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**DEVELOPMENT OF THE HYDRO-ENERGY COMPLEX OF REPUBLIC OF ARTSAKH**

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An attempt is made to analyze the development of the hydropower industry in Republic of Artsakh (Nagorno Karabakh Republic) in a comprehensive way, identifying the basic problems of the industry. It is shown that the development of the hydropower complex forms the prerequisites for implementation of the concept of an “energy independent” state, and in the future - state with an excess of electricity capacities ready to increase exports. Thus, the possibilities of exporting the electricity produced in Republic of Artsakh are analyzed. The main factors preventing the republic from making full use of its export potential are identified. In particular, the level of influence of the international status of Republic of Artsakh as an unrecognized state on the development of energy communications are studied. Export issues are considered in the context of Armenia's connection to the “North-South” energy corridor. It is shown that taking into account the construction of the high-voltage air line Arajazor-Qarvachar-Zod, the output of Artsakh electricity through Armenia's energy system to foreign markets looks quite realistic.

Particular attention is paid to historical preconditions for the formation of the hydropower complex of Republic of Artsakh. It is revealed that during the Soviet period the foundations for the sustainable development of the Artsakh energy system was created, which was expressed in the presence of necessary infrastructures on the basis of which the entire energy security system of the republic was built during the years of independence.

The peculiarities of the policy of assessing the energy potential and development of water resources conducted in Republic of Artsakh are studied. The target program of the government "Development of the NKR water resources", as well as the basic values and criteria of the industry development laid down in the main legislative acts regulating the industry - "Law on Energy" and "Law on Energy Efficiency and Renewable Energy" are analyzed. It is revealed that hydropower is a kind of system-forming factor that stimulates the institutional development in Artsakh. As the most successful example, the IPO (Initial Public Offering) of JSC "Artsakh HPP" which gave a new quality to the state financial and economic institutions is considered. It is stated that the energy system of Republic of Artsakh acts as the locomotive of its economy, which demonstrates high rates of development. According to the results of 2015, economic growth in the republic amounted to 9.1%, following the results of 2016 - 9.2%,

which was largely promoted by activity in the construction of hydroelectric power infrastructures and the growth of electricity production.

**Keywords:** Republic of Artsakh, hydropower, water resources, energy independence, energy surplus, export, IPO.

The main challenge to the energy security of Republic of Artsakh is full self-sufficiency with electricity in order to achieve energy independence. Based on the rich experience accumulated over the past 40 years, at present, in Republic of Artsakh, construction of hydropower infrastructures is being carried out, designed to bring the republic to complete self-sufficiency in electricity. In this regard, the main goal of the national energy policy of Artsakh is to assess the energy potential of water resources, as well as the modernization and construction of hydropower infrastructure with the restoration and technical re-equipment of electrical networks. Within the framework of the program of activities of the Government of Republic of Artsakh for 2012-2017, it was noted that in the coming years, the new hydroelectric power plants (HPPs), as well as the already operating “Sarsang” HPP, will be able to produce up to 400 million *kWh* of electricity per year [1]. In 1995-1997, the complex monitoring of the water resources of the republic was carried out, according to which the indicators mentioned in the government program look quite realistic.

At present, the installed capacity of the hydropower industry of Artsakh is 106 MW, the largest share are:

“Sarsang” HPP – 50 MW,  
“Trgi-1” HPP – 3 MW,  
“Trgi-2” – 5.9 MW,  
“Trgi-3” – 5 MW,  
“Mataghis-1” - 4.8 MW,  
“Mataghis-2” - 3 MW, etc.

Thus, in terms of installed capacity, the largest HPP in the Artsakh energy system is the Sarsang HPP, built in 1976 on the Tartar River and considered as one of the well-equipped and efficient hydropower plants built in the USSR. The main advantage of the Sarsang HPP is the presence of the Sarsang reservoir, which, in the case of a decrease in demand for electricity and a reduction in generation, makes it possible to accumulate water with its further use and a sharp increase in generation even in conditions of a reduction in the natural flow of the river. The reservoir itself has a capacity of more than 560 million cubic meters. The “Sarsang” HPP is equipped with two hydro turbines of 25 MW each; the volume of water consumption at the station reaches 33.2 cubic meters per second.

