



Stronger through Partnership: A Framework for US–Republic of Korea Civil Nuclear Cooperation

US-Korea Energy Series

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ENERGY INNOVATION REFORM PROJECT

Stronger through Partnership: A Framework for US–Republic of Korea Civil Nuclear Cooperation

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Cover: President Donald Trump hosts a bilateral meeting with President Lee Jae-myung of the Republic of Korea, Monday, August 25, 2025, in the Oval Office.

Energy Innovation Reform Project is a non-partisan non-profit organization dedicated to promoting policies that advance innovation in energy technologies and practices to improve the affordability, reliability, safety, and security of American energy supplies and our energy economy. EIRP was founded in Washington, DC in 2013. Its work combines policy reports, scholarly research, and economic modeling with creative efforts to bridge partisan differences over energy policy.



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Acronyms

DFC	Development Finance Corporation
DOE	US Department of Energy
EIRP	Energy Innovation Reform Project
EPC	engineering, procurement, and construction
EXIM	US Export-Import Bank
FIRST	Foundational Infrastructure for Responsible Use of Small Modular Reactor Technology
HLBC	High Level Bilateral Commission
IAEA	International Atomic Energy Agency
JSCNEC	Joint Standing Committee on Nuclear Energy Cooperation
KAERI	Korea Atomic Energy Research Institute
KAIF	Korea Atomic Industrial Forum
KEPCO	Korea Electric Power Corporation
KEXIM	Export-Import Bank of Korea
KHNP	Korea Hydro and Nuclear Power Company
LEU	low-enriched uranium
NRC	US Nuclear Regulatory Commission
OECD	Organisation for Economic Co-operation and Development
ROK	Republic of Korea
SMR	small modular reactor

Executive Summary

The United States faces many challenges in providing national and energy security, grid reliability, and affordable clean energy. Rising energy demand projections further complicate these problems. Nuclear energy remains particularly well suited to meeting these national challenges. Recognizing this, the Trump administration has embraced nuclear energy as an important component of America's national power, a significant means of exerting global influence, and a key pillar of America's energy system.

The United States can advance American national interests and accelerate development and deployment of nuclear energy domestically and internationally by cooperating with the Republic of Korea (ROK). Like the United States, the ROK has a strong domestic civil nuclear sector that is primed to benefit from growing global interest in nuclear energy. Both America and South Korea also face a national security imperative to counter Russian and Chinese competition in global nuclear energy markets. The United States and South Korea can build upon their long history of bilateral civil nuclear cooperation to overcome the barriers to the growth of their civil nuclear economies and mutually increase their ability to address common security and energy challenges.

Notwithstanding their substantial shared interests in civil nuclear cooperation, Washington and Seoul will not work together automatically or easily. Firms in the two countries that export nuclear technology are competing not only with Russian and Chinese companies, but also with one another and with companies in other allied countries in Asia and Europe. Creatively managing this cooperative-competitive dynamic among US allies will be fundamental to competing successfully with US rivals.

On November 20, 2025, the Energy Information Reform Project (EIRP) and the Korea Atomic Industrial Forum (KAIF) held a joint workshop for US and Korean civil nuclear energy sector professionals to identify opportunities for strengthening bilateral civil nuclear cooperation. Participants also identified challenges that both US and South Korean companies face in completing nuclear construction projects within budget and on time, including the practice of beginning work while the reactor design is still incomplete, inadequate project management, the shortage of skilled workers, and supply chain shortfalls. However, given the respective strengths of the US and South Korean nuclear industries, both the two governments and the companies in each country can cooperatively address these challenges.

Workshop participants identified the following opportunities to foster collaboration between the US and Korean nuclear sectors:

1. Enable company-to-company partnerships
2. Speak together with one voice and message at the company level
3. Increase market confidence
4. Reduce domestic risk perception
5. Prepare nuclear newcomer countries for civil nuclear projects

A FRAMEWORK FOR US–REPUBLIC OF KOREA CIVIL NUCLEAR COOPERATION

6. Secure export project capital
7. Establish one or more joint ventures
8. Pursue regulatory harmonization
9. Assess firms' capabilities at each stage of project design
10. Strengthen workforces and professional relationships
11. Increase the frequency of bilateral civil nuclear dialogue

Introduction

Providing national and energy security, ensuring grid reliability, and accelerating deployment of affordable clean energy are among the dominant challenges of our time, but they cannot be solved by any government in isolation. Cooperation among allies is essential to develop and implement the best solutions.

This cooperation is especially necessary given the increasing demand for reliable energy, which is being driven by the expansion of industrial activity and air conditioning, the electrification of economies, and the build-out of infrastructure that undergirds the growth of the data economy. Projections of data center power demand for the US alone reach as high as 106 GW by 2035.¹

Both the United States and the Republic of Korea (ROK) have long recognized that nuclear energy is uniquely suited to solve the energy and security problems they face. US and Korean policymakers understand the importance of nuclear energy as a firm, reliable, and clean source of power. Strong domestic nuclear generation improves America's energy resilience and reduces its dependence on foreign countries for energy and fuel. Nuclear energy also reduces the emission of greenhouse gases and air pollutants, a priority for Korea's government.

