



Armenia Faces Strategic and Financial Challenges in Nuclear Energy Development

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The formation of Armenia's new energy policy will be determined by the country's ability to reduce its dependence on Russia. Whether a new nuclear power plant will be constructed by a Western contractor will be influenced by the outcome of next year's parliamentary elections, the stabilisation of relations with Armenia's neighbours, and the willingness of the United States and the European Union to support the development of the Armenian energy sector. However, budget constraints, pressure from Russia, and increasing competition from RES, mainly solar and hydropower, may prove to be significant hurdles.

In early July this year, the Armenian authorities attempted to limit Russia's influence in their energy sector. A law was passed allowing the government to nationalise the Electric Networks of Armenia, owned by Armenian-Russian oligarch Samvel Karapetyan. Earlier, Karapetyan has been arrested on suspicion of attempting a coup d'état, which may indicate the intention to reduce his economic influence in Armenia, including control over its two largest power plants. These actions are part of efforts to reduce Russia's economic and political influence in the energy sector and more broadly, over Armenia itself, and they will factor into the decision whether to build a new nuclear power plant with a Western partner.

The Challenges of Armenia's Energy Sector. The country remains fully dependent on natural resources imported from Russia. Gas comprises almost 60% of its energy needs and is widely used in industry, transport (CNG), households, and power generation (about 40% of the mix). Of the gas used by Armenia, 85% is supplied from Russia under a 2022 contract that set the price at what is now more than twice the market value. The gas market is completely controlled by the Russian-owned company Gazprom Armenia. Oil's share in energy consumption is only 16%, but more than half of it also comes from Russia.

The electricity mix is more diversified. In addition to gas, nuclear power accounts for 30% of power generation, while

hydropower (23%) and solar (8.4%) are increasingly helping to meet the growing demand (up to 7% year-on-year). In recent years, Armenia's main energy policy objectives have been to exploit the huge potential for RES development (mainly solar power), improve energy efficiency, and expand grid connections within the North-South corridor with Georgia and Iran. The latter is expected to increase the country's export capacity, including to [the EU in the future as part of the planned Black Sea Submarine Cable \(BSSC\) if Armenia is included in the project](#).

Russia's strong influence over the electricity sector also remains a challenge, as it controls through Russian entities (e.g., Gazprom) or indirectly through Karapetyan the distribution networks and four of the five largest power plants in Armenia, among other key areas. In addition, the only state-owned nuclear power plant Metsamor is completely dependent on Russia for its technology and fuel supply, which is provided by RAO UES and Rosenergoatom. Previous attempts to liberalise the electricity market aimed at improving efficiency and competition have been unsuccessful, mainly due to Russian resistance and Karapetyan's intervention.

A New Direction in Nuclear Energy. For three decades, the Metsamor nuclear power plant was a pillar of Armenia's energy security. Built in Soviet times, the unit is located 15 km from the border with Turkey, which after 2016

repeatedly called for its closure due to its location in a seismic zone. After the large earthquake struck Armenia in 1988, operation of the plant was halted for more than six years. Only one of the two WWER-440 units (with a capacity of 400 MW) resumed operation—and is still running—even though it was originally scheduled to be shut down in 2016, and then postponed to 2026. In December 2023, under an agreement with Rosatom to modernise Metsamor, its operation was extended until at least 2036, which would allow the company to build new units at the site under a preliminary agreement from January 2022.

Now, however, the Armenian government is stepping up efforts to build a whole new nuclear power plant on the same site and last year appointed a special entity to carry out the investment. Although the government's initial preferred contractor was a Russian entity, Russia's lack of support in the Nagorno-Karabakh conflict with Azerbaijan and Armenia's reorientation of its foreign policy have led it to consider other contractors, including those from China, South Korea, France, and the U.S.

The Americans are increasingly likely to win a contract to build the new power station. In May 2022, Armenia concluded an agreement with the U.S. on cooperation in the development of small modular reactors (SMRs). A hoped-for renaissance of U.S. nuclear power and U.S. nuclear export expansion announced by the Donald Trump administration may work in its favour. A Strategic Partnership Charter signed by both sides in January this year provides for the start of negotiations on a "123 Agreement" that will enable the transfer of U.S. nuclear technology. The success of the project Armenia depends on the U.S. providing greater financial support for foreign investment—the most important constraint besides time. It is estimated that the cost of one regular nuclear unit (\$5-7 billion) is around twice the annual budget of Armenia, while the construction time is about 10 years.

Two Alternatives. The Armenian authorities are looking at alternatives such as SMRs, which should be cheaper and faster to build. The challenge is the uncertainty of commercial deployment of the technology, which is estimated to be only in the 2030s amid reported high global demand for units of this type. As a practical matter, the option of SMRs raises doubts about the ability to fill the generation gap after Metsamor is retired and may contribute to Armenia's deepening dependence on gas imports over the next decade.

Growing competition for the development of nuclear capacity is expected to come with the rising potential of RES, in particular photovoltaics (PV) and hydropower, with gas as a system reserve. Hydropower alone, according to USAID estimates, could provide up to half of the electricity demand by 2036, which, combined with the PV potential estimated by the Eurasian Development Bank at 8 GW and Armenia's

insolation comparable to Spain, would more than cover the projected demand. This option, although cheaper and faster at reducing gas imports, would involve additional costs, such as grid upgrades and energy market reform. Although this solution is not strongly supported by the authorities because of the potential of the loss of political control over the sector and resistance from the local population, among other concerns, it is supported by the EU, partly also by the U.S., which has a large stake in Armenian hydropower, and by the Gulf states (e.g., the UAE), which have invested heavily in RES development in recent years, and others.

Conclusions and Perspectives. The actions of the Armenian authorities and the possibility that they will award a contract for the construction of a new power plant to a Western investor confirm the long-term reorientation of the country's foreign policy and will strengthen its energy security. This will be another step in reducing dependence on Russia and its influence in the South Caucasus. It is likely to be met with a retaliatory response from Russia, such as attempts to impose embargoes on products exported to Russia (which has already banned the import of Armenian flowers), disinformation campaigns, and support for pro-Russian political forces seeking to oust Prime Minister Nikola Pashinyan in the 2026 elections. Russian gas blackmail by raising gas prices or temporarily halting supplies carries the risk of a strong reaction from Armenia. The latter could attempt to nationalise Gazprom assets and seize the opportunity to capitalise on the expected historic normalisation of relations with Azerbaijan and Turkey by starting to import gas from new destinations at market prices. These actions may be unpopular among Armenians due to likely periodic jumps in energy prices, so the authorities will for now avoid an escalation in relations with Russia before the elections. In the event of an opposition victory (currently unlikely), the new power plant construction contract is expected to be awarded to a Russian entity. Given this risk, the signing of the contract before June 2026 is unlikely, which increases the likelihood of delays in the investment and failure to meet the 2036 deadline.

EU countries, including Poland, could support Armenia in reducing its dependence on fossil fuel imports by offering preferential financial instruments for the green transition and promote the involvement of their own energy sector in the modernisation of power grids and the development of RES, especially solar and hydropower. They could also take advantage of, among others, China's limited involvement in Armenia. It is also important to continue EU support for the peace process with Azerbaijan and the normalisation of relations with Turkey. At the same time, EU support for further energy market reforms necessary for the energy transition, including deepening cooperation or membership of the Energy Community, is advisable.