



OPINION – Manpreet Sethi

Vol 16, No. 23, 01 OCT 2022

Observing September 26 in the Shadow of Nuclear Risks

September 26 is observed every year as UN International Day for the Total Elimination of Nuclear Weapons. The tradition has continued for nine years since the UN General Assembly passed Resolution 68/32 as a follow-up to its high-level meeting on nuclear disarmament, held on 26 September 2013 in New York. The aim of designating a day of this kind is to raise global public awareness about nuclear weapons threats and the necessity of their total elimination, to liberate humanity from being a prisoner to the possibility of extinction due to nuclear war. The day is meant to be commemorated by holding events that can educate the public, and their leaders, about the socioeconomic as well as ecological costs that will have to be borne if such weapons of mass destruction are used.

As part of the observances of events for this year, the UN General Assembly hosted a High Level Meeting on Nuclear Disarmament at UN Headquarters on September 26. UN member states were represented by their presidents, prime ministers, and foreign ministers or UN ambassadors. The UN Secretary General said at

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the event, “We come together on this international day to speak with one voice. To stand in defence of our world ¾ and our future. And to reject the claim that nuclear disarmament is some impossible utopian dream.” Several civil society organisations also conducted many events to draw attention to the need to get rid of nuclear weapons.

Meanwhile, the biggest reality nuclear show of the year is taking place in the context of the ongoing Russia-Ukraine conflict. Nuclear threats have

been made several times—the most recent was on 21 September 2022, with President Putin hinting at nuclear weapons use as part of a statement that threatened to “use all the means at our disposal.” This expression came after Russia faced tactical military reverses in mid-September.

US Secretary of State Anthony Blinken responded to these veiled threats with the promise of huge consequences. US National Security Advisor Jake Sullivan said, “We have communicated directly, privately at very high levels to the Kremlin that any use of nuclear weapons will be met with catastrophic consequences for Russia, that the United States and our allies will respond decisively, and we have been clear and specific about what that will entail.” President Biden, too, publicly and sternly cautioned Russia against going down the nuclear path. Several other world leaders also used UNGA speeches around 26 September to criticise loose references to use of nuclear weapons for nuclear blackmail.

As part of this publicly unfolding drama, attention to nuclear weapons and their dangers is perhaps at its highest since the 1962 Cuban Missile Crisis.

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As tensions wound down, both countries made sincere efforts over the following decades to evolve necessary mechanisms to minimise the possibility of such an eventuality. Several arms control treaties and arrangements, concluded through laborious negotiations, were to serve as

guard rails against states skidding to the edge of the precipice again. These treaties did cast a constraining influence over the actions of those states that were parties to them. But, from the time the US decided to walk-out of the Anti-Ballistic Missile Treaty in 2002, the architecture has slowly unravelled, treaty by treaty. The maximum backsliding took place during President Trump's term. When he left office, the US and Russia were left hanging onto one

slender thread of the New START. President Biden moved quickly to reinforce it but it was too little, too late.

The current nuclear reality between the major nuclear powers is dotted with offence-defence spirals, increasing chasms in their understanding of how to practice nuclear deterrence, unrestrained technological developments, and a fast-growing fuzziness between conventional and nuclear capabilities. The result of all this is clear. The world seems to be on a slow march not towards the elimination of nuclear weapons, but towards their modernisation and greater role in national security.

Rational reasoning tends to presume that despite these developments, no leader

will ever be able to find it easy or useful to use these weapons. It is equally well-known however that in conflict situations, rational reasoning could easily go missing. The question, therefore, that lurks in every mind is: “What if circumstances conspire towards an accident or a miscalculation?” There is no definitive answer.

It is for this reason that days like 26 September are important. Interestingly, the day also marks the anniversary of another incident: when the world yet again came close to nuclear war in 1983. A

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malfunction in the Soviet nuclear weapons early warning system led it to erroneously detect a US ballistic missile attack against Moscow. Thankfully, the Soviet 'nuclear guard' on duty refused to accept what the system was telling him at face value, and chose not to automatically launch nuclear retaliation. Human wisdom came to the rescue once again. Will we find the 'right thinking' people occupying important chairs every time?

The significance of recalling these incidents and celebrating such days is to bring the dangers of nuclear weapons, and all that can inadvertently go wrong, into our consciousness once again. The idea is to spend a moment revisiting the horrors of deterrence breakdown—calamities that we could bring upon ourselves—because these weapons exist. Even more alarmingly, they are now spread across many arsenals and at varying levels of readiness. Can we, or should we, keep tempting fate every few decades? And will we live to tell the tale each time?

Source: <https://www.eurasiareview.com/28092022-observing-september-26-in-the-shadow-of-nuclear-risks-analysis/>, 28 September 2022.

OPINION – Salem Alketbi

US-Israel Relations Won't be Affected by Nuclear Deal with Iran

Those who believe that Israeli-American relations could fall victim to the new arrangements between Washington and Tehran to revive the 2015 nuclear agreement are mistaken. The issue is not as superficial as some observers and analysts think. The Israeli-American strategic alliance is not being

tested as much as people think. The whole issue revolves around the cycle of mutual coordination to find the best alternatives that guarantee the interests of the two allies. Prime Minister Yair Lapid recently said Israel has the full freedom to prevent any nuclear threat.

The idea is to spend a moment revisiting the horrors of deterrence breakdown—calamities that we could bring upon ourselves—because these weapons exist. Even more alarmingly, they are now spread across many arsenals and at varying levels of readiness. Can we, or should we, keep tempting fate every few decades? And will we live to tell the tale each time.

That there are no American constraints on Israel's decision if it decides to prevent an imminent nuclear threat. Israel cannot agree to accept restrictions imposed by the United States government, especially when it comes to its national security. Nor can the Biden administration risk trading the signing of nuclear agreements with Iran for the abandonment of its unwavering commitment to Israel's security. In discussing this issue, several facts are worth emphasizing. First, it must be recognized that there is a high degree of coordination and institutional cooperation between Israel and the US.

That there are no American constraints on Israel's decision if it decides to prevent an imminent nuclear threat. Israel cannot agree to accept restrictions imposed by the United States government, especially when it comes to its national security. Nor can the Biden administration risk trading the signing of nuclear agreements with Iran for the abandonment of its unwavering commitment to Israel's security.

This is not about democratic or republican governments or who governs Israel but about coordination between two states that develops at a steady pace that can evolve or relatively slow down under the influence of the

chemistry of personal relations between heads of state. But they remain fixed lines that will not be crossed downward, regardless of the circumstances and reasons. The second point is that it is not just a well-established strategic alliance but also about the common interests of the two allies. This is something that can easily be gleaned from the reality of the complex security environment in the Middle East. All the facts confirm that strategic support to Israel is indispensable.

The US cannot maintain its influence in this region without Israeli support and cooperation. As for dealing with Iran, it can be said that it is difficult for Israel to launch a military strike against Iranian nuclear facilities, unless it receives an explicit green light from the US. The issue is not only the operational aspect of the attack but also its military, political and strategic consequences and implications, taking into account Iran's ability to mobilize large regional militias in the Middle East.

This requires a strong US defensive wall at the military level and to an equal extent, at the political and security levels, especially given the growing web of alliances and interests that Tehran has with countries such as Russia and others. This could put Israel in a very turbulent security environment in the event of a military attack on Iran without coordination with the US side.

This requires a strong US defensive wall at the military level and to an equal extent, at the political and security levels, especially given the growing web of alliances and interests that Tehran has with countries such as Russia and others. This could put Israel in a very turbulent security environment in the event of a military attack on Iran without coordination with the US side.

From another angle, we note that it is in Washington's confirmed interest to coordinate with Israel if the latter decides to launch a military strike against Iran, whether to ensure that things are checked and do not spiral out of control or to ensure that the Israeli ally does not face a serious crisis, with all that implies, whether for the popularity of American politicians or the interests of the US in the Middle East and internationally.

What is certain in this whole debate is that, as a rule, the interests of the Israeli ally and the American ally do overlap, especially in terms of Israel's deterrent power and credibility, enhanced by the influence of the American factor.

That is the certainty of the adversary, Iran, of the

existence of declared or undeclared American support for any possible Israeli attack and how it affects the calculations of the response and increases the strength and effectiveness of the Israeli threat, whether it is carried out or remains in the circle of war of words. One other point is very important and has to do with the

Americans' awareness of the importance of Israeli pressure in the effort to prevent Iran from acquiring a military nuclear capability.

Washington understands that pressure is a significant figure in the Iranians' calculations, at least now that Tehran's fears of a US military strike have receded under the weight of the international security environment, complicated by the war in Ukraine. Strong Israeli pressure remains paramount in the calculations of US strategists at the moment.

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Israel now has free access to Iranian airspace through the Gulf, which has become an important operational constraint when calculating an effective Israeli airstrike against Iran's nuclear facilities. There is also a problem of internal political conflict in Israel. The Iranian nuclear threat is the subject of this

conflict and the political rivalry between Israeli parties and leaders. Each government seeks to avoid any development in this case that could be used politically against it. We remember how Netanyahu took Trump's withdrawal from the nuclear deal as his political victory. We believe that Lapid should try to ward off this signature so that it does not take place weeks before the election, fearing that it will be used against him under the pretext that he will not be able to pressure the White House as his predecessor did.

Thus, all of these variables are taken into account, particularly Israel's strong influence on the American interior as the midterm elections approach. Another thing is that there is a certain Israeli interest in maintaining a categorical rejection of any possible return to the Iran nuclear deal in its current form.

Any endorsement or even silence by Israel simply means a loss of true ability to deter and prevent an Iranian nuclear threat or possible attack. Therefore, proving its position here is a definite strategic interest of the Israeli side to preserve the right of self-defense against any potential Iranian nuclear threat and to keep the freedom of Israeli decision on the matter in the hands of Israel and not others, even if it is an American ally.

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It is true that there is a divergence in US-Israeli views and awareness on both sides of the limits of the Iranian threat, which Israel and its Arab neighbors see as an existential threat to their interests, security and stability, contrary to the American vision, limited to the issue of nuclear capabilities. This vision reduces the danger to the part that may be less dangerous than other parts, such as Iranian expansion and the deployment of paramilitary forces in the region that threaten Israel and other countries.

It is true that President Biden's future in his last two years in office depends to some extent on the end of the negotiation scenario with Iran, which puts a lot of pressure on him to sacrifice his agreement with Israel on this issue. But there

For Putin, nuclear escalation wouldn't be a way of snatching victory from the jaws of defeat, but of snatching survival — political or even physical — from the maw of oblivion. Unlike democratic leaders, he has no way to retire gracefully after all the damage he's done. As a quack historian of the Tsars, he knows that his end could be messy. This is why he might dust off a Russian doctrine that Western analysts call "escalate to de-escalate." It means going nuclear to avoid losing a conventional (non-nuclear) war.

717562, 20 September 2022.

OPINION – Andreas Kluth

A Decision Tree for Biden if Putin Goes Nuclear

President Putin doesn't want to use nuclear weapons, just as he doesn't want to still fight his "special military operation" against Ukraine. But

remains a red line that the US cannot cross: harming the security of Israel and its people. All of the above hypotheses also remain subject to the scenario of the end of the marathon negotiations with Iran, be it a postponement of the signing, the signing, or the announcement of a final failure.

Source: <https://www.jpost.com/opinion/article-717562>, 20 September 2022.

he is still fighting — because he's unable to win. That also means he might yet drop a nuke, as he once again threatened. The US and its allies — and Putin's putative friends in China and elsewhere — need to decide now how they'd react.