The United States remains the world's top civil nuclear energy producer, with 94 commercial reactors at 53 sites providing over 18% of electricity.² In South Korea, 26 nuclear units generate nearly one-third of the country's electricity,³ and more than 1,200 companies participate in South Korea's nuclear industry supply chain.⁴ US and South Korean domestic nuclear prowess has enabled both countries to reap the strategic, economic, and soft power benefits of exporting civil nuclear technology, and both have an opportunity to help meet the growing demand for that technology among nations that seek to deploy nuclear energy.

The two countries face a national security imperative. Exporting civil nuclear technology establishes deep and lasting relationships, contributes to economic growth, and spreads norms of safety, safeguards, security, and nonproliferation. But over half of planned reactor projects globally are now being built by Russia or China.⁵ Their leadership in nuclear exports ensures that US rivals' state-owned nuclear enterprises reap those benefits rather than American firms. Moreover, some close US allies are increasingly aligning themselves with China on nuclear energy.⁶

Both South Korea and the United States have set national policy goals and taken recent steps to strengthen their respective nuclear industries. Both joined the global declaration to triple nuclear energy capacity by 2050 from 2020 levels.⁷ New South Korean President Lee Jae-myung has reoriented his country's nuclear energy plans and has rhetorically committed to nuclear power as a tool to mitigate climate change.⁸ At COP30, held in November 2025, Korea joined a global alliance seeking to transition away from coal-fired generation. In the United States, President Donald Trump issued four executive orders in May 2025 that seek to expand the US nuclear industry beyond the Biden administration's already ambitious goals; for example, one declares a national policy to increase domestic nuclear capacity fourfold by mid-century,⁹ and another calls for starting construction of 10 new

nuclear power plants by 2030.¹⁰ Most recently, the Trump administration released the 2025 National Security Strategy, which reiterates the goal of reclaiming nuclear energy dominance.¹¹ Using a range of approaches—from supporting restarts of as many as three shuttered reactors and extending the operating life of nuclear plants, to funding both pilots and full demonstrations of advanced reactors—the US government is leveraging its tools to advance these goals.

Because the United States and South Korea both boast strong civil nuclear sectors, they are simultaneously natural competitors and collaborators. However, neither country currently has everything it needs to expand its own nuclear economy, either at home or abroad. Neither is likely to reap the full benefits of its robust nuclear industry absent partnership with the other. As a result, cooperation between the United States and South Korea is important, and possibly essential, if either country is to win global civil nuclear tenders and reap the economic and nonproliferation benefits of exporting its technical, engineering, and human capital. By cooperating to combine their complementary strengths, these two countries will increase their competitiveness and their ability to capture more of the growing global civil nuclear market.

On November 20, 2025, the Energy Information Reform Project (EIRP) and the Korea Atomic Industrial Forum (KAIF) held a joint workshop convening US and Korean civil nuclear energy sector professionals to discuss opportunities for strengthening bilateral civil nuclear cooperation. Participants brought expertise from a range of backgrounds, including nuclear engineering, procurement, and construction (EPC) companies, reactor and fuel developers, researchers and academics, and policymakers and regulators. Several US participants had previously worked in the White House or the US Department of Energy (DOE).

The workshop followed a year of promising exchanges between Americans and South Koreans designed to foster greater civil nuclear cooperation. A memorandum of understanding signed in January 2025, deepened this decades-long partnership and solidified the countries' intent to cooperate on nuclear exports that uphold high standards of nonproliferation.¹² President Trump's state visit to South Korea in October 2025 underscored the countries' ongoing military and civil nuclear partnership and featured productive conversations on the prospect of enabling civil uranium enrichment and fuel reprocessing activity in Korea, consistent with the existing 123 Agreement.¹³

This report summarizes the proceedings of the November workshop and aims to inform the path forward for US-Korean nuclear collaboration. Section 1 provides a brief history of the US-Korean civil nuclear relationship from 1956 to present. Section 2 describes the shared benefits to this cooperation. Drawing on the workshop discussions, Section 3 describes the actions that could strengthen cooperation between the United States and South Korea and support civil nuclear industries in these countries and abroad. Section 4 summarizes the contents of the report.

For the United States, the task ahead is to build on its long history of nuclear cooperation with Korea. Doing so will strengthen both countries' civil nuclear economies and advance US interests.

1. Brief History of US-Korean Civil Nuclear Cooperation

The United States and South Korea have a strong history of nuclear cooperation upon which to build. In 1956, through President Dwight D. Eisenhower’s Atoms for Peace program, the two countries signed a cooperation agreement on nuclear energy.¹⁴ 2026 marks the 70-year anniversary of US-Korean civil nuclear cooperation.

Over the years, the United States and ROK have renewed their nuclear agreement several times, specifically in 1958, 1965, 1973, and 2015.¹⁵ State-owned Korean Electric Company (now Korea Electric Power Corporation, or KEPCO) bought the country’s first commercial nuclear reactors directly from the American company Westinghouse and other Western companies. The first of these reactors started operations in 1978.¹⁶ South Korea gradually took over more of the components of reactor construction and development, and by 1987 KEPCO had begun to develop a reactor of its own. Through subcontractor relationships, US companies continued to support Korean reactor projects,¹⁷ and American and ROK officials developed their civil nuclear relationship through convenings of the Joint Standing Committee on Nuclear Energy Cooperation (JSCNEC), which met annually for many years following its establishment in 1980.¹⁸

