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**COOPERATION BETWEEN RUSSIA AND THE EAEU IN THE**  
**FIELD OF RENEWABLE ENERGY**

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### Abstract

The creation and implementation of a new energy policy requires enormous and consolidated efforts and resources from the state. Such consolidation is possible within the framework of cooperation between the EAEU countries. The relevance of the study is caused by the insufficient level of development of various forms of scientific and technical cooperation of the EAEU countries in the field of renewable energy. This is particularly acute against the background of the active use of renewable energy sources in the world. In this regard, this paper identifies and studies the forms of scientific and technical cooperation of the EAEU countries in the field of renewable energy for further proposals on the introduction of the most effective forms of such cooperation. The analysis of scientific works, legislation and practices of its application in Russia and the EAEU countries on the issues of scientific and technical cooperation in the field of renewable energy is the leading approach to the study of the problem. This approach made it possible to identify the current forms of such cooperation, to determine the promising forms necessary to stimulate the development of renewable energy in the EAEU countries, to justify a number of proposals for the development of cooperation within the studied field (strengthening interstate scientific research, closer cooperation between scientific and educational institutions, development of a unified strategy for the renewable energy sector).

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## 1. Introduction

There is a growing global concern that the substances generated by energy from traditional non-renewable sources (oil, coal, gas) are the main environmental contaminants. Energy policy, which affects the stability of national sovereignty and the development of the socio-economic sector, is becoming one of the most important priorities within the national policies of states. According to experts, the use of hydrocarbon fuel will reach its maximum by 2050, after which it will begin to decline. Besides, the use of renewable energy sources (RES) will only grow. These processes will lead to the redistribution of political and economic influence in the world. Countries that are already actively developing the field of renewable energy (RE) will form the priority in this field.

Russia belongs to countries with pronounced traditional energy, which will face economic and political difficulties if it does not quickly adapt its industry and economy to the expected changes. Russia has a fairly high RE potential. Solar power plants are already operating in the country, solar modules are being produced, and the national technology for the production of heterostructure-based modules has been developed and patented. Due to extensive forest resources, Russia is the fifth largest producer of biomass. Geothermal and wind power are developing. Undoubtedly, hydropower, which in Russia belongs to traditional but renewable energy is the leader in power generation. The Ministry of Energy of the Russian Federation plans to expand its production from renewable energy by 13–20 times until 2035.

At the same time, one cannot but admit that the development of RE in Russia is still quite slow. While declaring its interest in improving the mechanisms for RE introduction into the country's energy system, in fact, the state can offer only a few projects and developments. Clearly, this new system requires enormous efforts and resources from the state, so it is necessary to consolidate efforts to create the most effective RE system. Such consolidation is possible within the framework of cooperation between the EAEU countries.

Many domestic and foreign scientists, including Sacker (2010), Chaisse (2016), Bellantuono (2017), Chang (2015), dealt with the issues of RE development, sustainable nature management within the energy sector of Russia and foreign countries. The general issues of scientific and technical cooperation of the EAEU countries were covered to the studies of Efimtseva (2019), Andronova (2018), Likhacheva et al. (2018). Certain industries and areas of scientific and technical cooperation of the EAEU countries were considered in their works by Lisin et al. (2018). However, there was no research on scientific and technical cooperation of the EAEU countries in the field of renewable energy.

## 2. Problem Statement

The development of various forms of scientific and technical cooperation of the EAEU countries in the field of RE is a necessary stage in the effective implementation and use of RES, solution of existing and potential socio-economic and political problems in the EAEU countries. However, scientific and technical cooperation in the field of RE of the EAEU countries is developing very slowly, and the existing forms are not effective enough.

### **3. Research Questions**

In this regard, there is a need to study the forms of scientific and technical cooperation of the EAEU countries in the field of RE in order to further develop proposals on the introduction of the most effective forms of such cooperation.

### **4. Purpose of the Study**

The purpose of the study is predetermined by the problem statement and includes the study of the forms of scientific and technical cooperation between Russia and the EAEU countries in the field of renewable energy to determine their further development prospects.