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from the maw of oblivion. Unlike democratic leaders, he has no way to retire gracefully after all the damage he's done. As a quack historian of the Tsars, he knows that his end could be messy. This is why he might dust off a Russian doctrine that Western analysts call "escalate to de-escalate." It means going nuclear to avoid losing a conventional (non-nuclear) war. Putin would detonate one or more "tactical" (as opposed to "strategic") nukes. These are low-yielding blasts

large enough to eliminate a Ukrainian army position or logistics hub — but too “small” to erase an entire city.

By dropping such a bomb, Putin would be signaling his willingness to use more. His motivation would be to force Ukraine to surrender and the West to get out of the conflict — but without inviting automatic retaliation by the US. Putin wants his enemies to stand down, so he can declare victory and stay in power. Such an act of desperation, it goes without saying, would mark the darkest turn in human history since Hiroshima and Nagasaki. It would not only kill, maim and traumatize huge numbers of innocent people — Putin is already doing that — but also cause lasting terror throughout the entire world.

Putin’s escalation would burst the Cold-War-era taboo against using nukes for anything other than deterrence. If he’s seen to get away with that, other nuclear rogue states would take their cues. This in turn would force countries that have forsaken nuclear weapons in the name of non-proliferation or disarmament — as Ukraine did in the 1990s — to build their own arsenals. Arms control would be dead. Nuclear warfare, by design or accident, would become more likely in more places, from West to South and East Asia.

What, then, should President Biden do? He must deter Putin, obviously, while simultaneously preparing a response if Putin does escalate. But these are two aspects of the same decision: The implied response also does the deterring. Matthew Kroenig at the Atlantic Council, a think tank, has summarized some of the options. One answer to a limited Russian nuclear strike is to double, triple or quadruple all the measures the West has already taken against Putin’s regime, completely cutting off Russia from the Western world. Instead of caving, the West would also send more weapons to Ukraine, and more forces, including nuclear arms, to NATO’s eastern front.

Such a deliberately limited response would aim to stop an escalation spiral before it starts. The problem is that Putin may not find this response frightening enough to be deterred. He’s already a pariah, and Russians are already aching under sanctions. If he’s dreading the end of his own reign or life — and that, remember, is the scenario we’re contemplating — he’d still go all in.

Another problem is that a restrained response would look woefully inadequate to the Ukrainians and the rest of the world. Kyiv’s friends would lose

heart. Dictators such as North Korea’s Kim Jong-Un would conclude that you can go ballistic and survive. So Biden’s response must be more muscular. He has two military options. One is to respond in kind, by also deploying a low-yield tactical nuke for show — in the Arctic Ocean, say, or remote Siberia. Its mushroom cloud would be meant as a Stop sign for

Putin. It would also reassure Ukrainians and the world that the US will answer escalation tit for tat — that it’ll enforce the nuclear taboo.

The problem is that this would turn the confrontation into an apocalyptic staredown, possibly leading to a series of tactical detonations. And Russia, which is roughly even with the US in strategic nukes, has about 10 times as many tactical warheads to play with. The scenarios become impossible to calculate, especially when factoring in human error. There would be a risk of Armageddon.

The better military option is therefore a conventional US strike on Russian forces. The target could be the exact base that launched the nuclear strike. Or it could be Russian troops in Ukraine. This would signal to Ukraine and the world that any breach of the nuclear taboo will be punished. And the message to Putin would be that he can’t escalate to de-escalate, because the West will step in to defeat him.

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The drawback, obviously, is that this amounts to a direct clash between Russia and NATO, and therefore incurs the risk of World War III, with Armageddon still one scenario at the end. Putin might conclude that the US isn't prepared to retaliate with nukes, and launch even more nuclear strikes. This raises another question Biden must answer: Once he's decided how he'd respond to various levels of nuclear escalation, how should he communicate that — to Putin, allies, enemies, and the public?

If he wants to maximise the deterrent value of his communication, he'll be clear, specific and public — If Putin does X, we'll do Y. The problem there is that Biden would forfeit all flexibility when Putin does something slightly different from X. The better option — which Biden appears to have chosen — is to be deliberately vague in public. The disadvantage is that this keeps even the Ukrainians guessing. The advantage is that Putin must assume the worst.

There is another possibility. Return to our premise: Putin doesn't want to go nuclear, but will if he fears that his own survival is threatened. The US could make plans for regime change — that is, for taking Putin and his inner circle out — in the event of nuclear escalation. In this case, it would be best to communicate that not vaguely but specifically, and not publicly but privately — to Putin.

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No matter the enmity between Beijing and Washington, no matter the other conflicts going on, the spectre of nuclear war must and can unite the world against the threat. Discreetly, Biden, Xi and all other world leaders could put aside

their differences and send Putin this message: You go nuclear, and we'll make sure you're out.

Source: <https://www.tbsnews.net/thoughts/decision-tree-biden-if-putin-goes-nuclear-502310>, 24 September 2022.

NUCLEAR STRATEGY

USA

US will Act 'Decisively' if Russia Uses Nuclear Weapons in Ukraine

America and its allies will act "decisively" if Russia uses a tactical nuclear weapon in Ukraine, US NSA Sullivan...mentioned on 25 September 2022, reaffirming the White House's previous response to mounting concerns that Putin's threats are in increased danger of being realized. "We have communicated directly, privately and at very high levels to the Kremlin that any use of nuclear weapons will be met with catastrophic consequences

for Russia, that the US and our allies will respond decisively, and we have been clear and specific about what that will entail," Sullivan mentioned....

Sullivan mentioned...Putin had been "waving around the nuclear card at various points through this conflict", and it was a matter that Biden's administration has "to take deadly seriously because it is a matter of paramount seriousness — the possible use of nuclear weapons for the first time since the second world war" President Zelenskyy mentioned he was not certain that Putin was bluffing with nuclear threats. "Maybe yesterday it was bluff. Now, it could be a reality" Zelenskyy also mentioned "He wants to scare the whole world."

The administration's security chief said that Russia's nuclear threat against Ukraine, including extending its nuclear umbrella over eastern parts of the country that are still being contested seven

months after its invasion, would not deflect the US and its allies. "We will continue to support Ukraine in its efforts to defend its country and defend its democracy," Sullivan ... mentioned, pointing to more than \$15bn in weapons, including air defense systems, hundreds of artillery pieces and rounds of artillery, that the US has supplied to Ukraine....

We will continue to support Ukraine in its efforts to defend its country and defend its democracy," Sullivan ... mentioned, pointing to more than \$15bn in weapons, including air defense systems, hundreds of artillery pieces and rounds of artillery, that the US has supplied to Ukraine.

But, Sullivan....mentioned, it is "too soon to make comprehensive predictions" about a collapse of Russian forces....Sullivan continued: "Russia is struggling, but Russia still remains a dangerous foe, and capable of great brutality." He alluded to mass burial sites containing hundreds of graves that Ukrainian forces found after recapturing Iuzium from Russia and said, "We continue to take that threat seriously." ... that the US, the IAEA and Ukraine nuclear regulators are working together to ensure there is no "melt-down" at the Zaporizhzhia nuclear plant in eastern Ukraine.

The United States and South Korea on 16 September 2022 denounced North Korea's first-use nuclear doctrine unveiled this month as "escalatory and destabilizing" and Washington vowed to continue to deploy and exercise strategic assets to deter and respond to Pyongyang.

Source: <https://www.theguardian.com/us-news/2022/sep/25/us-russia-ukraine-war-nuclear-weapons-jake-sullivan>, 25 September 2022.

U.S. Vows Continued Deployment of Strategic Assets after New North Korean Nuclear Law

The United States and South Korea on 16 September 2022 denounced North Korea's first-use nuclear doctrine unveiled this month as "escalatory and destabilizing" and Washington vowed to continue to deploy and exercise strategic assets to deter and respond to Pyongyang. A joint statement after a vice ministerial-level meeting of the Extended Deterrence Strategy and Consultation Group (EDSCG), the first convening of the body since 2018, reiterated the "ironclad" U.S. commitment

to defend South Korea and said any North Korean nuclear attack would be met with an "overwhelming and decisive response."

The statement said the countries "committed to continue efforts to employ all elements of both countries' national power to strengthen the Alliance deterrence posture." "The United States committed to strengthen coordination with the ROK to continue to deploy and exercise strategic assets in the region in a timely and effective manner to deter and respond to the DPRK and enhance regional security" it said, referring to South Korea and North Korea by the initials of their official names.

The statement referred to combined training of F-35A fighter jets in July and an upcoming deployment of the USS Ronald Reagan Carrier Strike Group in the region "as a clear demonstration of such U.S. commitment." It noted that the EDSCG delegation had inspected a U.S. B-52 strategic bomber

and said the two countries would look to enhance strategic readiness through improved information sharing, training, and exercises. They also pledged to strengthen the alliance's missile response capabilities and posture. North Korea has officially enshrined the right to use preemptive nuclear strikes to protect itself in a new law that leader Kim Jong Un said makes its nuclear status "irreversible" and bars denuclearization talks.

Observers say Pyongyang appears to be preparing to resume nuclear testing for the first time since 2017, after historic summits with the then President Trump in 2018 failed to persuade Kim to abandon his weapons development. In their statement, the United States and South Korea reaffirmed that a resumption of nuclear testing "would be met with a strong and resolute whole-of-government response" and the two countries to "stand ready for all possible scenarios."

Source: <https://www.japantimes.co.jp/news/2022/09/17/asia-pacific/us-strategic-assets-north-korea-nuclear-law/>, 17 September 2022.

Biden's New Mission: Heading Off Any Possibility of a Nuclear Crisis with Russia

President Biden's historic mission is now clear — shepherding the world through the most alarming nuclear brinkmanship since the darkest days of the Cold War. All of Biden's other challenges — from high inflation, Covid-19, climate change and the building showdown with China — pale against the peril posed by President Putin's fresh escalation of the war in Ukraine.

Putin's implied threat that he could use nuclear weapons, delivered in a speech on 21 September 2022 — and his warning that he was not bluffing — made Biden's own speech at the UNGA seem all the more grave. "This war is about extinguishing Ukraine's right to exist as a state and Ukrainians' right to exist as a people," Biden said, branding the invasion as a direct assault on the rule-based order epitomized by the UN. ... Putin's announcement of a partial national mobilization is being seen outside Russia as an admission of failure for his Ukraine operation so far, and of rising domestic political pressure.

But forthcoming referenda in captured Ukrainian territory on joining Russia, which are described by the West as a sham, take the war to a tense new stage. If these areas do join Russia, Ukrainian attacks on them using Western arms could in theory be interpreted as an assault on the Russian motherland itself. This potentially makes Putin's threat to use nuclear arms to defend Russian territory a significant escalation. The Russian leader is clearly seeking to scare Western

publics and to make Washington and allied capital's think again about their support for Ukraine, which has helped turn his invasion into such a disaster. Putin could well be bluffing about the possible use of Russia's nuclear arsenal. But then again, maybe he's not. CNN's Chief Law Enforcement and Intelligence analyst John Miller said the CIA and the Defense Intelligence Agency have spent years studying Putin's psychology, including his obsessions with masculinity and appearing tough and what effect those concerns could have on him if he begins to look weak.

