US-SAUDI CIVIL NUCLEAR COOPERATION AND THE RISK OF A REGIONAL NUCLEAR ARMS RACE

ALISHA

BACKGROUND

Nuclear proliferation in West Asia remains an issue of concern. The history of countries in the region undertaking clandestine nuclear activities (Iran, Iraq, Israel, Libya, and Syria) is well known, and regional rivalries amplify the concerns. Although nuclear power has been slow in establishing its foothold in the region, it has progressed from atomic research to power reactors, with recent concerns regarding nuclear weapons. Against this backdrop come Saudi Arabia's intentions of a nuclear programme. The civil nuclear agreement that Saudi Arabia is seeking with the United States has dual objectives and implications across the Middle East, leading to potential shifts in the regional nuclear powers. The kingdom's civil nuclear programme is motivated by concerns regarding energy as well as external security, in the wake of climate change and Iran's nuclear capabilities, respectively. Saudi Arabia invited bids for the construction of nuclear power plants, and as of July 2024, the China National Nuclear Corporation, Korea Electric Power Corporation (KEPCO), Électricité de France (EDF)

Ms **Alisha** is a doctoral candidate of Diplomacy and Disarmament at the School of International Studies, Jawaharlal Nehru University. This article was written when the she was a research intern at the Centre for Aerospace Power and Strategic Studies, New Delhi, earlier this year.

The civil nuclear agreement that Saudi Arabia is seeking with the United States has dual objectives and implications across the Middle East, leading to potential shifts in the regional nuclear powers.

of France, and Rosatom of Russia were approved bidders.[1] Westinghouse, a US company, was reportedly excluded by Saudi Arabia in 2022, pressing the United States to collaborate with South Korea to participate in the bids.[2] Since "a deal involving US technology or components comes with a high level of non-proliferation obligations, including a commitment to forswear the right to enrich or reprocess nuclear material under Section 123 of the US Atomic Energy Act," Saudi Arabia would prefer other countries with relatively lax provisions.[3]

The paper seeks to analyse the course of US-Saudi civil nuclear cooperation and its implications in West Asia. The first section explores the intentions and ambitions behind Saudi Arabia's nuclear programme. The second section highlights the rights of the kingdom in pursuance of its nuclear programme, within the ambit of the nuclear Non-Proliferation Treaty (NPT) and the safeguards laid out by the International Atomic Energy Agency (IAEA). The third section analyses what this cooperation offers to the United States. The fourth section discusses the implications of Saudi Arabia's nuclear programme and explores alternative ways to conclude the agreement and prevent other countries in the region from getting into a race to develop nuclear weapons.

WHY DOES SAUDI ARABIA NEED/WANT A NUCLEAR PROGRAMME?

Saudi Arabia may not seem a clear contender for nuclear power because of its status as the world's largest crude oil exporter.[4] However, it has justified

1. Christopher M. Blanchard and Paul K. Kerr, US Congress, *Prospects for US-Saudi Nuclear Energy Cooperation,* https://www.congress.gov/crs-product/IF10799
2. https://www.csis.org/analysis/saudi-request-us-nuclear-cooperation-and-its-geopolitical-quandaries
3. Blanchard and Kerr, n. 1.
4. International Energy Agency, "Saudi Arabia: Oil," https://www.iea.org/countries/saudi-arabia/oil. Accessed on June 25, 2025.

its nuclear programme over the years as a means of transitioning to a more sustainable and reliable source of energy, thereby addressing both climate change and energy security concerns. It plans to utilise nuclear energy for electricity generation and to free up crude for exports, thus, adding to the revenue. The fears of giving greater leverage to the West for uranium fuel to power the nuclear reactors have invited criticism of these plans from proponents of solar energy within Saudi Arabia. The Executive Director of the Non-proliferation Policy Education Centre, Henry Sokolski, in his statement in a hearing in the Congress said, "A more compelling explanation that Riyadh doesn't need nuclear power comes from recent analyses that have determined that the Saudis could more cheaply and more quickly meet their energy and environmental requirements by developing their natural gas resources and investing in renewables, photovoltaic, concentrated solar power, and wind."[5]

Like many other countries around the world, Saudi Arabia has also sought to address the dual challenges of climate change and energy security by utilising renewable energy sources, including nuclear.

