Legal support for the Implementation of Environmental Projects with Financial Instruments in FEC (Case Study: PJSC RusHydro)

Tatyana Kokoreva
Advisor to CEO for Legal Affairs at Ust-SrednekanGESstroy JSC, Ust-SrednekanGESstroy JSC
Russian Federation, Khabarovsk

Abstract

The development of the fuel and energy sector is the most important strategic task of the Russian Federation for the foreseeable future. Obviously, it cannot be solved without timely and high-quality statutory regulation. A related problem is the global environmental degradation, which is largely due to the long and complex process of modernization of production facilities of both extractive and processing industries. In particular, the fuel and energy industry is associated with serious environmental risks arising during the extraction, transportation and storage of natural energy resources. In this regard, it seems that the fuel and energy sector associated with generating heat and electricity from renewable energy sources is the least exposed to environmental risks related to the reduction of natural resources. At the same time, the equipment used, for example, in hydropower generation urgently needs modernization, as the current stock causes environmental damage, but such activities require additional funding sources. The purpose of this study is to systematically analyze the application of legal mechanisms of financing environmental projects implemented in the fuel and energy sector. The methodological framework of the study was determined by the approach of materialistic positivism, which determines the application of a set of general scientific and special legal methods of scientific cognition, in particular, the methods of formal logic, systematicity, analysis, comparative-legal and formal-legal methods. As a result of the study, the author proved that developing the legal doctrine of securities as a way of investment, namely creating a legal structure of digital green industrial mortgages, is applicable to the fuel and energy industry. Based on the results of the study, the author
concludes that the synergy of relations between economic entities, lending institutions and investors will have a multiple positive effect both on the country’s economy and on the environmental situation, if the priority legal instruments is applied to the relations arising in the implementation of environmental projects in the fuel and energy sector of the economy. The author proposes amendments to current laws, namely: to formalize a definition and legal framework of digital securities and their types in the annex to Chapter 7 of the Civil Code of the Russian Federation.

Keywords list (en): energy law, hydropower, investment operations, digital green industrial mortgage

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Since the last century, energy resources have occupied an essential place in the foundation of the production cycle, as their availability, methods of extraction and transfer between economic entities are key to ensuring the viability of all other sectors of the economy, while the level of development of the energy sector has an immediate effect on the financial and economic performance of the country [1].

The Russian Federation possesses a significant and diverse stock of natural resources characterized by fuel and energy properties, a developed infrastructure of energy production and transportation, scientific and human resources, which together form the national asset and contribute to ensuring the energy and economic sovereignty of the state. In this regard, at the present stage, both the state, which is the main source of harmonious and fair legislation, and society, which includes representatives of the industrial sector, the scientific community, and end users (citizens), a priori demand research aimed at finding new and “innovative” ways to fulfill the task of timely and quality legal support for the development of the fuel and energy sector. Especially in the period of unprecedented sanctioning pressure from unfriendly countries on the economy of the Russian Federation, which plays an important role in establishing a competitive and fair basis in international economic, political and social relations, it is necessary more than ever to pay attention to the legal and financial aspects of the fuel and energy sector and to seek alternative effective methods of ensuring the energy security of the state. We should be in agreement with the position of researchers on the priority of energy security as a component of national security [2].

It should be noted that the domestic fuel and energy sector includes a number of industries of the national economy that perform the functions of extraction, processing and transportation of natural energy resources, production, transportation and distribution of electricity. In accordance with Federal Law No. 256-FZ On the Safety of Facilities of the Fuel and Energy Sector of July 21, 2011, the sector includes facilities of
the electric power, oil production, oil refining, petrochemical, gas, coal, oil shale and peat industries, as well as facilities of oil product supply, heat supply and gas supply [3].

As it is noted in the scientific literature, Russia’s fuel and energy sector has a peculiar feature, which is expressed in the fact that organizations united by the single focus of economic activity, consisting in the solution of energy problems, are assigned to the fuel and energy sector [4].