Putin's implied threat that he could use nuclear weapons, delivered in a speech on 21 September 2022 — and his warning that he was not bluffing — made Biden's own speech at the UNGA seem all the more grave. "This war is about extinguishing Ukraine's right to exist as a state and Ukrainians' right to exist as a people," Biden said, branding the invasion as a direct assault on the rule-based order epitomized by the UN.

"The use of a nuclear weapon is the most serious kind of strategic decision a world leader can make, but with a leader who is as invested as Putin is with image, there may be an emotional factor in that decision," Miller mentioned. "So right now, no one in the US intelligence Community is estimating the likelihood of the use of a tactical nuclear

weapon at zero," Miller mentioned.

Putin certainly has a history of following through on many threats. And Ukrainian generals and foreign military experts have raised fears that, if cornered, the Russian leader might deploy a limited tactical nuclear weapon as a show of force or to take out multiple assets or military units. Miller said the most urgent question now for the West — and one that should be discussed by leaders at the UNGA — is what to do about the potential use of a tactical nuclear weapon by Russia.

The Russian leader is clearly seeking to scare Western publics and to make Washington and allied capital's think again about their support for Ukraine, which has helped turn his invasion into such a disaster. Putin could well be bluffing about the possible use of Russia's nuclear arsenal. But then again, maybe he's not.

... While tactical nuclear weapons create a lower blast radius and more limited fallout than strategic warheads, launching even the most limited type of such a weapon would be "an enormous game-changer," Miller mentioned. "The

key question right now is: have NATO and the United States agreed on exactly what they would do in that scenario and has that been transmitted through the right back channels to Russia. We are in a high stakes game of chicken," Miller mentioned.

Any use of a tactical nuclear weapon would cross a threshold in the history of warfare and leave the West with a conundrum about how to respond without triggering a full-on nuclear exchange. And even if the nuclear poker stops now, Putin has already established a sinister new example just with the mention of Russia's nuclear arsenal as leverage in a limited conflict.

Other tyrannical regimes and wannabe nuclear states are picking up tips. At a time when the idea of nuclear non-proliferation is under extreme strain, Biden had this warning: "A nuclear war cannot be won, and must never be fought." Other presidents have often said something similar. But he's the first US commander-in-chief in 40 years who must wrestle with a full scale nuclear showdown not as a theoretical possibility but as a real, if hopefully still remote, risk.

Source: <https://edition.cnn.com/2022/09/21/world/biden-russia-nuclear-analysis-intl/index.html>, 22 September 2022.

RUSSIA

Ukraine War: Could Russia Use Tactical Nuclear Weapons?

President Putin has said he's ready to use nuclear weapons to defend Russian territory, raising the fear he might use a small, or "tactical" nuclear weapon in Ukraine. President Biden has warned him that doing so would be the most serious

military escalation since World War II. Tactical nuclear weapons are small nuclear warheads and delivery systems intended for use on the

battlefield, or for a limited strike. They are designed to destroy enemy targets in a specific area without causing widespread radioactive fallout.

The smallest tactical nuclear weapons can be one kiloton or less (producing the equivalent to a thousand tonnes of the explosive TNT). The largest ones can be as big as 100 kilotons. Strategic nuclear weapons are larger (up to 1,000 kilotons) and are launched from longer range. By comparison, the atomic bomb the US dropped on Hiroshima in 1945 was 15 kilotons. According to US intelligence, Russia has about 2,000 tactical nuclear weapons.

Its tactical nuclear warheads can be placed on various types of missiles which are normally used to deliver conventional explosives, such as cruise missiles and artillery shells. Tactical nuclear weapons can also be fired from aircraft and ships - as anti-ship missiles, torpedoes and depth charges. The US says Russia has recently been investing heavily in these weapons to improve their range and accuracy.

Tactical nuclear weapons have never been used in conflict. Nuclear powers such as the US and Russia have found it equally effective to destroy targets on the battlefield by using modern conventional munitions. In addition, no nuclear-armed country has so far been willing to risk unleashing all-out nuclear war by employing tactical nuclear weapons. However, Russia might be more willing to use smaller tactical weapons than larger strategic missiles.

"They might not see it as crossing this big nuclear threshold," says Dr Patricia Lewis, head of the

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Tactical nuclear weapons have never been used in conflict. Nuclear powers such as the US and Russia have found it equally effective to destroy targets on the battlefield by using modern conventional munitions. In addition, no nuclear-armed country has so far been willing to risk unleashing all-out nuclear war by employing tactical nuclear weapons. However, Russia might be more willing to use smaller tactical weapons than larger strategic missiles.

international security programme at the Chatham House think tank. "They could see it as part of their conventional forces." In February 2022, shortly before invading Ukraine, President Putin placed Russia's nuclear forces at "special combat readiness" and held high-profile nuclear drills.

More recently, he said: "If the territorial integrity of our country is threatened, we will without a doubt use all available means to protect Russia and our people. This is not a bluff." Russia is planning to annex the regions of southern and eastern Ukraine it has occupied after holding self-styled referendums. President Putin says he is ready to defend the "territorial integrity" of the regions "by all means."

US intelligence see this as a threat to the West not to help Ukraine try and retake these territories, rather than as a sign that he is planning a nuclear war. But others worry that Russia, if it suffers further setbacks, might be tempted to use a smaller tactical weapon in Ukraine as a "game changer", to break a stalemate or avoid defeat.

James Acton, a nuclear expert at the Carnegie Endowment for International Peace in Washington DC, says: "I am legitimately worried that in that circumstance, Putin might use a nuclear weapon - most likely on the ground in Ukraine to terrify everyone and get his way. We are not at that point yet." President Biden has warned Russia not to use nuclear weapons in the war in Ukraine.

... However, Russia might also be deterred from using tactical nuclear weapons by another power - China. "Russia is heavily dependent on Chinese support," says Dr Heather Williams, nuclear expert at Kings College London. "But China has a 'no first use' nuclear doctrine. So if Putin did use them, it would be incredibly difficult for China to stand by him. "If he used them, he would probably lose China."

Source: <https://www.bbc.com/news/world-60664169>, 24 September 2022.

NTI Statement on Vladimir Putin's Nuclear Threats

Buffeted by significant battlefield setbacks in Ukraine, new expressions of concern from his closest sympathizers, and widespread international condemnation of his actions, President Putin made the most overt and explicit threat yet to use nuclear weapons in his war on Ukraine. The chances of the first use of a nuclear weapon in Europe have increased dramatically with Putin's support for annexation of occupied Ukrainian territory, a move that has zero chance of being recognized by the international community at large, combined with his vow that Russia will use "all means at its disposal" to defend its territorial integrity.

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But a nuclear war is not inevitable. NATO and the West must continue to respond with steady determination and resolve to push back on reckless Russian threats. They must

make clear that a measured but forceful response will follow should Russia carry out its nuclear threat.

Russian nuclear escalation will significantly expand the confrontation with Ukraine and the West while diminishing prospects for a Russian military, diplomatic, economic or political result that Russia and others can live with in the longer term. Nuclear use would break the nearly eighty-year taboo that Russia itself did much to support, without any credible reason to invoke the exceptional circumstance of an existential threat; Russia did not and does not face such a threat even with its war on Ukrainian sovereignty.

Nuclear use would be an acknowledgement of Russia's military and strategic failure and would exacerbate the plight of long-term losers from the conflict, including Russia. Nations around the world also must make it clear that they will hold Russia accountable for its actions. Nine months ago, Putin joined with the leaders of China, France, the United Kingdom, and the United States

to declare jointly that a “nuclear war cannot be won and must never be fought.”

All world leaders—particularly leaders in China, India, and others who have, until recently, largely avoided criticizing Russia for its blatant violation of UN-recognized Ukrainian sovereignty—must now hold Putin to that statement. They must make clear to Putin directly and in no uncertain terms that any use of nuclear weapons in this conflict is unacceptable and would have catastrophic consequences for Putin and for Russia—and for other parts of the world as well (such as Northeast Asia and the Middle East) as the entire Nuclear Nonproliferation Treaty regime becomes increasingly fractured.

The urgency of this message highlights the critical importance of clear communications with Putin, his military, and those global leaders who work most closely with him even—or especially—in times of war and crisis. Any nuclear use would result in global disorder and fundamental geopolitical reevaluation. There is wisdom in restraint in the face of Putin’s nuclear bluster, but his threats must be taken seriously—and the international community must use all the diplomatic tools it can muster to reduce the risk of nuclear conflict and dissuade Putin from compounding the grievous mistake of starting this war by further escalating it.

Putin’s willingness to flout global norms and endanger the citizens of Ukraine, its neighbors – including the Russian people – and the broader world are not manifested only in his threats to use nuclear weapons. Grave concerns remain about conditions inside and outside the

Zaporizhzhia Nuclear Power Plant. Despite repeated warnings and pleas from Ukrainian authorities and plant operators, countless world leaders, and the IAEA, Russia’s actions—whether reckless or intentional—continue to treat the facility like a political pawn.

A serious nuclear incident – whether use of a nuclear weapon or a large radioactive release from a nuclear power facility—will dampen the expansion of nuclear power as an important pathway towards reliable electricity supply and climate change risk mitigation. Ironically, such an outcome would most severely affect Russia’s own economic aspirations for leadership in global nuclear power development. Nuclear weapons have not been used in war in more than 77 years; it would be a monumental mistake to take this record for granted.

During that time, we have narrowly averted disaster on many occasions—through principled strength, skillful diplomacy, dialogue, and communication even between adversaries, and no small amount of sheer luck. Putin’s threats pose the most serious threat in generations to that record of non-use. Nuclear weapons use marked the end of World War II and must not be allowed to risk initiation of World War III. Global leaders must waste no time and spare no effort in meeting this challenge with dedicated and aggressive diplomacy. The nightmare scenario of nuclear weapons use in the Ukraine conflict is relentlessly coming into sharper focus, and standing on the sidelines is becoming an act of complicity.

Source: <https://www.nti.org/news/nti-statement-on-vladimir-putins-nuclear-threats/>, 22 September 2022.

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How Many Nuclear Weapons does Russia Have?

President Putin has announced a “partial mobilisation” of forces to be sent to Ukraine and warned that he will use “all means we have” to defend Russian territory, raising concerns around the world. As with previous warnings, analysts suggest Putin’s actions should probably be interpreted as a warning to other countries not to escalate their involvement in Ukraine, rather than signaling any desire to use nuclear weapons. Nuclear weapons have existed for almost 80 years and many countries see them as a deterrent that continues to guarantee their national security.

All figures for nuclear weapons are estimates but, according to the Federation of American Scientists, Russia has 5,977 nuclear warheads - the devices that trigger a nuclear explosion - though this includes about 1,500 that are retired and set to be dismantled. Of the remaining 4,500 or so, most are considered strategic nuclear weapons - ballistic missiles, or rockets, which can be targeted over long distances. These are the weapons usually associated with nuclear war. The rest are smaller, less destructive nuclear weapons for short-range use on battlefields or at sea. But this does not mean Russia has thousands of long-range nuclear weapons ready to go....

...Russian policy also acknowledges nuclear weapons solely as a deterrent and lists four cases for their use. First is the launch of ballistic missiles attacking the territory of the Russian Federation or its allies. Second is the use of nuclear weapons or other types of weapons of mass destruction against the Russian Federation or its allies.