According to the International Energy Agency (IEA), the most significant sources of electricity generation in Saudi Arabia (2022) are natural gas and oil, accounting for 58 per cent and 41 per cent respectively of the total generation, while wind and solar energy account for the rest.[6] Like many other countries around the world, Saudi Arabia has also sought to address the dual challenges of climate change and energy security by utilising renewable energy sources, including nuclear.[7] Under the Vision 2030 plan, the Kingdom of Saudi Arabia

5. *Implications of a U.S.-Saudi Arabia Nuclear Cooperation Agreement for the Middle East: Hearing Before the Subcommittee on the Middle East and North Africa of the Committee on Foreign Affairs House of Representatives*, 105th Cong. 2 (2018) (statement of Henry Sokolski, Executive Director, The Nonproliferation Policy Education Centre), https://www.govinfo.gov/content/pkg/CHRG-115hhrg29389/pdf/CHRG-115hhrg29389.pdf. Accessed on June 28, 2025.
6. Data from International Energy Agency, "Saudi Arabia: Where Does Saudi Arabia get its Electricity?," https://www.iea.org/countries/saudi-arabia/electricity. Accessed on June 25, 2025.
7. Saudi Arabia faces climate risks such as desertification and greenhouse gas-induced pollution. It lacks freshwater resources and relies on desalination, an energy-consuming process, for removal of sodium from seawater. Since climate change will exacerbate the crisis for freshwater,

aims to install up to 40 GW (Giga Watt) of solar photovoltaic, 16 GW of wind, and 2.7 GW of other renewable energy technologies, including concentrated solar power, nuclear, hydro, etc., in order to meet its goal of producing 50 per cent of its electricity from renewable sources by 2030.[8] In addition to renewable energy, Saudi Arabia is actively exploring the potential of nuclear power to expand its energy portfolio, advance its technology base, and reduce its dependence on fossil fuels.

The nuclear ambitions of Saudi Arabia can be traced back to the year 1977, when the King Abdulaziz City for Science and Technology (KACST), the country's national nuclear authority, was established in Riyadh. In 1988, with the purpose of advancing industrial uses of nuclear technology, the Atomic Energy Research Institute (AERI) was set up within the ambit of KACST. In May 2008, a State Department Press statement about the US-Saudi Arabia Memorandum of Understanding on Civil Nuclear Energy Cooperation mentioned the latter's "intent to rely on international markets for nuclear fuel and to not pursue sensitive nuclear technologies."[9] In August 2009, the Saudi government announced that it was considering a nuclear power programme on its own, and in April 2010, a royal decree said that development of atomic energy is crucial to fulfil the kingdom's expanding energy needs like generating electricity, fuel for desalination of saltwater and reducing dependence on depleting hydrocarbon resources. The King Abdullah City for Atomic and Renewable Energy (KA-CARE) was set up to further this goal as an alternative to oil.

---

the nation aims to utilise nuclear energy for desalination, an alternative to carbon intensive fuels used in the process. See Christine Conte, "Understanding Saudi Arabia's Resistance to Environmental Policy Change," *Earth*, January 2025, https://earth.org/understanding-saudi-arabias-resistance-to-environmental-policy-change/; and Amjad Ali, Afaque Shams, Khaled S. Al-Athel and Anas Alwafi, "Saudi Arabia's Nuclear Energy Ambition and its Compliance with IAEA Guidelines for Newcomers: An Overview," *Nuclear Engineering and Design*, vol. 411, 2023, https://doi.org/10.1016/j.nucengdes.2023.112448. Accessed on June 25, 2025.

8. Ibid.
9. US Department of State, "US-Saudi Arabia Memorandum of Understanding on Nuclear Energy Cooperation," Archives, https://2001-2009.state.gov/r/pa/prs/ps/2008/may/104961.htm. Accessed on June 28, 2025.

In June 2011, Saudi Arabia unveiled an ambitious nuclear power plan, projecting an investment of US$300 billion in 16 nuclear reactors by 2030, with the first reactor scheduled for construction by 2021.[10] In July 2017, the government approved the Saudi National Atomic Energy Project (SNAEP), under the supervision of KA-CARE, with the primary objective of integrating nuclear energy into the country's mix and assisting in the realisation of the Saudi Vision 2030. In September 2023, the kingdom's intention to build a nuclear power plant were reaffirmed by the Energy Minister, Prince Abdulaziz bin Salman Al Saud, along with the plans to rescind the small quantities protocol and transition to a comprehensive safeguards agreement with the International Atomic Energy Agency (IAEA).[11]

The Iran factor prominently appears in Saudi Arabia's nuclear programme. Iran's civil nuclear programme was established under the US Atoms for Peace programme in 1957. It signed the NPT in 1968 and as party to the treaty, Iran concluded the safeguards agreement with the IAEA. The Shah, in 1974, declared a target of generating 23,000 MWe (Mega Watt electric) of power from nuclear capacity to free up oil and gas for export.[12] Interestingly, similar reasons have been stated by Saudi Arabia to justify its nuclear programme. The Atomic Energy Organisation of Iran (AEOI), the primary body in charge of licensing facilities, supervising, and establishing regulations for nuclear and radiation safety, was founded in 1974. In 1975, when the Iran Nuclear Regulatory Authority was established, construction of two Pressurised Water Reactor (PWR) units began near Bushehr, but the plant was damaged by Iraqi

