan, for example, to enhance efficiency of using renewable energy sources, an Agency for alternative and renewable energy sources is established to regulate, organize, and exercise state control over the respective activity. In the Republic of Belarus, from 2010, the Law "On renewable energy sources" is in effect, which specifies a guaranteed connection to the common energy system of RES plants, purchase of all the proposed energy by energy-supplying organizations, which were produced from renewable sources, and its payment applying multiplying ratios. Creation of association "Renewable energy" is an example of partnership between state and business, state and civil society in solving the problem of the country's energy and environmental safety. It constitutes a non-commercial association of legal entities and individual entrepreneurs, taking an active part in developing statutory legal acts, which regulate activity of the Association members, in promoting advantages of renewable energy sources and perspectives of their development ("Renewable energy" Association, n.d.).

The Law of the Tajikistan Republic "On using renewable energy sources" dated 2010 (Law of the Republic of Tajikistan, 2010) regulates legal relations between state authorities, persons and entities in the sphere of strategic and effective use of renewable energy sources, and defines legal and economic framework, which ensures higher levels of energy-saving, reduction of man-caused impact on environment and climate, saving and preserving non-renewable resources for the future generations. In the Republic of Armenia, the development of small-scale hydropower energy sector has successfully and rapidly been underway since the government implements the policy, which is based upon laws "On energy", "On renewable energy and power-saving" (Protocol resolution of CIS Economic Council, n.d.). The Republic of Kazakhstan adopted Law № 165-IV "On assisting the use of renewable energy sources" dated July 4, 2009 and statutory legal acts, regulating RES market (Protocol resolution of CIS Economic Council, n.d.). In the Republic of Kyrgyzstan, Law № 283 "On renewable energy sources" dated December 31, 2008 is also adopted (Protocol resolution of CIS Economic Council, n.d.).

In the Russian Federation, there is not any law on renewable energy sources, however, miscellaneous legal acts of various legal force are adopted and in effect that

regulate introduction and use of renewable energy objects. Respectively, there is no a unified strategy for developing renewable energy sources in the country. Analysing the development of renewable energy in the countries, where their share is rather high, it shall be concluded that the uniform law "On renewable energy in the Russian Federation" should be adopted, where it is advisable to specify basic terms and concepts, define terms of reference of control authorities in the sphere of regulating relations to develop and use renewable energy sources. Government incentives and assistance shall be foreseen in designing and using new technologies, aimed at the development of renewable energy sources, their use in household sector and industry. This assistance is also possible in the form of subsidies, soft credits, etc. Lease agreements shall also be developed between developing companies and suppliers of equipment for renewable energy sources. It will be an incentive to development for both enterprises that produce ecological equipment, and enterprises that introduce effective accessible environmental-friendly technologies into their production.

Ecological Doctrine of the Russian Federation approved by Decree № 1225-r (Ecological doctrine of the Russian…2002) dated August 31, 2002 of the RF Government specifies principal directions of state policy in ecology: ensuring sustainable use of natural resources, reduction in environmental pollution and resource saving, preservation and restoration of natural environment. The main tasks in ensuring sustainable use of natural resources are as follows: sustainability of renewables and wise utilization of non-renewable energy sources, hence, a number of enterprises in the national economy structure, which exploit natural resources, should be reduced; development of knowledge-intensive environment-friendly high-technology productions. The basic tasks in decreasing environmental pollution and resource saving are: reduction in environmental pollution with discharges, releases, and wastes, and production of products with specific energy- and resource intensity, hence, the government deems it necessary to maintain an environmentally-effective production of energy, including the use of renewable sources and secondary raw products, and to decrease the losses of energy and raw materials during transportation, including those due to ecologically justified decentralization of energy production, optimization of a system for supplying energy to small-scale consumers.