Third is an attack on critical governmental or military sites of the Russian Federation that threatens its nuclear capability. Fourth is the aggression against the Russian Federation with

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the use of conventional weapons when the very existence of the state is in jeopardy. The shadow of nuclear weapons has hung over this conflict from its earliest days - and that has been a deliberate choice on the part of President Putin. He has raised their use at moments when he has been on the back foot - for instance after the failure of his initial February plan to quickly overthrow the Ukrainian government and now again when a Ukrainian offensive has driven his forces back, his hope will be that a reminder of the devastating power of these weapons will intimidate and deter his opponents and force them to rethink how far they are willing to push. There

is also a domestic motive - the Russian population will be worried by the partial mobilization and Putin’s own claims that NATO is somehow threatening Russia itself. Talking about nuclear weapons is a way of reassuring domestic opinion that despite this dark turn, the country remains capable of defending itself.

Russian military doctrine says nuclear weapons will only be used if the Russian state itself is threatened. It was notable that Putin framed their use in a defensive sense responding to what he claimed were Western nuclear threats. His reference to this not being a ‘bluff’ referred to a situation when Russia’s territorial integrity was threatened. An important question is how far Russia sees its territory extending after the upcoming referenda in Ukrainian territory. All of this suggests that the use of nuclear weapons is far from imminent or even likely. While the possibility of their use cannot be dismissed, especially if Putin feels the security of the state threatened, the response from the West for the moment will likely be to watch closely Russia’s actual behaviour rather than the rhetoric and to remain focused on their strategy.

Source: <https://www.bbc.com/news/world-europe-60564123>, 21 September 2022.

BALLISTIC MISSILE DEFENCE

TURKEY

Does Erdoğan Really want to Move Away from NATO?

As the leader of a NATO member state, President Erdoğan attended the 22nd Summit of Heads of State of the SCO held in Uzbekistan on Sept. 15-16.... After Russia invaded Ukraine, most EU and NATO countries adopted a cautious attitude towards relations with Russia, while Turkey is explicitly improving bilateral ties with Russia. The first batch of missiles from an S-400 high-altitude air defense system that Turkey bought from Russia in 2019 has caused a loss of confidence in relations between Turkey and NATO. However, before the Shanghai summit, the purchase of the second batch of S-400s from Russia came up again.

After Russia invaded Ukraine, most EU and NATO countries adopted a cautious attitude towards relations with Russia, while Turkey is explicitly improving bilateral ties with Russia. The first batch of missiles from an S-400 high-altitude air defense system that Turkey bought from Russia in 2019 has caused a loss of confidence in relations between Turkey and NATO. However, before the Shanghai summit, the purchase of the second batch of S-400s from Russia came up again.

What exactly is behind Turkey's intention to develop relations with Russia at the expense of its relations with NATO? Is Erdoğan trying to push Turkey away from NATO? First of all, one point must be emphasized. It would be misleading to draw clear conclusions about Turkey-NATO relations from the Erdoğan administration's speeches focused on domestic political goals. The administration signed the strategic concept document at the Madrid summit, which is very important for NATO and will guide NATO's activities over the next 10 years. Turkey paved the way for the renewed enlargement of NATO, giving up its veto on the membership applications of Sweden and Finland to join the alliance.

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As NATO realized in 2012, when Turkey allowed

the NATO BMD radar to be deployed in Malatya/Kürecik, it cares about Erdoğan's concrete actions rather than his rhetoric. Therefore, to gain insight into the future of Turkey and NATO, it is necessary to analyze how important the Kürecik radar is to the NATO BMD radar. Kürecik formerly housed the US Air Force radar and communications relay station.

The station, built in 1961, monitored Soviet airspace until its mission was terminated in 1991. At the 2010 Lisbon summit, NATO member states decided to create a missile defense system that would provide protection against ballistic missiles and could be integrated with the US national missile defense system.

The AN/TPY-2 early warning and detection radar, the main component of the NATO BMD system, was installed by the US in Kürecik in 2012. The command and control of the system, including the Kürecik radar and other system elements, are managed by the Allied Air Command from Ramstein Airbase in Germany. The importance of the Kürecik radar and its location stems from its coverage, which includes Iran and Russia.

The AN /TPY-2 radar can detect ballistic missiles thousands of miles away fired by Russia or Iran.

Information about detected ballistic missiles is relayed to the Aegis Ashore missile defense system in Poland and Romania and to US warships equipped with the Aegis system, part of the NATO BMD system deployed by the US Sixth Fleet Command in the Mediterranean Sea to intercept the missiles. Another point that makes the Kürecik radar so important is that this radar could easily detect ballistic missiles that Iran might fire at Israel. Because of US-Israeli missile defense

cooperation agreements, the US shares the targeting information obtained from the Kürecik radar with Israel. It could be said that the Kürecik radar also protects Israel from ballistic missiles from Iran.

For this reason, the Kürecik radar is crucial for the security of NATO countries and Israel. Similar to the current situation with Russia, Turkey was criticized in 2011 for its bilateral relations with Iran. While Turkey was a non-permanent member of the UNSC in 2010 and voted “no” on a resolution to impose sanctions on Iran, Western media brought up the discussion about Turkey changing its axis.

The discussion lost momentum when Turkey agreed to station the early warning radar of the NATO BMD System in Kürecik. Erdoğan currently holds a significant trump card that he can use against NATO. The Kürecik radar station is the backbone of the NATO missile defense system because the Kürecik radar is invaluable when detecting missiles fired by Russia or Iran.

NATO must therefore keep the Kürecik radar in operation to protect Europe from ballistic missiles. Erdoğan supposes that he is indispensable to NATO. For this reason, he avoids decisions that would cause irreparable damage to Turkey’s NATO relations and does not veto critical decisions that are important to NATO.

While Erdoğan reassures NATO, he is also building relationships with Russia and China that secure his political future by exploiting Turkey’s indispensability to NATO. However, NATO’s decision to remain silent on Erdoğan’s efforts to expand relations with Russia and China undermines NATO’s values and harms Turkish democracy. As a result Erdoğan has no political goal of pushing Turkey away from NATO. On the contrary, he aims to make NATO accept his authoritarian rule by using Russia and China.

Source: <https://turkishminute.com/2022/09/16/to-move-away-from-nato/>, 16 September 2022.

NUCLEAR ENERGY

EU

Nuclear Power ‘Unlikely’ to be in EU’s Next Russia Sanctions, Diplomats Say

Nuclear energy production is “unlikely” to be part of the next package of EU sanctions against the Kremlin for its invasion of Ukraine, while work on an oil-price cap is continuing.... The European Commission on 24 September 2022 organized meetings with top diplomats to listen to the proposals of EU member states before drafting the next package of measures against Moscow, which is expected soon....

Annexation referendums being held in Russian-occupied areas of Ukraine, which the G7 described as a “sham” on 23 September 2022, and the recent discovery of a mass grave in Izyum with more than 400 bodies have convinced many doves among EU member states that new measures have to be introduced. But the diplomats said nuclear power is “unlikely” to be part of the package, even though Poland and the Baltic countries worked for the first time on a joint proposal for new sanctions that also included targeting Russia’s nuclear industry.

It is not that easy for the EU to include nuclear energy, which is a key sector in France, and also in Bulgaria, which exports energy to the Western Balkans and Greece. A ban is seen as problematic especially because of the issues that it could cause in terms of maintenance of the nuclear plants built in Bulgaria during the Communist era....

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Source: <https://www.politico.eu/article/nuclear-power-unlikely-to-be-in-eus-next-russia-sanctions-diplomats-say/>, 24 September 2022.

GENERAL

UNECE Roadmap to Net-Zero Calls for Greater Use of Nuclear energy

The report - titled *Carbon Neutrality in the UNECE Region: Technology Interplay under the Carbon Neutrality Concept* - builds on the input from international experts and data scientists from across UNECE regions. The publication - the first UN-regional led modeling of the energy system - identifies a range of technology and policy solutions for the region to attain carbon neutrality by 2050. The report presents three scenarios: a reference scenario, a base 'carbon neutrality' scenario and a 'carbon neutrality innovation' scenario. The reference scenario presumes no sustainable energy or climate policies and accordingly fails to achieve carbon neutrality.

The innovation scenario focuses on the potential benefits of innovation and deployment policies that accelerate the market uptake of innovative technologies. For nuclear power it includes large-scale reactor designs and new SMRs, and additional energy services beyond electricity, such as hydrogen production.

The study focused on the UNECE region, which includes the countries of Europe, but also countries in North America, Central Asia and Western Asia. They employed the same base assumptions as the Shared Socioeconomic Pathway 2 scenario - the so-called 'middle of the road' climate scenario where historical patterns of economic development are continued throughout the 21st century.

They did not take account of the consequences of

Russia's invasion of Ukraine, which began well after the project was initiated. In the base Carbon Neutrality scenario, nuclear energy essentially doubles its existing generation in the UNECE region by the year 2050.

Nuclear energy provides 4400 TWh out of total electricity generation of 22,100 TWh, or about 20% of the total. In the Carbon Neutrality Innovation scenario, with large scale nuclear and SMRs, the amount of generation from nuclear energy approximately triples compared with the present day, with 6235 TWh representing nearly 30% of total electricity generation. This is produced from 874 GWe of installed nuclear capacity, of which 450 GWe is projected to be SMRs.

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To attain carbon neutrality, the key takeaways of the report show that the UNECE region must diversify primary and final energy supply with all low- and zero-carbon technologies, accelerate phase-out of unabated fossil fuels, scale-up electrification of all sectors with emphasis on renewable energy and nuclear power, and build capacity to support widespread innovation of low- and zero-carbon technologies such as carbon capture, use and storage (CCUS), hydrogen and advanced nuclear power.

The report calls for increased technology transfer and deployment and institutional capacity to plan and drive ambitious transformation of energy systems. According to UNECE, these actions will support buy-in and adoption from all stakeholders and help to build secure, affordable, and carbon-neutral energy systems.

These actions need to start now and maximize the use of all low- and zero-carbon technologies. To achieve carbon neutrality by 2050, it is crucial that governments raise awareness about the merits of all low- and zero-carbon technologies, develop policy frameworks in support of carbon

neutrality, and finally create a level-playing field to finance a just transition toward carbon-neutral energy systems aligned to the needs of member states.

If the technology development and deployment are delayed in any way, or if a technology is removed from an agenda, the forecast for achieving carbon neutrality will need to be revisited. ...UNECE describes nuclear power as “an essential low-carbon electricity and heat source contributing to carbon neutrality” and that countries which decide to deploy nuclear power “can play an essential role in decarbonising the UNECE energy systems”. The report notes that the push for decarbonisation of energy systems, alongside increased energy prices and improved safety measures are changing attitudes towards nuclear power. This is creating new markets for the penetration of the current large-scale reactors and advanced nuclear power technologies.

However policy support is needed to mitigate the financial risk and high capital cost of completing large-scale nuclear power plants and to accelerate the development and deployment of SMRs.

In addition, extending the operation of existing reactors is expected to significantly ease the use and dependency on fossil fuels and the cost of energy without the financial risks and long-term obligations attached to new energy projects. The report is part of the UNECE Carbon Neutrality project - a major UNECE initiative that included a series of technology briefs on low-carbon energy technologies and a state-of-the-art environmental lifecycle assessment on electricity generation options.

World Nuclear Association supported the UNECE Carbon Neutrality project and coordinated the nuclear input into the project. All the project results are accessible in the Carbon Neutrality toolkit, a tool designed to support policymakers in making informed decisions towards the implementation of the 2030 Agenda for

Sustainable Development and the Paris Agreement.

Source: <https://www.world-nuclear-news.org/Articles/UNECE-roadmap-to-net-zero-calls-for-greater-use-of>, 21 September 2022.

