



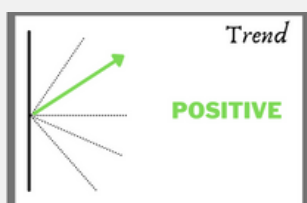
CAPS Nuclear Tracker



Issue V: July-September 2022

In compiling the trendlines across the nine nuclear verticals that NukeNerds at CAPS have been mapping over the last four quarters, more and more issues have moved into the negative category. Except for nuclear energy on which the trendline has remained positive over the last twelve months, on most other issues the developments are looking more and more gloomy. The ongoing Russia – Ukraine conflict, continued stressed relations amongst major nuclear powers, especially USA, Russia and China are primarily responsible for this sentiment. President Putin’s threats of nuclear use and the sword of uncertainty that continues to hang over Zaporizhia nuclear power plant are issues of international concern. Much rethinking is needed on many nuclear issues and the nuclear scholars at CAPS are on the job. Happy tracking!

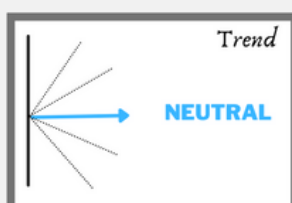
TREND OVERVIEW



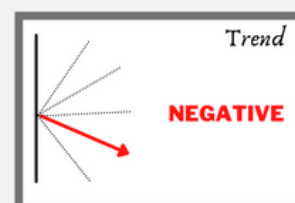
- **Nuclear Energy**
Dr Dhruba Tara Singh



- **Nuclear Arms Control**
Dr Manpreet Sethi



- **Nuclear Non-Proliferation**
Dr Manpreet Sethi
- **Nuclear Disarmament**
Dr Manpreet Sethi
- **Nuclear Security**
Ms Prachi Lokhande
- **Sea-Based Nuclear Developments**
Mr Anubhav S. Goswami

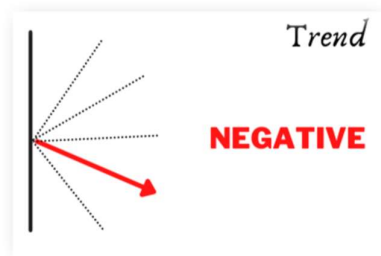


- **Vertical Nuclear Proliferation**
Mr Jay Desai
- **Iran**
Dr Silky Kaur
- **North Korea**
Dr Silky Kaur

Vertical Nuclear Proliferation

Jay Desai

Previous Trend: Negative



On 16 August 2022, the US military [tested](#) the Minuteman III ICBM. The test had been delayed twice earlier: the first time when Ukraine War had started and President Putin was [issuing](#) nuclear threats; and second time, after the visit of [Nancy Pelosi](#) when China became too aggressive on Taiwan with its firing of nuclear capable missiles around Taiwanese [waters](#). The US had then found it best not to test so as not to ratchet up the tensions any further. At the time of the test, Col. Bryan Titus, Vice Commander of Space Launch Delta 30 [said](#) “The test launches demonstrate the readiness of U.S. nuclear forces and provide confidence in the lethality and effectiveness of the nation’s nuclear deterrent”.

Minuteman III is scheduled to be [operational](#) till 2030. After that it would be replaced by Ground Based Strategic Deterrent (GBSD), which is now called LGM-35A Sentinel. LGM-35A Sentinel is an ICBM that is being [developed](#) since 2014 by Northrop Grumman, along with Air Force Global Strike Command (for US Air Force). It will have a [range](#) of more than 5500Km. In order to engage the adversary during a surprise strike, the ground control stations will be [connected](#) to space for ensuring quick connection to ICBMs. It would allow the advanced command and control systems to cut down [reaction](#) time for the higher authorities to take needful action.

Meanwhile, the House Armed Services Committee of USA approved the [retaining](#) of development of the low-yield nuclear cruise missile that was cancelled in the Biden administration’s fiscal 2023 budget request. The House has authorized a small amount of US \$ 45 million to keep the programme going. Also [news](#) came in that USA is developing interceptors, which are intended to counter a hypersonic weapon during the glide phase. These interceptors are meant for US Navy destroyers.

