

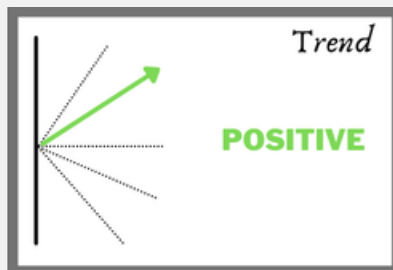


CAPSS Nuclear Tracker

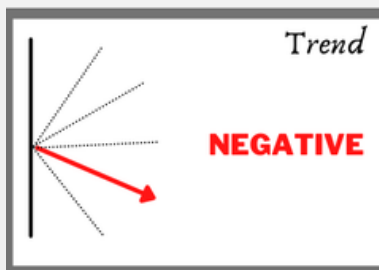
Issue 21: July-September 2026

Tracking nuclear trends in the third quarter of 2026, the NukeNerds at CAPSS observed continued nuclear modernisation alongside growing pressures on the global non-proliferation and nuclear security architecture. Iran's nuclear situation remained a major concern with stalled diplomacy, disrupted IAEA verification, uncertainty over access to nuclear facilities, enriched uranium stocks and the referral of its safeguards non-compliance to the UN Security Council. North Korea continued to expand its nuclear and missile capabilities, including uranium-enrichment infrastructure at Yongbyon and Kangson. Meanwhile, China, India, Russia and the United States continued testing or advancing strategic missile programmes. European nuclear deterrence cooperation also developed further. The quarter highlighted both resilience and strain in the non-proliferation regime, including progress on CTBT ratification and renewed safeguards engagement with Syria, alongside concerns involving Saudi Arabia, AUKUS and nuclear activities in conflict-affected Ukraine. Nuclear security remained under pressure from conflict-related risks, gaps in material accounting and emerging cyber threats. At the same time, nuclear energy maintained strong momentum, supported by projections for significant capacity expansion and growing interest in both large reactors and SMRs. Non-power applications also expanded in agriculture, food security and maritime activities. We continue our focus on these evolving dimensions of the nuclear landscape and look forward to your comments and suggestions.

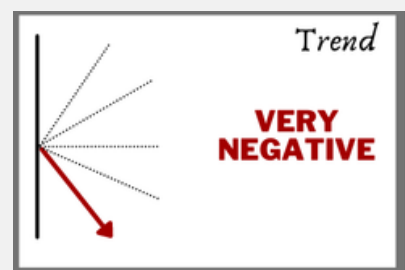
TREND OVERVIEW



- **Nuclear Energy**
Ms Bhawna Budhwar
- **Non-Power Applications of Nuclear Technology**
Ms Sanaa Alvira



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- **Vertical Nuclear Proliferation**
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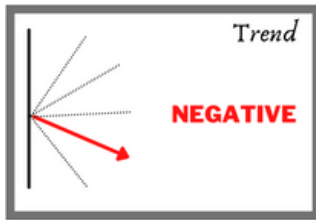


- **Iran**
Dr Niraj Kumar Das

Missile Developments

Dr Javed Alam

Previous Trend: Negative



On July 06, 2026, **China** [test-launched](#) a submarine-launched intercontinental ballistic missile (ICBM) though it remained unclear whether it was a JL-2 or JL-3 SLBM. The missile carried a simulated training warhead across a flight path of roughly 7,300 kilometers and likely overflow parts of the Philippines, landing in the South Pacific Nuclear Free Zone. The test coincided with the kickoff of the Joint Sea 2026 naval exercise in Qingdao, an annual exercise involving the Chinese and Russian navies since 2012. This 2026 test is the first time that China has launched an SLBM into international open waters and publicly demonstrated in the Indo-Pacific that it has a strategic nuclear strike capability launched from a nuclear-powered submarine.

As in the previous two quarters of 2026, the trend on the Korean Peninsula remained active in terms of missile testing. On August 06, **North Korea** [tested](#) one short-range ballistic missile toward the East Sea. The missile test coincided with the 76th anniversary of the 1950-53 Korean War. On August 12, North Korea [conducted](#) another ballistic missile test from the Wonsan area, which is known for short-range ballistic missile tests, the missile might be KN-23 or KN-18. North Korea on August 20 [conducted](#) its third ballistic missile launch in the same month. The missile that was test-launched was the KN-25 SRBM. The launches coincided with large-scale joint U.S.-ROK military exercises.

On August 07, **India** successfully [test-fired](#) the medium-range ballistic missile Agni-4 from the Integrated Test Range at Chandipur in Odisha. Agni-4 is a nuclear-capable missile with an estimated range of 3500-4000 kms. On September 27, it was [reported](#) that Pakistan, with its newly inducted Chinese-built AIP submarine Hangor, had successfully test-fired an anti-ship cruise missile in the North Arabian Sea.

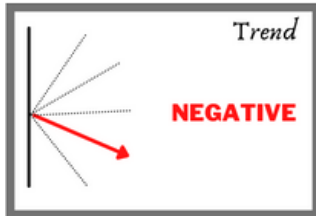
On August 08, the **Russian** Federation successfully [launched](#) the Yars intercontinental ballistic missile from the Plesetsk test site. RS-24 Yars is a nuclear-capable, MIRVed missile system with an estimated range of 11,000 km.

On September 14, the US Strategic Command [stated](#) that the LGM-35A Sentinel intercontinental ballistic missile program reached a critical milestone by completing the vertical stacking of the inert missile at Vandenberg Space Force Base, California. The press release noted that the stacking event concluded a rigorous four-month test campaign that proved the viability of all missile stages, propulsion elements, shroud, and subcomponents for assembly into a single configuration on the test pad. The operation also verified key segments of the weapon system's operational lifecycle, confirming that all handling processes and personnel are fully capable of executing complex field assembly.