IAEA Hosts Annual General Conference

Representatives from the IAEA's 175 Member States will convene from 26 to 30 September for the 66th IAEA General Conference at the Agency's headquarters in Vienna, Austria. “Our work assisting Member States in addressing some of their most pressing development challenges continues,” Grossi . . . mentioned, addressing the IAEA's Board of Governors. He detailed the IAEA's work in areas from climate change and food security to plastic pollution and zoonotic diseases. At the opening of the conference on 26 September 2022 morning, Mr Grossi will report on the Agency's work and achievements in the past year.

During the week, delegates will discuss a range of topics, from the 2021 Annual Report and the 2023 budget to strengthening activities related to nuclear science, technology and applications, as well as the

IAEA's nuclear safety and security activities and strengthening the effectiveness and improving the efficiency of IAEA safeguards. They will also discuss specifically nuclear safety, security and safeguards in Ukraine and safeguards in the Middle East and in the Democratic People's Republic of Korea. . .

The IAEA presented its Platform on SMRs and their Applications at the 2021 General Conference. In 2022, a side event will present the progress and achievements of the Platform after one year, including the recently launched SMR Portal, the IAEA's strategic objectives in supporting global SMR deployment and an interregional project on SMRs and microreactors.

The report notes that the push for decarbonisation of energy systems, alongside increased energy prices and improved safety measures are changing attitudes towards nuclear power. This is creating new markets for the penetration of the current large-scale reactors and advanced nuclear power technologies.

The IAEA introduced a new generation of seals this year. Seals are one of the tools that IAEA safeguards inspectors use to verify that nuclear material is used only for peaceful purposes. During a side event, the new seal will take the spotlight, and participants will learn how almost 28000 IAEA seals are applied to nuclear material, facility critical equipment or IAEA safeguards equipment at nuclear facilities around the world.

To mark the success of the IAEA's Programme on Nuclear Security at Major Public Events (MPEs) over the past 18 years, case studies, as well as planned developments in the MPE programme, will be presented during a side event. Countries which received, or will receive, IAEA assistance for the implementation of nuclear security measures in major public events in 2022 will share their experiences....

Source: <https://www.iaea.org/newscenter/news/the-week-ahead-iaea-hosts-annual-general-conference>, 23 September 2022.

Pittsburgh Clean Energy Forum Puts Nuclear in Spotlight, IAEA Grossi Attends

Nuclear energy has an important part to play in addressing both the energy and climate crises, and public acceptability for the technology is improving, IAEA's Grossi told the Global Clean Energy Action Forum (GCEAF) on 22 September 2022. Addressing the forum as a panellist at the 'Clean Energy Transitions as a National Security Imperative' main stage event, Grossi spoke about increasing global acceptance of nuclear energy, the IAEA's ongoing efforts in Ukraine and his upcoming participation at the UN climate conference in Egypt this November.

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The Global Clean Energy Action Forum, convened jointly by the 13th Clean Energy Ministerial and Seventh Mission Innovation ministerial, is being hosted for the first time by America and held in Pittsburgh, Pennsylvania. The three-day event is a gathering point for governments, international organizations, the private sector, academia, innovators, civil society, and early career researchers and policymakers to discuss energy transitions. Mr Grossi presented the role of nuclear energy for effective

decarbonization.

In parts of the world, the public perception of nuclear energy is shifting, even among countries that have sought to end their use of the technology. A recent poll in Germany by Der Spiegel, found three-quarters of all Germans now favour continuing operation of the country's last three existing nuclear power reactors for another five years, and 41 per cent of Germans said they are in favour of building new nuclear power plants.

In Japan, more than 60 per cent of people now support a restart of the country's nuclear power programme, citing decarbonization as a main reason. Joined on the panel by Ukraine Minister of Energy German Galushchenko; Singapore Second Minister for Trade and Industry Tan See Leng; Franklin Templeton Global Head of Sustainability Anne Simpson and RMI Managing Director Sarah Ladislaw, Grossi spoke about the drivers for this shift in perception and mentioned a heightened sense of urgency for climate action and the growing interest of emerging nuclear technologies such as SMRs.

SMRs are advanced nuclear reactors that have a power capacity of up to 300 megawatts per unit. They are physically a fraction of the size of a conventional nuclear power reactor and their systems and components can be factory-assembled and transported as a unit for installation. Both public and private institutions are actively trying to bring SMR technology to fruition within this decade and today there are more than 70 commercial SMR designs being developed around the world.

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Grossi explained how the IAEA is helping facilitate this process through its Nuclear Harmonization and Standardization Initiative and supports the development of nuclear energy. Grossi also revealed to GCEAF that the IAEA will hold a pavilion at the upcoming UN climate conference, COP27, to be held in Sharm El-Sheikh, Egypt this November. Grossi mentioned that today, nuclear energy plays a critical role in the fight against climate change and has over the past decade helped mitigate over two gigatonnes of CO₂ emissions per year.

Grossi in his address emphasized the importance of synergies between industries and regional organisations, such as the World Nuclear Association and United Nations Economic Commission for Europe. Grossi mentioned a united and coordinated approach was needed for countries to meet their net-zero ambitions and that nuclear energy has an essential role to play in such efforts.

Grossi spoke of the importance of having nuclear at the climate discussion table and said that for some countries nuclear represents a powerful and realistic tool for decarbonisation. Grossi's presence at the GCEAF follows his visit to New York, where he met with leaders and foreign ministers to build support for the establishment of a nuclear safety and security protection zone around Ukraine's Zaporizhzhya Nuclear Power Plant. Grossi explained to the GCEAF the IAEA's nuclear safety and security work in Ukraine and emphasized the need for this zone.

GCEAF Grossi also took part as a speaker in the 'Nuclear Energy's Role in Pathways to Net-Zero'. The side event looked at achievable and rapid pathways to an integrated carbon neutral energy system, highlighting the many roles of nuclear innovation and other low- and zero-carbon technologies in addressing climate, energy security, and societal needs.

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Grossi also met with Bill Gates to discuss the IAEA's work and nuclear power's essential role in ensuring energy security and combating climate change, and US Energy Secretary Jennifer Granholm and Ukraine Energy Minister German Galushchenko for a trilateral meeting on the establishment of a nuclear safety and security protection zone at the country's Zaporizhzhya Nuclear Power Plant.

Source: <https://www.iaea.org/newscenter/news/pittsburgh-clean-energy-forum-puts-nuclear-in-spotlight-iaea-grossi-attends>, 23 September 2022.

Beyond the panel, on 23 September 2022 at the

GERMANY

German Minister Sees Nuclear Extension as Increasingly Likely – Spiegel

Germany's economy minister expects to have to extend the lifespans of the country's last two nuclear power plants to avoid possible outages and grid bottlenecks in Europe's biggest economy this winter, Spiegel weekly reported. Germany had planned to complete a phase-out of nuclear power by the end of this year but a collapse in energy supplies from Russia due to the war in Ukraine has prompted the government to keep two plants on standby until April.

"We are already in a place where the stress test says: It may be necessary to use nuclear power plants for grid security," Robert Habeck said in an interview at a climate conference. The main risk is a grid bottleneck, added the minister. "It's not the amount of electricity, but the distribution of power in the grid," he said, adding he was already concerned by a lack of nuclear power from France. Asked if an extension of the lifespans of two German nuclear plants looked likely, Habeck said: "It is certainly not less likely."

Source: <https://www.reuters.com/world/europe/german-minister-sees-nuclear-extension-increasingly-likely-spiegel-2022-09-27/>, 27 September 2022.

RUSSIA

Ukraine, US Energy Ministers Discuss Sanctions on Rosatom – Ukrainian Energy Ministry

Ukraine's energy minister German Galushchenko discussed the possibility of sanctions on Russia's nuclear power supplier Rosatom with U.S. Energy Secretary Jennifer Granholm during talks in the

United States, Ukraine's energy ministry said on 22 September 2022.

Ukraine's energy minister German Galushchenko discussed the possibility of sanctions on Russia's nuclear power supplier Rosatom with U.S. Energy Secretary Jennifer Granholm during talks in the United States, Ukraine's energy ministry said on 22 September 2022.

"German Galushchenko emphasized that the Russian state corporation Rosatom takes direct part in the aggression against Ukraine and covers up acts of nuclear terrorism," the ministry wrote on its website. President Zelenskyy said last month it was "not normal" that

Western countries have not yet imposed sanctions on Rosatom.

Source: <https://kfgo.com/2022/09/22/ukraine-us-energy-ministers-discuss-sanctions-on-rosatom-ukrainian-energy-ministry/>, 22 September 2022.

NUCLEAR SECURITY

USA

Nuclear Weapon Development and Manufacturing Needs More Cybersecurity

As the National Nuclear Security Administration (NNSA) and its contractors increasingly utilize advanced computers and digital systems to

As the National Nuclear Security Administration and its contractors increasingly utilize advanced computers and digital systems to "integrate information systems into nuclear weapons, automate manufacturing equipment and rely on computer modeling to design weapons," it needs to implement foundational cybersecurity risk management because these systems can be targets of cybersecurity attacks, according to a report released on 22 September 2022.

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The Government Accountability Office (GAO) report noted that federal law and policies identify six practices for a cybersecurity management program. These practices are as follows: "identify and assign cybersecurity roles and responsibilities for risk management"; "establish and maintain a

cybersecurity risk management strategy for the organization"; "document and maintain policies and plans for the cybersecurity program"; "assess and update organization-wide cybersecurity risks"; designate controls that are available for information systems or programs to inherit"; and "develop and maintain a strategy to monitor risks continuously across the organization."

However, GAO found that NNSA and its contractors have not fully implemented these key cybersecurity practices. NNSA has three types of technology or digital environments: traditional informational technology, operational technology and nuclear weapons information technology. GAO stated that NNSA has not fully implemented the cybersecurity practices in its operational technology and nuclear weapons information technology environments.

The report noted that the traditional IT environment, includes computer systems to design weapons, NNSA fully implemented four out of the six practices and partially implemented two practices. Meanwhile, NNSA contractors fully implemented three practices. Specifically, both the agency and its contractors did not fully implement a continuous monitoring strategy, which prevents them from having a complete understanding of their cybersecurity posture, GAO stated.

According to the report, the operational technology environment consists of manufacturing equipment and building control systems that have software embedded in them to monitor the devices or processes. GAO found that NNSA has not fully implemented any of the key practices and is still in the process of creating guidance for contractors in part because the agency is still figuring out the resources it needs for key practice implementation and guidance development.

Meanwhile, the nuclear weapons IT environment includes IT in or in contact with nuclear weapons. The agency has implemented or taken steps to

implement most of these practices in addition to developing contractor guidelines, but it has not developed a cyber risk management strategy to address IT-specific threats to nuclear weapons. GAO indicated that this is hindering NNSA's awareness of threats and ability to respond.

Another issue, according to the report, is that NNSA and its contractors also use subcontractors, but there was inconsistent oversight of subcontractors' cybersecurity. While, contractors are required to oversee contractors' cybersecurity measures as per NNSA's cybersecurity directive, in practice, contractors had mixed oversight efforts, GAO found. Moreover, GAO stated that three out of seven contractors did not believe they

were contractually required to do so. As a result, GAO noted that this does not ensure that the sensitive information held by subcontractors are properly protected.

GAO made nine recommendations for NNSA. For example, GAO suggested that the agency should fully implement a

continuous cybersecurity monitoring strategy; determine the resources needed for operational technology efforts; delegate risk management roles and responsibilities; develop a nuclear weapons risk strategy; enhance oversight and monitoring of subcontractor cybersecurity. NNSA concurred with the recommendations.