In the context of the ongoing Russia - Ukraine conflict, already seven months old, President Biden warned President Putin against the use of nuclear weapons. In an [interview](#) on 18 September 2022, he said any tactical nuclear strike by Russia would have “consequential consequences”

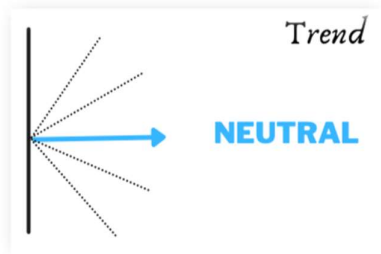
Meanwhile, nuclear signalling continues across the three major nuclear weapon states. Beijing conducted unprecedented [war drills](#) near Taiwan in wake of the visit of US House Speaker Nancy Pelosi to Taipei in August 2022. China circulated videos of vehicles carrying its nuclear capable ICBMs. USA, South Korea and Japan too [conducted](#) their first combined BMD exercise from 8-14 August amid concerns about North Korea and China. The US has also expressed the plan to equip [Guam](#) with expanded missile defences, including radar sensors, interceptor weapons and command and control systems by 2026.

The activities around modernization of nuclear capabilities and their use for signalling nuclear deterrence continues to be a feature of the global nuclear landscape making it a negative trend on vertical nuclear proliferation.

Sea-Based Nuclear Developments

Anubhav Shankar Goswami

Previous Trend: Negative



The US Navy (USN) is showing urgency to build the Columbia-class ballistic missile submarines (SSBN) by finishing it in 78 months instead of the current 84-month deadline. The reduction in build time is attributed to reduce the potential gap that Navy may face in its SSBN

operation if the first Ohio class sub is not commissioned before the incumbent Ohio class [gradually leaves service](#). The first Columbia class boomer, USS District of Columbia, is scheduled for delivery in 2027.

The reduction of build time for the first Columbia-class boomer is, however, going to directly affect the AUKUS programme. U.S officials says shipyards in U.S like the General Dynamics Electric Boat (GDEB) in Connecticut are [already overburdened](#) with the Columbia programme and therefore construction of the nuclear-powered submarines (SSN) for Canberra will have to wait.

U.S. Strategic Command (USSTRATCOM) in the month of July and August vertically replenished ([VERTREP operation](#)) its two SSBNs, USS Henry M. Jackson and USS Nevada while operating off the coast of southern California with its U.S. Navy MH-60R Seahawk helicopters, a U.S. Air Force C-17 Globemaster III cargo aircraft, and U.S. Marine Corps MV-22B Osprey tiltrotor aircraft. VERTREP operations are the ability to deliver supplies from air to assets operating at sea. VERTREP demonstrates US Navy's ability to send its SSBNs on forward deployment without any operational break for supplies, ultimately enhancing its readiness.

Meanwhile, at the latest IAEA quarterly meeting of the it's 35-nation Board of Governors held in September 2022, [China attacked the AUKUS alliance over their plan to supply Australia with nuclear-powered submarines](#). "The AUKUS partnership involves the illegal transfer of nuclear weapon materials, making it essentially an act of nuclear proliferation," China alleged. Reuters reported Australia's defence as, "it will be unable and unwilling to

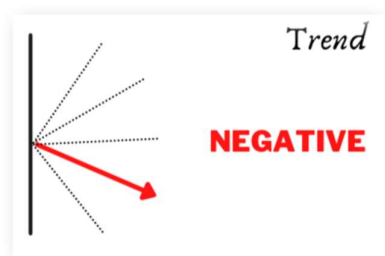
use the fuel in its submarines to make nuclear weapons since the vessels will have "[welded power units](#)" containing nuclear material that would need chemical processing for use in an atom bomb, and Australia does not have or want facilities that can do that”.

Over in Russia, Generalissimos Suvorov SSBN of Borei-A-class project 955A sailed for the first time out to the White Sea for factory trial. The objective of the tests are to assess its “seaworthiness and [operational features and their compliance](#) with the designed characteristics”. The Generalissimos Suvorov SSBN was laid by Sevmash Shipyard on December 26, 2014. The sub is a significant improvement over the Borei series with better acoustic stealth, manoeuvring and deep-sea running capabilities and an improved armament control system. The submarine will [join the Pacific Fleet after passing the](#) trials.

Nuclear Non-Proliferation

Manpreet Sethi

Previous Trend: Neutral



The 10th Review Conference of the Parties to the Treaty on the NPT finally took place from 01 Aug to 26 Aug 2022, after many postponements owing to the pandemic. 151 States parties met against the backdrop of the ongoing Russia-Ukraine conflict. While many emphasised their

commitment to the NPT, the RevCon ended without a consensus final document. Conference President Gustavo Zlauvinen of Argentina had presented [a consolidated 35-page draft final outcome document](#) for adoption by consensus on August 25, but Russia objected to the wording on paras relating to nuclear safety matters at Ukraine’s Zaporizhia Nuclear Power Plant and no final document was announced. The draft document, however, covered usual issues on the three pillars of peaceful uses of nuclear weapons, non-proliferation and disarmament. Nuclear risk reduction was included in the document for the first time as an important step to stabilise the situation until disarmament became possible.