Vertical Nuclear Proliferation

Dr Javed Alam & Mr Prahlad Kumar Singh

Previous Trends: Negative



On July 6 2026, **China** [conducted](#) a test launch of a submarine-launched ballistic missile (SLBM) from a strategic nuclear-powered submarine into the Pacific Ocean. The People's Liberation Army Navy stated that the missile carried a dummy warhead and landed in its designated impact area. China did not officially identify the missile type, but Chinese military commentators [suggested](#) it was likely the JL-3, a long-range SLBM publicly unveiled during the 2025 Victory Day parade. The test highlighted the continued development and operational training of China's sea-based nuclear forces.

On July 9 2026, **North Korea** [announced](#) measures to strengthen its nuclear forces “quantitatively and qualitatively” following an enlarged meeting of the Workers' Party's Central Military Commission chaired by Kim Jong Un. The measures include expanding and strengthening the nuclear forces, upgrading the technical infrastructure of combat systems, and modernising military bases.

As the ongoing war between Russia and Ukraine is making no headway towards a settlement, its repercussions are being witnessed in Europe. On July 16, 2026, the German military agreed to [participate](#) in **France's** flagship nuclear drill, Poker, for the first time. In a landmark speech in March, Macron said several European countries, including Germany, had agreed to enhance cooperation on nuclear deterrence. Options for this range from participation in Poker — which simulates air-launched nuclear strikes — to temporary deployment of nuclear-capable French Rafale fighter jets. In other significant [news](#), Finland has joined France's initiative to extend the reach of its nuclear deterrent by collaborating with partner European countries, the heads of both countries said on September 14. Under the initiative, the French president alone has the authority to decide when nuclear weapons are used, in contrast to the North Atlantic Treaty Organisation, which has a shared Nuclear Planning Group.

On August 05, it was [reported](#) that the **US** Department of Defence is drafting a revised nuclear strategy that emphasises the potential use of shorter-range tactical nuclear weapons in regional conflicts against Russia or China.

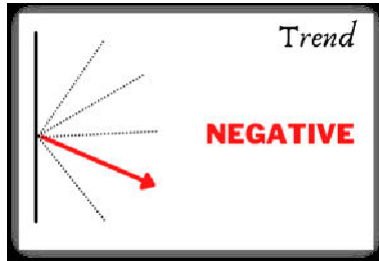
On August 10, it was [reported](#) that an independent scientific advisory group to the federal government found that the plutonium in the **United States'** existing nuclear weapons stockpile is "aging slowly" and degradation issues "do not call into question present weapons performance." On September 17, it was [reported](#) that Democratic lawmakers are pushing a bill to disapprove of a nuclear cooperation agreement struck between the United States and Saudi Arabia, aiming to strike down the proposal during a three-month period of congressional review.

The **United Kingdom** [made](#) a major financial commitment to nuclear modernisation, with the government confirming more than £63 billion for the nuclear deterrent over the next four years. The investment includes support for the Dreadnought-class submarines and the development of the new sovereign Astraea warhead, as well as extending capabilities through dual-capable F-35A aircraft. The investment represents a significant long-term recapitalisation of the UK nuclear enterprise.

Nuclear Non-proliferation

Dr Niraj Kumar Das

Previous Trend: Negative



The global nuclear non-proliferation architecture underwent many changes in July–September 2026. The period saw significant activity around the NPT safeguards system, CTBT, **Saudi Arabia's** prospective nuclear program, **Syria's** longstanding safeguards case, AUKUS safeguards arrangements, and civil nuclear technology expansion.

There were a number of developments around the Comprehensive Nuclear-Test-Ban Treaty (CTBT) as it marked 30th year of its conclusion. On July 7, 2026, Tonga became the 179th state to [ratify](#) the treaty, completing Pacific region universalisation. Given nuclear testing's history in the Pacific, Tonga's ratification was significant. On August 7, 2026, **Mexico** [signed](#) the 23rd CTBTO tsunami-warning agreement that allowed it to receive tsunami-warning data from the CTBTO's International Monitoring System. The arrangement's immediate goal is civilian disaster warning, but it shows the CTBT verification infrastructure's wider civilian utility and encourages international engagement with the CTBTO's monitoring system. On August 29, **Kazakhstan** and the CTBTO [commemorated](#) 35 years since Semipalatinsk's closure. The Soviet Union had conducted over 450 nuclear tests at Semipalatinsk. The [Twelfth](#) Ministerial Meeting of Friends of the CTBT was held at UN Headquarters in New York on September 22, 2026. 70 countries participated and Japan and Australia co-chaired. The meeting reaffirmed support for the CTBT and efforts to implement it. The development was significant given international efforts to strengthen the nuclear explosive testing ban.

On July 22, 2026, The **USA** and **Saudi Arabia** [signed](#) a civilian nuclear cooperation and bilateral safeguards agreement under Section 123 of the U.S. Atomic Energy Act. The agreement legalises long-term U.S.–Saudi civil nuclear cooperation and may allow Saudi Arabia to enrich uranium. In contrast to the U.S.–UAE agreement, the Saudi agreement does not ban enrichment and reprocessing. Non-proliferation experts worry that the development

could set a precedent for sensitive fuel-cycle capabilities in the West Asia. As per US law, the U.S.–Saudi 123 Agreement was [submitted](#) to Congress on August 24, 2026, starting the statutory review process. The congressional review is important because it will scrutinise Saudi nuclear program's proliferation risks. On September 25, 2026, U.S. intelligence [reported](#) that Saudi Arabia had not ruled out a nuclear weapons program. The assessment raised concerns about the July U.S.–Saudi nuclear cooperation agreement, which could allow uranium enrichment. Concerns about a Middle East proliferation cascade have been heightened by the development.

Princeton University and the University of Wisconsin–Madison [published](#) a study on undocumented Democratic Republic of the **Congo** (DRC) uranium exports on July 30, 2026. The researchers found evidence that uranium was exported with cobalt-hydroxide shipments despite the DRC reporting no exports since the Shinkolobwe mine closed. The study estimated that the reported quantities could theoretically produce 600–1,500 nuclear weapons, but this is a material-equivalence calculation and does not prove production. The discovery raises questions about nuclear material accounting, illicit trafficking, and international nuclear supply chain weaknesses.