However, we have to bear in mind that the extraction and processing of non-renewable natural energy resources, which currently dominate the fuel and energy sector of Russia, is associated with a high degree of negative impact on the environment, which carries an additional risk of creating a threat to environmental safety not only at the national, but also at the global level. At the same time, it is absolutely undeniable that green technologies are the least profitable in comparison with traditional brown production. This fact is confirmed by foreign studies [5].

According to N.S. Kudelnikov, one of the sources of environmental damage is associated with the extraction, transportation and storage of hydrocarbons [6]. Meanwhile, the system of energy production from renewable sources developed during the Soviet planned economy, including elements of nuclear, solar, air and water energy utilization, is now actively developed and supported by the state through the creation of business entities partially owned by the state.

In Russia, the share of hydroelectric power plant equipment has increased over the last two decades. However, this includes equipment that is nearing the end of its service life, as a significant number of hydroelectric power plants were built in the mid-20th century. Therefore, in the early 2000s, there was an urgent need to reconstruct and modernize the equipment. RusHydro PJSC was entrusted with the task of restoring the operating life of hydroelectric power plants. In December 2011, a program of comprehensive modernization of the power generation facilities was adopted, which provided for the repair and replacement of more than half of the turbines, generators, transformers, as well as more than 8,000 units of secondary communications and 4,000 units of auxiliary equipment, and the reconstruction of hydraulic structures [7].

Today, RusHydro Group is the undisputed leader in the field of power generation from renewable energy sources. The holding integrates research and development, construction, and production complexes that ensure the country’s uninterrupted energy supply and uses technologies that enable the extraction of electricity and heat from various sources, in particular through the construction of hydroelectric, thermal, solar, wind, and geothermal energy facilities. In addition, the excess energy produced is exported abroad.

There is no doubt that the use of renewable energy sources has a positive impact on the environment, therefore, the correlation between the problem of construction and reconstruction of existing hydroelectric structures and global climatic and environmental problems attracts enormous forces aimed at reducing the anthropogenic impact on nature. In this regard, RusHydro actively pursues environmental protection and nature management policies. RusHydro’s environmental policy is developed on the basis of analysis of many factors, trends and foreseeable national and global environmental
problems, and allows identifying a system of environmental challenges. Traditionally, there are three layers to environmental challenges: global, national and corporate.

9 The global challenges include:

10 - Widespread climate change and inevitable adaptation to changing natural conditions that threaten human life and health, the natural state of the Earth’s flora and fauna, as well as entail consequences in the form of changes in hydrological and meteorological parameters.

11 - The inevitability of reasonable and rational consumption of natural resources requires a significant increase in production efficiency in order to reduce negative consequences.

12 - Rapid depletion of open resource deposits and reduction of biodiversity caused by excessive use of natural resources.

13 - The accumulation of mass waste burial sites for consumption and production wastes, especially hazardous wastes, requires the adoption of innovative methods of utilization and recycling of produced wastes.

14 The challenges at the national level include:

15 - Limited availability of technological and technical solutions aimed at stabilizing the environmental situation and creating preventive barriers to environmental degradation and pollution.

16 - Existence of legal conflicts and contradictions of legal regulations between national laws on environmental protection and international laws, which creates difficulties in the application of regulations and generates new complex legal disputes, in the absence of adequate experience in judicial enforcement.

17 - The problem of silting of many rivers and lakes, pollution and deterioration of fresh water resources requires drastic changes in the approach to using national waters.

18 - Insufficient level of environmental awareness of the population results in low environmental and social responsibility towards nature.

19 The corporate challenges include:

20 - Extreme depreciation of the basic production assets requires significant investments in the modernization of power generation equipment in operation and maintenance of the required level of safety in the operation of production facilities.

21 - Lack of a unified list of environmental impacts due to the diversity of production facilities operated by RusHydro.

22 Obviously, it is necessary to take measures to counteract environmental degradation by means of comprehensive and timely modernization of basic production assets and financing of scientific work and research. The results of such research should be focused on the introduction of innovative methods and technical solutions that reduce the negative impact on the atmosphere, biosphere, lithosphere and other natural components during the production of thermal energy and its conversion into electricity.
As O.A. Serova has rightly pointed out, in modern conditions it is necessary to consolidate the state and society, represented by the business community, because sustainable development implies an environmentally friendly approach to the development of production processes. This requires the efforts of both state authorities and enterprises, which apply scientific and technological solutions in their activities [8].