### ***Historical preconditions for the development of hydropower in Artsakh***

The energy industry of Republic of Artsakh, which counts over 90 years, passed a very complex path of development. In 1923, the first electric lamp was lit in the area of Armenavan in Stepanakert with the help of a diesel generator with a capacity of 35 kW, and in 1930, a first hydroelectric power plant with a capacity of 480 kW was built on the Kar-Kar River. These two events, in fact, formed the basis for the formation of the energy system of Artsakh [2].

In 1940, near the village of Mataghis on the Tar-Tar River, the construction of a small hydroelectric power plant was begun; it was launched in 1947, providing electricity to the city of Mirbashir (since 1991 - Terter) of the Azerbaijan SSR. In 1954, the Aghdam-Stepanakert (35 kV) power transmission line was commissioned, as well as a transformer station that provided electricity to Stepanakert, Shushi and nearby settlements. A substation was also built, providing with electricity in the beginning only Askeran, and then the nearby villages via an overhead line (10 kV).

In 1955, in the Hadrut region, on the Ishkhanaget River, the construction of three small hydroelectric power stations was begun: in 1957 small hydropower plants of Tumi and Taglar were commissioned with a capacity of 55 kW and 50 kW, and in 1958 - a small "Togh" HPP with a capacity of 80 kW. However, at the initial stage of the development of the energy system of Artsakh, the existing infrastructures functioned independently of each other and did not have the capacities necessary for large-scale electrification. It became obvious that the development of industry, as well as agriculture, is impossible without integrated energy development, and as a result, by the end of the 1950s, rapid construction of new energy infrastructures started.

In 1976, a hydroelectric power plant erected on the Tar-Tar River with a capacity of 2x25 MW was commissioned. Electricity produced at this HPP became available to Stepanakert only in 1992, when the "Tar-Tar HPP – Stepanakert" power transmission line was carried out with the necessary substations (eg. "Gaterk" and "Vank") [2].

In general, it can be stated that in the Soviet period, the foundations for the sustainable development of the Artsakh energy system were created, which is primarily expressed in the presence of necessary infrastructures, on the basis of which the entire energy security system of the republic was actually built in the years of independence.

The availability of a developed infrastructure and the rich water resources, as well as the prevailing geopolitical situation, which is mainly led to communication limitations, actually formed the basic principle of the national energy policy of Republic of Artsakh, ensuring the energy independence. The latter can be considered as a basic component of strengthening the sovereignty of the republic with a direct impact on the level of state-building. Although the infrastructure capacities in general passed to the republic in the worn-out condition after the collapse of the USSR the



implementation of large investments and consistent policy aimed at increasing the level of energy security in the post-war period allow us to talk about the energy system, formed in the years of the Soviet power, as the basis for the republic's energy development in the future [3, p. 74].

### ***Water Resources Development Policy***

For the full-fledged functioning of the system of energy security of the state, first of all, it is necessary to have a legislative base that determines the basic principles and directions of the industry development. In this sense, Republic of Artsakh is not an exception, having a well-established legislative infrastructure demonstrating a pragmatic interpretation of the importance of multi-level dynamic development of its energy complex. At the same time, the laws regulating the industry stand out for their conceptuality, i.e., a basic vision of the main vector of the republic's energy development, and a fully applied value. In this regard, let us turn to the following system-forming documents - the "NKR Energy Law" and the "NKR Law on Energy Efficiency and Renewable Energy", which pay special attention to the basic principles of the state policy for long-term development of the industry with the following goal-setting:

- strengthening the economic and energy independence of Republic of Artsakh;
- increasing the degree of energy security of Republic of Artsakh, as well as the reliability of the energy system;
- creating new industries that promote energy conservation and the development of renewable energy;
- diversifying the energy system and improving the energy efficiency;
- reducing the man-caused impact on the environment and the human health [4, p. 159].