On August 11, 2026, an [agreement](#) between **Syria** and the IAEA signed over nuclear material at “Site 99” in Syria. The material reportedly contained uranium from the Assad nuclear program. IAEA DG [visited](#) Syria on August 17–18, 2026, including Deir Ezzor and another nuclear material site discovered by the Syrian government. Syria and the IAEA agreed on practical safeguards’ measures for undeclared activities under the former regime. The Agency said the new nuclear material would be safeguarded internationally. The visit marked a turning point in the Syrian safeguards case and showed the importance of access, declaration, and verification in reaching historical safeguards agreements.

IAEA [launched](#) ATLAS, Atomic Technologies Licensed for Applications at Sea, in Washington, D.C., on August 26–27, 2026. The initiative aims to create an international framework for safe, secure, and peaceful nuclear technology deployment in maritime applications, such as nuclear-powered commercial ships and floating nuclear power plants. The initiative is important for non-proliferation because expanding nuclear technologies at sea requires safeguards, security, and regulations.

On September 8, 2026, the five Central Asian Foreign Ministers [reaffirmed](#) their commitment to the CANWFZ on the 20th anniversary of the Treaty. The ministers emphasised

the zone's role in strengthening the global nuclear non-proliferation and disarmament regime and supported the NPT, IAEA safeguards, and early CTBT implementation. Since the CANWFZ is the only nuclear-weapon-free zone in Central Asia, the development was significant.

On September 10, 2026, at the IAEA Board of Governors the EU reiterated its [support](#) for a Middle East without nuclear weapons and other WMDs. The EU statement did not specifically target Israel, but it is related to Israel's status outside the NPT. The EU reiterated the 1995 NPT Resolution's relevance to the Middle East and the 2010 NPT Review Conference's outcome.

Australia, the **UK**, and the **US** [updated](#) the IAEA Board of Governors on the AUKUS nuclear-powered submarine program on September 10, 2026. The AUKUS partners said they were still consulting with the IAEA on safeguards and verification, including Article 14 of Australia's Comprehensive Safeguards Agreement. Safeguards-by-design and IAEA verification and monitoring are being discussed. AUKUS is a major test of IAEA safeguards for nuclear material used for naval propulsion by a non-nuclear-weapon state. At the 70th IAEA General Conference on September 22, 2026, China [criticised](#) AUKUS transfer of nuclear material for naval propulsion to Australia, which would threaten the NPT safeguards system. China doubted the safeguards could prevent nuclear material from being diverted from peaceful uses.

European states again raised nuclear safety and security [concerns](#) in **Ukraine** at the 70th IAEA General Conference on September 14–18, 2026. The European Union noted that the Zaporizhzhia Nuclear Power Plant lost off-site power again on August 20 and warned of the risks of military activity around Ukraine's nuclear facilities. The EU supported the IAEA's monitoring and reporting role and called for safe and effective conditions for the Agency's operations. The EU [again](#) raised concerns about Russia's nuclear role in Ukraine. The EU said Russia's military activities threatened nuclear safety, security, and safeguards in Ukraine and that the IAEA should have access to Ukrainian nuclear facilities. The ZNPP was the main concern because it was under Russian control and exposed to the conflict.

The 70th IAEA [General Conference](#) was held in Vienna September 14–18, 2026. The conference was a major multilateral forum for nuclear safeguards, non-proliferation, security, and peaceful nuclear uses. Member States reaffirmed their support for the IAEA's safeguards role and addressed ongoing non-proliferation regime challenges. North Korea was a major non-

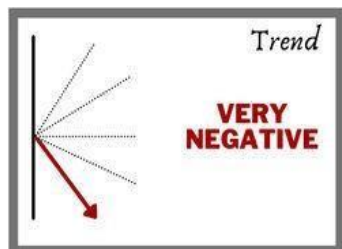
proliferation concern at the General Conference. The IAEA General Conference reaffirmed that North Korea [cannot](#) become a nuclear-weapon state under the NPT and called for safeguards implementation on September 17–18, 2026. The resolution passed with 103 yes, 6 no, and 14 abstentions. It occurred amid evidence of North Korea's uranium-enrichment infrastructure expansion.

On September 15, 2026, Director General Moshe Edri of **Israel's** Atomic Energy Commission [addressed](#) the 70th IAEA General Conference in Vienna highlighting regional nuclear security concerns. Israeli statements focused on Iran and Syria and argued that Israel could not remain passive in the face of security threats. Israel is not in the NPT, but its nuclear capabilities remain a major issue in international discussions on a nuclear-weapon-free zone in the Middle East.

Iran

Dr Niraj Kumar Das

Previous trend: Very negative



On July 1, 2026, indirect US–Iran negotiations [continued](#) in Doha with mediation by Qatar and Pakistan. But the diplomatic process was fragile and soon faced renewed military tensions. US military action against Iran on 7-8 July put strain on the June ceasefire framework. While Washington indicated that diplomacy could continue, the deterioration complicated efforts to re-establish a new nuclear agreement and restore normal IAEA verification.

On July 10, 2026, the UN Security Council held a [briefing](#) on non-proliferation and Resolution 2231. The UN said the IAEA had not carried out in-field verification under Iran’s NPT Safeguards Agreement and saw a significant decline in its knowledge of Iran’s nuclear program after the attacks. On July 18, 2026, Iran announced it was [suspending](#) commitments under the memorandum with the US, blaming US violations.

Iran said on August 13, 2026, it would [not re-enter](#) direct talks with the United States unless its demands on sanctions, military threats and fall-out from the last conflict were met. The deadline for the 60-day period linked to the US-Iran diplomatic framework expired on 17 August without an overall nuclear deal and the two sides remained divided over the terms for resuming talks.

Iranian officials said on August 26-27, 2026, that the IAEA would not be able to [inspect](#) facilities damaged during the conflict until a suitable mechanism for wartime inspections was in place. The dispute has also stalled the resumption of safeguards verification at Iran’s nuclear sites.