Decree No. 1715-r dated November 13, 2009, of the RF Government approves the Energy Strategy of the Russian Federation till 2030 (Energy strategy of the Russian Federation…2009). A strategic benchmark is to create the conditions for expanding production of electric and thermal energy based on renewable energy sources. The existing tendencies specify a rising importance of renewable energy sources in providing energy-related demands of society. As per the Strategy, the energy sector problems, raised before the government, will be solved using such a measure of state energy policy as formation of the long-term policy of developing renewable energy sources, which takes into consideration the structure and tendencies of changing the projected fuel-energy balance. As related to direction "Renewable energy sources and local types of fuel", the government believes it necessary to take the following measures: development of technologies for using renewable energy sources, and multi-functional energy complexes to independently supply energy to the consumers in the districts, not connected to the networks of centralised electricity supply; development of effective technologies of network electric and thermal supply based on renewable energy sources; workout of technologies for the combined use of renewable energy sources, and technologies for compensating non-uniformity in evacuating capacity by generating facilities based on wind and tidal energy; design and development of technologies for

utilizing modern materials when producing equipment and components for generating objects based on the renewable energy sources so as to decrease the cost of their construction and increase the effectiveness of functioning; expansion of production and use of new types of fuel, obtained from multiple types of biomass. Of importance also is the development of using new renewable energy sources and energy carriers. Involvement in the fuel and energy budget of such new renewable energy sources as geothermal, solar, wind energy, bio-energy, will allow to balance the demand in energy and reduce environmental impact made by enterprises.

Nevertheless, it should be noted that, at present, there are almost no political and legal results of implementing the state Energy Strategy. No doubt, to successfully develop renewable energy sources, a comprehensive and properly designed legal regulation is needed, as well as a customized system of state support, clear interaction among subjects of the discussed activity, which, nowadays, is, unfortunately, missing in the Russian Federation (Belokrylova, Kologermanskaya, 2017). On April 15, 2014, the Government of the Russian Federation approved the program "Energy efficiency and development of energy" (Decree of the RF Government…2014), which was aimed at the reliable fuel and energy supply of the country, an increase in effectiveness of their use and reduction in the man-caused impact of fuel and energy complex on environment. A sub-program "Development of using renewable energy sources" was adopted within this program. Unfortunately, there is no any task to develop RES among the problems defined by the program objective, and the program aims at only assisting innovation development of fuel and energy complex. There are respective gaps in target indices and indicators of the Program and the expected results of its implementation. When there is a need for introducing RES in the economic mechanism for development of our country, lack of such task and target indicators seems at least weird.

Taking into consideration that the first phase of implementing the Program is specified till 2020, the future version of the Program for the second period of its implementation will require revision of the tasks and introduction of the following changes: "Supplement the Passport of state program "Energy efficiency and development of energy sector", as related to the tasks of the Program, with phrase "development of the use of renewable energy sources"; in section of the Program Target indices and indicators with phrase "receiving electricity from renewable energy sources". Federal Law No. 35-FL "On electric energy" dated March 26, 2003 provides for using a mechanism of selling capacity of generating facilities, which function based on renewable energy sources, by agreements of supplying capacity to the wholesale market (RES ASC) at the price and in the order specified by the Government of the Russian Federation. Mechanism for promoting renewable energy involves conducting tenders for investment projects on construction of generating objects, functioning based on RES, and concluding RES ASC for the selected projects. Decree No. 449 (Enactment of the RF Government…2013) dated May 28, 2013 approves the Rules for determining the price of capacity for such generating facilities. To reduce the risks of making investment decisions on the projects of constructing RES generation objects, pursuant to Decree No.1210 dated November 10, 2015 of the Russian Federation Government, the above-mentioned rules have been amended.

By the Decree of the Russian Federation Government dated January 8, 2009, № 1-r (Decree of the RF Government, 2015), to implement a mechanism for promoting renewable energy sources, the indicators of threshold values of RES generation objects, target values of commissioning volumes for each type of RES generation project for the period till 2024, and localization degrees are specified. One should agree with the

studies, which affirm that introduction of the mechanisms for stimulating the use of renewable energy sources in the Russian legal system created an intense activity in this sector, and the construction of RES objects has constantly been underway. Localization requirements facilitated a creation of new capacities in the country, and the suppliers, capable of manufacturing the components for renewable energy sources, are currently in a high demand (Heidermann, Makarova, 2018).