Amid its focus on domestic economic growth, energy security, and emissions reduction,¹⁹ ROK contracted in 2009 to build four commercial reactors for the United Arab Emirates. Through the completion of the Barakah Nuclear Energy Plant in Abu Dhabi, South Korea secured its position as a global civil nuclear exporter.²⁰ The nuclear market, one ROK minister declared in 2010, “will be the most profitable market after automobiles, semi-conductors and shipbuilding.”²¹ The United States also recognized the economic benefits of the endeavor. In 2012, the US Export-Import Bank (EXIM) supported Westinghouse’s export of components and services for the Barakah project with a \$2 billion loan, expecting the transaction to support about 5,000 US jobs in 17 states.²² The Barakah project featured contributions from Korean, American, and French companies, who partnered to bring nearly 5,400 MW-electric (MWe) of clean capacity online.²³

Fuel enrichment and spent fuel reprocessing have been frequent topics of discussion between the two countries, especially because Korea seeks to develop these capabilities domestically. US-Korean research and development collaborations on the pyroprocessing of spent nuclear fuel began in the mid-2000s through the JSCNEC. In 2011, US and Korean national laboratories began a formal 10-year Joint Fuel Cycle Study.²⁴

In 2015, after negotiations between the administrations of President Barack Obama and Presidents Lee Myung-bak and Park Geun-hye,²⁵ the countries signed the current, 20-year 123 Agreement on peaceful nuclear cooperation. The agreement expresses a mutual interest in increasing bilateral strategic collaboration on nuclear energy R&D, “as well as industrial and commercial cooperation and nuclear trade,” through functions such as joint ventures, licenses, and investments.²⁶ It provides for cooperation on reactor design, construction, operation, and decommissioning; fuel cycles and fuel manufacturing,

with limitations; radioactive isotope production; nuclear waste management; and regulation, fusion, and any other topics agreed upon. The agreement allows the US to transfer low-enriched uranium (LEU) and make efforts to ensure its supply to ROK, but it restricts transfers of information and technology related to the enrichment and reprocessing of uranium. These activities cannot occur without an amendment or a separate agreement. The 2015 agreement also resulted in the establishment of a High Level Bilateral Commission (HLBC) to enable frequent government-to-government exchanges on these and other issues affecting cooperation.

Subsequent US and ROK governments underscored the importance of the US-Korean civil nuclear relationship. In 2017, President Trump and former ROK President Moon Jae-in celebrated their countries' alliance and announced their intention to advance cooperation on nuclear energy and other sectors.²⁷ Former US President Joseph Biden and former South Korean President Yoon Suk Yeol also sought to increase bilateral civil nuclear cooperation.²⁸

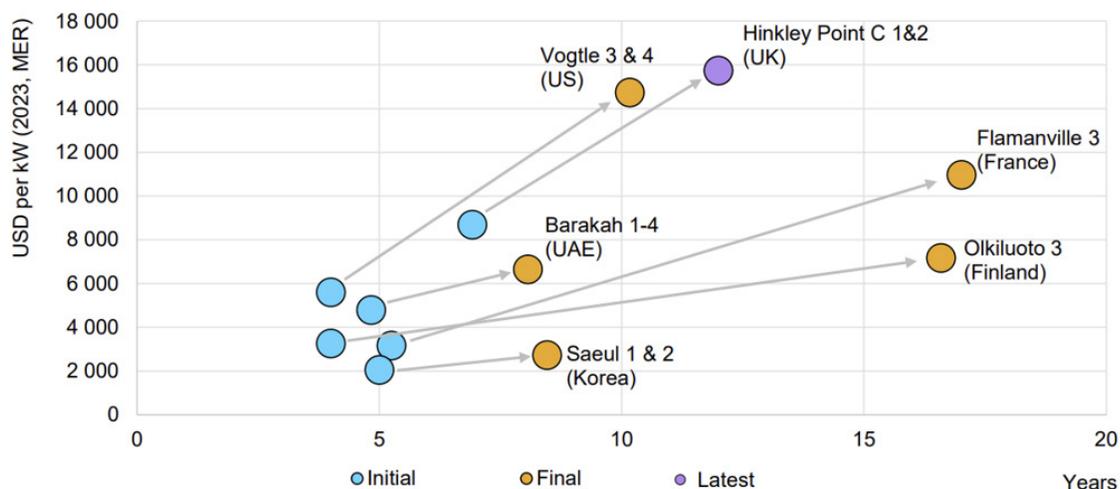
Today, US nuclear companies' supply chains rely on Korean manufacturing companies. The Plant Vogtle reactor expansion project in Georgia, for example, required reactor pressure vessels and other components from Doosan Heavy Industries (now Doosan Enerbility), Hyundai Heavy Industries, and SK Inc.²⁹ The two countries also continue to collaborate on nuclear research and development initiatives, such as the 2025 agreement by the Korea Atomic Energy Research Institute (KAERI) and the University of Missouri to expand their cooperation on research and development.³⁰

While the HLBC and JSCNEC have not convened for several years, American and Korean officials and nuclear industry leaders continue to meet frequently through other forums, such as the recent joint conference of the Atlantic Council, Korea Hydro and Nuclear Power Company (KHNP), KAERI, and Doosan Enerbility in Gyeongju Province in June 2025,³¹ and the November 2025 joint workshop hosted by EIRP and KAIF that informs this report.

