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## Ensuring energy security of Armenia in a multipolar world: New tendencies and opportunities

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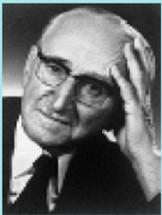
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# Ordnungspolitische Diskurse

## Discourses in Social Market Economy



**Artur Avetisyan**

**Ensuring energy security of Armenia in a multipolar world: New tendencies and opportunities**

**Diskurs 2026 - 4**

# Ensuring energy security of Armenia in a multipolar world: New tendencies and opportunities

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## Abstract:

Energy-sector challenges have shaped international relations since early history, making energy a key component of geopolitics. Understanding current global and regional energy and economic trends is therefore essential. Armenia, like many European Union countries, faces significant challenges in ensuring energy and economic security. Given its geographic position and self-sufficiency in electricity generation, alongside its growing export potential, Armenia can play an important role in regional energy security and stability. The country also has strong potential in renewable energy and is a regional leader in new renewables, though this potential has not yet been fully realized. Unsettled relations with Turkey and Azerbaijan, as well as infrastructure constraints with Georgia and Iran, limit Armenia's opportunities. Nevertheless, improving ties with European and Asian partners enhance Armenia's strategic role along the North–South axis. This article examines new development trends, reassesses challenges and opportunities, and evaluates Armenia's potential to act as a regional bridge for energy and economic cooperation.

## Key Words:

Energy security, sustainability, mutually beneficial cooperation, South Caucasus, critical infrastructures, the North-South International Project, the Black Sea Electricity Cable project

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## 1. Introduction

Energy security means having stable access to energy sources on a timely, sustainable and affordable basis. Access to energy is not only crucial in supporting the provision of basic needs - such as food, lighting, water, and essential health care, but it is first and foremost a precondition to economic growth, political stability and prosperity. This is why energy security forms an important part of the comprehensive approach to security. Therefore, the energy security is a policy and a key component of national security.

It is well known that the South Caucasus has historically been a cultural, economic, and commercial crossroads between North and South, East and West. However, for various objective and subjective reasons, the South Caucasus has somewhat lost this status. However, in the current geopolitical realities, a certain opportunity has opened up for our region to once again become a connecting link. This significance became particularly evident in 2025 during the 12-day Iran-Israel war, when, for example, flights to the Greater Middle East were only possible via the South Caucasus.

At the same time, the world's population is increasing, and given that the global economy is moving towards industrialization, global demand for electricity is growing as a result. However, on the other hand, there is a need to reduce emissions. Therefore, reasonable decisions and effective solutions are needed.

In these contexts, it is necessary to assess what real and practical cooperation opportunities exist with the European Union, China, India, and what can be offered to the European Union, China, India, in this case in the energy sector.

Therefore, we need to understand what opportunities Armenia has and what it can offer. The answer to this question can also be an important guarantee of ensuring the energy and economic security of Armenia.

## 2. Literature review

Numerous studies, including those conducted by the International Energy Agency, indicate a continued increase in energy demand, in particular for electricity<sup>1,2</sup>. Global electricity consumption is expected to increase at the fastest pace in years over the 2025-2027 period, fueled by growing industrial production, rising use of air conditioning, accelerating electrification, and the expansion of data centers worldwide. Global electricity demand rose by 4.3% in

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<sup>1</sup> International Energy Agency (IEA), 2025. Electricity 2025: Analysis and forecast to 2027. France – February 2025. International Energy Agency. Available at: <https://www.iea.org/reports/electricity-2025>

<sup>2</sup> International Energy Agency (IEA), 2025. Electricity Mid-Year Update 2025. France – July 2025. International Energy Agency. Available at: <https://www.iea.org/reports/electricity-mid-year-update-2025>

2024 and is forecast to continue to grow at close to 4% out to 2027. Over the next three years, global electricity consumption is forecast to rise by an unprecedented 3500 TWh. This corresponds to an annual increase in global electricity consumption of more than the equivalent of Japan's consumption. This is also a sharp acceleration from the 2.5% growth in 2023, when significant growth in China, India, and Southeast Asia was offset by declines in developed countries.

More than half of global electricity demand growth in 2024 came from China, where it grew by 7% in 2024, similar to the previous year. Electricity demand in China is forecast to increase on average by 6% annually out to 2027. India, Southeast Asian countries and other emerging markets are also expected to record strong demand growth, supported by economic expansion and rising air conditioner ownership. India's electricity demand is forecast to grow at an average 6.3% annually over the next three years, stronger than the 2015-2024 average growth rate of 5%. While many emerging economies are seeing robust electricity demand growth, Africa is lagging. Although significant progress has been made in recent years, 600 million people in sub-Saharan Africa still do not have access to reliable electricity.

Record-high electricity generation from renewables and nuclear is expected to meet all the additional global demand over the next few years. Renewables – such as solar, wind and hydropower – are set to meet about 95% of the electricity demand growth until 2027. In 2025, they are forecast to provide more than one-third of total electricity generation globally, overtaking coal. Renewables are expected to more than meet demand growth in advanced economies, reducing fossil fuel-fired generation. In China, rapid expansion of renewables is expected to meet around 90% of new electricity demand, though weather-related events and unexpected electricity consumption changes can affect this trend in individual years<sup>3,4</sup>.