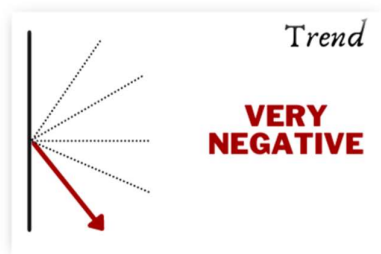
IAEA presented a report to its Board of Governors on [safeguards in relation to AUKUS](#). The report mentioned the visit of the Director General, of IAEA to Australia in Jul 2022 where he had discussions with Prime Minister Albanese, who highlighted Australia’s “unwavering commitment to nuclear non-proliferation in the context of AUKUS”. Australia has committed not to pursue fuel fabrication, reprocessing or enrichment of uranium, be provided with complete, welded power units for nuclear propulsion, help develop a suitable verification approach and deepen additional safeguard measures. IAEA has expressed satisfaction at Australia’s commitment to non-proliferation, though technical details are yet to be worked out. However, China has raised objections on the IAEA report and described AUKUS as a [“blatant, irresponsible act of nuclear proliferation”](#), which demonstrated double standards that would have an impact on Iran and North Korea.

ASEAN member countries reaffirmed their commitment to implementing the Treaty of Southeast Asia Nuclear Weapon Free Zone (SEANFWZ) at a meeting of the [SEANFWZ Commission held on Aug 2](#). They also agreed to strengthen consultations with NWS that are yet to sign the treaty protocol. Also known as the Bangkok Treaty, it obliges the signatories to not develop, produce, acquire, possess, or have control over nuclear weapons, or test or use them. None of the NWS have ratified the treaty yet.

Nuclear Arms Control

Manpreet Sethi

Previous Trend:



US-Russia strategic stability talks expectedly remain in a state of limbo. While both sides maintain political correctness in calling for talks to negotiate a replacement for the New START treaty due to expire in Feb 2026, both also continue to blame each other for their inability to

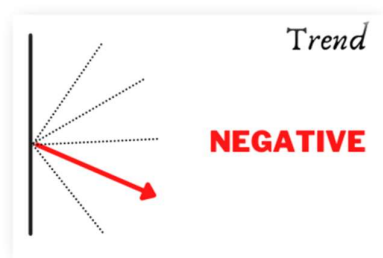
take this forward. President Biden on Aug 1 emphasised that Russia should demonstrate its readiness to resume arms control given that it [has shattered the international order](#) with its military action against Ukraine. But, Moscow blames Washington for not having shown sufficient interest in early launch of talks and demands negotiations “[on the basis of mutual respect and taking into account mutual concerns.](#)” In August, Russia also “temporarily” suspended on-site inspections of its strategic nuclear weapons under the New START.

Meanwhile, a call by US Secretary of State, Anthony Blinken, for nuclear arms control with China was dismissed by Beijing as a tool to “[deflect blame and distract attention](#)”. China continues to maintain that its nuclear arsenal size is too small to pull China into a multilateral disarmament process

Iran

Silky Kaur

Previous Trend: Negative



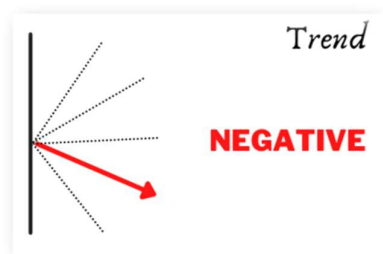
Despite hopes of return to JCPOA, the last quarter too saw the deal falter. From the Iranian perspective, four main points of difference stand out. These include “guarantees must be reassuring,” “objective and practical [verification](#) should be foreseen in the deal,” also “the removal of sanctions should be meaningful and sustainable” and “political claims about the safeguard issues should be closed.” On 21st September 2022, Iranian President Ebrahim Raisi in his speech at UN General Assembly, insisted that his country is serious about reviving nuclear deal but also questioned whether Tehran could trust US commitment. He said that “America [trampled](#) upon the nuclear accord” of 2015 and claimed that Iran’s nuclear program is only for peaceful purposes. He has demanded the [withdrawal](#) of sanctions as well as closure of IAEA [enquiry](#) against it for the nuclear deal to move ahead.