2. Mutual Benefits of Cooperation

Although both the United States and South Korea have strong national commitments to nuclear energy, both countries face significant challenges as they seek to complete reactor projects domestically and abroad. Many recent reactor construction projects around the world—not only those undertaken by US and Korean companies—have run past schedule and exceeded their budgets (see Figure 1 for examples). This fact has made some prospective nuclear customer countries, utilities, and others hesitant to select nuclear energy over alternatives and has in turn constrained the growth of the two countries’ nuclear export markets.

Figure 1. Initial and Latest Capital Cost Estimates and Construction Time for Recent Nuclear Projects



IEA. CC BY 4.0.

Source: International Energy Agency, “The Path to a New Era for Nuclear Energy,” 2025, <https://www.iea.org/reports/the-path-to-a-new-era-for-nuclear-energy>.

License: CC BY 4.0. (Modified to remove original figure label.) Note: MER = market exchange rate.

New reactor projects face several challenges that inflate their costs and extend their schedules:

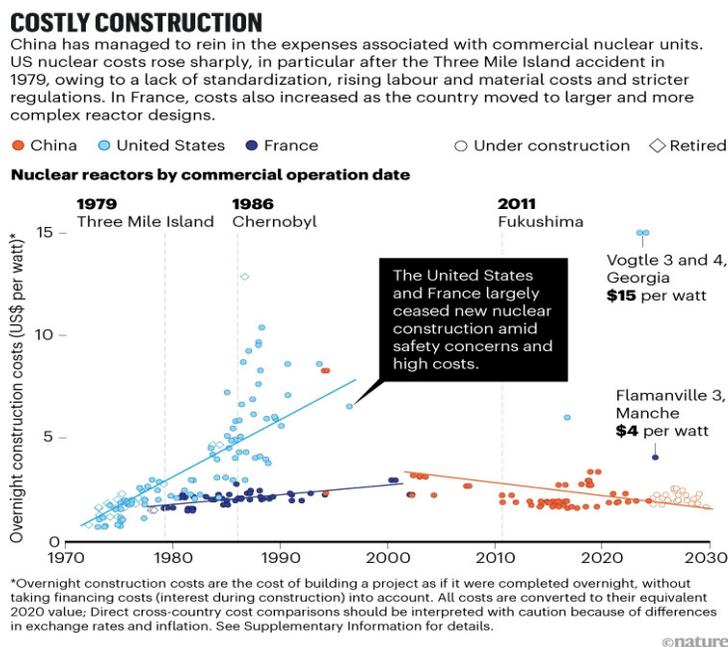
- **Incomplete reactor designs.** Commencing EPC work before the completion of the final reactor design leads to cost and schedule delays during execution. First-of-a-kind reactor construction projects pose especially tough challenges in this regard.
- **Project and construction management shortfalls.** Recent reactor developers have struggled to coordinate EPC activities, and the result has been gaps in managing construction schedules and risk. Improper quality assurance and quality control measures have also contributed to construction challenges.

- **Shortage of skilled workers.** Reactor projects require many skilled craftspeople, including nuclear engineers, pipefitters, welders, and electricians. Both the United States and Korea face a shortage of these tradespeople, particularly as current skilled workforces retire. In addition, professionals who are skilled in civil nuclear project management are in short supply, especially in the United States, where such projects have been scarce. Lastly, reactor project developers have trouble securing the necessary workforce in project locations and must compete for workers with developers of other infrastructure, including renewable projects and data centers.³²
- **Supply chain challenges.** The quantity and geographic spread of manufacturers that produce nuclear-grade parts has shrunk, causing procurement delays and schedule overruns. Fluctuations in the price of steel, uranium, and other inputs also complicate project execution.

These challenges are not inevitable. South Korean reactor costs declined by 50% between 1971 and 2008, as the country continually built nuclear plants; by 1995, it had localized nearly all its nuclear supply chain.³³ More recently, however, Korea's Barakah and Saeul projects have exceeded initial cost and construction estimates (see Figure 1). In comparison, before the Three Mile Island accident in 1979, the United States built many domestic reactors at comparatively low and predictable costs. But it has since faced increased cost pressures from materials, labor, and increased regulation. US companies have built few domestic reactors since the 2000s and have lost nuclear supply chains and EPC experience. As a result, average US nuclear construction costs rose precipitously between the 1980s and the 2000s (see Figure 2),³⁴ and builders of the Plant Vogtle expansion experienced each of the above challenges before finally completing the project in 2024, years late and billions of dollars over budget.

Russia's and China's comparative progress in capturing the global civil nuclear market underscores the need for the United States and Korea to cooperate on civil nuclear export projects as a matter of national security. China alone has 34 reactors under construction,³⁵ while Russia has 25.³⁶ Moreover, China has brought its domestic reactor project costs down by half since the 2000s and can build reactors in just five to six years, having solved many of the challenges noted above by onshoring a strong domestic nuclear supply chain, successfully managing many standardized projects, and providing state-backed financing and regulation (see Figure 2).

Figure 2. Comparative Commercial Nuclear Reactor Construction Costs



Source: Shangwei Liu et al., “China Reins in the Spiraling Construction Costs of Nuclear Power—What Can Other Countries Learn?,” *Nature* 643, July 28, 2025, <https://www.nature.com/articles/d41586-025-02341-z>. © Nature.