The rising stock of air conditioners, growing electric vehicle charging demand and the expansion of data centers and 5G networks will continue to play a significant role in China's increasing electricity consumption over the next few years<sup>5</sup>.

The rapidly growing electricity demand from data centers, artificial intelligence (AI) applications, and cryptocurrency mining, could lead to increased competition between traditional industrial users and digital infrastructure for electricity resources. Data centers alone accounted

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<sup>3</sup> Małgorzata Wiatros-Motyka & Kostantsa Rangelova (2025). Global Electricity Mid-Year Insights 2025. Published date: 07 October 2025. Available at: <https://ember-energy.org/app/uploads/2025/10/Global-Electricity-Mid-Year-Insights-2025-PDF.pdf>

<sup>4</sup> International Energy Agency (IEA), 2025. Renewables 2025: Analysis and forecast to 2030. France – October 2025. International Energy Agency. Available at: <https://iea.blob.core.windows.net/assets/76ad6eac-2aa6-4c55-9a55-b8dc0dba9f9e/Renewables2025.pdf>

<sup>5</sup> Rahmatallah Poudineh (2025). OIES Energy Comment – Global electricity demand: what's driving growth and why it matters? The Oxford Institute for Energy Studies. January 2025. Available at: <https://www.oxfordenergy.org/wpcms/wp-content/uploads/2025/01/Global-electricity-demand.pdf>

for approximately 1–1.3% of global electricity demand in 2022, with projections suggesting this could rise to 1.5–3% by 2026. This surge is largely attributed to the deployment of energy-intensive servers, the rapid adoption of 5G networks, and the rise of hyper scale data centers, particularly in regions like the United States, Europe, and China. By 2030, electricity demand from data centers is expected to grow to between 770 TWh (low-case scenario) and 1560 TWh (high-case scenario), with the base-case scenario estimating 1135 TWh. This growth represents 5% of global electricity consumption by 2030 in the high-case scenario. McKinsey analysis suggests that the United States is expected to be the fastest-growing market for data centers, rising from 25 GW of demand in 2024 to more than 80 GW of demand in 2030<sup>6</sup>.

While the electricity consumption of advanced economies as a whole remained almost unchanged in 2024 compared with 2021, they are expected to account for 15% of global demand growth over the 2025-2027 period. Many advanced economies – such as Australia, Canada, the European Union, Japan, Korea and the United States – are expected to see electricity consumption rise through 2027 following increases in 2024. In advanced economies, electricity demand – both in total and per capita – has stayed relatively flat or even declined since 2009 even as the economies themselves have continued to grow. This dynamic in advanced economies reflected a combination of increased efficiency gains across all end-use sectors, most notably in lighting and appliances, as well as the restructuring and relocation of heavy industries over the past several decades. Now, once again, electricity demand in advanced economies is expected to start rising significantly alongside economic growth, bucking the trend of the past 15 years.

In the United States, the world's second-largest electricity consumer after China, demand rebounded in 2024, growing by 2% to reach a new high. This followed a 1.8% decline in 2023 due to mild weather and weaker manufacturing activity. US electricity demand to grow at an average annual rate of 2% over the 2025-2027 period, which is equivalent to adding the total electricity demand of California over the next three years.

Electricity demand in the European Union is recovering from the economic slowdown that has affected the region in recent years, but it is not expected to return to 2021 levels before 2027. EU electricity consumption declined by 3% in 2022 and again in 2023, taking it down to levels last seen two decades ago. The modest growth of 1.4% in 2024 was supported by the residential and commercial sectors, led by increased use of heat pumps and electric vehicles and higher demand from data centers. By contrast, industrial electricity consumption remained

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<sup>6</sup> McKinsey & Company (2024). How data centers and the energy sector can satiate AI's hunger for power. Available at: <https://www.mckinsey.com/industries/private-capital/our-insights/how-data-centers-and-the-energy-sector-can-satiate-ais-hunger-for-power#/>

relatively flat, having fallen by around 6% in both 2022 and 2023. While primary metals and various chemical sectors saw higher output and increased electricity demand compared with the previous year, the gains were offset by declines in the automotive, machinery and related industries. Electricity prices for energy-intensive industries in the European Union in 2024 were well below the record highs seen in 2022 and slightly lower than in 2023. However, they were still, on average, double those in the United States and 50% higher than in China.

Thus, we can conclude that although the term "multipolar world" has a broader meaning and is often used in the logic of political or geopolitical influences (relatively speaking, "Collective West" and "Global South"), the economic component in all this is very important. Moreover, if we compare the economic indicators of individual countries and, consequently, their annual growth in electricity demand, it becomes obvious that economically we have been dealing with a multipolar world for a long time.

### 3. Methodology and Analysis

It is obvious that without a stable source of energy, the energy systems of countries are under threat. Taking into account the decarbonisation policy, nuclear power plants can become such stable energy sources in the first place.

The European Commission has determined that nuclear power meets the requirements of the Taxonomy, that is "environmentally sustainable" to meet the objectives of the EU Taxonomy Regulation<sup>7,8,9</sup>. The EU taxonomic marking (classification) system has been presented, the purpose of which is to help private investors orient themselves in the direction of sustainable investments in the energy sector<sup>10</sup>. The European Commission reaffirmed this decision again in 2025.