Subsequently, on September 22, 2022, Israel’s Prime Minister Yair Lapid stated at United Nations that the international community should use “military force” if Iran develops nuclear weapons. He said that “the only way to prevent Iran from getting a nuclear weapon is to put a [credible military threat](#) on the table” only then a longer and stronger deal can be negotiated. Meanwhile, Iran inched a step [closer](#) to Russia and China with its signing of a memorandum of obligations on September 14 which would grant it full membership of the SCO. With negotiations on JCPOA remaining deadlocked, the trend for this quarter remains neutral.

North Korea

Silky Kaur

Previous Trend: Negative



In July 2022, North Korean leader Kim Jong Un said in a speech that his country was “[ready to mobilise](#)” its nuclear deterrent in any future military clash with the United States and South Korea. On September 8, 2022, North Korea promulgated [new laws](#) regarding its nuclear forces. According to these laws, North Korea will launch a [preemptive nuclear strike](#) if it detects any sign of another country preparing for an attack on it. These laws, amongst others, also authorized an immediate and automatic [nuclear counterstrike](#) if North Korean leader Kim Jong-un is killed. Nuclear weapons can also be used to respond against “non-nuclear” attacks.

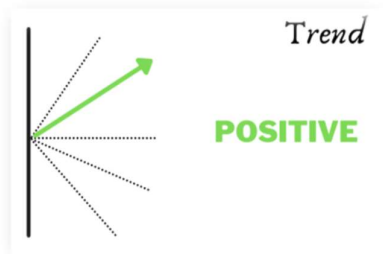
On September 16, the United States and South Korea denounced North Korea's first-use nuclear doctrine as "escalatory and destabilizing" and Washington [vowed](#) to continue to deploy and exercise strategic assets to deter and respond to Pyongyang. South Korea's officials stated that North Korea's new nuclear doctrine violates the “[objectives](#)” of the 2018 inter-Korean military agreement.

Meanwhile, UN chief Antonio Guterres said in a firm response that Security Council will respond clearly to any “provocations that threaten freedom and peace” if North Korea resumes [nuclear testing](#). On the other hand, on September 20, Japanese Prime Minister Fumio Kishida renewed his offer to meet North Korea's leader amidst ongoing nuclear tensions. PM Kishida said that Japan still stood by [diplomacy](#) set out two decades ago by former pm Junichiro Koizumi on his historical visit of North Korea.

Nuclear Energy

Dhruba Tara Singh

Previous Trend: Positive



Across Asia, Europe, and Africa, nuclear energy continues to draw positive attention and action. On September 14, 2022, **China's** State Council [approved](#) the second phase of the Zhangzhou project in south-eastern Fujian province, and the first phase of the Lianjiang project in Guangdong province in the south; and on September 08, 2022, **China** General Nuclear [announced](#) the pouring of the first concrete for the nuclear island of unit 5 at the new Lufeng nuclear power plant. On August 24, 2022, **Japanese** Prime Minister Fumio Kishida [instructed](#) his government to consider developing safer and smaller nuclear reactors. **South Korea** [announced](#) restart of the construction of two reactors, and extend the life of presently operational reactors on July 06, 2022. **Russia** and **Myanmar** [signed](#) MoU on cooperation in nuclear energy on July 11, 2022. Russia's Rosatom will provide cooperation in training and skill development in the area of atomic energy.

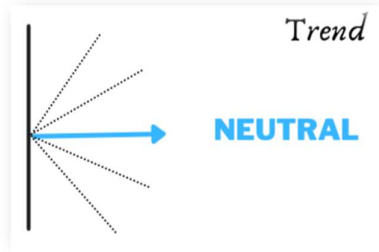
In Europe, on July 06, 2022, the **EU** legislators [identified](#) investments in nuclear energy as green, which will add nuclear power to the EU's taxonomy for sustainable activities from 2023. The **UK** government has [announced](#) GBP 3.3 million to support the development of advanced nuclear technology. Six projects aimed at developing Advanced Modular Reactors (AMRs) in the country have been chosen to receive GBP 2.5 million. **Russian** Rosatom is ready to start the [construction](#) of two new nuclear reactors after **Hungary's** National Nuclear Energy Office provided the official go-ahead for expansion on 26 August, 2022. **Romanian** Nuclearelectrica and **Polish** KGHM Polska Miedź SA [signed](#) a non-binding MoU for cooperation in the development of small modular reactors (SMRs) on September 06, 2022. **Germany's** Economy minister Robert Habeck said the Isar II plant in Bavaria and the Neckarwestheim facility in Baden-Wurttemberg would be kept on standby to [provide](#) backup until April 2023. **France's** Électricité de France S.A. has [committed](#) to restarting all its nuclear reactors by winter in the middle of the ongoing energy crisis.