Given China’s and Russia’s comparative civil nuclear export power, this market is challenging for either the United States or South Korea to capture on its own. Indelibly dividing the export market between them will fail to benefit either country. One workshop participant summarized it this way: If the United States and South Korea cooperate to win nuclear bids, each will benefit. Even if just one of these two countries wins the bid, the other may earn 20%–30% or more of a given project’s contracts. A Korean participant agreed with the sentiment, which suggests that the US-Korean joint competitive edge on supply chain, human resources, and experience is well understood. Without Korean cooperation, however, the United States would face significant difficulties winning global nuclear bids on cost.

Indeed, each country’s recognition of the other’s comparative advantages in civil nuclear energy is essential to deepening bilateral cooperation. And undoubtedly each country has specific areas of strength. The United States, for example, has a strong reputation in reactor design innovation, as well as in fuel enrichment and fuel services. In addition, American regulatory standards are considered by the global civil nuclear sector as among the strongest for nuclear safeguards, security, and nonproliferation.

South Korea has significant strengths and assets that differ from those of the United States. Since beginning construction of its first reactor in 1971, South Korea has more or less built new nuclear facilities continuously.³⁷ One workshop participant, a US developer whose company has existing agreements with Korean nuclear companies, confirmed that South Korea has a comparative advantage on casting, heavy forging capacity, and reactor pressure vessel manufacturing. Through Doosan Enerbility and its 4.5 km² manufacturing complex, South Korea boasts prowess in manufacturing nuclear steam supply systems and managing the full range of EPC activity. To date, Doosan has provided four reactor vessels and 24 steam generators to the United States.³⁸ Meanwhile, KHNP

is building out its decommissioning practice, gaining valuable experience through activities to decommission its oldest commercial nuclear plant. This experience has allowed it to enter the broader decommissioning industry:³⁹ with KAIF and KEPCO International Nuclear Graduate School (KINGS), KHNP is training decommissioning experts through International Atomic Energy Agency (IAEA)-accredited training programs.⁴⁰

US and South Korean nuclear companies continue to capitalize on the mutual benefits of formal collaboration. In addition to the direct participation of South Korea in US domestic nuclear reactor and fuel cycle projects, Korean companies have partnered with—and in some cases made direct investments in—American reactor developers and fuel services companies. For Korean firms, these are strategic investments that enable working with cutting-edge technologies and that establish supply chain footholds.

Table 1 lists a selection of partnerships, investments, and agreements between Korean and American companies on civil nuclear energy. These investments enhance the mutual credibility of the two countries’ nuclear expertise. KHNP’s August 2025 supply agreement investment with Centrus Energy, for example, represents the first South Korean agreement to invest in US LEU enrichment services in many years, and it will help increase the number and diversify the distribution of global nuclear fuel suppliers.

Table 1. Examples of US-Korean Company-to-Company Cooperation

US company	Korean entities
X-Energy	Doosan and DL E&C (strategic investment , 2023); Doosan and KHNP (strategic partnership , 2025)
TerraPower	SK Group (investment , 2022); Doosan and HD Hyundai (supply contracts , 2024)
Holtec International	Hyundai Engineering & Construction (cooperation agreement , 2021); Korea Trade Insurance Corp. (K-SURE) and KEXIM (collaboration agreement , 2023); Hyundai E&C (expanded partnership agreement , 2025)
NuScale Power	Doosan (memorandum of understanding , 2019; agreement and investment , 2021); Samsung C&T, Doosan, and GS Energy (memorandum of understanding , 2022)
ARC	KHNP (memorandum of understanding , 2023; collaboration agreement , 2024)
Fermi America	Doosan and KHNP (agreements , 2025)
Centrus Energy	KHNP and POSCO International (agreement)

Note: This table is not intended to reflect all current US-Korean civil nuclear company-level collaborations.

At the workshop and in other forums, US reactor companies have repeatedly celebrated their partnerships with Korean companies.⁴¹ Workshop participants indicated that Korean companies provide needed human capital that cannot be reproduced in the United States quickly enough to execute envisioned project timelines. A US reactor developer said his company greatly values KHNP’s unique experience, particularly as KHNP has earned a license from US regulators and managed the Barakah project successfully.

3. Opportunities for US-Korean Cooperation

The current policy landscape in the United States is particularly auspicious for bilateral collaboration with South Korea. The US Congress in 2024 enacted the ADVANCE Act,⁴² the latest in a string of measures supporting civil nuclear energy that Congress has passed since 2018. Crucially, the ADVANCE Act lifted long-standing restrictions against foreign ownership of US nuclear energy facilities—specifically, restrictions on member countries, foreign corporations, and foreign nationals belonging to the Organisation for Economic Co-operation and Development (OECD) or India.

In addition, President Trump has prioritized increasing foreign investment in the United States, including by allied nations and especially in nuclear energy. In November, the United States and Saudi Arabia signed a joint declaration in support of civil nuclear projects as part of Saudi Arabia’s commitment to invest nearly \$1 trillion in US industries.⁴³ Likewise, the US in September secured an agreement from Japan to invest \$550 billion in US companies; \$332 billion of this sum is earmarked to support energy infrastructure development. These investments are intended to include the construction of Westinghouse AP1000 reactors and small modular reactors (SMRs).⁴⁴ If realized, funding from the US-Japan agreement is destined for the US government’s new strategic partnership with Westinghouse and its owners to build at least \$80 billion of the company’s reactors domestically.⁴⁵



South Korean President Lee Jae Myung meets President Donald Trump during a visit to Washington.