On September 1, 2026, the IAEA [released](#) its latest safeguards report on Iran. The Agency said it had not received the information or access needed to verify the status of Iran’s declared nuclear material and facilities. The gap in the flow of information on Iran’s enriched

uranium stockpile was described as a serious proliferation concern. On September 7, 2026, IAEA DG briefed the Board of Governors on the [worsening](#) verification situation. With no access to Iran's declared nuclear facilities, it could not verify that nuclear material had not been diverted.

On September 9, 2026, the IAEA Board of Governors [passed](#) a resolution by a vote of 23 in favour, 3 against and 8 abstentions, reporting Iran's non-compliance with its safeguards obligations to the UN Security Council . The resolution was opposed by China, Russia and Niger. The move was a significant escalation, it being first referral of Iran's nuclear file in two decades. On the same day, France, Germany, the United Kingdom and the United States [issued](#) a joint statement backing IAEA action due to lack of cooperation required by Iran's NPT Safeguards Agreement.

Satellite imagery [reportedly](#) indicated increased construction activity around the hardened Pickaxe Mountain area near Natanz on September 10, 2026. It raised concerns about Iran's future nuclear infrastructure.

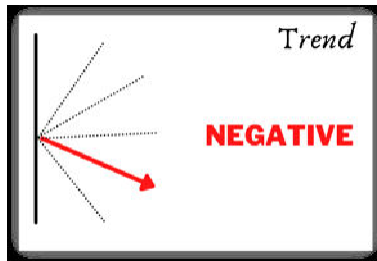
On September 19, 2026, Iran's Supreme National Security Council Secretary Mohsen Rezaei said that Tehran had [not decided](#) to pull out of the NPT, but warned that continued US pressure could lead Iran to such a decision. On September 20, 2026, Iranian legislators proposed a bill to [withdraw](#) Iran from the NPT. The proposal needed parliamentary approval and so did not in itself represent withdrawal from the Treaty.

President Pezeshkian told the UN General Assembly on September 23, 2026, that Iran would [keep](#) its nuclear program and would not accept limits imposed by military pressure or sanctions. He said Iran's program was peaceful and called for diplomacy, not coercion. As of now, Iran has [continued](#) to link renewed negotiations and resumption of international inspections to broader political and security arrangements with the United State, but no resolution is in sight.

North Korea

Dr Niraj Kumar Das

Previous trend: Negative



On July 7, 2026, the US, Japan and South Korea [reaffirmed](#) commitment to denuclearisation on the sidelines of the NATO summit in Ankara. They agreed to maintain coordination and pursue dialogue with Pyongyang. On July 11, 2026, Pyongyang [slammed](#) the three-way re-affirmation of denuclearisation, saying the US and its allies should first address their own nuclear capabilities and military policies.

On August 20, 2026, international assessments showed that North Korea was increasing its production capacity. A South Korean [assessment](#) publicly estimated that North Korea could have 80-120 nuclear warheads, although the South Korean defence minister stressed that the figure was based on outside research and could not be officially confirmed by the military.

Between August 17-21, 2026, the US-South Korea annual Ulchi Freedom Shield exercise began but, President Donald Trump [ordered](#) it to be scaled back significantly and later said he wanted to meet Kim Jong Un later this year. Pyongyang remained sceptical, telling US policy changes would be needed before meaningful engagement could pick up again.

On August 20, 2026, North Korea [fired](#) about 10 short-range ballistic missiles from the Pyongyang area into the East Sea. The launches came amid the Ulchi Freedom Shield exercises and were condemned by South Korea as violations of United Nations Security Council resolutions. On August 28, 2026, the US, South Korea and Japan [announced](#) they will hold Freedom Edge from 9 to 11 September, stressing regional coordination and readiness against North Korean nuclear and missile threats.

On September 6, 2026, President Kim Jong Un attended the [commissioning](#) of the 5,000-ton Kang Kon guided-missile destroyer at Wonsan. The ship was part of North Korea's

nuclear response system, North Korean state media said. This development was Pyongyang's bid to bolster the maritime leg of its strategic deterrent.

On September 9, 2026, IAEA said North Korea had [built](#) a new two-story uranium-enrichment building at Yongbyon that could hold as many as 28 centrifuge cascades. It also noted an expanded annexe at the Kangson enrichment site that appeared to have become operational. The developments indicated a continuing expansion of North Korea's capacity to produce weapons-grade nuclear material and were a serious proliferation concern.

On September 10, 2026, Russia [slammed](#) the IAEA's assessment of North Korea's nuclear expansion, noting that the agency has not had inspectors on the ground in North Korea since 2009. The split highlighted continuing political differences among the international community over how to monitor and respond to North Korea's nuclear activities.

On September 12, 2026, North Korea fired [several](#) short-range ballistic missiles from the Wonsan area, around 250 km away. Pyongyang later described the activity as a joint firepower attack drill with attack drones, a tactical cruise missile, large-calibre multiple rocket launchers and tactical ballistic missiles. The exercise showed a greater integration of various strike systems.

On September 17, 2026, the IAEA General Conference [passed](#) a resolution expressing serious concern about North Korea's ongoing nuclear activities. It was adopted by 103 votes to six with 14 abstentions and urged Pyongyang to suspend nuclear activities and comply with relevant international obligations. Russia and China were among the opponents of the resolution. The same day Kim Yo Jong (the powerful sister of North Korean leader Kim Jong-Un) [dismissed](#) the IAEA resolution, claiming that North Korea's nuclear status was "absolute" and would not be reversed.

On September 21, 2026, North Korea said it had tested a [new](#) combat weapon system with "ultra-modern defence technology" the experts said that the projectile appeared to be an upgraded variant of a missile equipped with a hypersonic glide vehicle.

The quarter has ended with a statement on September 22, 2026, by South Korean President Lee Jae Myung that he preferred a [softer approach](#) towards North Korea where sanctions could be relaxed in exchange for a halt of North Korea's nuclear development rather than insisting on full denuclearisation. The proposal could be a possible move toward a phased diplomatic approach.