### **5. Research Methods**

The analysis of scientific research, legislation and practices in the Russian Federation and other EAEU countries on the issues of scientific and technical cooperation in the field of renewable energy made it possible to identify the current forms of such cooperation, as well as to determine the promising forms necessary to stimulate the development of renewable energy in the EAEU countries. In particular, the Treaty on the Eurasian Economic Union of May 29, 2014 was analyzed; the concept of the common energy market of the Eurasian Economic Union approved by the Decision of the Supreme Eurasian Council No. 12 of May 8, 2015; the Decision of the Supreme Eurasian Economic Council No. 20 *On the Program for the European Electricity Market* of the Eurasian Economic Union of December 26, 2016, the Decision of the Supreme Eurasian Economic Council *On the Main Economic Directions of the Eurasian Economic Union*, the Report on *Economic spheres with integration potential in the Union, and measures aimed at its use* approved by the Order of the Eurasian Intergovernmental Council in 2016 and many others.

The obtained results made it possible to identify regulatory gaps and challenges in the establishment and use of the forms of international scientific and technological cooperation in the field of renewable energy development. They were summarized and formed the basis for proposals to improve cooperation between the Russian Federation and the EAEU countries in the field of more effective development of renewable energy.

### **6. Findings**

There are many factors contributing to effective international scientific and technical cooperation. Among them, first of all, it is worth highlighting political factors (legislative, state), economic factors, factors related to the development of information and communication technologies, linguistic and cultural, geographical factors and factors related to the solution of global problems of the mankind. Analyzing these factors in relation to the interstate scientific and technical cooperation of the EAEU countries, it is worth noting the great prospect of such interaction. It served the basis for the creation of the EAEU, it should be taken into account in the global interaction of the EAEU member states on the

most important issues of social and economic development. In the future, until 2025, the EAEU plans to overcome obstacles related to the movement of goods, services, capital and labor, create a single market for energy resources, develop a coordinated industrial and agricultural policy, form a digital space, create a common supporting infrastructure, etc. It is necessary to be guided, first of all, by the prospect of cooperation, even experiencing various kinds of difficulties in developing cooperation.

Integration in the scientific and technical sphere is a priority as it lays the foundations for further improvement and development of interstate cooperation. Based on the experience of the EU countries, such interaction develops a common scientific, technological and innovative space, contributes to the transition from competition to cooperation through the joint potential of various countries. Recently, science has become a global factor in social development. It stimulates the states to scientific leadership, attract scientists and specialists from abroad, contributes to the formation of a single scientific and educational space. International scientific and technical cooperation should be a necessary tool of the foreign and domestic policy of the EAEU member states.

International scientific and technical cooperation of the EAEU countries can be defined as the joint development and solution of scientific and technical problems, interaction in the exchange of scientific achievements and training of qualified personnel within the EAEU. It takes various forms: coordination, cooperation, association, harmonization, regional integration, etc.

One of the main objectives of the EAEU is comprehensive modernization, cooperation and competitiveness of national economies under the global economy umbrella. The policy of intensifying international scientific and technological cooperation in the field of RE development should contribute to this objective.

To achieve the objective of efficient use of the prospects of fuel and energy complexes, to provide national economies with the main types of energy resources, the EAEU member states agreed to develop long-term mutually beneficial cooperation in the field of energy, to implement a coordinated energy policy, and to ensure a phased formation of common markets for energy resources. The EAEU states are gradually forming a common electricity market based on parallel domestic electricity systems. To regulate this process, the Concept of the Common Electricity Market of the EAEU and the Program of the Common Electricity Market of the EAEU approved by the Supreme Council of the EAEU were developed. Unfortunately, these documents did not reflect the importance and prospects for the development of the RE market in the common market of energy resources.

Around the same time, the Supreme Eurasian Economic Council makes the decision *On the main economic directions of the Eurasian Economic Union*, according to which the states should choose common long-term directions for economic development and integration measures, as well as determine criteria for cooperation in areas with high integration effect. A promising direction for improving the competitiveness of the economy indicated in this document is not only the improvement of energy efficiency, but also resource saving (rational and economical use of natural and material resources). The states are facing the task of satisfying the energy needs of their economies and population through efficient use while reducing environmental loads. It is proposed to solve this problem, including through the development of RES. The implementation of this area involves the creation of a joint scientific platform for the development and commercialization of energy-efficient

technologies to increase the depth of energy processing, for the construction of energy infrastructure with minimal negative consequences for the environment. This was document was advisory and not mandatory for application in the EAEU states. Pursuant to this Decision, a report was prepared – *Economic spheres with integration potential in the EAEU and measures aimed at its use*. Guided by the developed methodological recommendations for identifying areas of the economy with high integration potential it included “industries of the future” as the priorities of scientific and technological development of the EAEU states: sustainable nature management, energy efficiency and energy saving. The innovative products of the “industries of the future” include RES based energy. The results of the work presented in the Report made it possible to identify the areas of the economy in which the integration measures will bring the maximum effect for all EAEU states.