10. World Nuclear Association, "Country Profiles: Nuclear Power in Saudi Arabia," https://world-nuclear.org/information-library/country-profiles/countries-o-s/saudi-arabia. Accessed on July 2, 2025.
11. The Original Small Quantities Protocol was made available to states with minimal or no nuclear material and no nuclear material in a "facility." It suspends the application of many provisions of the Comprehensive Safeguards Agreement, under which the IAEA has the right and obligation to ensure that safeguards are applied on all such nuclear material for the exclusive purpose of verifying that such material is not diverted to nuclear weapons or other nuclear explosive devices. See International Atomic Energy Agency, "More on Safeguards Agreement," https://www.iaea.org/topics/safeguards-legal-framework/more-on-safeguards-agreements. Accessed on July 2, 2025.
12. World Nuclear Association, "Country Profiles: Nuclear Power in Iran," https://world-nuclear.org/information library/country-profiles/countries-g-n/iran. Accessed on July 2, 2025.

air strikes in 1984-88. In 2002, during the IAEA investigations, inconsistencies were found in Iran's declarations to the agency, and in 2003, it was discovered that enrichment of uranium and separation of plutonium from the spent fuel had been carried out on a laboratory scale. In the following years, Iran denied the IAEA's requests for access to inspect nuclear sites, and in 2010, the government directed the AEOI to start enriching uranium to 19.75 per cent for the Tehran Research Reactor (TRR), bringing the enrichment levels closer to weapon-grade uranium.[13]

The concept of "nuclear hedging" explains that Saudi Arabia's resolve to develop an indigenous civil nuclear programme has strengthened due to concerns about Iran's nuclear enrichment, leading to threats of acquisition of nuclear weapons.[14] Saudi officials and Crown Prince Turki al-Faisal in 2011 and Mohammed bin Salman in 2018 have explicitly mentioned, "If Iran develops nuclear weapons, Saudi Arabia will have to follow suit."[15] Many voices in the country view nuclear power as a "symbol of national pride" and as a "sign of modernity."[16] Furthermore, Saudi analysts often explicitly conflate the growth of a civilian nuclear industry with regional power dynamics and national security, with its impact in some ways perceived and promoted as a quasi-military factor.

In 2003, a strategy paper that was being considered in Saudi Arabia outlined three options: "acquiring a nuclear capability as a deterrent, maintaining or entering into an alliance with an existing nuclear power for protection, or attempting to reach a regional agreement on a nuclear-free Middle East."[17] This paper came in the backdrop of the developments in

13. Ibid.
14. "Nuclear Hedging" is an idea that states develop nuclear energy because this will enhance their future ability to manufacture nuclear weapons. See Ariel Levite, "Never Say Never Again: Nuclear Reversal Revisited," *International Security* vol. 27, no. 3, Winter 2002-03, pp. 59-88.
15. "Riyadh will Build Nuclear Weapons if Iran Gets Them, Saudi Prince Warns", https://www.theguardian.com/world/2011/jun/29/saudi-build-nuclear-weapons-iran. Accessed on June 24, 2025.
16. Norman Cigar, *Saudi Arabia and Nuclear Weapons How Do Countries Think About the Bomb?* (Abingdon, Oxon; New York: Routledge, 2016).
17. "Saudis Consider Nuclear Bomb," *The Guardian*, https://www.theguardian.com/world/2003/sep/18/nuclear.saudiarabia. Accessed on June 25, 2025.

West Asia, including a crisis over Iran's alleged nuclear programme, leading to a new threat of proliferation in the region.

Thus, the arguments related to Saudi Arabia's acquisition of nuclear weapons as a deterrent in response to Iranian bombs are based on "the repeated statements of Saudi officials, Saudi Arabia's ceaseless quest for regional prestige, and the apparent uncertainty of US security guarantees."[18] An analysis of Saudi Arabia's nuclear concerns must take into account its "external threat perceptions, its domestic politics, and its sense of place in the region."[19] The main concern of Riyadh is that Iran obtaining a nuclear weapon, though it would not pose a direct threat to Saudi territory, it would encourage Iran's aggression in proxy conflicts in the region, including in Iraq, Lebanon, Palestine, Yemen, and Syria, where Saudi Arabia has wrestled with Iran for influence. The "acquisition of civilian nuclear technology adequately serves the kingdom's purpose of signalling to Iran" that any attempt by the Islamic Republic to develop nuclear weapons, and in pursuit of it, its aggressiveness in the region, can be easily countered by Saudi Arabia.[20]