Participants in the November workshop identified many guideposts and opportunities to capitalize on this positive policy environment and strengthen the bilateral cooperation between the US and South Korean nuclear sectors.

Enable Company-to-Company Partnerships

Korean state-owned enterprises, and the unified “Team Korea” nuclear supply chain, have no correlates in the United States. Because the US has a primarily market-based economy, it cannot assign jobs to companies directly.⁴⁶ As a result, the initiative to establish partnerships, joint ventures, or other cooperative paradigms must be taken at the company-to-company level, not the government-to-government level. American companies and officials typically invoke the phrase “private sector–led, government-enabled” to describe this paradigm: while the US government might encourage collaboration between companies, the companies must take the initiative to establish collaborative relationships based on their commercial expectations.

Certainly, both the US government and Korean government can make their preferences clear and incentivize cooperation between their industries. The US government is unlikely to object or prevent these collaborations if the involved companies respect domestic and international rules of competition and other domestic laws.

Speak Together with One Voice and Message at the Company Level

Workshop participants suggested that Korean and American nuclear companies should identify the comparative advantages that each country's firms offer and convey a clear, common, and consistent message to their respective governments and private sectors. Part of this message, they said, should include advocating for both public and private sector resources for nuclear projects. In addition, in cases of existing and future US-Korean company-level cooperation, partners can strengthen their business development presentations to prospective customers through the joint participation of both the reactor vendor and the partner companies.

Within the United States, different agencies control different parts of the civil nuclear export enterprise.⁴⁷ One US industry official suggested that the US government could advance national security and economic goals by addressing the barriers to growth that private nuclear companies face, such as the difficulty of winning export bids in third countries or accessing public and private capital.

Increase Market Confidence

In the United States, utilities have significant political and economic power. However, while utilities project the need for as much as 100 GW-electric (GWe) of new nuclear capacity by mid-century,⁴⁸ many utilities are pushing nuclear investment decisions into the future. Utility executives cite a range of concerns—ballooning costs, schedule overruns, insufficient fuel availability, uncertain energy demand projections, stock price impacts, and delayed returns on investment—as barriers to opting for nuclear over other energy sources.⁴⁹ The Plant Vogtle expansion project, which far exceeded cost and schedule estimates and resulted in the bankruptcy of Westinghouse, presents utilities with a worrying recent domestic case study. In addition, energy affordability is now a significant concern for US policymakers. As a result, public utility commissions may be less likely to approve increases in ratepayers' electricity costs to finance new domestic utility-led reactor projects.

US partnerships with Korean companies that successfully executed the Barakah project can mitigate some of these concerns, participants said. US-Korean company-level supply agreements and partnerships, they suggested, can give customers the confidence they need to tender new reactor construction. According to one US developer, EPC management support from Korea can meet customers' demand for a demonstrated track record of successful project execution within budget.

Of course, utilities are not the only prospective reactor customers. One participant highlighted the role that nuclear energy could have in the oil and gas sector as a reliable energy source and means of reducing greenhouse gas emissions.

US-Korean cooperation in pursuit of global civil nuclear projects is also crucial. American participants mentioned that in their experience, nuclear-embarking countries are hesitant to purchase reactors whose designs have not yet been constructed in developers' home countries. This concern especially restricts market development for SMRs and Generation IV reactors. Successful export of these reactors may require that companies with significant export potential continue and complete domestic demonstrations of nuclear plants.

Reduce Domestic Risk Perception

Creative strategies are necessary to unlock US domestic nuclear projects constrained by investors' inability to shoulder the risk to unlock new US early-mover nuclear projects. One option, participants said, is to increase investors' ability to cover civil nuclear project debt at a lower capital cost by providing a limited backstop to cost overruns. In 2024, Senator James Risch (R-ID) introduced the Accelerating Reliable Capacity (ARC) Act, which would provide federal financial support to early-mover reactor projects that meet certain requirements, such as a clear project delivery plan that undergoes regular updates and oversight.⁵⁰ Such eligibility requirements, one participant said, would be crucial to address the underlying cost overrun issue. The bill has not yet been reintroduced during the current session of Congress. Absent this type of project-wide risk insurance, another participant said, the American and South Korean nuclear industries should look to achieve cost certainty on specific aspects of civil nuclear projects—for example, by making targeted investments in parts of the supply chain or by risk sharing.

Another US participant suggested that nuclear project developers could benefit from adopting an approach used by manufacturers of other big-ticket items: production slots. Under this model, a customer pays a premium for a position in line. A reactor developer receiving this premium for an initial series of orders could use it to spread the cost risk among early adopters, so that the risk does not fall so heavily on the first customer.

Prepare Nuclear Newcomer Countries for Civil Nuclear Projects

The US government has worked for several years to expand US civil nuclear partnerships with countries around the globe, both to advance diplomatic goals and to foster trade and economic growth. DOE, for instance, opened a regional energy training center in Poland in 2024 to support civil nuclear capacity building in Central Europe;⁵¹ in April 2025, US and Polish companies formally agreed to continue collaborating to construct AP1000 reactors in Poland.⁵² Participants expressed appreciation for the work of the Department of State's Foundational Infrastructure for Responsible Use of Small Modular Reactor Technology (FIRST) program, which focuses on capacity building in nuclear newcomer countries to advance US geopolitical interests. Industry participants encouraged the US government to make FIRST grants to nations whose markets are of greatest interest to the industry, including countries eligible for US Development Finance Corporation (DFC) and EXIM financing support, rather than strictly prioritizing US geopolitical objectives.