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<sup>7</sup> European Commission (2022). EU taxonomy: Complementary Climate Delegated Act to accelerate decarbonisation. Directorate-General for Financial Stability, Financial Services and Capital Markets Union – 2 February 2022 (Last updated on: 11 July 2022). Available at: [https://finance.ec.europa.eu/publications/eu-taxonomy-complementary-climate-delegated-act-accelerate-decarbonisation\\_en](https://finance.ec.europa.eu/publications/eu-taxonomy-complementary-climate-delegated-act-accelerate-decarbonisation_en)

<sup>8</sup> Paul Mertenskötter, W. Andrew Jack, Cándido García Molyneux & Thomas Reilly (2022). Gas and Nuclear Activities in the EU Taxonomy Regulation: Under What Conditions Does the Commission Deem Them Environmentally Sustainable? Posted in European Energy & Climate Policy, Nuclear, Oil & Gas Policy on February 2022. Available at: <https://www.insideenergyandenvironment.com/2022/02/gas-and-nuclear-activities-in-the-eu-taxonomy-regulation-under-what-conditions-does-the-commission-deem-them-environmentally-sustainable/>

<sup>9</sup> Paul Mertenskötter (2021). The EU's Green Capitalism Takes Shape: Taxonomy Screening Criteria and Corporate Sustainability Reporting. Posted in Biofuels, COP26, Electricity Grid, ESG, European Energy & Climate Policy, Net Zero Energy on May 2021. Available at: <https://www.insideenergyandenvironment.com/2021/05/the-eus-green-capitalism-takes-shape-taxonomy-screening-criteria-and-corporate-sustainability-reporting/>

<sup>10</sup> European Commission (2025). EU taxonomy for sustainable activities. 17 December 2025. Available at: [https://finance.ec.europa.eu/sustainable-finance/tools-and-standards/eu-taxonomy-sustainable-activities\\_en](https://finance.ec.europa.eu/sustainable-finance/tools-and-standards/eu-taxonomy-sustainable-activities_en)

It is worth mentioning the declaration launched by more than 20 countries within the framework of COP28<sup>11</sup>. More than 20 countries, including Armenia from four continents launched the Declaration to Triple Nuclear Energy. The Declaration recognizes the key role of nuclear energy in achieving global net-zero greenhouse gas emissions by 2050 and keeping the 1.5-degree goal within reach. Core elements of the declaration include working together to advance a goal of tripling nuclear energy capacity globally by 2050 and inviting shareholders of international financial institutions to encourage the inclusion of nuclear energy in energy lending policies.

The energy system of Armenia has more than a century of history, full of achievements and innovations. After the establishment of Thermal Power Plants, Armenia became the first fully electrified republic in the Soviet Union<sup>12</sup>.

The energy system of Armenia is comprised of a set of power plants, electric, heat and gas supply networks, which are interconnected in a continuous process of production, transformation, transmission and distribution of electric and heat energy. The system is governed by a common regime and a unified management system. In the economy of the Republic of Armenia, electric power is a fairly developed direction. Despite the near absence of its own fossil energy sources, Armenia has significant resources for the production of electricity. Armenia manages to meet about 30% of its total energy demand on the basis of domestic energy production: Armenian Nuclear Power Plant (NPP), Hydropower plants (HPPs) and other renewable energy resources.

Armenia is the only country operating a NPP in the South Caucasus. Armenia has the experience not only of operating a NPP in the region, but also of successfully restarting it (in 1995). Today, it is necessary not only to preserve the power of the NPP, as an important component of the country's energy and national security, but also to preserve the scientific and technical human potential to operate a nuclear plant and ensure the gradual generational change in their ranks. Armenian specialists also participate in the construction of new NPPs, their commissioning and operation in different countries.

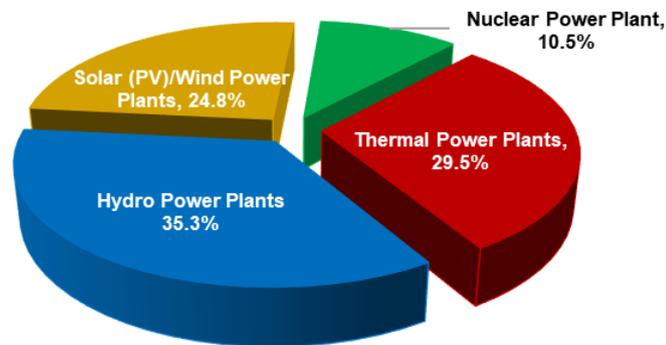
At present, the total installed capacity of electricity production in Armenia is about 3882 MW (available Capacities/Powers), including renewable plants - about 2255 MW (61%), of which

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<sup>11</sup> Declaration to Triple Nuclear Energy (2023). The World Climate Action Summit of the 28<sup>th</sup> Conference of the Parties to the U.N. Framework Convention on Climate Change. Dubai, UAE – 02 December 2023. Available at: <https://www.energy.gov/articles/cop28-countries-launch-declaration-triple-nuclear-energy-capacity-2050-recognizing-key>