Source: <https://www.nextgov.com/cybersecurity/2022/09/nuclear-weapon-development-and-manufacturing-needs-more-cybersecurity-watchdog-says/377578/>, 23 September 2022.

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NUCLEAR SAFETY

EURATOM–IAEA

EURATOM and IAEA Sign Memorandum of Understanding on Nuclear Safety Cooperation

The European Atomic Energy Community (EURATOM) has signed today a MoU with the IAEA on nuclear safety cooperation, updating the

previous agreement from 2013. Building on the extensive scientific and technological co-operation developed over the past years, the two parties have agreed to update the content of the MoU, extending activities to include emerging areas of common interest, such as education and training, small modular reactors and the safety of fusion installations. The MoU also looks to further strengthen cooperation in the areas of radiation safety, waste safety and emergency preparedness and response.

Source: https://ec.europa.eu/info/news/euratom-and-iaea-sign-memorandum-understanding-nuclear-safety-cooperation-2022-sep-27_en, 27 September 2022.

FRANCE

French Nuclear Watchdog Activates Emergency Centre after Fire at Nuclear Site

France's nuclear watchdog ASN on 21 September 2022 said it activated its emergency centre after a fire broke out at a plant containing uranium in southeastern France run by EDF unit Framatome. The fire according to information transmitted to the watchdog was under control, the ASN said, but added this had not yet been confirmed. A Framatome spokesman told Reuters the fire was under control and no staffer was harmed. "We are still working on securing the site", he said, adding that he could not yet comment on any potential nuclear safety impacts. Framatome is a unit of French nuclear energy giant EDF. According to the company's website, the Romans-sur-Isere site where the fire erupted produces fuel for nuclear power reactors based on enriched uranium.

Source: <https://wtvbam.com/2022/09/21/french-nuclear-watchdog-activates-emergency-centre-after-fire-at-nuclear-site/>, 21 September 2022.

GENERAL

Joint Statement on the High-Level Meeting on the Safety and Security of Civil Nuclear Facilities in Armed Conflicts

Foreign Ministers from Canada, France, Germany, Italy, Japan, the United Kingdom, Ukraine and the United States of America, and senior officials from the Republic of Korea and Switzerland, as well as the High Representative of the European Union for Foreign Affairs and Security Policy expressed grave concern regarding the threats posed to the safety and security of nuclear facilities devoted to peaceful purposes in Ukraine and their personnel, significantly raising the risk of a nuclear accident...note

the 2009 IAEA General Conference unanimous decision...entitled.

"Prohibition of armed attack or threat of attack against nuclear installations, during operation or under construction," which recognized the importance attached to safety, security and physical protection of nuclear material and nuclear facilities devoted to peaceful purposes as well as IAEA General Conference resolutions...regarding armed attacks or threats against nuclear facilities devoted to peaceful purposes....

Importance of Grossi's "Seven Indispensable Pillars of Nuclear Safety and Security," has been outlined in the statement to the IAEA Board of Governors meeting on March 2-3, 2022. These "Seven Indispensable Pillars of Nuclear Safety and Security," derived from existing IAEA nuclear safety standards and nuclear security guidance, are the physical integrity of the nuclear facilities, whether it is reactors, fuel ponds, or radioactive waste stores, must be maintained; all safety and security systems and equipment must be fully functional at all times; the operating staff must be able to fulfill their respective safety and security duties, and have the capacity to make decisions free of undue pressure;

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there must be secure off-site power supply from the grid for all nuclear sites; there must be uninterrupted logistical supply chains and transportation to and from the sites; there must be effective on-site and off-site radiation monitoring systems and emergency preparedness and response measures; and finally, there must be reliable communications with the regulator and others....

We intend to continue to support the IAEA action in helping facilitate the implementation of these principles in Ukraine while fully respecting Ukraine's sovereignty, including through the IAEA nuclear safety and security assistance plan for Ukraine. Russia's seizure and militarization of the ZNPP is the root cause of the current threats in the field of nuclear safety and security... the heightened risks of a nuclear incident will remain dangerously high as long as Russia remains present on the site of ZNPP. The Russian Federation must immediately withdraw its troops from within Ukraine's internationally recognized borders and respect Ukraine's territorial integrity and sovereignty.

Should the Russian Federation conduct any sham referenda within occupied territories of Ukraine...these would have no legal and political effect, including on the status of the ZNPP...welcome Grossi's work to follow up on his visit of September 1st and the proposals contained in his report...underline the importance of complying with international humanitarian law and renewing efforts aimed at the prompt reinforcing of the international framework relating to the protection of nuclear facilities devoted to peaceful purposes including in armed conflicts.

As a first step...stand ready to reaffirm the importance of these "Seven Indispensable Pillars of

Nuclear Safety and Security" in appropriate fora, in particular at the IAEA and at the UN as appropriate.

In due time...ready to review the lessons learned in Ukraine in order to help the IAEA and the international community to prepare for and respond to future events and anticipate new threats, such as cyber-attacks.

Source: <https://www.state.gov/joint-statement-on-the-high-level-meeting-on-the-safety-and-security-of-civil-nuclear-facilities-in-armed-conflicts/>, 23 September 2022.

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UKRAINE

IAEA Proposal for Ukraine Nuclear Safety and Security Protection Zone Wins Support as Talks Begin on its Establishment

An IAEA proposal to establish a nuclear safety and security protection zone around Ukraine's Zaporizhzhya Nuclear Power Plant (ZNPP) is receiving strong international support and detailed talks have now begun with Ukraine and Russia aimed at agreeing and implementing it as

soon as possible, Grossi said on 22 September 2022 after a series of high-level meetings in New York.

In a sign of growing momentum for such a zone to protect Europe's largest nuclear power plant, President Macron on 21 September 2022 hosted an

event in New York to discuss the safety and security of civilian nuclear facilities in armed conflicts that was also attended by Ukrainian Prime Minister Shmyhal, EU High Representative for Foreign Affairs Borrell as well as foreign ministers and senior officials from several other countries.

After the meeting, chaired by President Macron and Director General Grossi, a statement was

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issued by nine countries welcoming this September's IAEA Support and Assistance Mission to Zaporizhzhya (ISAMZ) and supporting the IAEA's efforts to maintain a continued presence there. It also welcomed Grossi's work to follow up on his mission to the plant on 1 September 2022 as well as the proposals made in a report he issued soon thereafter, which include the recommendation for a nuclear safety and security protection zone around the ZNPP. The statement was issued by senior representatives of the following countries: Canada, France, Germany, Italy, the Republic of Korea, Switzerland, the United Kingdom, the United States, and Ukraine, and the EU's High Representative for Foreign Affairs and Security Policy.

They also underscored the importance of the seven indispensable nuclear safety and security pillars outlined by Grossi early during the conflict in Ukraine. Thanking them for their strong backing, Grossi said a nuclear safety and security protection zone must urgently be implemented around the ZNPP, which is held by Russian forces but operated by Ukrainian staff. Grossi led an IAEA team of safety, security and safeguards experts to the ZNPP on 1 September 2022. Two ISAMZ members remain there, providing independent, technical observations and assessments and helping to stabilize the situation. Further underlining the need for such a zone, there has been renewed shelling at the ZNPP site this week, damaging electrical cables and temporarily forcing one of the six reactor units to rely on emergency diesel generators.

While in New York, Grossi separately also met with Foreign Minister Lavrov and Ukrainian Foreign

Minister Kuleba, as part of talks with all parties aimed at reaching an agreement soon on the zone's establishment. Grossi first proposed such

Grossi first proposed such a zone in a report issued a few days after his mission to the ZNPP, saying shelling there over the past several weeks represented a "constant threat to nuclear safety and security with potential impact on critical safety functions that may lead to radiological consequences with great safety significance."

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Grossi's report says shelling on site and in its vicinity should be stopped immediately to avoid any further damages to the plant as well as associated facilities.

Source: <https://www.iaea.org/newscenter/news/iaea-proposal-for-ukraine-nuclear-safety-and-security-protection-zone-wins-support-as-talks-begin-on-its-establishment>, 22 September 2022.

Main Power Line Back Up at Zaporizhzhia Nuclear Plant, IAEA Says

One of the Russian-held Zaporizhzhia nuclear power plant's four main power lines has been repaired and is once again supplying the plant with electricity from the Ukrainian grid two weeks after it went down, the U.N. nuclear watchdog said on 17 September 2022. Even though the six

Even though the six reactors at Zaporizhzhia, Europe's biggest nuclear power plant, have been shut down, the fuel in them still needs cooling to avoid a potentially catastrophic meltdown. That means the plant needs electricity to pump water through the core of the reactors.

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The power supply at Zaporizhzhia has been a source of major concern after the last main line went down and then three back-up lines that can connect it to a nearby coal-fired power plant were

also disconnected. That prompted the plant to go into so-called “island mode” where its last operating reactor provided it with power, though that mode is not sustainable. A backup power line was reconnected a week ago, enabling that reactor to shut down, too.

... “While the ZNPP’s power status has improved over the past week – in sharp contrast to earlier this month when all power lines at one stage were down and it depended on its last operating reactor for vital electricity supplies – the general situation for the plant located in the middle of a war zone remains precarious,” the IAEA mentioned.

Source: <https://www.euronews.com/2022/09/18/ukraine-crisis-zaporizhzhia-iaea>, 18 September 2022.

SMALL MODULAR REACTORS

CANADA

Small Modular Reactors and The Future of Nuclear Energy in Canada

Canada is positioned to be a global leader in the development of nuclear energy as a cost-effective, non-carbon emitting energy source on the road to net zero emissions. Nuclear power can be an attractive option for governments, utilities and grid operators looking for ways to move away from carbon intensive generation, while maintaining the ability to serve customers reliably. As most people know, nuclear power generation offers reliable baseload power with no carbon emissions. We see countries around the world considering what role nuclear power can play in their supply mix. Even those countries that have not shown recent interest in nuclear power, like Germany and Japan.

Small modular reactors or SMRs, have become an attractive option for grid reliability as multiple facilities instead of one large plant can provide greater optionality for system planning. In Canada, we’ve seen a lot of activity around innovative SMR technologies, with Ontario Power Generation leading the charge, partnering with General Electric Hitachi Nuclear Energy on a small modular reactor project for OPG’s Darlington facility, and

also with X-Energy for industrial applications.

A trend that we see in this space that we think is very positive is a lot of collaboration around the development of this new technology, including among government authorities, owners and private industry. For instance, the inter-provincial collaboration MOU between the provinces of New Brunswick, Ontario, Saskatchewan and Alberta, continues to advance the development of SMR technologies, including by releasing a strategic plan for the development of SMR technology earlier this year.

The strategic plan sets out a number of priority areas for focus, including positioning Canada as a global leader in nuclear innovation, developing a robust regulatory framework, securing federal government financing and policy support, participation by Indigenous communities, and nuclear waste management.

Also the recently announced partnership between Tennessee Valley Authority and OPG is evidence of owners coming together to mitigate financial risks associated with developing this new technology. We’re also seeing at the contracting level the private sector and owners using collaborative contracting models to mitigate delivery risk and ensure the success of delivery of SMR technology.