Workshop participants noted that US-Korean cooperation could help nuclear-embarking countries get ready for future civil nuclear construction projects.

Secure Export Project Capital

Completing nuclear plants requires significant financial investments. Today, reactor developers rarely have the resources to take on the total risk of a given project, while lenders are hesitant to accept civil nuclear project risk because the projects lack cost certainty. According to workshop participants, in 2024 some 14 global financial institutions endorsed the COP28 goal of tripling nuclear energy capacity;⁵³ but these same institutions are unlikely to support civil nuclear projects until deployment reaches nth-of-a-kind of a given reactor design.

In cases when a customer or host government cannot finance a nuclear project, the vendor and/or its government must help facilitate the transaction. In this respect, Russia and China have a considerable edge in civil nuclear export competitiveness, workshop participants said. In addition to the resources available to Russian and Chinese state-owned firms, these companies have few limits on the terms of the financing they offer. OECD member countries adhere voluntarily to export credit financing limitations—intended to restrict unfair government subsidies—that nonmember countries do not follow.⁵⁴

Some countries will prefer to work with the United States and Korea for strategic reasons, but improving project economics is essential if either country is to win bids and deliver on them. Reducing cost-related project risks, whether they are real or perceived, is a mutual challenge ripe for bilateral cooperation. To address this issue, one reactor developer recommended bilateral cooperation to aggregate the equity, loans, and debt necessary to execute nuclear projects, not only for first-of-a-kind projects, but also for fleet-scale deployments.⁵⁵

At the same time, the United States and South Korea should identify the overlaps and gaps between their existing export financing tools. In November, the chair of EXIM said that the bank intended to invest \$100 billion in energy projects, including uranium development, and that it is in active talks with southeastern European countries on reactor projects.⁵⁶ EXIM, however, ranks seventh in the amount of new credit support it provides (\$5.9 billion in 2024)—behind the export credit agencies of Korea and others—and is therefore constrained in how many projects it could support simultaneously.⁵⁷ In addition, although EXIM’s Make More in America Initiative can support domestic US manufacturers whose products will be exported,⁵⁸ it has not proved useful to reactor developers: as one participant explained, US reactor developers that are focused on domestic, first-of-a-kind deployments cannot access funding through this initiative. The Export-Import Bank of Korea (KEXIM), an American participant noted, might be able to fill some of the gaps in US financial tools’ coverage by financing nuclear projects in the United States. EXIM could do the same for projects in Korea (or, if that is not of interest to the current governments, could do so in third countries). In both cases, US and Korean firms would spearhead the projects.

One participant referenced the possibility of strengthening interagency coordination on global energy investments. An energy security compact, for example, could leverage financial and capacity-building tools from institutions like the DOE, the US State Department, the Millennium Challenge Corporation, DFC, and EXIM.⁵⁹ Others encouraged the two countries to explore investment opportunities beyond the traditional export financing tools offered by export-import banks and institutions like DFC in order to cofinance nuclear reactor builds, fuel cycle facilities, or the civil nuclear sector as a whole.

Workshop participants also discussed the possibility of securing support for civil nuclear projects from multilateral development banks. The World Bank lifted its decades-long, informal ban on nuclear project financing in June 2025.⁶⁰ While participants agreed that the World Bank is unlikely to finance a civil nuclear project in its entirety in the near future, they noted that a nuclear project requires not only the reactor but a competent regulatory body, means of transmission and distribution, and human capital. The World Bank may be less suited to finance nuclear construction projects than the DFC, EXIM, KEXIM, and the like, but it might still play a key role as a market analyst and capacity builder for countries interested in civil nuclear energy, as well as a public sector lender for the necessary auxiliary infrastructure. In addition, after the November workshop, the Asian Development Bank amended its policies to allow civil nuclear investments, with every Asian regional member country voting in favor.⁶¹ The European Union remains another key export market, especially following the European Commission’s inclusion of nuclear energy in its lexicon of green technologies—a step that has cleared the way for private nuclear investment in the European Union.⁶²

Establish One or More Joint Ventures

Several participants suggested the formalization of a US-Korean civil nuclear joint venture at the company-to-company level. Proposed elements could include risk sharing and division of profits to achieve a joint venture that benefits both countries. Joint ventures and structured or ad hoc consortia would help ease the US-ROK cooperation-competition dynamic by aligning commercial interests more closely. The US-Japanese joint venture of GE Vernova Hitachi Nuclear Energy serves as one successful example. Following the resolution of the intellectual property case involving Westinghouse, KEPCO,

and KHNP, the parties are reportedly discussing the possibility of formal cooperation.⁶³

US and Korean companies are in many cases already working alongside each other through a variety of project-related and longer-term arrangements. Westinghouse and Hyundai, for example, are collaborating to deliver on Bulgaria’s plan to build AP1000 reactors.⁶⁴ In the event that a formal joint venture is not an achievable or appropriate model of cooperation, participants agreed that US and South Korean nuclear companies should continue to explore additional opportunities to partner with and invest in one another.