Another motivation for the nuclear programme is the mineable uranium ore reserves, surveyed by the Chinese geologists, which the kingdom plans to use for its much sought-after uranium enrichment facility to achieve "self-sufficiency."[21] In 2023, Saudi Arabia's Energy Minister Prince Abdulaziz bin Salman, stated at a mining and industry conference in Riyadh that the kingdom's plans to enrich its domestic uranium stocks are to secure its ability

18. These security guarantees include that the United States would open the valve on arms sales to Saudi Arabia and maintain a troop and equipment presence to deter Iran-backed action against the kingdom. Kirsten Fontenrose, "A US-Saudi Deal Without Israel? Here's What the US Should Ask For," *Atlantic Council*, March 27, 2025, https://www.atlanticcouncil.org/blogs/new-atlanticist/a-us-saudi-deal-without-israel-heres-what-the-us-should-ask-for/. Accessed on July 10, 2025.
19. Frederic Wehrey, "What's Behind Saudi Arabia's Nuclear Anxiety?," *CERI Strategy Papers*, December 2012, https://www.sciencespo.fr/ceri/sites/sciencespo.fr.ceri/files/n15a_17122012.pdf. Accessed on June 29, 2025.
20. Michael Young, "Does Saudi Arabia Intend to Develop a Nuclear Weapons Capability?," The Malcolm H. Kerr Carnegie Middle East Centre, March 2018, https://carnegieendowment.org/middle-east/diwan/2018/03/does-saudi-arabia-intend-to-develop-a-nuclear-weapons-capability?lang=en. Accessed on July 10, 2025.
21. Muhammad Al-Madhaji, "Saudi Arabia's Nuclear Ambitions: US Apprehensions and China's Allure," Wilson Centre, December 2023, https://www.wilsoncenter.org/article/saudi-arabias-nuclear-ambitions-us-apprehensions-and-chinas-allure. Accessed on July 8, 2025.

The intentions of Saudi Arabia are not limited to the acquisition of civilian nuclear facilities but extend to the ability to domestically enrich uranium, which is complicated by its desire to build nuclear weapons to match the Iranian capabilities.

to complete "the entire nuclear fuel cycle."[22] According to Mark Hibbs, senior fellow in the nuclear policy programme at the Carnegie Endowment for Peace, "If you are considering nuclear weapons development, the more indigenous your nuclear programme is, the better. In some cases, foreign suppliers of uranium will require peaceful-use commitments from end users, so if your uranium is indigenous, you don't have to be concerned about that constraint."[23] Hence, the intentions of Saudi Arabia are not limited to the acquisition of civilian nuclear facilities but extend to the ability to domestically enrich uranium, which is complicated by its desire to build nuclear weapons to match the Iranian capabilities. This supports the hypothesis proposed by Matthew Fuhrmann, which suggests that countries are more likely to pursue the acquisition of an atomic bomb if they perceive an external security threat after receiving aid.[24]

WHAT DOES THE NPT SAY ABOUT SAUDI ARABIA'S RIGHTS?

Article IV of the NPT recognises "the inalienable right of all the Parties to the Treaty to develop research, production, and use of nuclear energy for peaceful purposes without discrimination."[25] Article IV (ii) of the NPT states, "All the Parties to the Treaty undertake to facilitate, and have the right to participate in, the fullest possible exchange of equipment, materials, and

22. Luke Caggiano, "Saudi Arabia Aiming for Complete Nuclear Fuel Cycle," *Arms Control Today*, March 2023, https://www.armscontrol.org/act/2023-03/news/saudi-arabia-aiming-complete-nuclear-fuel-cycle. Accessed on July 11, 2025.
23. "Revealed: Saudi Arabia May have Enough Uranium Ore to Produce Nuclear Fuel," *The Guardian*, https://www.theguardian.com/world/2020/sep/17/revealed-saudi-arabia-may-have-enough-uranium-ore-to-produce-nuclear-fuel. Accessed on July 10, 2025.
24. Matthew Fuhrmann, *Atomic Assistance: How "Atoms for Peace" Programs Cause Nuclear Insecurity* (Cornell University Press, 2012).
25 The Treaty on the Non-Proliferation of Nuclear Weapons (NPT), March 5, 1970, https://www.un.org/en/conf/npt/2005/npttreaty.html

scientific and technological information for the peaceful uses of nuclear energy."[26] Thus, as a non-nuclear weapon state party to the NPT, Saudi Arabia is legally permitted to enrich uranium for peaceful purposes and is also required to accept IAEA safeguards on all its nuclear facilities.