On the whole, SMR projects are becoming an important part of the transition to cost-effective, non-carbon emitting energy. And a key part of that will be making sure that from a regulatory perspective that these projects can be reviewed in an efficient manner so as to meet the 2050 timing. And Canada is very fortunate in that it’s got a rigorous regulatory regime already in place for nuclear projects and has experience licensing them in the past. There’s also a growing recognition that for Canada to meet the 2050 net zero timing, it’s going to have to have its regulatory processes applied in an effective and efficient manner.

And as part of that, one of the trends on the ground is that there is increased collaboration and constructive engagement between proponents,

regulators, the public, indigenous communities, as well as certain other participants. This will lead to good SMR projects getting better as well as helping those projects get through in a timely manner, which keeps coming back to being a key theme from a regulatory perspective. And at first blush, 2050 seems like it's a long way off. But given the number of steps that need to occur and the number of projects that need to occur, it's actually quite an urgent timeframe.

Source: <https://www.mondaq.com/canada/energy-law/1230866/small-modular-reactors-and-the-future-of-nuclear-energy-in-canada>, 16 September 2022.

GENERAL

'Huge Demand for SMRs' - So What are the Key Challenges?

Both Jon Ball, executive vice president market development for GE Hitachi Nuclear Energy, and Rick Springman, senior vice president of international projects for Holtec International, set out their aims to have SMRs operational within the next ten years during a panel session on Turning Vision into Reality at the nuclear industry's gathering in London earlier this month.

Ball said that "really large numbers of reactors are going to be needed to solve both the climate change crisis but also the energy security crisis ... massive numbers are needed, and we can debate what's going to be the right number but we know it's going to be a lot". He said that when GE Hitachi talks to potential customers about its BWRX-300 SMR "they're not talking about one or two reactors, it's 'we need

10 or 20 of these reactors". The scale of demand means there will be pinch points in order to meet the required numbers, Ball said, such as forgings and reactor pressure vessels: "There's limited capacity today but is it insurmountable? It's not. We know how to do it, it's just a matter of building up that capacity and there needs to be a clear demand signal - ultimately these suppliers, these manufacturers, want to see real orders so that they feel comfortable investing in their plants to increase

capacity."

Ball added that, because the BWRX-300 is essentially a 10th evolution BWR with the same components, same fuel and same way of performing outages, they are hiring and training up workers for the SMRs - which the company hopes to have operational from 2028 - working on their existing reactors.

They have also got virtual reality capacity so people can "walk" through the plant in 3D. The other area which will have a huge influence on the SMR roll-out was "optimum harmonisation" of regulation, with the example of the US and Canadian regulators cited as an example to be applauded, while, Ball said, it was encouraging to see countries new to nuclear "really reaching in for guidance".

Holtec's Rick Springman said the company has a "long-term view with a near-term focus to get ready for what we perceive as a huge future market". He said that the company had put its own money in and was fully committed to developing a new breed of "absolutely safe, small module reactors - that's essentially what

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This will lead to good SMR projects getting better as well as helping those projects get through in a timely manner, which keeps coming back to being a key theme from a regulatory perspective. And at first blush, 2050 seems like it's a long way off. But given the number of steps that need to occur and the number of projects that need to occur, it's actually quite an urgent timeframe.

we've been working on for the last 10 years".

He added that its reactors work passively with "all the emergency cooling water that it needs to shut down indefinitely" without the need for off-site power. He said that the firm currently sees the first commercial operation of an SMR-160 at the Oyster Creek site in the USA by 2030, although that timetable might be accelerated. He stressed that a key development goal had been to ensure it was "operation-friendly - this is an 80-year machine, it has to be operation-friendly" so that people want to use it. Springman also flagged the challenges of financing new nuclear projects, especially internationally with a first-of-a-kind product.

Other industries, he noted, could cover the gap with technology risk insurance. He said that Holtec expected to eventually need at least four SMR manufacturing industrial sites around the world - each producing around four SMRs a year - to meet demand, with the company "in discussions with a lot of utilities in the US and abroad".

Another key issue, Springman said, was that nuclear energy needed to have a "proper valuation" reflecting that it is "providing something unique that no other technology can provide - 24/7 clean energy". He said that energy market regulators should ensure that the reliability and clean energy offered was suitably reflected in the market. This issue was also raised by Keith Everhart, from the IAEA, who said their calculations suggested that robust carbon pricing, combined with scarcity pricing would mean that from the energy markets at least four technologies - solar, wind and hydro as well as nuclear - would be able to meet their on-going costs and costs of new investment.

Source: <https://www.world-nuclear-news.org/Articles/Huge-demand-for-SMRs-so-what-are-the-key-challenge>, 21 September 2022.

NUCLEAR COOPERATION

POLAND-USA

Westinghouse Developing Polish AP1000 Supply Chain

Westinghouse Electric Company has signed MoUs with 22 companies in Poland that allow for cooperation on the potential construction of AP1000 reactors in the country as well as other potential projects in Central Europe. The MoUs were signed in the Polish capital Warsaw in the presence of the US Ambassador to Poland Mark Brzeziński.

The memoranda establish cooperation with the following companies: Kersten, Famur Famak SA, Mostostal Puławy SA, Sefako SA, ZPUE SA, Grupa

Powen-Wafapomop SA, Emerson Automation Solutions, Monta Materials Handling, GL Steel, Bureau Veritas Polska, Prochem SA, ZRE Katowice SA, Energoprojekt Katowice SA, APS Energia SA, TÜV NORD

Polska, Izotechnik, Grafton Recruitment, Ecol, Mostostal Kraków, Eaton Electric and Energomontaż-Póznoc-Bechatów SA.

"The involvement of the Polish industry in the creation of the nuclear industry in the country and its first power plant is absolutely crucial," said Westinghouse Poland President Mirosław Kowalik. "Polish industry and companies have a wealth of experience and know-how in the construction of power units of all kinds. Many of them also have experience in working on nuclear projects around Europe, which we want to make the most of. These memoranda open opportunities for cooperation not only for the Polish project but also potentially in the entire CEE region."

... Earlier, the USA and Poland set out a detailed bilateral roadmap for the construction of six large nuclear reactors using US technology and a framework for strategic cooperation in civil nuclear energy. The Concept and Execution Report for Civil Nuclear Cooperation, which fulfills an obligation

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under a 2020 intergovernmental agreement on nuclear energy cooperation, reflects more than 18 months of intensive work and millions of dollars of US-funded analysis and assessments, the two nations said in a joint press release. It is supported by detailed studies by Westinghouse and Bechtel on the feasibility of AP1000 technology to deliver on the expectations of the Polish nuclear power programme and Polskie Elektrownie J'drowe (PEJ), the investor in the construction of nuclear power plants in Poland. ...

Source: <https://www.world-nuclear-news.org/Articles/Westinghouse-developing-Polish-AP1000-supply-chain>, 23 September 2022.

NUCLEAR PROLIFERATION

AUSTRALIA

AUKUS' Plan to Expedite Australia's Nuclear Sub Construction an Act of Nuclear Proliferation under 'Naval Nuclear Propulsion' Cover: Chinese Mission to UN

The Chinese mission to the UN in Vienna warned in an exclusive statement sent to the *Global Times* on 25 September 2022 that the latest move by AUKUS to plan to expedite Australia's nuclear submarine construction is a blatant defiance of and trampling on the international nuclear non-proliferation system, and is an act of nuclear proliferation under the pretext of "naval nuclear propulsion."

A spokesperson of the Chinese mission to the UN and other international organizations in Vienna made the comment after leaders of the US, UK and Australia said on 23 September 2022 marking the one-year anniversary of the AUKUS security pact that they have made "significant progress" toward Australia acquiring a nuclear-powered submarine.

In disregard of the serious concerns of the international community on the trilateral nuclear submarine deal, the US is insisting on and even making reckless remarks about accelerating the

deal, which is a blatant defiance of and trampling on the international nuclear non-proliferation system, the spokesperson . . . statement.

China has repeatedly pointed out that the nuclear submarine deal among the three countries violates the NPT, the IAEA Comprehensive Safeguards Agreement (CSA) and Additional Protocols (AP). It is an act of nuclear proliferation under the pretext of "naval nuclear propulsion," the statement noted. . .

Chinese experts warned that Australia should also be alert that it is sleepwalking into a US trap to serve as the latter's pawn in the US' strategy against China. But they also believed that it would not be easy to implement the plan given the lack of spare shipbuilding capacity in the US and in Britain.... It is questionable how feasible the plan actually is, Chen Hong, president of the Chinese

Association of Australian Studies and director of the Australian Studies Centre at East China Normal University....

The nuclear-powered submarine deal under AUKUS is a blatant, irresponsible act of nuclear proliferation, and once again proves that AUKUS

countries are practicing a "double standard" on nuclear non-proliferation and using the deal as a tool for geopolitical gamesmanship, Ambassador Wang Qun, China's Permanent Representative to the UN in Vienna.... Song Zongping, a Chinese TV commentator, warned it is already a fact that the US is dedicated to nuclear weapons proliferation....

Source: <https://www.globaltimes.cn/page/202209/1276076.shtml>, 26 September 2022.

Chinese Envoy Reiterates International Communities' Deep Concerns over Nuclear-Powered Submarine Cooperation under AUKUS

China's Permanent Representative to the UN in Vienna, Wang Qun, on 15 September 2022 reiterated most of the IAEA member states' deep concerns over the seven problems regarding the

Chinese experts warned that Australia should also be alert that it is sleepwalking into a US trap to serve as the latter's pawn in the US' strategy against China. But they also believed that it would not be easy to implement the plan given the lack of spare shipbuilding capacity in the US and in Britain.

nuclear-powered submarine cooperation under AUKUS, the trilateral pact between the US, the UK and Australia and noted that if the IAEA Secretariat is ultimately used as a "Trojan horse" by the US, UK and Australia, the international communities' interests will be undermined.

The nuclear-powered submarine cooperation under AUKUS involves the illegal transfer of nuclear-weapon materials and is an act of naked nuclear proliferation, Wang said. But for a long time, the three countries have been evading the essence of their nuclear proliferation practices, confusing right and wrong and misleading the international community, he said. Wang made the remarks during an interview after a formal agenda of the IAEA Board of Governors decided by consensus on the nuclear-powered submarine cooperation under AUKUS at China's proposal.

The three countries used so-called naval power reactors as an excuse to avoid the "original sin" of the three countries' cooperation involving the illegal transfer of nuclear-weapon materials, which essentially amounts to nuclear proliferation, Wang mentioned. The three countries confuse military activities and nuclear proliferation within the sovereignty of one country.

Nuclear-powered submarine cooperation under AUKUS is not simply a question of nuclear materials involved in the independent development of military vessels by sovereign states, but the first time in history that tons of nuclear-weapon grade materials have been illegally transferred by nuclear-weapon states to non-nuclear-weapon states openly and directly, which cannot be confused, Wang mentioned.

The US and the UK have applied double standards on nuclear proliferation issues, as they imposed unilateral sanctions on civilian nuclear programs of some non-nuclear weapon states, while at the same time blatantly transferring nuclear-weapon materials to Australia.

Bloomberg reported on 15 September 2022 that China has pointed out the US double standards over the stalled Iran nuclear deal. "Western nations expect

Iran to limit its nuclear-fuel stockpiles in order to revive a 2015 pact and remove sweeping economic sanctions.... Meanwhile, the US and UK plan to transfer hundreds of kilograms of highly-enriched uranium to Australia as part of an agreement to sell nuclear submarines".... Wang mentioned. "Iran's nuclear deal with world powers collapsed four years ago after the Trump administration withdrew the US, prompting Iran to retaliate by ramping up atomic-fuel production," Bloomberg reported.