In May 2015, 5MW solar power plant (SPP) was put into operation in Perevolotskoi settl., Orenburg Region. It is the first solar power plant built in the European part of Russia pursuant to Decree No.449 dated May 28, 2013 of the Russian Federation Government, and, respectively, the first SPP within the first price zone of the wholesale market of electricity and capacity. The mentioned decree of the RF Government relates to solar, wind, hydropower, and some other renewable energy sources, however, it covers not all of them. In October 2015, the first phase of Buribaevskaya SPP of 10MW was put into operation in Buribai village settl., Haibullinskiy district of the Republic of Bashkortostan. 88 thsd. of solar modules installed at the plant were manufactured by Novocheboksarsky factory "Hevel" LLC. More than 70% of the plant components were fabricated in Russia.

In Orsk, 25MW SPP, one of the largest in Russia, was put into operation. It is expected to expand its capacity to 40MW. It should be noted that the plant was built on the territory of the former landfill site of coal power plants. Further works were performed to restore the lands. In December 2015, Abakanskaya SPP (5.1 MW) in the Khakassia Republic, second phase of Kosh-Agashskaya SPP (5MW) in the Altai Republic, and Bugul'chanskaya SPP (5MW) in the Republic of Bashkortostan were put into operation. By Resolution No.47 dated January 23, 2015 of the Government of the Russian Federation, an order of implementing a mechanism for promoting RES on retail markets in the price and non-price zones of wholesale market, and in the geographically isolated energy areas is specified. This Resolution specifies the order of creating on retail markets a long-term tariff regulation of RES generation facilities, and the rules for their functioning. Threshold levels of capital and operation expenditures are specified in Decree № 1472-r dated July 28, 2015 of the Russian Federation Government. By Order № 900/15 of the Federal Anti-Monopoly Service of the Russian Federation dated September 30, 2015, the procedural guidelines are stated for establishing prices (tariffs) and (or) threshold (minimum and (or) maximum) levels of prices (tariffs) for electricity (capacity) generated by RES-based qualified generation objects and purchased to compensate the losses in electrical grids.

Many RF regions adopted social and economic development strategies, where the development of energy sector, including alternative energy sources, is specified (Decree of the RF Government dated 18.11.2011 N 2074-p… 2011: Decree of the RF Government dated 06.10.2011 N 1757-p… 2011; Decree of the RF Government 1540-p… 2011). For example, the Republic of Tatarstan adopted RT Law N 41-LTR dated 17.06.2015 "On approving the Strategy for developing fuel and energy complex of the Tatarstan Republic till 2030" (TR Law N 41-3PT…2015), the Concept of target-oriented program "Development of small-scale energy sector in the Tatarstan Republic using renewable energy sources" (Decree of TR Cabinet Council… 2008). Legislative measures have also been taken to stimulate the development of renewable energy sources. As part of implementation of the Russian Federation subjects' terms of reference, provided for by part 1 of the Tax Code of the Russian Federation, Law N 68-LTR "On investment tax credit in the Republic of Tatarstan" dated October 10, 2011 is adopted in the Tatarstan Republic (The Law of the Tatarstan Republuc… 2011). Article 4 of this Law provides an

opportunity for reducing tax payments with the subsequent stepwise payment of the credit amount and accrued interest within a certain time and to a certain extent. An investment tax credit constitutes such a change in the time for paying a tax, at which an opportunity is given to an organization, if there are grounds specified in Article 67 of the Tax Code of the Russian Federation, for reducing its tax payments with the subsequent stepwise payment of the credit amount and accrued interest within a certain time and to a certain extent. Such grounds, particularly, involve the investments into building the facilities of the highest energy efficiency class, among them multi-family houses, and (or) facilities related to renewable energy sources.

RF Government Decree No. 1257-r (Decree of the RF Government N 1257-p… 2016) dated June 17, 2016 specifies that prior to 2020 the Republic of Tatartstan shall develop and adopt the law on renewable energy sources, within which the opportunities will be created for connecting all the potential producers/generators to the electric grid (both persons, and entities), and feed-in differential tariffs will be introduced for electricity, generated at the expense of renewable sources. In broader terms, the order and conditions for tenders to include RES generation projects into the plan of developing the region energy sector, and the requirements for the respective investment projects of constructing RES generation projects and criteria for selecting them should be specified at the regional level. The adopted regulatory legal acts shall enable regional authorities of the RF subjects to independently make decisions on assisting RES generation projects, taking into consideration their economic and ecological expediency and sufficiency of resources provided for them in each specific case, on condition of complying with acceptable rates of growth in prices for electric and thermal energy.