<sup>12</sup> The Energy System of Armenia. Available at: <https://insurebusiness.am/%D5%B0%D5%A1%D5%B5%D5%A1%D5%BD%D5%BF%D5%A1%D5%B6%D5%AB-%D5%A7%D5%B6%D5%A5%D6%80%D5%A3%D5%A5%D5%BF%D5%AB%D5%AF-%D5%B0%D5%A1%D5%B4%D5%A1%D5%AF%D5%A1%D6%80%D5%A3%D5%A8/>

about 966 MW are large hydropower plants, 404 MW small hydropower plants (small HPPs /up to 30 MW/), 957 MW solar power plants (SPPs) and 4 MW - wind power plants (WPPs)<sup>13</sup>. The capacity of the Armenian NPP is 408 MW (about 11%) of the installed capacity, and the the total capacity of Thermal Power Plants is 1144 MW (about 30%)<sup>14</sup>



**Fig. 1. Installed Power Generation Capacity by Plants in Armenia**

Extending the period of operation of the Armenian NPP is one of the main priorities of the Government of the Republic of Armenia, and the construction of a new NPP after the end of that period is the main goal<sup>15</sup>. The construction of a new NPP is also important from the point of view of reducing the level of greenhouse gas emissions, which is recorded by the European Commission.

Special attention should be paid to the almost uniform distribution of Armenia's energy balance in accordance with production capacities, which ensures less vulnerability of the system.

Until recent times, electricity in Armenia was mainly produced from three types of energy supply sources: nuclear, hydro and thermal plants, of which about 35-40% were produced from the Armenian NPP and the remaining 55-60% almost equally from hydro and thermal plants. The share of all other plants in the power system was quite low: just 1%.

Due to implementation in Armenia numerous World Bank and other IFI's supported projects in the 2010's, preferential wind, solar and small hydro electricity tariffs were introduced, necessary changes in Renewable Energy Law were made insuring obligatory purchasing of wind,

<sup>13</sup> "New renewables" (electricity produced in small HPPs, solar and wind farms) – 1365 MW (35.2%)

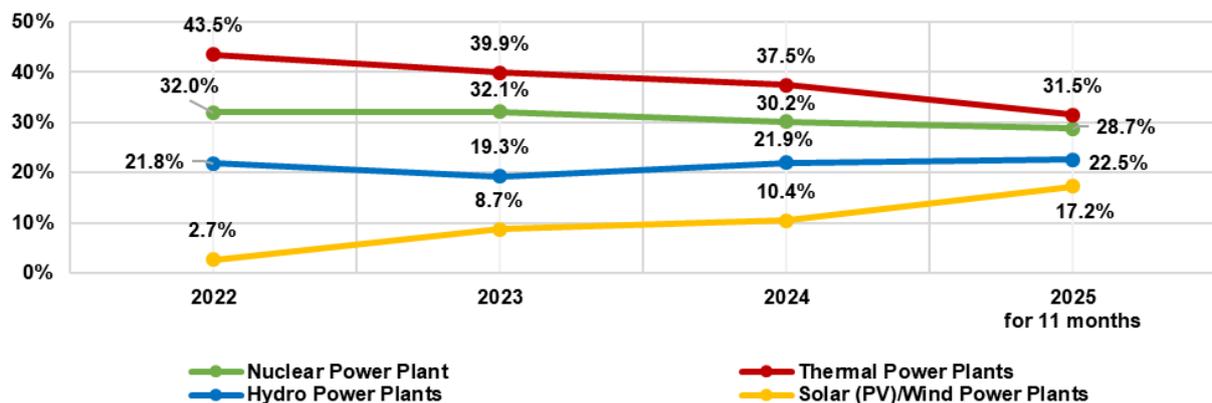
<sup>14</sup> Ministry of Energy Infrastructures and Natural Resources of the Republic of Armenia. Companies of the System. Available at: <http://www.minenergy.am/en/page/411>

<sup>14</sup> Armenia Renewable Resources and Energy Efficiency Fund. Available at: <https://r2e2.am/>

<sup>15</sup> Strategic Program for the Development of the Energy Sector of the Republic of Armenia (until 2040), 2021. Decision of the Government of the Republic of Armenia, №48-L, 14 January 2021. Available at: <https://policy.asiapacificenergy.org/sites/default/files/Energy%20Sector%20Development%20Strategic%20Program%20to%202040%20.pdf>

solar and small hydro electricity from private producers. Besides informational, technical and commercial platforms were created in order to support the access to private business to cheap “green” financing. As a result of these efforts during 2010-2020’s, installed power of small HPPs in Armenia proper increased by 3 times, installed power of solar PV stations increased by 5 times. There is strong commitment of Armenian business to utilize the natural renewable energy sources. “Green” and renewable energy is a priority for Armenian business and banking<sup>16</sup>.

Therefore, in the last 7-8 years and particularly from 2021 onwards, the picture has changed significantly in favor of “green energy” due to a more active policy aimed at the development of renewable energy in the country. In particular, according to the Statistical Committee of Armenia, more than 10% of the electricity produced in Armenia in 2024 was produced at Solar Power Plants. For comparison, in 2022 it was 2.7% (increased by about 4 times). And according to data for 11 months of 2025, it has already reached 17%<sup>17</sup>



**Fig. 2. Share of Electric Energy Production in Plants**

Armenia has already reached the indicators stipulated by the Strategic Program for the Development of the Energy Sector of the Republic of Armenia (until 2040) at a faster pace. In particular, the program stipulated that by 2030, the amount of electricity generated by solar power plants should be 15% of the total balance.

