REGIONAL STUDIES CENTER

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Risky Business – Roadblocks to Building Armenia's New Nuclear Power Plant

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Nuclear energy is vital to Armenian energy security. Landlocked and without endemic natural gas or oil resources, Armenia relies on Metsamor nuclear power plant, a Russian-built VVER 440 reactor, for approximately a third of its electricity generation. The scheduled decommissioning of Metsamor in 2026 presents a substantial problem to Armenian energy independence, requiring a serious discussion about Armenia's long-term energy security. The Armenian government has made the construction of a new nuclear power plant a primary energy and security priority.

Nevertheless, numerous geopolitical and financial hurdles threaten to stymie the effort. Even members of government at the highest level of the Ministry of Energy reluctantly admit that the endeavor is fraught with risk, and the chance of failure is extremely high.

But why is financing construction of a nuclear plant so difficult? After all, a successfully-built nuclear plant will operate for approximately 60 years, long after the capital costs have been recovered. Consider this: nuclear energy projects involve massive amounts of money –in the billions of dollars – and are inherently risky, no matter where they are being built, who is building them, who is financing them, or the amount of nuclear expertise involved. Delays are frequent, and accidents are not unheard of.

Armenia has three distinct factors that elevate these risks: geological, geopolitical, and economic.

First, Armenia is located in a known seismic zone. In fact, Mestamor was first shut down in 1989 after a 6.8 magnitude earthquake just 75 kilometers from the plant spurred serious safety concerns. Some Armenian energy analysts have been quick to point out that Metsamor continued to function normally and safely during the earthquake.[1]

They have further noted that many countries such as Japan rely on nuclear power despite their locations in highly seismic zones. The 2011 meltdown of the Fukushima plant following a 9.0 earthquake off the coast of Japan, considered the worst nuclear disaster since Chernobyl, has altered the discussion of nuclear safety in the past four years.[2] The risks associated with seismic activity cannot simply be brushed aside. They must be considered by procurers and investors alike.

Secondly, Armenia remains locked in a frozen conflict with neighboring Azerbaijan over Nagorno-Karabagh. While there has largely been a cessation of full-scale hostilities over the past twenty years, cross-border incursions, sniper fire, and deaths occur regularly.[3] As the downing of an Armenian military helicopter on the Azerbaijan-Karabagh border in November 2014 demonstrated, the ghostly

prospect of renewed war, either by intent or by accident, looms heavily over the geopolitical landscape and increases the risk of undertaking any multi-billion dollar project.[4]

Most importantly, Armenia faces feeble prospects for long-term GDP growth and short term economic crisis as blowback from a weakened Russian economy sweeps into the Southern Caucasus.[5] Armenia is particularly susceptible to changes in the Russian economy, as Russian and Armenian economies are intricately linked. Russia is Armenia's largest trading partner and investor, and Armenia relies on remittances sent from Armenians living and working in Russia for a staggering 21% of its GDP.[6] To put the direness of the current economic situation into some perspective, remittances from Russia dropped by as much as 56% from January 2014 to January 2015.[7]

Corresponding with downgraded credit ratings for Russian banking institutions, international credit agency Moody's in January 2015 downgraded Armenia's credit, bond, and currency ratings.[8] While this development more severely impacts specific investment portfolios more than the broader economy, it does negatively contribute to Armenia's overall uncertain economic outlook, creating a bleak investment environment. Of course, changes in the international political environment could shift Armenia's economic outlook, revealing more positive economic indicators that would likely restore a healthier credit rating. However, the current economic situation, complemented by geological and geopolitical factors, signals heightened risk to international investors.

Even if Armenia was able to attract the estimated $3.4 – 6 billion investment necessary to finance construction of the nuclear plant, it faces additional domestic hurdles. A $6 billion dollar loan would double Armenia's sovereign debt, requiring the National Assembly, the legislative body of the Armenian government, to amend the Armenian Constitution and raise the debt ceiling.This may not be as difficult as it sounds. Almost all members of the Armenian government support construction of a nuclear plant and a constitutional amendment could be expected to move quickly and pass easily.

From there it gets more complicated. The Armenian government would have to provide a sovereign guarantee to potential investors. Such guarantees are common in costly nuclear projects, and ensure financers return of investment even in the event of project failure. Often, governments that do not have the financial resources to repay the loan outright offer public assets as collateral.[9]

It will be difficult for the Armenian government to make such an offer worthwhile for investors. Over the past 15 years, the Armenian government has systematically relinquished control of state assets – mostly to Russian state-owned companies, and mostly as a means of debt repayment.[10] Russian companies manage and operate Metsamor and own outright the power distribution grid, Hrazdan Thermal Plant, and Armenia's natural gas transit pipelines.[11,12] Russian ownership does not extend merely to the energy sector. Most of the banking, telecommunication, and transport sector also lies under Russian control.[13] Simply put, the Armenian government lacks the sort of substantial assets that would satisfactorily pad potential investors against risk of failure.