As a non-nuclear weapon state party to the NPT, Saudi Arabia is legally permitted to enrich uranium for peaceful purposes and is also required to accept IAEA safeguards on all its nuclear facilities.

The Comprehensive Safeguards Agreements (CSA) of the IAEA impede the development of nuclear weapons. Saudi Arabia's CSA includes a Small Quantities Protocol (SQP), designed for states with little or no nuclear materials, which is based on an outdated safeguards model and, thus, limits monitoring by the IAEA. The kingdom has not concluded an additional protocol to its CSA because this would mean a significant binding agreement that allows for increased IAEA access and information about Saudi Arabia's nuclear activities, while leaving it with anxieties over Iran's nuclear non-proliferation commitment, as Iran suspended its implementation of the Additional Protocol in February 2021. The kingdom submitted a request to the IAEA in July 2024 to rescind the SQP and "implement the full" CSA.[27] From May 19 to 22, 2025, the IAEA Management Systems Advisory Service (IMSAS), which was created to assist newcomer countries in creating reliable and efficient nuclear infrastructure, held its inaugural management systems advisory service in Saudi Arabia. It stated that to promote the development of its nuclear infrastructure development, Saudi Arabia is actively collaborating with the IAEA through a coordinated Integrated Workplan and is adhering to the IAEA's Milestones Approach.[28]

26. Ibid.
27. Blanchard and Kerr, n. 1.
28. The IAEA Milestones Approach enables a sound development process for a nuclear power programme. It is a phased, comprehensive method to assist countries that are considering or planning their first nuclear power plant. The aim is to help member states understand the commitments and obligations associated with developing a nuclear power programme. Countries that already have nuclear power can assess their preparedness for expansion." In International Atomic Energy Agency, "Milestones Approach," https://www.iaea.org/topics/

WHAT DOES THE US HAVE IN THE BASKET?

Peaceful nuclear assistance is a unique instrument of economic statecraft that governments employ to achieve political or strategic objectives such as strengthening their alliances, countering the influence of threatening states, or enhancing their energy security.[29] Other factors such as non-proliferation and an economic boost to the domestic nuclear industry play a crucial role in providing atomic assistance.

In 2008, oil played a key role in the Memorandum of Understanding (MoU) signed between the United States and Saudi Arabia for civilian nuclear cooperation. According to a White House statement, the US agreed to aid Riyadh in the civil nuclear field because "our global economy depends greatly on Saudi Arabian energy."[30] The agreement is part of a broader strategy to keep allies and alliances strong. The United States could also extend its influence over the Saudi nuclear energy policy through such engagement, thus, limiting the influence of countries like China that have ambitions in West Asia.[31] The US-Saudi civil nuclear agreement would "put US industry in a prime spot to win contracts to build Saudi nuclear power plants" and benefit from sales of technology, equipment, and services.[32] This would also

infrastructure-development/milestones-approach. Accessed on July 2, 2025; and International Atomic Energy Agency, "IAEA Launches Management System Advisory Service to Support the Introduction of Nuclear Power, Conducts First Mission to Saudi Arabia," https://www.iaea.org/newscenter/news/iaea-launches-management-system-advisory-service-to-support-the-introduction-of-nuclear-power-conducts-first-mission-to-saudi-arabia. Accessed on July 2, 2025.

29. Fuhrmann, n. 24.
30. "US Unveils Deals with Saudi Arabia on Nuclear Power and Oil Protection," *Business Recorder*, https://www.brecorder.com/news/3513057/us-unveils-deals-with-saudi-arabia-on-nuclear-power-and-oil-protection-20080517739581. Accessed on July 2, 2025.
31. In March and August 2017, the China National Nuclear Corporation (CNNC) and the Saudi Geological Survey signed agreements on cooperation in uranium exploration. "Country Profiles**:** Nuclear Power in Saudi Arabia," World Nuclear Association, https://world-nuclear.org/information-library/country-profiles/countries-o-s/saudi-arabia. Accessed on July 2, 2025.
32. For example, the 2009 UAE deal reportedly went for up to $40 billion for construction and operations by KEPCO. *Implications of a U.S.-Saudi Arabia Nuclear Cooperation Agreement for the Middle East: Hearing Before the Subcommittee on the Middle East and North Africa of the Committee on Foreign Affairs House of Representatives*, 105th Cong. 2 (2018) (statement of William H. Tobey, Senior Fellow, Belfer Centre for Science and International Affairs, Harvard Kennedy School), https://www.govinfo.gov/content/pkg/CHRG-115hhrg29389/pdf/CHRG-115hhrg29389.pdf. Accessed on June 28, 2025.

provide insight into the kingdom's atomic programme, potentially alleviating any US worries over weapons proliferation.