Pursue Regulatory Harmonization

The United States remains a leading global standard setter in nuclear regulation. The South Korean APR1400 reactor received a design certification from the US Nuclear Regulatory Commission (NRC) in 2019. To achieve regulatory efficiencies in the future, a Korean participant said, Korea and the United States could work toward regulatory harmonization and consider the potential for joint regulatory assessment of reactor designs. An American participant indicated the usefulness of the countries’ continued participation in the work of the IAEA’s Nuclear Harmonization and Standardization Initiative, whose Regulatory Track seeks to speed the deployment of advanced reactors by creating a Global Framework for Advanced Reactors Reviews.⁶⁵ Participants suggested that bilateral regulatory harmonization efforts should consider the best available approaches to reactor design approval (e.g., identify whether a standard design approval from the NRC may actually provide sufficient certainty to applicants and obviate the need for a design certification). Staff exchanges between the two regulatory bodies, they added, are also useful.

Participants said further that to maintain domestic and global trust and confidence in the US nuclear enterprise, the US government must provide the NRC with the staff and funding necessary to meet its mission.

Assess Firms’ Capabilities at Each Stage of Project Design

In the United States, the lack of vertical integration of the reactor developer with the utility has been found to increase the risk of delays to nuclear projects.⁶⁶ Westinghouse is a case in point: it conducts reactor and component design but not manufacturing design, which means a given project design may not be cost-effective or executable. In contrast, South Korea’s vertically integrated approach reduces cost and delay risk. In developing the Korean APR1400 reactor, for example, KEPCO and KHNP incorporated changes to its design based on analyses of its constructability, operability, maintainability, and cost. One South Korean workshop participant, citing South Korea’s vertically integrated model, underscored the importance of three actions: (1) distinguishing between design completion and project integration, (2) incorporating equipment specification and constructability considerations into the reactor design process, and (3) including reactor fabricators and builders in the design process.⁶⁷

Strengthen Workforces and Professional Relationships

Student enrollment levels in US nuclear engineering programs may finally be increasing after years of stagnation, according to a workshop participant from academia. However, the broader US nuclear workforce continues to face the challenges described in Section 2.

The Trump administration has expressed interest in increasing the domestic nuclear workforce. A May 2025 executive order directed US agencies to encourage states to expand nuclear engineering training and employment programs.⁶⁸ The US Department of Energy has established a Nuclear Reactor Safety Training and Workforce Development Program to expand the US nuclear workforce. However, it

has not yet disbursed funding that Congress has appropriated to establish domestic regional workforce consortia.⁶⁹ Such consortia would link university programs with the nuclear industry and other entities to ensure more students enter the nuclear workforce, and they could also allow American and Korean students to meet, exchange ideas, and begin lifelong professional relationships.⁷⁰

Increase the Frequency of Bilateral Civil Nuclear Dialogue

The 2015 US-ROK 123 Agreement established the HLBC to foster dialogue on civil nuclear cooperation. The HLBC established working groups on fuel supply, spent fuel management, export cooperation, nuclear security, and other topics as needed in order to facilitate these discussions. An American workshop participant who had helped establish the first HLBC noted its continued usefulness to engagement: while intellectual property disagreements encumbered HLBC discussions for several years, the recent resolution of the disagreements renews the promise of the commission to foster bilateral coordination. Another American participant encouraged including the reactor and nuclear fuel industries in the HLBC going forward.

Participants viewed the HLBC as an important forum to facilitate discussions about the current 123 Agreement. American participants expressed differing opinions on whether the existing agreement enables the necessary and full breadth of civil nuclear partnership and cooperation between the two nations, or whether a roadmap should be developed in collaboration with South Korea to foster additional bilateral cooperation.

Participants supported the restoration of regular meetings of the HLBC and the creation of more opportunities for dialogue. The confirmation in May 2025 of James Danly as Deputy Secretary of Energy—the role designated to lead the HLBC’s US delegation under the 123 Agreement—presents an opportunity to resume meetings of the commission. Participants also pointed to the JSCNEC as another forum whose revival should be considered, and they expressed interest in holding additional workshops to continue coordination between US and Korean companies and officials.

4. Conclusion

Civil nuclear cooperation with South Korea can continue to advance US strategic and competitive interests. President Trump has made clear that his administration supports expanding nuclear energy at home and abroad to strengthen US energy and national security; to reclaim energy dominance; to expand trade; and to increase allied nations' investment in the United States. It is equally in South Korean firms' interest to partner with American companies on nuclear energy: both countries have many of the same national interests and face many of the same challenges in executing successful nuclear projects on time and within budget.

These shared challenges include incomplete reactor designs, insufficient project management, a shortage of skilled workers, and a tight, unstable supply chain. By identifying each other's competitive advantages and areas of potential partnership, US and Korean companies can better address these hurdles. Many opportunities exist today to strengthen the United States through such partnerships. American and Korean companies can cooperate on reactor project finance; build capacity in countries interested in nuclear energy; establish formal and informal joint ventures; continue regulatory harmonization efforts; and mutually strengthen each other's nuclear workforces.

Such bilateral activities will serve to improve the confidence of prospective customers, from utilities and technology companies to heavy industry and foreign countries. They will ensure that the United States can build and export fleets of new light-water and next-generation reactors. Absent cooperation between US and Korean nuclear companies, however, the United States will continue to struggle to manage reactor construction projects on time and within budget, to secure the necessary workforce, to build more than one or two reactors at a time, and to win bids abroad. US-South Korean civil nuclear partnerships will address the chief constraints of the US nuclear sector and unlock more of the economic, energy, and security benefits held within the atom.

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