<sup>16</sup> Avetisyan, A., Chitadze, N., Nurullayev, R., & Terterov, M. (2025). Building Clean Energy Eco-Systems in the South Caucasus: Towards Green Transformation. Building Resilience Against Human Security Threats and Risks: From Best Practices to Strategies, Study Group Information, Labarre, F., Mandalenakis, E., Niculescu, G. (Eds.), 1/2025 Vienna, May 101–125. Available at: [http://gpf-europe.com/upload/sqi\\_building\\_resilience\\_rssc\\_25\\_web-version.pdf](http://gpf-europe.com/upload/sqi_building_resilience_rssc_25_web-version.pdf)

<sup>17</sup> Statistical Committee Republic of Armenia (Armstat). Available at: <https://www.armstat.am/en/>

The produced electricity fully meets the domestic demand. It is also exported to neighboring Georgia and Iran. On average, about 17% of electricity produced is exported<sup>17</sup>. In the next few years, the volume of electricity exports to Iran will triple.

From a policy and institutional level, Armenia is involved in the formation of the common energy market of the Eurasian Economic Union, a regional economic integration body of which it is a member country. In addition, Armenia signed a Comprehensive and Extended Partnership Agreement with the European Union in 2017, which provides opportunities for broad cooperation and envisages the gradual implementation of EU energy directives in Armenia (including those related to the development of “green” energy). The legal basis of the partnership between Armenia and the EU is the Comprehensive and Enhanced Partnership Agreement (CEPA), entered into force on March 1, 2021<sup>18</sup>. Armenia may also actually join the energy supply project from the South Caucasus through the Black Sea to the EU countries, the implementation agreement of which was signed on December 17, 2022, without Armenia's participation. This is part of the Global Gateway Initiative.

Armenia is a de jure part of the EU Global Gateway program. Moreover, based on the results of the meeting in Granada in 2023, Armenian Prime Minister and European Commission President adopted the following joint statement, according to which European Commission to support Armenia's participation in regional projects such as the Black Sea Electricity Cable<sup>19</sup>. Prime Minister of the Republic of Armenia also took part in the second “Global Gateway” conference on October, 2025 in Brussels<sup>20</sup>.

In addition, on December 2025, within the framework of the 6<sup>th</sup> Armenia–EU Partnership Council, the “Armenia–EU Partnership Strategic Agenda” was signed<sup>21</sup>. The objective of the Strategic Agenda for the EU-Armenia Partnership is to establish more ambitious joint priorities for cooperation across all dimensions to achieve the objectives of the CEPA in line with the European aspirations of the people of Armenia.

EU-Armenia cooperation will support the achievement of global policy objectives, including the Paris Agreement on climate change and the 2030 Agenda for Sustainable Development and its 17 Sustainable Development Goals. The joint work on identifying and speeding up the

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<sup>18</sup> Comprehensive and Enhanced Partnership Agreement Between the European Union and the European Atomic Energy Community and their Member States, of the one part, and the Republic of Armenia, of the other part (2017). Available at: [https://www.mfa.am/filemanager/eu/CEPA\\_ENG\\_1.pdf](https://www.mfa.am/filemanager/eu/CEPA_ENG_1.pdf)

<sup>19</sup> European Commission to support Armenia's participation in regional projects such as the Black Sea Electricity Cable. October 5, 2023. Available at: <https://en.armradio.am/2023/10/05/european-commission-to-support-armenias-participation-in-regional-projects-such-as-the-black-sea-electricity-cable/>

<sup>20</sup> Increased EU engagement in the South Caucasus and Central Asia comes at the right time: Prime Minister. October 9, 2025. Available at: <https://www.primeminister.am/en/press-release/item/2025/10/09/Nikol-Pashinyan-converens-Global-Gateway/>

<sup>21</sup> Strategic Agenda for the EU-Armenia Partnership between the European Union and Armenia. Brussels – December 2, 2025. Available at: <https://www.mfa.am/filemanager/%D5%80%D5%80-%D4%B5%D5%84/Strategic-%20Agenda%20for%20the%20EU-Armenia%20Partnership.pdf>

implementation of strategic investment projects under the Global Gateway will continue through the EU-Armenia Investment Coordination Platform. Moreover, continue supporting Armenia's inclusion in the Black Sea Electricity Cable project.

Simultaneously, take note of Armenia's steady transition to new nuclear power generation capacity, aimed at enhancing the nation's energy security and independence.

The Black Sea Electricity Cable program has two directions: «Clean Energy» and «Energy connectivity».

In this context is also very important Armenian-Georgian cooperation. Since independence, the cooperation between Armenia and Georgia has been constantly developing, and in 2024 a new level of strategic partnership was recorded. The signed strategic document includes cooperation in infrastructure development and operation<sup>22</sup>.

The above-mentioned project is directly related to "Green" and "Renewable" energy sources and widely uses these terms in its official publications. It is appropriate to clarify the meaning of these concepts and their current definitions.

