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The Global Nuclear Energy Landscape and the Critical Role of Development Finance

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Introduction: A Strategic Inflection Point

In June 2025, the World Bank officially lifted its longstanding ban on financing nuclear energy projects. The institution's only previous nuclear loan had been to co-fund Italy's Garigliano Nuclear Power Plant in 1959, while recent restrictions prohibited not only investing in nuclear power but even barred creating internal expertise on nuclear technology. The strange choice of deliberate ignorance on an existing energy technology stemmed from proliferation risk concerns, the fallout of accidents at Fukushima and Chernobyl, and the outsized influence of a handful of shareholders such as Germany.

The reversal of World Bank policy is a clear sign of how far the nuclear calculus has changed. Global demand for reliable and clean electricity has soared, especially across emerging markets. National goals to cut carbon emissions have made nuclear power even more attractive. The technology itself is evolving, with new smaller, safer, and ideally cheaper models coming to market. But what has really changed is that nuclear has become a major arena of geopolitical competition with Russia and China. President Donald Trump's recent executive orders to revive nuclear power at home may help speed up domestic deployment, but the real battle for global nuclear influence will be in Eastern Europe, Asia, the Middle East, and Africa. That is why financing is so crucial.

The World Bank's cautious return, initially limiting support to extensions for existing plants and encouraging deployment of small modular reactors (SMRs) in partnership with the International Atomic Energy Agency, is more than symbolic.[1] It is a clear sign to other financial institutions that nuclear power is no longer off-limits. This brief maps the current nuclear energy landscape, including technological advances, geopolitical dynamics, and the persistent financing gap. It argues that unless the United States, alongside multilateral institutions, acts decisively to scale up support, it risks ceding long-term influence to Russia and China.

Renewed momentum for nuclear power

The market signals from countries are very clear: Nuclear power is in demand. According to the 2024 nuclear readiness tracker by Third Way and the Energy for Growth Hub, 37 countries are ready today for new nuclear investment or on track to be ready by 2030.[2] These countries represent 64% of the world's population and 82% of current electricity demand.[3] We project another 10 countries will be likely ready by 2030 and a further 47 potentially ready by 2050 if they continue to take concrete steps. For many emerging economies, especially in Africa, Southeast Asia, and South Asia, nuclear power is no longer a far-off dream.[4] It is a necessity to meet rising energy needs while lowering emissions.

In Eastern Europe, many countries such as Poland, Romania, and the Czech Republic see nuclear power as a way to reduce their vulnerability to Russian energy leverage. While France, Finland, and the UK are investing heavily in new reactors and life extensions, even some skeptics in Western Europe are reevaluating.[5] Germany, Switzerland, and Italy are holding consultations on the future of nuclear energy as part of their broader energy strategy.[6]

SMRs: A Game Changer

At the heart of this nuclear revival is a new generation of technologies. Traditional nuclear power plants are 1,000 MW or more and require lengthy construction periods and huge upfront costs. SMRs are compact, factory-built reactors that range in size from 1.5 to 300 MW. Their appeal lies in lower upfront costs and flexible deployment, which makes it more suitable for different use cases, smaller markets, or those with grid constraints.

Dozens of new SMR designs are in development, with several already under construction.[7] In the United States, NuScale received regulatory approval in 2025 for its 77 MWe VOYGR-4 design, which can be built solo or in 6- or 12-packs.[8] Other U.S. companies, like TerraPower, X-energy, and Oklo, are piloting alternative fuels (e.g., TRISO) and reactor types (e.g., molten salt, gas-cooled).

Globally, Russia is already ahead of the SMR game. Rosatom's Akademik Lomonosov, a floating SMR, has been operational in the Arctic since 2020.[9] China's Linglong One (ACP100) became the world's first land-based SMR under construction in 2021 and is approaching completion.[10] Canada, South Korea, Britain, and Argentina are also advancing SMR programs.[11] Which models will ultimately be commercially viable is still unknown, but the sector is undeniably dynamic.

For emerging markets, SMRs offer multiple advantages. They require smaller investment commitments, offer enhanced safety, and can be deployed in remote regions or on islands. SMRs could be used for local power utilities, data centers, or for mining and industrial applications.