Section 123 of the US Atomic Energy Act of 1954 allows the US to negotiate agreements with other nations to engage in significant civil nuclear cooperation . The United States has 25 such agreements in effect as of December 12, 2024, covering peaceful nuclear cooperation with 49 countries, Taiwan's governing authorities, and the IAEA.[33] Nuclear cooperation agreements with foreign governments are mandated by Section 123 of the Atomic Energy Act of 1954. These agreements cover the export of reactors and their essential components, the transfer of certain nuclear materials of US-origin for commercial, medical, and industrial purposes; and other goods subject to the export licensing authority by the Nuclear Regulatory Commission.[34] The agreement requires meeting of nine non-proliferation criteria by the states to prevent the development of nuclear weapons or transfer of sensitive materials to third parties. Additionally, the recipient state must have concluded a comprehensive safeguards agreement with the IAEA.

Section 123 does not require the government to forgo enrichment and reprocessing facilities, but the US Congress wants additional terms (which control Saudi Arabia's ability to do so) to sign this agreement to prevent the chances of proliferation. NPT and Additional Protocol signatories are permitted to conduct enrichment and reprocessing for civilian purposes, but Saudi Arabia has not signed the latter and has not revised its safeguards agreement with the IAEA, thus, complicating the terms of agreement for nuclear cooperation with the United States.

IMPLICATIONS OF SAUDI'S NUCLEAR PROGRAMME

There are numerous players ready to cooperate with Saudi Arabia in its civil nuclear programme, thus, posing a challenge to the United States in

33. U.S. Department of Energy, National Nuclear Security Administration, "123 Agreements for Peaceful Cooperation," https://www.energy.gov/nnsa/123-agreements-peaceful-cooperation. Accessed on July 3, 2025.
34. Blanchard and Kerr, n. 1.

the region. If the US imposes stringent conditions for signing a civil nuclear agreement, other countries might enter into agreements with more lenient provisions to woo the kingdom's authorities and fill the vacuum created by the absence of the United States. Saudi Arabia's invitation for bids to build nuclear power plants on Saudi soil saw participation from countries like France, China, Russia, and South Korea.

In June 2015, France agreed to conduct a feasibility study on the construction of two Evolutionary Power Reactor (EPR) nuclear power reactors.[35] A June 2015 agreement with Rosatom provided for cooperation in nuclear energy, including "the design, construction, operation, and decommissioning of nuclear power and research reactors, the provision of nuclear fuel cycle services, the management of spent nuclear fuel and radioactive waste, and applications of radioactive isotopes in industry, medicine, and agriculture."[36] In October 2017, KA-CARE and Rosatom signed a new cooperation agreement focussing on small and medium reactors, as well as the construction of a new research reactor. In June 2013, support for the localisation of nuclear technology, along with joint research and development of nuclear technologies was offered by the Korea Electric Power Corporation (KEPCO), if Saudi Arabia were to purchase South Korean reactors.[37]

An agreement signed in January 2012 with China covers research reactors, the development and maintenance of nuclear power plants, and the supply of processed nuclear fuel. In January 2016, an agreement was signed between KA-CARE and China Nuclear Engineering Corporation (CNEC) to develop a High-Temperature Reactor (HTR) in Saudi Arabia, and later in March and August 2017, the Saudi Geological Survey and China National Nuclear Corporation (CNNC) concluded agreements on cooperation in uranium exploration.[38] China and Saudi Arabia have also signed an MoU on Cooperation in Nuclear Energy Development, Safety and Security at the

35. n. 31.
36. Ibid.
37. Ibid.
38. Ibid.

first China-Gulf Cooperation Council (GCC) Forum on the Peaceful Use of Nuclear Technology in April 2025.[39]

If the US continues to insist that Saudi Arabia adopt the "Gold Standard" agreement, in which the kingdom would refrain from pursuing enrichment and reprocessing capabilities, Saudi Arabia "might expand its nuclear partnership with China."[40] Such a partnership could be problematic because Beijing is unlikely to insist that Saudi Arabia sign and ratify the Additional Protocol of the International Atomic Energy Agency, which gives the agency more comprehensive verification powers. This becomes concerning in the wake of Saudi Arabia's unwillingness to forgo enrichment as long as Iran is a threshold nuclear state. Trump and Crown Prince Mohammed bin Salman maintaining a close personal relationship and Riyadh's rejection of a Chinese offer for the J-35A stealth fighter aircraft in favour of Western alternatives are further evidence that the kingdom will continue to rely on its long standing partners when it comes to security and defence.[41] However, China continues to be a proactive partner in energy and technological investment, and although the US may dominate in the traditional sectors, bilateral relations between the kingdom and China cannot be ignored in this domain.