Nuclear Energy

Bhawna Budhwar

Previous Trend: Positive



The third quarter of 2026 witnessed growing positive momentum around nuclear energy globally, as countries increasingly looked to nuclear power for energy security, reliable low-carbon electricity and technological development. On July 2, 2026, the OECD **Nuclear Energy Agency** (NEA), released its “Nuclear Energy Outlook: Global Installed Capacity to 2050 and Beyond”, presenting four scenarios for the future [trajectory](#) of global nuclear power capacity. The report projects capacity ranging from 347 GWe in the Low Scenario to about 1,324 GWe in the Transformative Scenario by 2050, with the latter more than tripling current capacity. It highlights India’s target of 100 GWe by 2047 as one of the drivers of the transformative scenario. The report also emphasises the need for major expansion in nuclear workforce, supply chains and financing, alongside long-term operation of existing reactors and deployment of large reactors and Small Modular Reactors (SMRs). Notably, around 80% of the 70 GWe currently under construction is in non-OECD countries, highlighting the shifting geography of global nuclear. On September 14, 2026, the **International Atomic Energy Agency** (IAEA) released the 46th edition of its report titled “Energy, Electricity and Nuclear Power Estimates for the Period up to 2060”, [projecting](#) continued and significant growth in global nuclear power capacity. At the end of 2025, 413 reactors were operating worldwide with 377.1 GW(e) of capacity. In the high-growth scenario, global capacity could reach 1,045 GW(e) by 2050 and 1,284 GW(e) by 2060, around 3.4 times the 2025 level. The report also projects a growing role for SMRs, which could account for 28% of new nuclear capacity added by 2060 in the high case. Central and Eastern Asia could see particularly strong expansion, with capacity projected to rise from 114 GW(e) in 2025 to 407 GW(e) by 2060 in the high case. The report also highlights the need for new reactor construction, lifetime extensions and replacement of retiring reactors, as two-thirds of the global reactor fleet has already operated for more than 30 years.

Against this global backdrop, **India** also recorded several significant developments reflecting its growing focus on nuclear expansion, indigenous nuclear technologies, energy security and technological self-reliance. On August 14, 2026, the Department of Atomic Energy (DAE) released the draft Sustainable Harnessing and Advancement of Nuclear Energy for Transforming India (SHANTI) Rules, 2026 and draft SHANTI Regulations, 2026 for public consultation to operationalise the SHANTI Act, 2025. The [proposed](#) framework aims to establish detailed provisions for nuclear operator liability, financial protection and lifecycle responsibilities. It requires operators to maintain adequate financial security against nuclear damage, including arrangements related to spent fuel, radioactive waste management and decommissioning. The framework also supports the broader expansion of nuclear technology beyond electricity including industrial heat, hydrogen, medical isotopes, research and emerging technologies. The DAE invited stakeholders, industry, experts and the public to submit comments on the draft Rules and Regulations by September 4, 2026. One of the most highlighted provisions of the draft SHANTI Rules is the requirement concerning the use of foreign nuclear technology in India. The draft rules specify that foreign nuclear technology sourced for a nuclear power plant or reactor must have its design certified or approved by the regulatory body in its country of origin and must already be operational either in the country of origin or in another foreign country. At the same time, the technology must not adversely affect India's interests, must not pose an unreasonable risk to public health and safety and must conform to the national policies framed under the SHANTI Act. This provision places clear emphasis on the regulatory approval, proven operational experience and safety credentials of any foreign nuclear technology proposed for use in India. It reduced the risks associated with deploying untested reactor designs in India for which people were concerned prior to the release of draft rules and regulations. On September 19, 2026, NPCIL commenced the initial fuel [loading](#) of Unit 8 of the Rajasthan Atomic Power Project (RAPP-8) at Rawatbhata, marking a key milestone for India's indigenous nuclear programme. The 700 MW PHWR is the fourth of 16 indigenous reactors being developed across the country. Fuel loading began after clearance from the Atomic Energy Regulatory Board (AERB) following safety and security reviews. RAPP-8 is expected to proceed towards first criticality and grid synchronisation in the coming months. The development further advances India's efforts to expand its indigenous 700 MW PHWR fleet and nuclear power capacity. Meanwhile, [geotechnical](#) investigations for Units 9 and 10 at the RAPP site commenced on September 19, 2026, marking an important step towards the foundation and development of the new units. Together, these developments reflect the continued progress of India's indigenous 700 MW

PHWR programme. On September 16, 2026, NPCIL and BARC inaugurated the DARSHAN (Development of Advanced Reactors, Simulation & High-end Analysis) Hub, a high-end facility aimed at [supporting](#) the development of indigenous SMRs and next-generation reactor technologies. Equipped with high-performance computing and advanced simulation tools, the hub will support 3D plant engineering, digital simulations, safety assessments and advanced reactor analysis. The initiative strengthens India's indigenous capabilities in advanced reactor design and simulation-driven engineering. On August 30, 2026, India and Uzbekistan agreed to move towards a long-term uranium supply [arrangement](#), with Uzbekistan being a major regional uranium producer and exporter. The two countries also identified nuclear energy, critical minerals, mining and clean energy as areas for expanded cooperation. The proposed uranium arrangement is part of India's broader efforts to diversify and strengthen its nuclear fuel supply chain as it expands nuclear power capacity. The development comes alongside the elevation of India-Uzbekistan relations to a Comprehensive Strategic Partnership.

Russia's state nuclear corporation Rosatom [announced](#) that projects for 18 new nuclear power units across nine sites are currently at various stages of implementation. The projects are part of Russia's plan to develop 38 new nuclear units with a combined capacity of 29.3 GW by 2045, targeting a 25% share of electricity generation from nuclear power. Rosatom also aims to prepare for construction of three units in 2027, including VVER-1000 reactors at a proposed site in Primorye, BN-1200 at Beloyarsk and a unit at the Smolensk Nuclear Power Plant. The company is also targeting a 5% reduction in costs in 2026 while maintaining an investment programme exceeding RUB 900 billion.