Analysis of the business practices of domestic producers shows that business entities are interested in implementing their own environmental projects. For example, Norilsk Nickel invested more than RUB 18 billion in environmental projects in 2013 and RUB 22 billion in 2014. Bashkir Soda Company JSC allocated RUB 900 million in 2014, RUB 800 million in 2015, and more than RUB 1 billion in 2016 and subsequent years. [9]

RusHydro PJSC is guided in its activities by such principles as the principle of compliance with mandatory rules and requirements of environmental laws, the principle of comprehensive and mandatory environmental impact assessment, the principle of scientific validity of production and construction decisions; the principle of systematic solution of environmental problems, as well as a number of other principles that affect the achievement of the goal of increasing the level of environmental safety of hydropower generation facilities.

Based on the above principles, the mechanisms for implementing the company’s environmental policy, which can be divided into several components, were developed in the course of solving the tasks of preventing negative impacts on the environment. For example, a number of measures are being implemented for the large-scale reconstruction of hydroelectric power plants, including resource-intensive and expensive technical works, namely: commissioning of new turbines and equipment within hydroelectric power plants; reconstruction of concrete elements of hydraulic structures, improvement of upper and lower piers and adjacent elements of structures; restoration and reclamation of green areas and cleaning of water bodies adjacent to hydraulic structures, and a number of other works. The mentioned range of construction and installation works is carried out, in particular, at the following facilities: Volzhskaya HPP, Zhigulevskaya HPP, Votkinskaya HPP, Saratovskaya HPP, Zeyskaya HPP, Upper Volga HPP Cascade, Kamskaya HPP, Ust-Srednekanskaya HPP, and other facilities operated by RusHydro PJSC [10].

In addition to the ongoing construction, systematic scientific research and development is being carried out. The aim is to develop technologies that will reduce the negative impact on the environment and restore the river basins where hydropower plants are located. For example, a number of projects have been developed, tested, and are being prepared for launch, including a hydraulic unit that allows fish to pass through the hydraulic circuit, a range of methods to protect the flowing part of a HPP from zebra mussels; technological and design solutions for watering the Akhtuba river in the Volgograd Region to optimize “idle” emissions from Volzhskaya HPP and increase amount of electricity generated.

In particular, within the framework of the new mechanism of competitive selection of investment projects on the basis of the long-term capacity market, RusHydro Group of Companies will implement investment projects to ensure
construction and modernization of power generation capacities in the Far East at Khabarovskaya CHPP-4, Artemovskaya CHPP-2, Khabarovskaya CHPP-3, Vladivostokskaya CHPP-2, Mayskaya SRPP, and reconstruction of the fuel supply route of Magadanskaya CHPP. These measures are planned to ensure the transfer of loads from boiler houses and other inefficient heat energy sources to these heat generation facilities within the radius of their effective heat supply.

We cannot ignore the fact that the financial situation of some RusHydro companies operating in the Far North and similar regions is largely dependent on climatic conditions, as the construction industry does not differ much from other industries in terms of seasonal fluctuations and has its own unique peculiarities. This has its own impact on the production processes, financing, and timeline of construction projects. Seasonality in construction also has an impact on the course of the construction process. It all depends on the type of work being done.

Considering that in the winter of 2021–2022 the temperature fell below -45.3°C, the deep freezing of the soil and subsoil required additional financial inputs and sometimes led to the postponement of certain types of works, which negatively affected the financial result of the works.

Thus, the implementation of projects to renew renewable energy generation capacity often takes place in difficult natural conditions, which requires additional private investment. This study focuses primarily on the legal regulation of investments in projects implemented by environmental entrepreneurship, which may include RusHydro Holding.

The scientific literature identifies three forms of socially useful business behavior: 1) compliance with environmental laws; 2) distribution of natural resources in order to restore the disturbed ecological balance; 3) environmental entrepreneurship, i.e. the implementation of activities that pursue two goals at the same time: a) profit and b) environmental protection [11].