The US-Saudi Arabia civil nuclear agreement is complicated by geopolitical factors, with opposition from Israel. In August 2023, the leader of the opposition to Netanyahu's government Yair Lapid, stated that Saudi Arabia must not have "any level of enrichment."[42] Israel has asked the US that any nuclear cooperation with the kingdom be contingent

39. Hu Yuwei, "China, Saudi Arabia Strengthen Nuclear Safety Collaboration," *Global Times*, April 21, 2025, https://www.globaltimes.cn/page/202504/1332558.shtml
40. The "Gold Standard" similar to, the US-UAE civil nuclear cooperation agreement in which the kingdom would refrain from pursuing enrichment and reprocessing capabilities, is the preferred course of action for Saudi Arabia. Kingston Reif, "UAE Still Committed to Nuclear Pact," *Arms Control Today*, August 2016, https://www.armscontrol.org/act/2016-07/news/uae-still-committed-nuclear-pact. Accessed on July 10, 2025.
41. Zoha Nase and Sarah Tzinieris, "The Kingdom at a Crossroads: Saudi Arabia's Nuclear Prospects in an Era of Strategic Competition," *The Loop*, May 2025, https://theloop.ecpr.eu/saudi-arabias-nuclear-prospects-in-an-era-of-strategic-competition/-. Accessed on July 10, 2025.
42. Arms Control Association, "Saudi Push for Enrichment Raises Concerns," https://www.armscontrol.org/act/2023-11/news/saudi-push-enrichment-raises-concerns. Accessed on June 30, 2025.

A US-Saudi civil nuclear deal that disregards the "Gold Standard" runs the risk of igniting a nuclear arms race in West Asia.

upon a prohibition on enrichment and reprocessing capabilities. Further, any agreement without normalisation of ties between the two countries will face opposition from the most reliable partner of the US in the region.

Furthermore, a US-Saudi civil nuclear deal that disregards the "Gold Standard" runs the risk of igniting a nuclear arms race in West Asia. The current nuclear cooperation agreements of the UAE and Egypt concluded with the US contain language that clearly states that "the UAE and Egypt have the right to demand 'equal terms and conditions' if Washington strikes a nuclear agreement with any other Middle Eastern state that is more 'favourable in scope and effect' than what Cairo and Abu Dhabi were able to secure."[43]

CONCLUSION

Saudi Arabia's pursuit of a civil nuclear programme is driven by a combination of factors such as energy security, reduced dependence on fossil fuels, advancing technological base, economic growth and—most significantly—regional security dynamics, particularly its rivalry with Iran. The kingdom's officials have reiterated their intentions to build a nuclear power plant along with assurances regarding a comprehensive safeguards agreement with the IAEA, but their insistence on acquiring domestic uranium enrichment capabilities raises legitimate concerns about the future trajectory of the nuclear programme. Furthermore, in response to Iran's acquisition of nuclear weapons, explicit statements from Saudi officials state that it would follow suit.

The US, in its civilian nuclear cooperation with Saudi Arabia, has to tread a fine line while balancing its strategic interests with non-proliferation concerns. A US-Saudi nuclear cooperation agreement based on the Gold

43. n. 5.

Standard condition, similar to the US-UAE nuclear agreement, that Saudi Arabia should renounce enrichment and reprocessing capabilities and technologies, could be the most preferred course of action. But the statements from Saudi officials regarding pursuing 'the entire nuclear fuel cycle' indicate that Riyadh is adamant on preserving its enrichment and reprocessing capabilities, which poses a challenge for the US to convince the kingdom to enter into a Gold Standard agreement.

If the United States insists on Saudi Arabia forgoing enrichment, the kingdom may deepen its partnerships with China or Russia, actors less likely to enforce strict non-proliferation terms.

Any deviation from the established Gold Standard of non-proliferation could undermine the existing agreements with other regional partners and potentially trigger a domino effect, where the UAE and Egypt might demand "equal terms and conditions". Israel, the most reliable partner of the US, has also opposed any US cooperation with Saudi Arabia that allows for any level of enrichment, without normalisation of ties between Israel and Saudi Arabia. If the United States insists on Saudi Arabia forgoing enrichment, the kingdom may deepen its partnerships with China or Russia, actors less likely to enforce strict non-proliferation terms.