On July 31, 2026, **China** approved four new nuclear power projects with a combined investment [estimated](#) at more than 170 billion yuan (about USD 25.2 billion). The projects cover eight new nuclear power units at Jinqimen Phase II in Zhejiang, Taipingling Phase III in Guangdong, Zhuanghe in Liaoning and Laiyang in Shandong. The approved projects will use China's domestically developed third-generation reactor technologies, including Hualong One Version 2.0 and Guohe One. At Taipingling, each Hualong One Version 2.0 unit will have a capacity of 1,217 MW, while Laiyang will install two Guohe One unit of 1,543 MW each. The approvals mark the start of China's 2026 domestic nuclear project approval cycle, following the approval of at least 10 units annually from 2022 to 2025. Chinese military [researchers](#) have proposed a conceptual 60-tonne nuclear-powered main battle tank equipped with a 10 MW-class SMR and a 50 MJ electromagnetic railgun, theoretically capable of reaching targets up to 450 km away at around 3.5 km/s. The proposed reactor would need to fit within 2 cubic metres,

with radiation shielding limited to 3 tonnes and a fuel replacement interval of at least five years. The researchers outlined a three-stage development path: a 150 km-range, 10 MJ electromagnetic system before 2035; a 300 km-range, 20 MJ system during 2035-2045; and a fully nuclear-powered 450 km-range, 50 MJ railgun after 2045. The study remains largely at the simulation stage, with further multi-physics simulations and vehicle-level testing required before practical deployment could be considered.

On September 18, 2026, U.S. President Donald Trump signed the Lindsey O. Graham Sanctioning Russia and Iran Act of 2026, authorising the President to impose tariffs of up to 100% on countries that meet the law's criteria, including major purchasers of Russian oil and natural gas. The legislation adds pressure on countries such as India and China. Despite U.S.'s broader efforts to restrict Russian energy revenues, the U.S. nuclear sector continues to retain limited access to Russian nuclear-fuel supplies. According to U.S. Energy Information Administration (EIA) data, U.S. nuclear operators [purchased](#) 12.71 million separative work units (SWU) of uranium enrichment services in 2025, of which Russia supplied 3.284 million SWU or about 26% of foreign-origin enrichment services. France supplied 18%, the UK 14% and the Netherlands 8%. The dependence extends to uranium supply more broadly: in 2023, about 99% of the uranium concentrate used by U.S. nuclear generators was imported. Although the Prohibiting Russian Uranium Imports Act, signed in 2024, banned Russian low-enriched uranium imports, waivers can remain available until January 01, 2028 where alternatives are unavailable or imports are considered in the national interest. The U.S. has also allocated around \$2.7 billion to rebuild domestic uranium conversion and enrichment capacity, reflecting efforts to reduce dependence on Russia while alternative supply chains are developed.

In **West Asia**, on September 22, 2026, Alexey Likhachev, Director General of Russia's state-owned Atomic Energy Corporation (Rosatom) announced that it is [gradually](#) increasing its workforce at **Iran's** Bushehr Nuclear Power Plant, with the number of Russian specialists at the site reaching 63. The additional personnel are supporting construction of Power Units 2 and 3, including reactor buildings and turbine halls, in cooperation with Iranian contractors. Rosatom said the first unit is operating at full capacity and that safety remains the priority amid regional security conditions. The two new units, agreed under a 2014 Russia-Iran contract are planned to add around 2.1 GW of nuclear capacity to the Bushehr site. On July 22, 2026, United States and **Saudi Arabia** finalised a civil nuclear cooperation agreement, which was [transmitted](#) to the U.S. Congress on August 24, 2026 for review under the Atomic Energy Act.

The agreement establishes a framework for future U.S.-Saudi nuclear cooperation, while raising questions over the non-proliferation safeguards attached to the deal. The agreement does not require Saudi Arabia to adopt the IAEA Additional Protocol and provides a potential pathway for Saudi uranium enrichment, including enrichment up to 20%. The agreement is subject to a 90-day Congressional review period, after which it can enter into force unless Congress takes action to block or modify it. The two classified side letters on implementation remain undisclosed.

In Europe, Extreme heat, drought and unusually low river levels disrupted nuclear power generation across parts of Europe, highlighting the [vulnerability](#) of river-cooled reactors to extreme weather conditions. In **Hungary**, the Paks Nuclear Power Plant faced a potential shutdown as record-low Danube water levels affected its cooling-water intake. In **Romania**, one reactor at the Cernavoda Nuclear Power Plant was shut down, with the facility supplying around 20% of the country's electricity. In **France**, EDF also shut down the Golfech-2 reactor on the Garonne River amid high temperatures and water-temperature restrictions on cooling-water discharge. The developments highlight the need to account for climate-related water availability and temperature risks in nuclear power plant operations. Positive momentum for nuclear energy in Europe seen on September 23, 2026, **Italy's** Senate gave final [approval](#) to a new nuclear energy law, paving the way for the country to establish a regulatory framework for a potential revival of nuclear power after all its nuclear plants were shut down by 1990. The law, approved by 81 votes in favour versus 51 against, empowers the government to establish rules for the construction and operation of nuclear installations, SMRs as well as nuclear safety and spent fuel management. Energy Minister Gilberto Pichetto Fratin has indicated that Italy could have its first domestic reactors by 2035. The legislation marks a key step towards re-establishing nuclear power in Italy, although further regulatory measures and implementation decisions will be required.