According to the official classification of the International Renewable Energy Association, traditional hydropower (large and medium power HPPs) are separated from renewable energy sources (Renewables). Despite the fact that all HPPs are actually a source of renewable energy, as they use naturally renewable hydro resources. To fix this separation, the concept of "New Renewables" was introduced, which includes wind and solar energy and other renewable energy sources (biomass, geothermal energy, etc.), as well as small-capacity HPPs.

It should be noted that the Black Sea Electricity Cable provides for encouraging, first of all, the export of "green" electricity obtained from "New Renewables" from the South Caucasus to Europe<sup>23</sup>.

About 13-15% of Armenia's electricity is produced in small HPPs. By the way, this indicator is the highest compared to other countries in the South Caucasus. The purchase of electricity produced at these plants is mandatory in the country<sup>24</sup>. As of in 2024, electricity was generated by 191 small HPPs. Another 16 small HPPs are under construction. As a result, 207

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<sup>22</sup> Nikol Pashinyan and Irakli Garibashvili sign declaration of establishment of strategic partnership between the Republic of Armenia and Georgia. January 26, 2024. Available at: <https://www.primeminister.am/en/press-release/item/2024/01/26/Nikol-Pashinyan-Signing-Document/>

<sup>23</sup> Marjanyan A. H. (2024). Power aspects of "Black SEA Energy Submarine Electric Cable" Project. April 18, 2024. Available at: <https://arvak.am/%d5%a1%d5%bd%d5%ae%d5%a7%d5%b4%d5%ab-%d5%a7%d5%b6%d5-%a5%d6%80%d5%a3%d5%a5%d5%bf%d5%ab%d5%af-%d5%a2%d5%a1%d5%b2%d5%a1%d5%a4%d6%80-%d5%ab%d5%b9%d5%a8/#ftn20>

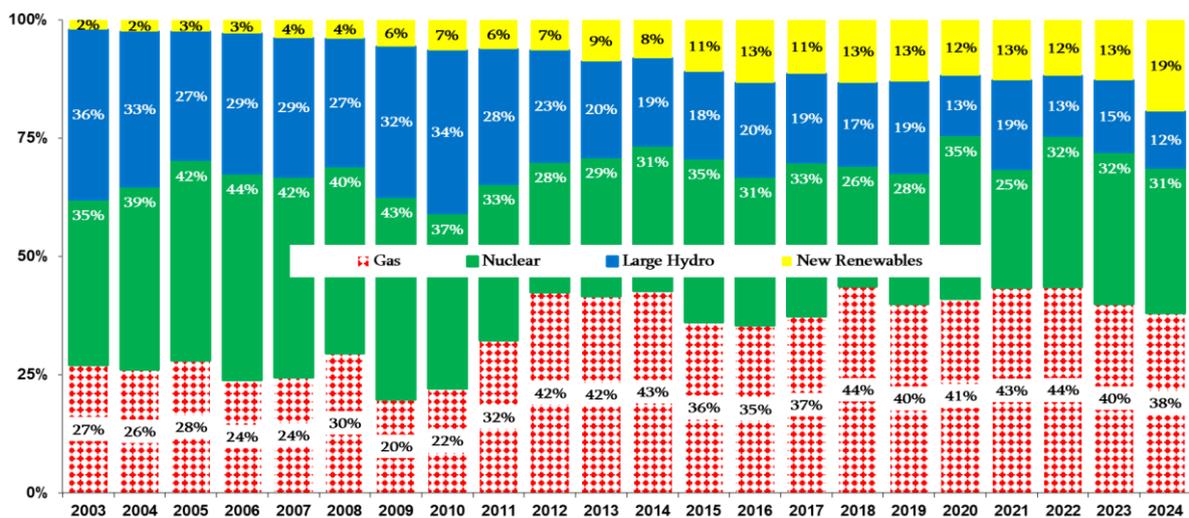
<sup>24</sup> Energy Law (2021). The Law of The Republic of Armenia (21.03.2001 LA-148)

small HPPs will operate in Armenia, with about total 467 MW installed capacity. Currently, the operating capacity of small HPPs is about 404 MW<sup>25</sup>.

As already mentioned, the main goal of the project is to export “green” electricity from the South Caucasus to Europe. Therefore, it is necessary to get an idea of the potential of the South Caucasus states to export electricity over recent decades.

During the period 2003-2024, the share of use of “New renewables” in the annual production of electricity in Armenia increased 9.0 times: in 2003 from 2.0% to 19% in 2024. According to this indicator, Armenia is the absolute leader of the South Caucasus and entire region (fig.3)

Azerbaijan is based on significant oil and gas reserves, where more than 90% of electricity production is provided by natural gas-fired thermal power plants. The share of HPPs and renewable sources in electricity production is still small. This is also the reason why Azerbaijan will try to purchase “green” electricity from Central Asian republics for future supply to the EU.