Meanwhile in **Egypt**, the [construction](#) of the first nuclear reactors is underway. The first safety-related concrete has been poured for the nuclear island of unit 1 of the El Dabaa nuclear power plant. On July 19, 2022, **Uganda** has [approached](#) Russia to develop east Africa's first nuclear power plant during a meeting between Ugandan President and Russian Foreign Minister.

Nuclear Security

Prachi Lokhande

Previous Trend: Neutral



On July 4th, Mariano Grossi, DG, IAEA, delivered the 2022 John Gee memorial lecture at the Australian National University highlighting IAEA's indispensable job bolstering international security. he spoke about IAEA's work in areas of nuclear safety including its role in

helping countries prevent, detect, and respond to acts and threats of nuclear terrorism. He also highlighted IAEA'S role in assisting Ukraine's nuclear facilities operator and risk management.

In the same lecture Grossi highlighted IAEA's collaboration with Australia on the complex issue of ensuring nuclear safeguards in Australia's proposed acquisition of nuclear-powered submarines under the trilateral AUKUS partnership. Indonesia has warned of a nuclear safety risk and has called for a tighter IAEA oversight on the nuclear-powered submarine and its acquisition proposal by Australia.

EDF, the French multinational electric utility company which is majorly owned by the French state, is under scrutiny for nuclear security 'shortfalls' as it is now placed under enhanced monitoring over threat of digital attacks.

The biggest concerns around nuclear security have been raised in the context of Ukraine's Zaporizhzhia nuclear power plant (ZNPP). Tensions have remained high as both Ukraine and Russia have tried to use the nuclear plant as a hostage for their objectives. According to reports, the ZNPP was being used a military base to launch attack into the surrounding areas. DG, IAEA calls the strikes at ZNPP alarming and the shelling of the plant a real risk of a nuclear disaster. The IAEA inspectors were allowed to visit the plant in September to assess the situation and provide some semblance of normalcy. Two of them shall remain on site to monitor the situation. However, the nuclear power plant has seen shut downs. IAEA has passed a resolution calling on Russia to leave Zaporizhzhia. On 23rd September, shelling was reported at the site of Zaporizhzhia nuclear power plant which has damaged

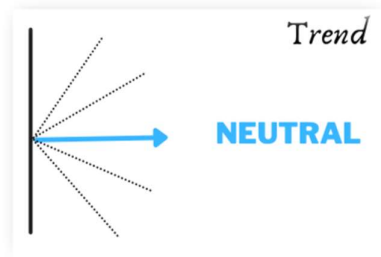
buildings close to its six reactors and cut power cables, risking a nuclear catastrophe that would affect neighbouring countries. Russia and Ukraine blame each other for the shelling around the plant.

Concerns remain and while the trend can be tentatively called neutral for now since nothing untoward has happened at ZNPP, but the sentiment that has been generated around military threats to nuclear plants in war zones could quickly turn negative.

Nuclear Disarmament

Manpreet Sethi

Previous Trend: Neutral



The first meeting of States Parties to the TPNW, which today has close to 90 signatories and 65 ratifications, successfully concluded in Vienna in June 2022. The [Vienna Action Plan](#) was adopted to advance progressive principles for nuclear weapons and especially for disarmament law. It has emphasised the principle of inclusion of all stakeholders in order to rein in the energies of the civil society, affected communities and indigenous people, gender and youth. Its implementation continues.

On Aug 1, Japan's PM [Fumio Kishida](#) became the first head of government to address the NPT RevCon in New York. He urged the need to take steps towards a world free of nuclear weapons.

Despite these two positive developments, the overall trend on nuclear disarmament does not present much optimism owing to the continued stressed relations amongst the major nuclear powers, lack of strategic dialogues, growing misperceptions, and ongoing modernisation of nuclear arsenals.

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 Air Power Studies [CAPS].



Centre for Air Power Studies (CAPS) was established in 2001 as an autonomous defence research and analysis body for research and focused analyses on issues related to national security, defence, and aerospace issues in the evolving strategic and international security environment. Its objective is to facilitate a greater understanding of these issues amongst the Armed Forces, the strategic community, and the public besides contributing to policy generation and decision-making.

CAPS 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. CAPS also conducts nuclear strategy capsules for the Armed Forces and officers of security and technological organisations.