In South Caucasus, **Armenia** is extending the [operating](#) life of Unit 2 of the Armenian Nuclear Power Plant (ANPP) and preparing for a new nuclear power unit. The existing unit's service-life extension programme targets 2036, while technical studies are examining the feasibility of operating key non-replaceable components until 2041, subject to technical and regulatory approval. In 2026, Unit 2 underwent 153 days of scheduled maintenance, with around 20 major measures implemented under the life-extension programme, before being reconnected to the grid on September 1. The government approved a 20.1 billion dram budget

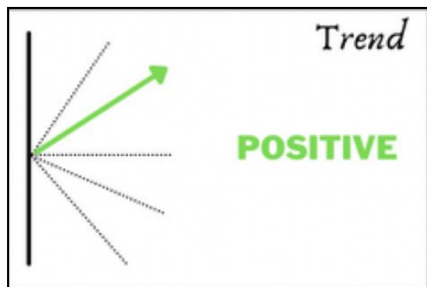
loan for the programme, with total funding estimated at around USD 160 million. Meanwhile, Armenia is evaluating proposals from five countries Russia, the United States, China, South Korea and France for the new plant, with the technology expected to be selected by the end of 2027.

In Africa, Togo called for a [coordinated](#) African approach to nuclear energy development, emphasising national preparedness, strategic partnerships and financing. President of the Council Faure Essozimna Gnassingbe made the call as Guest of Honour at the 51st World Nuclear Symposium, highlighting the potential of nuclear energy to support Africa's energy security, economic development and industrial growth. He stressed that African countries should focus not only on announcing nuclear ambitions but also on building the infrastructure, skills, institutions and financing needed to develop sustainable nuclear programmes. Togo also urged African countries to take a more strategic role in the evolving global nuclear sector. **Tanzania** has invited the IAEA to assess its [preparedness](#) for developing a civilian nuclear power programme, marking a key step in its plans to diversify energy sources and strengthen energy security. The Tanzania Atomic Energy Commission (TAEC) said the country has completed preliminary preparations and is awaiting the IAEA assessment before moving towards implementation. Under the IAEA framework, Tanzania must complete 19 milestones across three phases, covering areas such as legal and regulatory frameworks, nuclear safety, security and institutional capacity. Tanzania expects to begin nuclear power generation within about seven years, subject to regulatory progress and approvals. The country is also exploring cooperation with Russia's Rosatom, including uranium development and potential nuclear power plant construction in the 2030s.

Non-Power Applications

Sanaa Alvira

Previous trend: Positive



The third quarter of 2026 saw continued positive momentum in non-power applications of nuclear technology, marked by the launch of a global initiative on nuclear power at sea and steady progress in agriculture and food security.

The most prominent multilateral development was the IAEA's launch of [ATLAS](#) (Atomic Technologies Licensed for Applications at Sea) in Washington on 26 August. The initiative supports the safe, secure, and peaceful use of nuclear power in civilian shipping and floating nuclear power plants. The launch event, hosted by the United States, brought together around 600 participants from more than 50 countries. The IAEA described it as the first globally coordinated effort to connect the nuclear and maritime sectors. In a [Joint Statement](#), 25 countries committed to ATLAS, calling it “the first step towards revolutionising the civil nuclear maritime industry.” The IAEA will now take ATLAS forward through six expert Project Groups, which will address safety, security, safeguards, and regulatory questions, with some nuclear maritime designs expected to be ready for deployment as early as the 2030s.

Another significant multilateral development was an Atoms4Food country assessment mission to [Liberia](#) from 19 to 24 July. The IAEA and the Food and Agriculture Organization (FAO) carried out the mission through the Joint FAO/IAEA Centre of Nuclear Techniques in Food and Agriculture. Twelve experts worked with national counterparts to assess Liberia's agrifood systems and identify where nuclear and related technologies could deliver practical solutions. These counterparts included the Ministries of Agriculture and Health, laboratories, universities, and farmers. The mission paid particular attention to rice and cassava, the country's staple crops, as domestic rice production still falls short of demand. It also examined soil fertility, livestock health, nutrition, and food safety. **Liberia's** Minister of Agriculture, J. Alexander Nuetah, said the country aims to “translate these opportunities into lasting benefits for farmers and communities across the country.” The IAEA and FAO launched Atoms4Food

in 2023 to help countries apply nuclear techniques to improve agricultural productivity, food safety, and nutrition.

A related development in crop improvement came from [Lao PDR](#), where rice varieties developed through induced mutation breeding are helping farmers raise yields. The work was supported by the Joint FAO/IAEA Centre and the IAEA technical cooperation programme. Rice is grown by more than 80 percent of the country's farmers and occupies around 60 percent of its cultivated land. One new variety, Saphart 1, matures around 20 days earlier than conventional varieties and yields approximately 20 percent more. Another, Houykhod 2, combines moderate resistance to blast disease and flooding with qualities suited to rice noodle production. Farmers were directly involved in selecting and testing the varieties, and farmer groups have led seed multiplication and distribution since 2022. A local group of 19 farmers produced and sold 9.5 tonnes of its seed in the 2026 season, and women played a leading role in spreading the improved seed across Salavanh province.

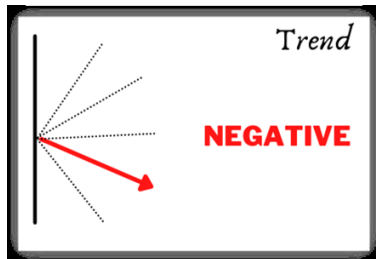
In [Türkiye](#), which produces around 5 million tonnes of citrus fruit a year, nuclear techniques are helping protect harvests from pests and extreme weather. The Bornova Plant Protection Research Institute is working with the IAEA to build national capacity in the Sterile Insect Technique against the Mediterranean fruit fly, one of the most damaging pests on the country's Aegean and Mediterranean coasts. In a pilot trial in 2024 and 2025, the release of 1 million sterile males in a 25-hectare orchard near İzmir cut the number of wild females by 95 percent. A larger release is now underway across a 2,000-hectare valley in Menderes. Türkiye has also used mutation breeding to develop four new lemon varieties, three of them seedless.