The paradigm, according to which the goal of environmental protection measures can be achieved only by accumulating profits, makes it necessary to create completely new legal mechanisms for investment in environmental entrepreneurship. Consequently, business entities need to attract additional financial resources to implement urgent environmental measures. As has been repeatedly pointed out in the scientific literature, environmental entrepreneurship, based on the ideas of sustainable development, requires specific civil law mechanisms, since traditional private law institutions do not take into account all the specifics of green investments [12].

Green investment is developing within the framework of ESG banking in accordance with the concepts of economic efficiency, social orientation and environmental friendliness [13]. It is possible to attract financial resources for a number of environmental projects, including the development of the fuel and energy sector, in two ways: 1) through the so-called green banking, where the source of financing is institutional investors, mainly financial institutions; 2) by attracting funds from private investors through civil transactions related to securities.
Today, the scientific community actively discusses the advantages of transforming traditional legal instruments into the digital ones using the Internet [14] and substantiates the increase of production efficiency and improvement of the environmental situation in case of transition to Industry 4.0, which provides for digitalization of production, economic and legal institutions [15].

Considering the digitalization of the Russian economy, we believe that the development of green banking is possible through a special financial instrument — “digital green industrial mortgage”. In accordance with Part 2 of Article 13 of Federal Law No. 102-FZ On Mortgages (Pledges of Real Estate) of July 16, 1998, a mortgage is a security that certifies the following rights of the mortgagee: 1) the right to obtain performance of a monetary obligation secured by a mortgage without providing any other evidence; 2) the right to pledge the mortgaged property [16]. It seems that laws on mortgage lending should be extended by introducing the requirements for the mortgagee of credit relations into civil law. At the same time, it is necessary to establish by law requirements for digital green industrial mortgages:

1. The parties to a loan agreement secured by a pledge (mortgage) shall be registered in a digital investment platform in accordance with the procedure established by law by entering full identification data into a secure database and submitting documents confirming the implementation of environmental activities, in particular, the organization’s articles of association, which, inter alia, specify environmental projects as the main type of activities; the required OKVED (Russian National Classifier of Economic Activities) is present in the Unified State Register of Legal Entities; a business plan, including specific types and a list of investment projects to be implemented; concluded and planned contracts for the implementation of environmental protection activities.

2. Under civil law, mortgages are considered securities issued either in the form of a document or, by agreement of the parties, in the form of a book-entry security. If digital green industrial mortgages are used to settle and record rights to securities, it should be ensured that each mortgage is assigned a digital control marking. In order to create a transparent reporting system, such marking should indicate the target nature of the green claims with the full content of the assets invested in each specific project implemented using such mortgage.

3. In addition to information on the parties to a loan agreement secured by a mortgage, the information investment platform shall have a description of the project to be implemented with the issued mortgages and publish the results and progress of the project.

We propose the following legal definition of the phenomenon in question. A digital green industrial mortgage is a book-entry security that certifies the rights of the mortgagee to receive a monetary obligation and/or to pledge the encumbered property. It is issued by agreement of the parties to the loan obligation in an information investment platform for the purpose of implementing environmental protection measures by business entities in their production activities.

At the same time, it should be noted that such mortgages, like stocks or bonds, are indivisible and it is impossible to acquire rights to a part (a tenth, a hundredth, etc.)
of the mortgage. However, taking into account the undoubtedly high nominal value of the digital green industrial mortgage (assumed to be the price of a monetary obligation), in order to facilitate its circulation in the market of book-entry securities (stock market) and in civil turnover, we believe it is possible to authorize co-ownership in an amount proportional to the amount invested by the investor in the mortgage.