It is noteworthy that the legal regulation of the industry is noted as the basic principle of implementing the state policy in the energy sector. In particular, among such principles, it is necessary to emphasize protection of rights and balancing the interests of energy consumers and energy producers, ensuring transparency of licensing activities, clear division of economic activities, public administration and regulation, etc. Turning to the purely economic issues prescribed in the "NKR Energy Law", we should pay attention to such key principles as the stimulation of investment activities in the industry, the strengthening of energy independence of the republic through the diversification of energy resources and maximum use of production capacities, state support of scientific and technical activities in the field of energy efficiency and energy saving, the introduction of new technologies, training and retraining of personnel, etc. [5].

As already mentioned, among the basic mechanisms for the development of the energy sector, special attention is paid to licensing issues. In particular, the "NKR Law on Energy" provides for multi-level licensing, which pragmatically defines the boundaries of the activities of economic entities. Thus, the system of state policy in the sphere of energy in Artsakh presupposes the issuance of separate licenses for the import of electricity and natural gas, the export of electricity, the construction of production facilities, the production, transportation, distribution, provision of services in the electric power market, the license of the operator of the system, etc. [6]. In this regard, it is necessary to turn to the basic principles of the state energy policy, one of which is limited to the differentiation of activities in the sphere of production, supply and distribution of energy, which, by the way, directly echoes with the Third Energy Package of the European Union and testifies to a deep understanding of the trends of modern energy markets [7, p. 9-10].

Studying the legislative infrastructure of national energy policy, it is impossible to ignore the "NKR Law on Energy Efficiency and Renewable Energy", which also stands out for its conceptual vision of the "energy future" of the republic. Among the basic principles of the energy policy are, for example, increasing the level of satisfaction of demand of the population and the economy for energy resources with the help of own renewable sources, developing and stimulating the use of new technologies in the industry, securing the rights of economic entities involved in the "green sector", supporting consumers in choosing various types of energy resources, as well as energy-saving technologies, etc. [8]. It should be noted that the Law also provides for state energy efficiency standards, which allows to use the available resources in the most competent and systematic way, as well as to carry out objective monitoring and evaluation process [9]. The degree of understanding of the need to increase energy efficiency and the development of renewable energy is evidenced by the measures envisaged by the Law aimed at improving the quality of education and training in the industry. In particular, the national energy policy of Republic of Artsakh, among other things, is also built on the implementation of targeted educational programs for educational institutions of all levels. Along with this, it is planned to continuously upgrade the skills of engineering personnel. Demonstrating that energy efficiency and renewable energy are not just functioning according to some economic and technical laws but directly related to the level of public consciousness, the Law also supposes the implementation of information policy aimed at promoting energy efficiency and renewable energy in the society through the establishment of targeted work with the media, holding exhibitions, seminars and the use of other communication tools [10].

Thus, the legislative basis for regulating the energy sector of Republic of Artsakh is a fully mature infrastructure necessary for the successful conduct of national policy in the industry.

In order to comprehend the specifics of the national policy of Republic of Artsakh in the hydropower, let us turn to the government's target program "Development of the NKR Water Resources", the main goal of which is to improve the level of national security through the development of the energy security system. The main objectives of the program for 2008-2015 include:

- Construction and further operation of new small HPPs on rivers passing through the territory of the republic;
- Technical re-equipment of enterprises involved in the hydropower industry based on the latest technologies;
- Attraction of internal and external investments with their direction on the development of the industry.

The main target of the program is the production of a volume of electricity that would cover the demand of the economy of the republic, as well as export (see table).

*Table [11]*

*The main targets for hydropower development in the Republic of Artsakh*

Annual production of electricity, <b>2008</b>	100 million <i>kWh</i>
Annual electricity demand, <b>2008</b>	230-240 million <i>kWh</i>
Projected annual electricity demand, <b>2015</b>	300 million <i>kWh</i>
Hydropower potential of the republic	350 million <i>kWh</i>
Target annual electricity production	350 million <i>kWh</i>

The eight-year government program aimed at achieving the level of energy redundancy in the republic included two main stages. **Within the framework of the first stage (2008-2011)**, it was planned to build five small HPPs with a capacity of up to 10 *MW* on the Tartar River, as well as on the water canal between the Trgi River and Tartar River. It was also planned to build a cascade consisting of two hydroelectric power stations on the Tartar River in the vicinity of the Mataghis village. In turn, the operation of this cascade was to be carried out at the expense of water from the Mataghis reservoir. Along with this program, the construction of a cascade, consisting of three hydroelectric power stations on the channel Trgi-Tartar was envisaged. As a result of the completion of projects envisaged by the first stage, it was planned to increase electricity production to 210...225 million *kWh*, which would cover 85...90% of demand in the republic. In turn, it was stipulated that these

indicators would allow the country to save up to 1.5 billion RA drams and to direct these funds to the development of the industry.