Ultimately, the future of US-Saudi nuclear cooperation hinges on both sides' willingness to find a middle ground that upholds non-proliferation standards while addressing Saudi Arabia's strategic insecurities. Experts have advocated for a "black box" arrangement, in which the US constructs and operates a uranium-enrichment plant on Saudi territory, which would bypass the question of Saudi enrichment. This would limit Riyadh from developing indigenous knowledge and technology for the enrichment of weapon-grade uranium, thus, alleviating any concerns regarding the countries in the region adopting the same course as that of Iran. However, even if the nuclear facility were operated by the United States, it is unclear how the US would react to any Saudi attempt to nationalise it or prevent the kingdom from acquiring knowledge about enrichment.

The United States could strive for broader multilateral efforts to "collaborate with the world's three key nuclear reactor supplier states—France, China, and Russia—and the three key uranium fuel supplier states France, the British-Dutch-German URENCO consortium, and Russia, to tighten nuclear restraints on their civil nuclear exports as well."[44]

Any failure to responsibly manage civilian nuclear cooperation could contribute to a dangerous regional arms race. Conversely, a well-calibrated agreement could set a precedent for balancing peaceful nuclear development with robust non-proliferation safeguards in one of the world's most volatile regions. A complicated calculation comprising US security guarantees, Saudi internal politics and public opinion, and the existing balance of power with Iran will ultimately determine whether or not Saudi Arabia decides to go nuclear.

In this context, the Strategic Mutual Defence Agreement (SMDA) between Pakistan and Saudi Arabia is a significant development that raises concerns regarding the implications on the nuclear order in West Asia. The Arab states of the Gulf led by Saudi Arabia, Iran and Israel, are engaged in mutual rivalry to assert their respective claims to regional dominance. By establishing a binding framework for joint military engagement and collective defence, the SMDA deepens strategic convergence between Saudi Arabia and Pakistan. The agreement states that "any act of aggression against one will be treated as an act of aggression against both" and that "the pact's primary aim is to strengthen defense cooperation and reinforce joint deterrence against any potential threats," thus, underscoring cooperation in both war-time and peace-time.[45] The pact formalises the defence cooperation between Pakistan and Saudi Arabia that had historical roots dating back to Pakistan training the Saudi military and the latter's funding

44. Ibid.
45. Ministry of Foreign Affairs, Government of Pakistan, "Joint Statement on the State Visit of Prime Minister of the Islamic Republic of Pakistan, Muhammad Shehbaz Sharif, to the Kingdom of Saudi Arabia," https://share.google/AmSmwJX0NHF1uJNpW. Accessed on October 31, 2025.

of Pakistan's nuclear programme, in the hope of accessing or receiving nuclear capabilities in return.

The pact aligns closely with Saudi Arabia's Vision 2030 programme which aims at localising its defence industry and prioritises self-reliance in the defence sector. The Israeli strikes on Doha and Saudi Arabia's longstanding concerns over Tehran's proxy activities reinforced doubts regarding solely relying on Washington's security assurances. Therefore, the deal signals the kingdom's resolve to diversify its security partnerships and reduce dependence on Western assurances.

Though the SMDA does not provide "extended nuclear deterrence" to Saudi Arabia because Pakistan's nuclear doctrine does not entail extending its nuclear umbrella, the historical precedents of Saudi officials visiting Pakistan's nuclear research reactors in 1999 and 2002 and statements by Mohammad bin Salam regarding "buying [a nuclear bomb] from Pakistan" raise concerns that Saudi Arabia might view Pakistan's nuclear capabilities as a viable shortcut to the bomb.[46] This could lead to Riyadh accepting the conditions of the "Gold Standard" civil nuclear cooperation agreement and abandoning its long-held position of keeping the domestic enrichment option open, signalling its intent to rely on Pakistan for its nuclear weapons ambitions instead. Though the pact in its present shape does not define collective response and excludes nuclear deterrence, the evolution of the agreement over time, with ensuing agreements, could define the joint deterrence and collective defence.[47]

The regional non-proliferation architecture is weakened by the convergence of these dynamics. While the U.S.-Saudi civil nuclear cooperation aims to advance peaceful nuclear development under stringent safeguards,

46. BBC News, "Saudi Nuclear Weapons 'On Order' From Pakistan," https://share.google/9wH9fQF3yRF2bsSwU. Accessed on November 1, 2025; and Diya Ashtakala, Doreen Horschig, and Bailey Schiff, "Could the Pakistani-Saudi Defense Pact Be the First Step Toward a NATO-Style Alliance?," Centre for Strategic and International Studies (CSIS), https://www.csis.org/analysis/could-pakistani-saudi-defense-pact-be-first-step-toward-nato-style-alliance. Accessed on November 1, 2025.
47. Ibid.

the changing security landscape which is now complicated by the SMDA, risks blurring the distinction between civil nuclear ambition and latent weaponisation potential, thereby increasing the prospects of a regional nuclear arms race.