The relationships arising in the circulation of digital green industrial mortgages can be analyzed by the parties involved and their interests. First of all, the mortgagor is a business entity that receives a lump sum or a periodic amount of money from the bank to implement an eco-project, for example, to reconstruct a hydroelectric power plant, to upgrade the production of plant protection agents, etc. The lump-sum or periodic payments from the bank allow the business entity to save its own funds and at the same time implement a socially important project. Secondly, the bank gets the opportunity to check the reliability of the business entity in implementing eco-projects and make a decision to grant a loan based on the rating, which is updated online using artificial intelligence, excluding any human factor. After the loan is approved, the bank disburses the funds to the mortgagor and takes full control of the accountability for spending the funds in accordance with the project objectives. The bank’s main advantage in securitizing a loan obligation is that when the mortgage is placed on the market, the funds that flow from investors to the bank to purchase the rights to the mortgage immediately the bank’s own costs without waiting for the loan to be repaid on the agreed schedule. Finally, by purchasing the rights or part of the rights to a digital green industrial mortgage, the investor indirectly finances environmental protection measures, including in the fuel and energy sector, through the bank and at the same time acquires the right to receive the monetary obligation (its part) and the mortgaged property (its part), which ensures the safety of the investment and guarantees its repayment. In addition, the investor’s interest is supported by the possibility of making a profit from the difference in the exchange rate of the mortgage on the market.

Thus, the synergy of relationships between the subject of eco-entrepreneurship (entrepreneur), the lending institution (bank) and the investor (any legal entity and individual) gives a multiple positive effect both on the economy of the country and on the environmental situation. Moreover, the above interests of all parties indirectly compensate for the problems lurking in the implementation of micro-generation projects in the green economy mentioned in the scientific literature [17].

We can draw the following conclusions as a result of this study. Legal support for implementing environmental measures in the fuel and energy sector requires the regulation of digital financial instruments. A digital green industrial mortgage may well be one. In order to create this legal institution, we propose to amend existing laws, namely, to add to Chapter 7 of the Civil Code of the Russian Federation with Section 4 “Digital Securities”, where it is necessary to formalize the definition and legal framework of digital securities and their types; to add to Federal Law No. 102-FZ On Mortgages (Pledges of Real Estate) of July 16, 1998, Article 13.7, where it is necessary to formalize the definition and legal framework of digital green industrial mortgage; the procedure for its issue; the rules for making changes in the legal framework of digital green industrial mortgage; the procedure for its registration in the investment platform and transfer to another depository for safekeeping; peculiarities of issuing a digital green industrial mortgage via the Internet; peculiarities of mortgage repayment.
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Кокорева Татьяна Васильевна
Advisor to CEO for Legal Affairs at Ust-SrednekanGESstroy JSC, Ust-SrednekanGESstroy JSC
Российская Федерация, Хабаровск

Аннотация

The development of the fuel and energy sector is the most important strategic task of the Russian Federation for the foreseeable future. Obviously, it cannot be solved without timely and high-quality statutory regulation. A related problem is the global environmental degradation, which is largely due to the long and complex process of modernization of production facilities of both extractive and processing industries. In particular, the fuel and energy industry is associated with serious environmental risks arising during the extraction, transportation and storage of natural energy resources. In this regard, it seems that the fuel and energy sector associated with generating heat and electricity from renewable energy sources is the least exposed to environmental risks related to the reduction of natural resources. At the same time, the equipment used, for example, in hydropower generation urgently needs modernization, as the current stock causes environmental damage, but such activities require additional funding sources. The purpose of this study is to systematically analyze the application of legal mechanisms of financing environmental projects implemented in the fuel and energy sector. The methodological framework of the study was determined by the approach of materialistic positivism, which determines the application of a set of general scientific and special legal methods of scientific cognition, in particular, the methods of formal logic, systematicity, analysis, comparative-legal and formal-legal methods. As a result of the study, the author proved that developing the legal doctrine of securities as a way of investment, namely creating a legal structure of digital green industrial mortgages, is applicable to the fuel and energy industry. Based on the results of the study, the author concludes that the synergy of relations between economic entities, lending institutions and investors will have a multiple positive effect both on the country’s economy and on the environmental situation, if the priority legal instruments is applied to the relations arising in the implementation of environmental projects in the fuel and energy sector of the economy. The author proposes amendments to current laws, namely: to formalize a definition and legal framework of digital securities and their types in the annex to Chapter 7 of the Civil Code of the Russian Federation.

Ключевые слова: energy law, hydropower, investment operations, digital green industrial mortgage

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