The markets for the “industries of the future” are only being formed, which increases the ability of the EAEU to take and strengthen its position there. RES integration will make it possible to obtain a significant economic effect by coordinating the national innovative policies of the EAEU member states and deepening their cooperation with the leading countries of scientific and technological development in the corresponding R&D sector. In 2017, the development of renewable energy technologies was included in the list of priority areas of interaction between the EAEU states in order to accelerate technological modernization and increase the innovative activity of organizations within the EAEU states, taking into account applied and fundamental research conducted by them.

The measures aimed at the development of scientific and technological cooperation in the field of RE should include: coordination in the field of RE technology transfer (by creating the RE R&D centers, a system for scientific and technical information exchange, a system to post the information on best practices and advanced technological solutions on RE issues); creation of a single information and consulting mechanism to support business entities and investors in RE (through a common information Internet resource on investment, infrastructure and innovative projects at various stages of implementation, as well as joint ventures in the field of RE); creation of a common platform for scientific and technological foresight of RE development; creation of a coordination system of scientific and technological development in RE sphere; establishment of joint institutions of innovative development and common standards for organizations supporting innovative development, and on their basis the creation of appropriate structures for RE development (incubators, technology parks, industrial parks/zones, etc.); creation of necessary conditions for interaction between the representatives of university science of the EAEU states in the implementation of joint innovative projects in the field of RE; creation of conditions for interaction between economic entities of the EAEU states through the formation of communication platforms and common databases, coordination of exhibition and congress activities in the field of RE; stimulating the use of research and development results in the field of RE implemented in the EAEU countries, in case of their compliance with the requirements and lack of national analogues; financial stimulation of innovative processes in the field of RE, including through the provision of grants, the formation of special funds on a multilateral basis to finance innovative projects, support high-tech industries and companies related to RE development and implementation.

Interaction is carried out through round tables. In particular, on December 14, 2018, a round table was held in the building of the Executive Committee of the CIS Electricity Council on the topic: *Innovations in the Electricity Industry of the CIS and EAEU Countries, Current State and Prospects*; On December 5, 2018, in Moscow, as part of the Electric Networks International Forum, the Director of the Energy Department of the Eurasian Economic Commission L.V. Shenets spoke at the round table *Inviolable Union: EAEU Electric Power Market* with a report *Creating common markets as the main factor in improving energy security of the EAEU member states*.

Numerous scientific conferences have been held, among which it is worth highlighting the Interdisciplinary International Scientific and Theoretical Conference “Theoretical and Methodological Approaches to the Model of Scientific and Technical Cooperation of the Russian Federation and the CIS Countries, the EAEU in the Sectors of the Fuel and Energy Complex on the Problems of Sustainable Nature Management, Ecology and Environmental Protection” held in April 2020 by Orenburg Institute (a branch) of the O.E. Kutafin Moscow State Law University (MSLU) with the participation of the Ministry of Education of Orenburg Region, the Institute of Ecology and Subsoil Use Problems of the Academy of Sciences of the Republic of Tatarstan, Orenburg Regional Branch of the Association of Russian Lawyers; II International Scientific and Practical Conference “Alternative and Intellectual Energy” held in April 2020 at Voronezh State Technical University; International Scientific Conferences “Energy and Resource Efficiency for Sustainable Development” held in 2019 by Irkutsk Technical University, and in 2018 on the basis of leading Tomsk universities and research organizations; X International Scientific and Practical Conference “Prospects for the Development of Scientific and Technical Cooperation of the EAEU Member States” held by Astrakhan State University of Architecture and Construction in November 2016 and others.

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Moreover, in order to coordinate scientific and innovative activities in the field of interstate cooperation between the EAEU countries on RE issues, it is necessary to compile a list of research and development tasks in the field of RE, as well as to prepare a plan for their implementation in the EAEU.

This international legal form of scientific research, in which the EAEU countries will perform their research efforts related to renewable energy, can be embodied in the form of a joint program.

Besides, the form of regional integration also needs to be developed for closer cooperation between educational and scientific institutions, teams of scientists. Such integration should be carried out towards the development and implementation of uniform requirements for educational programs, the creation of university-based areas for specialists' training in the field of renewable energy.

## 7. Conclusion

It is necessary to develop the existing and introduce new forms of international scientific and technical cooperation of the EAEU countries in the field of renewable energy. It is worth paying attention to the systematization and harmonization of national RE industries in order to form a unified strategy for its development.

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