**Fig. 3. Electricity Production in Armenia**

*(classified according to primary energy sources)*

Uzbekistan, Azerbaijan and Kazakhstan have created a joint venture for the project of a “green” energy corridor to Europe. Uzbekistan, Kazakhstan and Azerbaijan plan to lay a deep-

<sup>25</sup> Licensed Companies. Public Services Regulatory Commission of the Republic of Armenia. Electric Energy. Available at: [https://psrc.am/contents/fields/electric\\_energy/el\\_energy\\_licensed\\_companies](https://psrc.am/contents/fields/electric_energy/el_energy_licensed_companies)

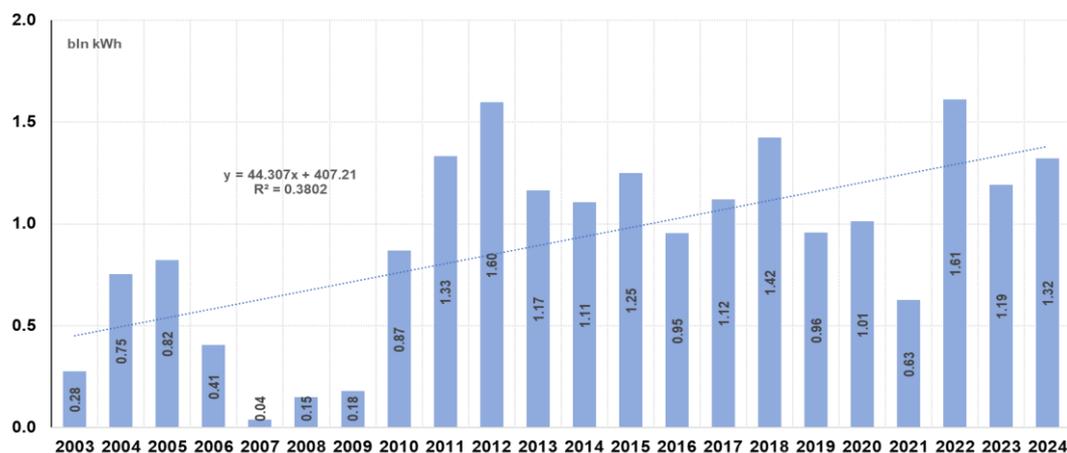
<sup>25</sup> Armenia Renewable Resources and Energy Efficiency Fund. Available at: <https://r2e2.am/>

sea cable along the bottom of the Caspian Sea. The parties will develop a business model for the sale of “green” energy to the EU countries bypassing Armenia<sup>26</sup>.

Energy balance of Georgia is characterized by a strong dependence on energy imports. Hydropower plays a key role in the energy sector, accounting for the majority of electricity production, but Georgia also uses non-renewable sources such as thermal power plants.

Net export is the arithmetical difference between the exported and imported electrical energy of a given country in a given year. Its positive magnitude means that in a given year the given country exported more electrical energy than it imported, and vice versa.

In the period of 2003-2023, a clear trend of net export growth is noticeable for Armenia, from 0.28 billion kWh in 2003 to 1.32 billion kWh in 2024. In other words, an increase of about 4.7 times (fig.4)



**Fig. 4. The dynamic of net electricity exports from the Armenia**

In the period 1992-2007, Azerbaijan was a deficit country in terms of electricity. Only since 2008, the export of electricity begins to exceed the import<sup>23,27</sup>. In 2024 the net export of electricity from Azerbaijan, which has a population of about 10 million, averaged +1.22 billion kWh/year, which is about 8% less than the indicator of Armenia in 2024.

In the past decades, Georgia with a population of about 4 million was a country with a deficit in terms of electricity<sup>23</sup>. In 2024, Georgia also became a net importer of electricity in terms of

<sup>26</sup> Uzbekistan, Azerbaijan, and Kazakhstan have created a joint venture to develop a “green” energy corridor to Europe (2025). Available at: <https://www.spot.uz/ru/2025/07/02/gree-energy/>

<sup>27</sup> Azerbaijan Energy Balance. Available at: <https://www.ceicdata.com/en/azerbaijan/energy-balance-oil/energy-balance-secondary-total-oil-products-other-demand>

volume, importing more than exporting<sup>28</sup>. Russia has become the main supplier, providing 969 million kWh out of 1.2 billion kWh of total imports. Other major suppliers were Azerbaijan (186 million kWh) and Armenia (73 million kWh).

In addition, Armenia is gradually liberalizing its electricity market, which is likely to open up new opportunities and create favorable conditions for interstate electricity trade. There are already several licensed organizations in this sector.

Armenia is developing production capacities, carrying out large-scale reconstruction of substations and power lines, in particular building Armenia-Iran and is going to build Armenia-Georgia high-voltage lines, which will contribute to the formation of the North-South Electricity Corridor<sup>29</sup> and create new opportunities for increasing exports, imports, transit or seasonal power exchange. The project is important for the power industry of the entire region.

Armenia needs to build new critical infrastructures, which of course are not only energy infrastructures<sup>29</sup>. In order to create effective and mutually beneficial relations, the Armenian government has also proposed the Crossroad of Peace initiative. According to the Program, all interested countries use the entire infrastructure based on reciprocity and equality<sup>30</sup>.

Armenia also is preparing to join the Persian Gulf-Black Sea corridor project, as well<sup>31</sup>. The corridor project should start from Mumbai port in India to Chabahar port in Iran, heads north across the Iran, and then continues to Armenia, from where it reaches the Georgian ports of Poti and Batumi in the Black Sea. From there, ships cross the Black Sea to the Bulgarian ports of Burgas and Varna, after which the goods are again sent by road to Greece and on to the European Union.