**Within the framework of the second stage (2012-2015)**, additional hydropower facilities were planned, resulting in the production of electricity in the republic up to 350 million *kWh*, covering 100% of domestic demand and allowing the activation of exports. It is important to note that as a result of the launch of the target program, with the available capacities already in 2013, Artsakh covered 85% of its domestic electricity consumption, while this indicator was still fluctuating within the limits of 40-50% in 2005-2010. [12].

The target program also has a social mission. In particular, with its implementation, the issue of increasing the number of vacancies in Martakert was connected, which in turn would lead to normalization of the process of overpopulation and to solve a number of socio-economic problems in the region.

#### ***IPO and self-sustainability***

To implement the target program and to achieve the presented indicators, it was planned to attract financial resources from the following sources:

1. Funds generated as a result of the issue of shares of OJSC “Artsakh HPP”.
2. Own funds of OJSC "Artsakh HPP".
3. Loans received from commercial banks.
4. Funds from the state budget of Republic of Artsakh.

It should be noted that a significant part of the financial resources necessary for the implementation of the target program was ensured by the launch of the IPO (Initial Public Offering) of the state-owned company “Artsakh HPP” in 2009 which was an unprecedented event not only in the Artsakh but also in the Armenian economy. As a result, the population of Artsakh, as well as Armenia and the representatives of the Armenian Diaspora had a direct participation in the development of the energy system of the republic. At the same time, the total issue volume was AMD 3.45 (3285715 shares at the price of AMD 1,050 each). The IPO became a part of the reforms implemented by the republic in the energy sector aimed at increasing the level of energy independence. As noted in the investment memorandum of “Artsakh HPP” CJSC, the fixed volume and tariff of the company's sales, lack of impact of local and global crises on its activities, income tax rate of 5%, government support for the company, its effective divisional policy, high profitability in conditions of low business risk can inspire optimism to the investors. The Memorandum notes that the funds received as a result of the IPO are intended for the construction of three hydroelectric power stations on the largest river of the NKR - Tartar, and on the channel connecting the Trchy and Tartar rivers. The new HPPs will be low-power (up to 5 MW) equipped with the latest equipment, the exploitation of which is estimated at

40 years. It is noteworthy that the public offering of OJSC "Artsakh HPP" shares was twice carried out also in 2011, which allowed increasing the authorized capital of the company up to AMD 10.6 billion [13].

Today, in order to achieve full self-sufficiency, research and development work is actively carried out in the republic with the prospect of erecting new hydropower facilities. In the last 10 years, 16 hydroelectric power stations have been built in Artsakh, which allowed to increase electricity production by more than 6 times and reach the level of self-sufficiency in electricity, involving more than 2,000 people in the energy sector. During 2011-2015, the hydro power system of Artsakh demonstrates a steady growth of production indicators. Due to the active implementation of the target program for the development of water resources, by the end of 2016, 296.4 million *kWh* of electricity was produced in Republic of Artsakh, while consumption was 299 million *kWh*. When considering these indicators in the context of implementing the target program, it can be concluded that the measures envisaged in it lead to predictable results necessary for the formation of the energy-surplus economy of the republic. Today, the power system of Artsakh acts as the locomotive of its economy, which demonstrates high rates of development. According to the results of 2015, economic growth in the republic amounted to 9.1%, following the results of 2016 - 9.2%, which was largely promoted by activity in the construction of hydroelectric power infrastructures and the growth of electricity production [3].