Russia's waning commitment as a partner in the project is perhaps the starkest example of the fragility of this endeavor. The Armenian government in 2009 approved the creation of Metsamorenergoatom, a closed joint-stock company owned 50-50 by the Armenian Ministry of Energy and Natural Resources and the Russian nuclear export company Atomstroyexport, a subsidiary of the Russian state-owned energy giant Atomenergoprom.[14] While Metsamorenergoatom will own and operate the new plant if it is built, it is in the meantime tasked with procuring investment for about 40% of the total cost of the plant.

In addition to its joint ownership in Metsamorenergoatom, Russia in 2009 also pledged 50% financing for the nuclear plant.[15] Over the past six years, however, Russian financial commitment has withered steadily, and now rests at a limp 20 to 25% of project costs.[16] Even Russia, which uses every opportunity to tout its special strategic relationship with Armenia, seems to have balked at the prospects of the plant being built.

There are several reasons why this may be. There simply may be too much risk involved for Russia, which has seen capital flight of over $150 billion in 2014[17] and which foreign currency reserves are at the lowest levels since 2007,[18] to invest in good conscience. High risk is also particularly financially unpalatable given fact that Russia stands little to gain if the project fails. As demonstrated, Russia already controls extensive Armenian assets and wields dominant influence in Armenia's domestic and foreign policy decisions.

Likewise, a new nuclear plant would curtail Armenian dependence on Russian natural gas. Armenia imports 100% of the natural gas it consumes, the vast majority of which originates in Russia. If a nuclear plant fails to materialize, Armenia will likely need to double its natural gas consumption to prevent a supply gap once Metsamor has been decommissioned. Clearly, this would be in Russia's interest financially, and would provide a means to continue asserting its political and economic leverage.

Despite faltering Russian commitment, the Armenian government is moving forward with its plans in hopes that they can attract additional financing. While the government is currently considering two different VVER models of Russian nuclear reactors, each costing an approximate $5-6 billion dollars,[19] perhaps Armenia's most promising option is the Canadian-built 700 MWe Candu heavy-water reactor.[20] While the Candu reactor comes with a substantial price tag – $3.4 billion dollars – it is substantially cheaper than its Russian counterparts.

Furthermore, Armenia may find willing financiers for the Candu reactor from an unexpected source: China. Candu Energy Inc., the manufacturer of Candu reactors, partners with the Chinese National Nuclear Corporation (CNNC), a Chinese state-owned entity that oversees China's military and civil nuclear programs, to explore global nuclear opportunities. China has, in fact, provided financing for Candu reactors in Romania and Argentina, and there is speculation that China would be interested in financing construction of a Candu reactor in Armenia.[21] Furthermore, neither the Export Development Canada (EDC), Canada's export credit agency, nor the CNNC requires a sovereign guarantee.[22] Even without an official sovereign guarantee requirement, financing the project will still be incredibly difficult. But it may just be doable.

As China looks to expand its global economic and political influence, it has not ignored the Southern Caucasus. On the contrary, the Southern Caucasus is a key region in fulfilling China's New Silk Road Initiative,[23] aimed at bolstering economic and political cooperation.[24] China has signed economic cooperation agreements with Azerbaijan,[25] substantially increased investment in Georgia,[26] and is looking for means of economic engagement in Armenia.[27] If a Candu reactor is successfully built, China would almost certainly enjoy elevated economic and political status in Armenia as holders of large Armenian debt.

The Candu option could also prove attractive to Russia. Russia could potentially pass the burden of financial risk onto the shoulders of CNNC, while reaping the long-term rewards as joint-operators of the plant upon completion. It remains to be seen, however, if Russia would allow China to gain a substantial foothold in a country dominated by Russia. Russia could well be expected to block a Chinese-funded nuclear deal between Armenia and Canada. Doing so would solidify Armenian dependence on Russian natural gas and perpetuate Russia's tight grasp of Armenia.

Much could change. Positive growth outlooks, improved relations between Russia and the West, and a shift in Russian commitment could partially reduce risks and increase the likelihood of constructing this critical energy asset. As for right now, the risks remain high and prospects for investment remain low. Despite the full weight of the Armenian government behind the project, the construction of a new nuclear power plant to replace Metsamor is anything but a certainty.

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