The Armenia-EU strategic agenda also envisages support the inclusion of Armenia in wider regional transport networks, such as the Trans-Caspian Transport Corridor, in line with the Joint Communication of the Commission and the High Representative on the EU's strategic approach to the Black Sea region, while also underscoring Armenia's potential as a bridge between different regions, as promoted by the "Crossroads of Peace" initiative. Explore investment opportunities in regional transport connectivity in Armenia, also called for by Armenia's new regional policy approach underpinning the "Crossroads of Peace" initiative.

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<sup>28</sup> Energy Balance of Georgia 2024. Available at: <https://www.geostat.ge/en/modules/categories/891/energy-balance-of-georgia-2024>

<sup>29</sup> Grigoryan, K., Khachikyan, S., Avetisyan, A., & Egnatosyan, S. (2024). International North-South Transport Corridor: New Economic and Trade Opportunities for India and Armenia. E3S Web of Conferences, Vol. 549. <https://doi.org/10.1051/e3sconf/202454906002>

<sup>30</sup> The Crossroad of Peace (2023). Brochure. Available at: [https://www.primeminister.am/u\\_files/file/documents/The%20Crossroad%20of%20Peace-Brochure.pdf](https://www.primeminister.am/u_files/file/documents/The%20Crossroad%20of%20Peace-Brochure.pdf)

<sup>31</sup> Crossroads of Peace project designed to connect Persian Gulf, Gulf of Oman, Black Sea, Caspian Sea and Mediterranean Sea (2023). Available at: <https://armenpress.am/en/article/1124418>

It is also worth mentioning in this context the three memorandums of understanding signed on August, 2025 between the Republic of Armenia and the United States of America. One of them is the Memorandum of understanding between the Government of the United States of America and the Government of the Republic of Armenia regarding the Crossroads of Peace Capacity Building Partnership. Two other memoranda provide for Armenian-American cooperation in the fields of artificial intelligence development and energy security. Two of them are Memorandum of understanding between the Government of the United States of America and the Government of the Republic of Armenia regarding an AI and Semiconductor Innovation Partnership and Memorandum of understanding between the Government of the United States of America and the Government of the Republic of Armenia regarding an Energy Security Partnership<sup>32</sup>.

On August, 2025 was also signed in Washington Joint Declaration by the President of the Republic of Azerbaijan, the Prime Minister of the Republic of Armenia and the President of the United States of America. The fourth paragraph of the declaration stipulates that the Republic of Armenia will work with the United States of America and mutually determined third parties, to set forth a framework for the “Trump Route for International Peace and Prosperity” (TRIPP) connectivity project in the territory of the Republic of Armenia<sup>33</sup>. TRIPP will take place in the south of Armenia. It provides for the construction of roads and railways, energy infrastructure (pipelines, power lines), etc.

#### **4. Conclusion**

One of the most important factors in the development of the national economies of countries is the provision of logistics security. Strengthening the potential of national economies is also conditioned by a competent approach to ensuring energy security. Based on the current geopolitical realities, a new approach to the energy agenda is needed.

Sustainable development is possible only if there is a balance of three main components: economic growth, social responsibility and environmental balance. The main conclusions are as follows:

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<sup>32</sup> Memorandums of Understanding signed between the Republic of Armenia and the United States (2025). Available at: <https://www.primeminister.am/en/press-release/item/2025/08/29/Nikol-Pashinyan-memorandum-08-08-2025/>

<sup>33</sup> Joint Declaration by the President of the Republic of Azerbaijan, the Prime Minister of the Republic of Armenia and the President of the United States of America on the outcomes of their meeting in Washington D.C., United States of America (2025). Available at: <https://www.primeminister.am/en/press-release/item/2025/08/09/Nikol-Pashinyan-visit-US-declaration/>

The demand for clean electricity and sustainable energy supply is growing worldwide. Countries such as Armenia, which have great potential, can make an important contribution to meeting the growing demand for electricity.

NPPs may become stable and clean energy sources in the coming decades. Armenia is the only country in the South Caucasus that operating a NPP and should start construction of a new one.

Over the last decade, the share of use of “renewables” in the annual production of electricity in Armenia increased 9 times. According to this indicator, Armenia is the absolute leader of the South Caucasus. A clear trend of net export growth also is noticeable for Armenia - an increase of about 4.7 times.

Armenia is developing production capacities, carrying out large-scale reconstruction of substations and power lines, in particular building Armenia-Iran and is going to build Armenia-Georgia high-voltage lines, which will contribute to the formation of the North-South Electricity Corridor and create new opportunities for increasing exports, imports, transit or seasonal power exchange. The project is important for the power industry of the entire region.

Armenia can supply electricity not only along the North-South axis, but also along the East-West axis. For this, it is necessary that Azerbaijan and Turkey (which supports Azerbaijan), after carrying out ethnic cleansing in Nagorno-Karabakh (Artsakh), show political will, lift the blockade and open the borders without new preconditions, stop hostile actions against Armenia and Armenians, in particularly releasing prisoners, ending the so-called narrative about "Western Azerbaijan" etc. Only under these circumstances can a mutually trusting and mutually beneficial cooperation be formed.

Armenia's participation in the Black Sea Electricity Cable Project can give it energy and economic meaning. The exclusion of Armenia from the program due to political and geopolitical reasons deprives this project of any engineering and business attractiveness. These directions should serve as guiding benchmarks for Armenia's energy diplomacy.

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