However, the potential of SMRs could be lost if financing does not catch up. The international financial institutions, of which the World Bank is only one, provide lower-cost loans and technical support that enables large infrastructure projects to get built in places where the private sector or purely public investment are not yet meeting needs. Most electricity utilities in emerging markets run at a loss, so they often cannot borrow on their own without public guarantees or other support. This means the primary arena for SMR competition is exactly in the markets that need development financial institutions. While the World Bank has just changed its rules, at least 21 other agencies still have prohibitions in place.[12]

Geopolitical Stakes: China and Russia Outpacing the US

In contrast to Western countries where nuclear development is largely privately-funded and public support is very fragmented, China and Russia offer full-service, state-led packages. Rosatom, Russia's nuclear agency, offers turnkey build-own-operate models that include financing, technology, training, fuel, and long-term maintenance.[13] Examples include the six-reactor complex at Kudankulam in India, the Rooppur Nuclear Power Plant in Bangladesh, El Dabaa in Egypt, and Akkuyu in Turkey. These projects are backed by concessional lending and control over the fuel cycle.[14]

While this package approach is attractive to buying countries, the models are a further geopolitical concern because they create multi-decade dependencies. Russia, which controls 44% of global uranium enrichment capacity, has already shown that it will use its leverage over a country's energy supply for other purposes, so locking allies into 40-year fuel agreements will greatly expand such vulnerabilities.[15] The U.S., by contrast, operates just one commercial enrichment facility and meets only one-third of its own domestic demand.[16] Until the U.S. expands its enrichment and conversion infrastructure, including high-assay low-enriched uranium (HALEU), the fuel that most SMRs require, it is unlikely to reliably support its own market, let alone offer a truly competitive nuclear export option.

Some progress is underway. The Department of Energy (DOE) has expanded HALEU production contracts, the ADVANCE Act requires investment in domestic enrichment, and the recent Trump executive order mandates expansion of domestic uranium conversion capacity and enrichment capabilities to meet projected civilian and defense reactor needs.[17] But significant congressional funding and private investment will be needed to scale quickly.

China has adopted a similar approach to Russia, using its Belt and Road Initiative to extend nuclear cooperation to countries like Pakistan, and signing MoUs with Ghana and Kenya.[18] In many cases, Chinese loans cover up to 85% of construction costs, reducing upfront burdens on recipient nations while tying them into long-term Chinese technology and service ecosystems.[19]

Though the U.S. is a global leader in reactor innovation, it is far behind in global deployment. Recent agreements with Romania (NuScale), Philippines (NuScale), and Poland (Westinghouse), for example, are only in planning or preconstruction stages.
Export barriers also hinder U.S. competitiveness. Licensing and approvals require navigating over 20 offices across eight federal agencies, creating a byzantine process that deters potential buyers.[20] A lack of Section 123 nuclear cooperation agreements with countries like Bangladesh, Pakistan, and the majority of Africa legally block American exports. Another White House executive order directed the State Department to complete at least 20 new Section 123 agreements by 2029.[21] Without major new changes, U.S. firms will struggle to match the nuclear packages offered by Russia and China.

Most of all, nuclear power plants are capital-intensive. For SMRs to meet their promise, costs must become competitive with gas and other alternatives. This means that providing long-term, low-cost financing is unavoidable, especially via multilateral institutions. U.S. EXIM Bank has issued letters of interest for up to $3 billion for nuclear exports in Eastern Europe, and recently approved a $98 million loan for pre-project preparation for a Nuscale SMR in Romania.[22] The U.S. International Development Finance Corporation (DFC) lifted its ban on nuclear investments in 2020. It has since issued letters of interest for projects in South Africa, Indonesia, and Romania and is considering financing Poland's first nuclear power plant.[23]

However, DFC, the leading government tool for global infrastructure investment, has hesitated to assume risks or finance feasibility assessments due to concerns over project size, equity finance limitations, and commercial risks. Congress can help strengthen DFC's capacity to finance nuclear by raising its contingent liability cap to enable larger investments, increasing the single project limit to $5 billion to accommodate nuclear projects, appointing a DFC nuclear liaison to communicate between U.S. regulators and private firms, and directing technical assistance grants to be used for nuclear.[24]

Although the World Bank's nuclear ban policy reversal is limited to extending existing reactor lifespans and early-stage support for SMRs, this move sends a signal to other potential lenders.[25] Regional agencies such as the Asian Development Bank are likely to follow suit, enabling consortia that include both private and public investment.

Conclusion: Nuclear Diplomacy in a Multipolar World

The World Bank's policy shift signals the integral role nuclear power could play in coming decades. The demand for nuclear technology, especially in emerging economies, is skyrocketing. Russia and China are racing to meet this demand by offering turnkey, state-backed packages. The U.S., despite having an edge in innovative new technology, is hampered by its own bureaucratic fragmentation, complex export processes, and limited financing tools.

The next five years will determine whether the U.S. leads the nuclear renaissance or cedes leadership to geostrategic competitors. If the U.S. fails to take the helm, it may find itself written out of this chapter of global energy history.

Notes

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