#### ***Problems of the electricity export***

Thus, surplus of electricity is projected in Republic of Artsakh, which, in turn, can be considered as a potential export opportunity. In connection with the forecasts presented in the target program, the new small HPPs will allow increasing demand and create the necessary basis for achieving the energy independence of Artsakh. Now a small HPP "Trgi-4" with a capacity of 0.76 *MW* and an average annual output of 3,46 million *kWh* is under construction. After the commissioning of the "Trgi-4", the hydro-electric power stations "Trghi-2", "Trgi-2" and "Trgi-3" will annually produce an additional 11,94 *kWh* electricity. Also, a small HPP "Lev-1" with an installed capacity of 7,0 *MW* and an average annual output of 37,0 *kWh* is also under construction. It is assumed that after the delivery of these HPPs in operation, the total installed capacity of hydroelectric power plants will be about 150 *MW* [14].

The policy of ensuring energy surplus testifies to the high export potential of Artsakh, the implementation of which depends not only on techno-economic but also on political problems. If, in the Soviet years, the development of the transport infrastructure of Artsakh was deliberately blocked by the Azerbaijani SSR, today the problems of export and import, first of all, are connected with the status of Artsakh as an unrecognized state. Because of it, today, the republic carries out its foreign trade

through the companies registered in Armenia and enters the international market, including the countries of the Eurasian Economic Union (EEU) with the inscription "made in Armenia". Not having the opportunity to directly export electricity to the neighboring countries (for example, to Iran or Georgia) because of its political status, Artsakh seeks integration in the energy markets of the region through Republic of Armenia. According to preliminary estimates, exports of electricity can provide the economy of Artsakh profit necessary for the economic growth of the state [11]. In this context, a special importance should be given to the design work on the second air high-voltage line Arajazor-Qarvachar-Zod, connecting Artsakh with Republic of Armenia [1].

In general, the development of the hydropower complex of Republic of Artsakh should be considered, taking into account the permanently increasing demand for electricity in the region. This will be especially important when Armenia is connected to the "North-South" energy corridor. As we know, in April 2016, the energy ministers of Russia, Armenia and Iran signed a road map for the energy corridor. Within the framework of the program, the construction of electricity transmission lines between Armenia and Iran, as well as the construction of a high-voltage transmission line between Armenia and Georgia for *KfW* bank loans are conducted. The construction of 400-kilovolt power lines Iran-Armenia and Armenia-Georgia will allow to expand communication between the energy systems of the countries. Today, the power grids of Iran and Armenia, as well as Georgia and Russia operate in a synchronous mode. The agreement will allow the energy networks of all four countries to work in synchronous mode with a capacity of overflows of up to 1200 MW [15]. Taking into account the development of the Arajazor-Qarvachar-Zod electric power line, the output of Artsakh electricity through Armenia's energy system to foreign markets looks quite realistic. The latter can also be facilitated by the low cost of electricity produced at the Artsakh hydroelectric power stations.

### ***Conclusions***

1. During the Soviet period, the foundations for the sustainable development of the energy system of Republic of Artsakh were created, which is primarily expressed in the availability of the necessary infrastructure, on the basis of which the entire energy security system of the republic was actually built in the years of independence. Today the energy system of Republic of Artsakh is able to provide self-sufficiency and thereby implement the basic idea, underlying the national energy policy - achieving energy independence. For this purpose, there are all the necessary resources (primarily, hydro resources) and infrastructure prerequisites.

2. The legal framework for regulating the energy sector of Republic of Artsakh is a fully mature infrastructure necessary for the successful conduction of national policy

in the industry. At the same time, the laws regulating the industry stand out for their conceptuality, i.e., a basic vision of the main vector of the republic's energy development, and a fully applied value.

3. Today, the power system of Republic of Artsakh acts as a locomotive of its economy, which demonstrates high rates of development. According to the results of 2015, economic growth in the republic amounted to 9.1%, following the results of 2016 - 9.2%, which was largely promoted by activity in the construction of hydroelectric power infrastructures and the growth of electricity production.