In [India](#), Minister of State Jitendra Singh told the Lok Sabha in a written reply on 12 August that crop varieties developed by the Bhabha Atomic Research Centre (BARC) through radiation-based mutation breeding are used across the country, including in the North-Eastern States. The Indian Council of Agricultural Research recommends four BARC groundnut varieties for cultivation in the region. BARC is also working with Assam Agricultural University on mutation breeding to improve local rice varieties. The reply further noted government incentives, announced in 2024-25 under the Pradhan Mantri Kisan Sampada Yojana scheme, for setting up food irradiation units to reduce post-harvest losses and extend shelf life. Separately, a government [release](#) in August noted that India is developing a High-Temperature Gas-Cooled Reactor for hydrogen production as part of its small modular reactor programme.

Nuclear Security

Sanaa Alvira

Previous trend: Negative



Nuclear security continued to witness a negative trend through July-September 2026. Major nuclear-armed states stepped back from nuclear security leadership, conflict-related risks persisted, and new gaps emerged in material accounting and cyber security.

The most significant development of the quarter was the release of the seventh edition of the Nuclear Threat Initiative (NTI) [Nuclear Security Index](#) on 15 September, which assesses 175 countries and Taiwan. The Index found that both Russia and the United States had declined notably. **Russia's** score fell mainly because it suspended crucial international cooperation and continued to produce additional weapons-usable material. The United States recorded its largest drop between any two editions, and also suspended international cooperation, while the largest driver behind its reduced score is the erosion of the Nuclear Regulatory Commission's (NRC) independence.

The Index also pointed to growing plutonium stockpiles in France, India, and Russia, and to rising stocks of highly enriched uranium in Belgium, Germany, India, Iran, Pakistan, and Russia. NTI President and CEO Christine Wormuth described the findings as “a historic lapse in nuclear security leadership in these countries at a moment when nuclear dangers are rising.” On a more encouraging note, 12 countries, including Australia, Canada, Finland, Ghana, Japan, Ukraine, Senegal, and the United Kingdom, were credited with driving progress through domestic improvements and international engagement.

Gaps in nuclear material accounting were highlighted by a study published in August. It found that between 2000 and 5000 metric tonnes of natural uranium were [exported](#) from the Democratic Republic of the **Congo** (DRC) between 2000 and 2024 as an undeclared byproduct of cobalt mining, without the International Atomic Energy Agency's (IAEA) knowledge. A

further 1000 to 4000 tonnes are estimated to have been discarded in mine tailings. It found that around 95 percent of the Congolese cobalt shipments went to China, the world's dominant cobalt refiner. Florimond Kabanda, head of the DRC's nuclear safety agency, acknowledged that the country must "take more steps to protect Congo and to protect the world at the same time."

A related concern surfaced in **Syria**, where the IAEA is [preparing](#) to remove nuclear material from a clandestine storage facility known as "Site 99," following months of behind-the-scenes diplomacy between the United States, Israel, and Syria. According to Israeli and US officials, the Assad regime stored yellowcake and other residue from its Al-Kibar reactor project at the site. The material cannot be used for a nuclear weapon but could be used in a dirty bomb. Israel had bombed the site's entrances after the fall of the Assad regime, and Israeli officials said it threatened further strikes after detecting movements suggesting Syria might be trying to reach the material, possibly with Turkish help. US officials said Israel was never on the verge of striking. Washington asked Israel to hold back and brought the IAEA in, and the IAEA and Syria signed a removal agreement in July. Syrian officials said they had been unaware the material was there. Removal has not yet begun, but US officials hope to complete it before the end of 2026.

Conflict-related risks [remained](#) acute in **Ukraine**. Addressing the IAEA General Conference in September, DG Grossi warned that the nuclear safety and security situation in the country remained "highly fragile." IAEA teams stationed at nuclear facilities across Ukraine continued to report frequent air raid alarms and military activity. At Zaporizhzhia, the team heard gunfire and explosions daily, often at close range. Grossi noted that the plant had suffered 10 losses of off-site power since June alone, the latest on 20 August, bringing the total since 2022 to 26. By then, its emergency diesel generators had used up almost all of their fuel. Grossi cautioned that "serious risks remain" and called for urgent measures, including the delivery of additional diesel fuel to the site. Drones were also reported near other nuclear sites, including 48 near Chornobyl and 35 near the South Ukraine NPP, some as close as 1.5 kilometres. On a more positive note, Grossi said that more than 250 IAEA deliveries of equipment and assistance, valued at over €27 million, had strengthened Ukraine's radiation monitoring, physical protection, and emergency preparedness since 2022.

New [cyber threats](#) also emerged when suspected **Chinese**-speaking operators used near-autonomous artificial intelligence (AI) agents to breach Taiwanese government systems

between 1 and 4 July. The targets included the island's nuclear safety agency, supply-chain vendors, and at least seven energy companies. According to research by the Israeli cybersecurity firm Dream, the attackers deployed up to eight AI sub-agents across 12 attack waves, compromising 85 government user accounts and extracting more than 2500 personnel records. Dream stopped short of attributing the attack to the Chinese government, but the case shows how AI can lower the barrier to sophisticated attacks on nuclear-related infrastructure. As OpenAI's Michael Dalton put it, "AI orchestrated, fully automated offensive attacks are real now."

In a more constructive regulatory step, the US NRC [issued](#) a proposed rule on 2 August setting specific safety requirements for transporting microreactors and other advanced reactors together with their radioactive contents. Existing rules predate factory-built microreactors, which are designed to be moved as part of their operating model. The proposal covers the full transport lifecycle and aims to give developers regulatory clarity, although it comes as the NRC's independence faces growing scrutiny.

Disclaimer: The views and opinions expressed in this document are those of the authors and do not necessarily reflect the position of the Centre for Aerospace Power and Strategic Studies [CAPSS]. The Nuclear Tracker has been prepared by the scholars of the Nuclear Vertical under the guidance of Dr Manpreet Sethi, Distinguished Fellow, CAPSS.



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CAPSS research faculty comprises senior retired and serving Armed Forces officers from the three services besides academic scholars from national universities and retired members from the diplomatic community. CAPSS also conducts nuclear strategy capsules for the Armed Forces and officers of security and technological organisations.