In June 2015, in Batagai settl. of Verkhoyansky ulus of the Republic of Sakha (Yakutia), the largest SPP in the polar region, was put in operation. The capacity of the first phase of the energy facility was 1MW. The solar plant is integrated into the existing energy supply system of the settlement, and, together with the diesel power plant in operation, constitutes a unified power supply complex. Thanks to SPP, annual savings in diesel fuel Batagai settl. will amount to about 300 tonnes or 16 mln. rubles at 2015 values. Taking into consideration climate patterns of the Arctic Circle, the equipment is capable of sustaining temperature drop from +40°C in summer and to –45°C in winter.

In the second part of 2015, photoelectric panels became available in Yunkur settl. in Verkhoyansky ulus (40 kW), Betenkes settl. (40 kW), Stolby settl. (10 kW, and Uluu settl. of Aldansky ulus (20 kW). Solar power plants (SPPs) are synchronized with diesel power plants in operation in these settlements and partially replace their generation. In Verkhoyansky ulus, “RAO Eastern Energy Systems” first tested “cluster method” of construction, i.e., procurement and delivery of equipment for small-scale SPPs were combined with implementation of Batagaiskaya solar plant project, that made it possible to optimize capital costs and time schedule for assembling equipment. In the nearest future, “cluster-based method” is planned to be used when constructing plants in Olyekminsk, Ust-Yansky, Verkhne-Kolymsky, and Oimyakon uluses.

In September, 2015, in the Far East a wind energy complex was launched in Ust-Kamchatsk. It involved three wind-driven generators of 900kW total capacity. It is expected that after commercial commissioning this RES project will annually generate more than 2 mln. kW*h, and it will partially replace generation of diesel power plant located in the settlement, which will allow to save more than 550t of fuel. This is the first phase of the wind park; it is further planned to construct seven wind machines more. Thus, the complex capacity will reach 3MW (Commissioning of power-generating facilities, 2014-2015). Thus, the problems of effectiveness and practicability of using

renewable energy sources are to be addressed in close cooperation with the regional bodies of the Russian state authority on condition of providing a comprehensive support at the federal level. Mass distribution of renewable energy is possible only if and when the cost for scientific and production developments in this sphere is reduced. To introduce complex knowledge intensive technologies and projects to ensure their accessibility to a consumer, clear effectiveness and operating capacity, a considerable government assistance in creating demonstration installations is needed.

This subject was more specifically discussed during roundtable "Big Eurasian partnership: modern challenges and trends (regional aspect)" within International forum "Orenburg region – the heart of Eurasia", conducted in Orenburg on December 6, 2018. Here, it was particularly emphasized that scientific studies and developments of the Russian scientific teams require government support as related to organizing demonstration areas and creating Eurasian park of alternative energy. This proposal is especially relevant for Orenburg region, where the Concept is implemented of interlinking EEU with Chinese project "Economic complex of Silk Road", so called "Big Eurasia" Project. Demonstration areas will make it possible to constantly present recent renewable energy developments to the products' customers and clients in a clear way, identifying at the same time shortcomings in their operation in conditions of severely continental climate of the Orenburg region.

CONCLUSION

The conducted study identified the legal regulation gaps in using renewable energy sources in the Russian Federation energy system. The analysis of legislation of the countries, actively involved in the development of renewable energy, a comparison between it and the Russian law enabled to formulate the proposals for improving legal norms, regulating development and effective use of renewable energy sources in the country. It is believed that to further build up the relationship in developing renewable energy sources, it would be advisable to create and adopt at the federal level a special law relating to the use of renewable energy sources. It makes sense to specify the main terms and concepts in the law, define terms of reference of control authorities in the area of regulating relations associated with using renewable energy sources, and enshrine in the law certain measures for stimulating activities in creating and using new technologies aimed at development of renewable energy sources (RES). Thus, the measures for secure and effective use of RES, specified in the acts of strategic planning both at supranational level of integration associations of states, and at the level of the Russian Federation, will be implemented on condition that a relevant and reasonable law is developed and adopted.

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