4. In Republic of Artsakh, a surplus of electricity is projected, which, in turn, can be considered as a potential export direction. During the Soviet period, the development of the transport infrastructure of Artsakh was deliberately blocked by the Azerbaijani SSR. Today export problems, first of all, are linked with the status of Artsakh as an unrecognized state. The development of the hydropower complex of Republic of Artsakh should be considered taking into account the permanently increasing demand for electricity in the region. This will be especially important when Armenia is connected to the "North-South" energy corridor. Taking into account the development of the Arajazor-Qarvachar-Zod electric power line, the output of Artsakh electricity through Armenia's energy system to foreign markets looks quite realistic.

5. As one of the most developed branches of the economy of Republic of Artsakh, hydropower has a certain influence on the institutional development of the republic. First of all, it is that the key to economic growth is an effectively organized economy, provided by a system of institutions - state and civil. In this sense, energy is a kind of system-forming factor that stimulates institutional development in Artsakh. The most successful example here is the issue of shares of OJSC "Artsakh HPP" (IPO), which, in turn, gives a new quality to the state financial and economic institutions of the republic.

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## ԱՐՑԱԽԻ ՀԱՆՐԱՊԵՏՈՒԹՅԱՆ ՀԻՊՐՈԷՆԵՐԳԵՏԻԿԱԿԱՆ ՀԱՄԱԼԻՐԻ ԶԱՐԳԱՑՈՒՄԸ

### Վ.Ս. Դավթյան

Փորձ է կատարվել համալիր կերպով վերլուծելու Արցախի Հանրապետության (Լեռնային Ղարաբաղի Հանրապետության) հիդրոէներգետիկայի զարգացման միտումները: Ցույց է տրվել, որ հիդրոէներգետիկական համակարգի զարգացումը նախադրյալներ է ստեղծում էներգետիկայի առումով անկախ պետության հայեցակարգի իրականացման, իսկ ապագայում՝ էներգետիկական հզորությունների ավելցուկ ունեցող ու էլեկտրաէներգիայի արտահանում իրականացնող պետության համար: Այս կապակցությամբ վերլուծվել են Արցախի Հանրապետությունում արտադրվող էլեկտրաէներգիայի արտահանման հնարավորությունները: Ներկայացվել են այն հիմնական գործոնները, որոնք խանգարում են հանրապետությանը՝ լիարժեքորեն օգտագործելու արտահանման ներուժը. մասնավորապես՝ ուսումնասիրվել են Արցախի Հանրապետության՝ որպես չճանաչված պետության միջազգային կարգավիճակի ազդեցության աստիճանը էներգետիկ հաղորդակցությունների զարգացման վրա: Արտահանման խնդիրները դիտարկվել են Հայաստանի՝ «Հյուսիս-Հարավ» էլեկտրաէներգետիկ միջանցքին միանալու համատեքստում:



Յույց է տրվել, որ հաշվի առնելով Առաջածոր-Քարվաճառ-Ձող բարձրավոլտ օդային գծի շինարարությունը՝ արցախյան էլեկտրաէներգիայի՝ հայաստանյան էներգահամակարգով արտաքին շուկաներ դուրս գալը կարող է իրատեսական լինել:

Հատուկ ուշադրություն է հատկացվել Արցախի Հանրապետության հիդրոէներգետիկական համալիրի ձևավորման պատմական նախադրյալներին. բացահայտվել է, որ խորհրդային տարիներին հիմք էր դրվել Արցախի էներգետիկական համակարգի կայուն զարգացման համար, որի արտահայտությունը անհրաժեշտ ենթակառուցվածքների առկայությունն է, որոնց հիման վրա կառուցվել է հանրապետության էներգետիկ անվտանգության ամբողջ համակարգն արդեն անկախության տարիներին:

Ուսումնասիրվել են Արցախի Հանրապետությունում իրականացվող ջրային ռեսուրսների էներգետիկ ներուժի գնահատման և յուրացման քաղաքականության առանձնահատկությունները: Վերլուծվել է «ԼՂՀ ջրային ռեսուրսների յուրացման» կառավարության նպատակային ծրագիրը, ինչպես նաև այն հիմնարար արժեքներն ու չափորոշիչները, որոնք ընկած են ոլորտը կարգավորող հիմնական օրենսդրական ակտերի՝ «էներգետիկայի մասին» և «էներգախնայողության և վերականգնվող էներգետիկայի մասին» օրենքների հիմքում: Բացահայտվել է, որ հիդրոէներգետիկական համակարգ ձևավորող այն գործոնն է, որը խթանում է նաև Արցախի ինստիտուցիոնալ զարգացումը: Որպես վերջինիս ապացույց դիտարկվել է «ԱրցախՀԷԿ» ԲԲԸ բաժնետոմսերի արտարկը, ինչը նոր որակ հաղորդեց պետական ֆինանսական և տնտեսական ինստիտուտներին: Հիմնավորվել է, որ Արցախի էներգահամակարգը հանրապետության՝ զարգացման բարձր ցուցանիշներ ունեցող տնտեսության շարժիչ ուժն է: Այսպես, օրինակ, տնտեսական աճը հանրապետությունում 2015 թ. կազմել է 9,1%, իսկ 2016 թ.՝ 9,2%, ինչին էապես նպաստել են հիդրոէներգետիկական ենթակառուցվածքների շինարարությունն ու էլեկտրաէներգիայի արտադրության աճը:

**Առանցքային բաներ.** Արցախի Հանրապետություն, հիդրոէներգետիկա, ջրային ռեսուրսներ, էներգետիկ անկախություն, ավելցուկային էներգահամակարգ, արտահանում, բաժնետոմսերի արտարկ:

## РАЗВИТИЕ ГИДРОЭНЕРГЕТИЧЕСКОГО КОМПЛЕКСА РЕСПУБЛИКИ АРЦАХ

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Предпринята попытка комплексного анализа развития гидроэнергетики Республики Арцах (Нагорно-Карабахской Республики) с выявлением базовых проблем отрасли. Показано, что именно развитие гидроэнергетического комплекса формирует необходимые предпосылки для реализации концепции энергонезависимого государства, а в будущем – государства с избытком электроэнергетических мощностей, готового наращивать экспорт. В связи с этим проанализированы возможности экспорта производимой в Республике Арцах электроэнергии. Определены основные факторы,

мешающие республике полноценно использовать свой экспортный потенциал, в частности, изучена степень влияния международного статуса Республики Арцах как непризнанного государства на развитие энергетических коммуникаций. Вопросы экспорта рассмотрены в контексте подключения Армении к электроэнергетическому коридору “Север-Юг”. Показано, что с учетом строительства высоковольтной воздушной линии Араджазор-Карвачар-Зод выход арцахской электроэнергии через энергосистему Армении на внешние рынки выглядит вполне реалистичным.

Особое внимание уделено историческим предпосылкам формирования гидроэнергетического комплекса Республики Арцах. Выявлено, что в советский период были заложены основы устойчивого развития энергосистемы Арцаха, что выражается в наличии необходимых инфраструктур, на основе которых была выстроена вся система энергетической безопасности республики в годы независимости.

Изучены особенности проводимой в Республике Арцах политики оценки энергетического потенциала и освоения водных ресурсов. Проанализированы целевая программа правительства “Освоение водных ресурсов НКР”, а также базовые ценности и критерии развития отрасли, заложенные в основных законодательных актах, регулирующих отрасль, - “Закон об энергетике” и “Закон об энергоэффективности и возобновляемой энергетике”. Выявлено, что гидроэнергетика является своего рода системообразующим фактором, который стимулирует институциональное развитие в Арцахе. В качестве наиболее успешного примера рассмотрена эмиссия акций ОАО “АрцахГЭС”, что придало новое качество государственным финансовым и экономическим институтам. Констатировано, что энергосистема Республики Арцах выступает в качестве локомотива ее экономики, демонстрирующей высокие темпы развития. Экономический рост в республике по итогам 2015 г. составил 9,1%, по итогам 2016 г. – 9,2%, чему в значительной степени способствовали активность в сфере строительства гидроэнергетических инфраструктур и рост производства электроэнергии.

**Ключевые слова:** Республика Арцах, гидроэнергетика, водные ресурсы, энергетическая независимость, энергоизбыточность, экспорт, эмиссия акций.