The report also cited Wang claiming that US domestic politics - November's midterm elections are another complicating factor. If the deal isn't signed within days, it will

probably have to wait until after the polls, according to the report. If the three countries were allowed to "pretend" to declare their nuclear-powered submarine cooperation to IAEA and kidnap the Secretariat using this "Trojan horse" to "whitewash" their nuclear proliferation activities and exempt the nuclear-powered submarine cooperation, it would seriously undermine the common interests of the international community including the Secretariat and all the member states, Wang mentioned.

In September 2021, the US, the UK and Australia announced the establishment of AUKUS, under

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Western nations expect Iran to limit its nuclear-fuel stockpiles in order to revive a 2015 pact and remove sweeping economic sanctions.... Meanwhile, the US and UK plan to transfer hundreds of kilograms of highly-enriched uranium to Australia as part of an agreement to sell nuclear submarines".... Wang mentioned.

which the US and the UK will assist Australia in acquiring nuclear-powered submarines. The so-called statement claiming that nuclear materials are sealed in a reactor, which can't be used directly for nuclear weapons, misleads public opinion and completely is unworkable. In fact, the problem is proliferation, not the disposition of related nuclear-weapon materials.

Given the nature of the nuclear proliferation, cooperation among the three countries can't reduce the risks of nuclear safety, security and proliferation, Wang pointed out. Australia, in particular, has violated the reporting obligations under the comprehensive safeguards agreement and related protocols. It hasn't submitted any substantive report to the agency as required, in violation of its legal safeguards obligations since its announcement of the nuclear-powered submarine cooperation under AUKUS, according to Wang.

The nuclear-powered submarine cooperation under AUKUS sets a bad precedent for nuclear proliferation, which goes beyond the existing safeguards system and must be discussed by all member states of the agency as all member states of the agency must have the final say, Wang mentioned. The three countries attempted to coerce the secretariat into offering a safeguards program that would exempt them from the nuclear-powered submarine cooperation, thereby legitimizing their illegal nuclear proliferation practices by using their majority in the council to force the council to adopt it, Wang mentioned. They have consistently refused to report to the agency on the substantial progress of the nuclear-powered submarine cooperation on the grounds of "undetermined cooperation plans," preventing the director-general and the secretariat from

providing substantive reports, Wang noted.

Source: <https://www.globaltimes.cn/page/202209/1275409.shtml>, 16 September 2022.

IRAN

Saudi Arabia Sees No Positive Sign of Reviving Iran Nuclear Deal

Saudi Arabia's foreign minister Prince Faisal Bin Farhan said on 23 September 2022 that there is little optimism for the fate of negotiations to restore the nuclear deal between world powers and Iran. On the sidelines of the UNGA in New York, Farhan said his country had concerns about a possible revived nuclear deal, especially over IAEA inspections. However, Farhan said that even a flawed deal was better than

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no deal.

... Iranian drone technology poses an increasing threat to the Middle East, Farhan said and stressed the importance of cooperation among regional countries to confront the matter. "The short-term approach must be based on building capacity to face existing risks," Farhan explained.... "Meanwhile, the long-term approach requires cooperation to understand threats and construct frameworks for an action plan that could help in building future technologies for confronting this danger

In a long debate on the chatroom platform Club House, several people said that Iran loses at least \$150 million per day because of delay and indecision in the talks for more than a year. Nonetheless, they warned that Iran is facing a threat far bigger than the delay in getting results from the talks - a government plagued by indecision.

and protecting ourselves and our partners from it." ...

Source: <https://www.iranintl.com/en/202209247839>, 24 September 2022.

Iransians Debate Economic Loss as Nuclear Deal in Limbo

Iranian pundits and politicians are concerned about the impact of the pause in negotiations to

revive the 2015 nuclear deal on the country's economy. In a long debate on the chatroom platform Club House, several people said that Iran loses at least \$150 million per day because of delay and indecision in the talks for more than a year. Nonetheless, they warned that Iran is facing a threat far bigger than the delay in getting results from the talks - a government plagued by indecision.

Conservative politician Mohammad Mohajeri said this threat is far bigger than any unfavorable outcome in the JCPOA talks. Even if Iran decides not to go back to its obligations under the JCPOA, it needs plans to deal with pressing problems. "Under circumstances marked by indecision, no domestic or foreign investor will be ready to invest in Iran," Mohajeri mentioned.

Subsequently, Mohajeri noted, medical doctors, engineers and entrepreneurs leave the country in droves, posing a serious problem for the future. A survey earlier this year published by Iran International, found that three out of ten Iranians want to leave the country because of economic hardship, while others highlight lack of freedoms and despair. The survey, by Keyou Analytics, found that over 33 percent of 1,300 respondents would emigrate, permanently or temporarily, if able to. Meanwhile, another Iran International report quoted officials and lawmakers as warning that Iran may be forced to hire foreign doctors as Iranian physicians are emigrating to other countries in large numbers. According to an official at the Iranian Medical Council, wrong government policies is causing disillusionment among young medical practitioners leading to a wave of emigration. ...

Source: <https://www.iranintl.com/en/202209237327>, 23 September 2022.

Iran President Repeats Call for Nuclear Deal Guarantees Ahead of UN Visit

Tehran would be serious about reviving a deal on its nuclear program if there were guarantees the United States would not again withdraw from it, Iranian President Raisi said in an interview broadcast on 18 September 2022. In August 2022, Iran's foreign minister said Tehran needed stronger guarantees from Washington for the revival of the 2015 deal and urged the IAEA to drop its "politically motivated probes" of Tehran's nuclear work.

During months of talks with Washington in Vienna, Tehran demanded U.S. assurances that no future U.S. president would abandon the deal as former US President did in 2018. The deal appeared near revival in March. But indirect talks between Tehran and Washington then broke down over several issues, including Tehran's insistence that the IAEA close its investigation into uranium traces found at three undeclared sites before the pact is revived.

On 13 September 2022 Raisi said, "If it's a good deal and fair deal, we would be serious about reaching an agreement." Raisi said the Americans had broken their promises on the deal, under which Tehran had restrained its nuclear program in exchange for relief from U.S., EU and U.N. economic sanctions. "They did it unilaterally. They said that, 'I am out of the deal.' Now making promises is becoming meaningless," he said. "We cannot trust the Americans because of the behavior that we have already seen from them. That is why if there is no guarantee, there is no trust." The U.S. network described the interview with journalist Lesley Stahl as Raisi's first with a Western reporter. "I was told how to dress, not to sit before he did, and not to interrupt him," Stahl mentioned.

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several issues, including Tehran's insistence that the IAEA close its investigation into uranium traces found at three undeclared sites before the pact is revived.

There has been no sign that Tehran and Washington will manage to overcome their impasse but Iran is expected to use the UNGA to keep the diplomatic ball rolling by repeating its willingness to reach a sustainable deal. However, President Biden cannot provide the ironclad assurances Iran seeks because the deal is a political understanding rather than a legally binding treaty.

Source: <https://www.hindustantimes.com/world-news, 19 September 2022>.

Tehran Claims U.S. Signaled 'Will' for New Nuclear Deal; Washington Silent

Iran's top diplomat says Tehran received a new signal from the United States that the "will and goodwill" exist in Washington to reach an agreement to replace the nuclear deal that fell apart after a U.S. pullout four years ago. The official IRNA news agency quoted Iranian Foreign Minister Abdollahian on September 25 as saying he responded by urging the U.S. side to demonstrate "realism" so the sides could finalize a deal.

Abdollahian didn't detail how or at what level any exchange had taken place. U.S. officials have not confirmed any exchange of messages, although diplomats are said to be working on the Iran nuclear issue during the ongoing UNGA in New York. IRNA quoted Abdollahian as saying he had met in New York with EU and other envoys whose countries are party to the so-called JCPOA but not providing details.

After 16 months of international negotiations in Vienna and indirect talks between Tehran and Washington, the EU in August 2022 put forward a final offer to overcome an impasse for the revival of the JCPOA from 2015. The last official meeting in the EU-facilitated negotiations to replace the

JCPOA took place two months ago.

...Washington has not confirmed any such initiative. The JCPOA began to collapse when President Trump withdrew the United States unilaterally in 2018 and re-imposed crippling sanctions on Iran, and Tehran has since strayed from compliance with the deal. The head of Iran's nuclear agency,

Mohammad Eslami, was quoted by state television as saying he would travel to Vienna . . . for a meeting with the head of the IAEA. "I will go to Austria to take part in the annual general conference of the International Atomic Energy Agency in Vienna, where I will meet with Director-General Rafael Grossi," Eslami mentioned. The IAEA's annual conference is scheduled for September 26-30.

Source: <https://www.rferl.org/a/iran-us-signals-nuclear-deal/32051357.html, 25 September 2022>.

NUCLEAR DISARMAMENT

JAPAN

Nuclear Peace a Priority Ahead of Hiroshima G7 Summit

. . .The G7 Summit renewed the West's commitment to supporting Ukraine, but concerns about energy and food prices were high on the agenda. For the German government, the biggest challenge they faced post-election was tackling climate change. The war in Ukraine has complicated the focus on climate change, but at the G7 Summit it was back on the top of the agenda.

After the Russia-Ukraine war begun, Russia has turned to direct energy blackmail against Germany. The German government has fallen back on coal and is under pressure to extend the exit from nuclear power which was planned for the end of 2022. The German government insists that the energy crisis reveals an urgent need for climate change action. It is increasingly important to push

forward technological innovations that would lift countries out of fossil fuel dependency and in turn, Russia dependency.

The transition to clean energy involves decision-making about what place, if any, nuclear energy should have. There is now an urgent need for this debate because of the huge concerns over the Russian threat to Ukraine's nuclear power plants. The peaceful use of nuclear power should never be weaponized, but the safety of nuclear power plants needs to be improved to prevent disaster should conflict arise....

The NPT was struck between nuclear-weapon states who wanted to limit access to the military use of atomic power and non-nuclear-weapon states who wanted access to atomic energy technology for peaceful purposes. But the threat to Ukraine's nuclear power plants — evidenced by the battles for Chernobyl and Zaporizhzhia — has renewed safety concerns. Nuclear power plants and spent fuels now need to be safeguarded during conflict. International institutions like the IAEA need to be strengthened to be able to work under conditions of war.

Although Germany refuses to accept nuclear power as their domestic energy source, it is not condemning its use elsewhere. Nuclear energy should have a place in the energy mix of the future and it should form part of the technology offers made to the developing world through the G7's new Climate Club. But it needs to be safer. We live in a post-Fukushima and post-Ukraine world. Civilian nuclear technology must safe-guard against proliferation, accidents and conflicts. . . As the G7 arrives in Hiroshima in May 2023, it needs to convey a message of peace not just in terms of 'never again' but also in terms of a better

future made possible through the combined efforts of the G7 and its partner democracies.

Source: <https://www.eastasiaforum.org/2022/09/24/nuclear-peace-a-priority-ahead-of-hiroshima-g7-summit/>, 24 September 2022.

KAZAKHSTAN

Central Asia's Biggest State Alarmed by Increased Rivalry between Nuclear Powers

Central Asia's biggest state Kazakhstan is alarmed by the "increased rivalry and rhetoric of nuclear states," President Tokayev . . . mentioned at the UNGA. "Kazakhstan has suffered terribly from past nuclear weapons testing, so we understand very clearly the dangers of escalating tensions between nuclear powers," Tokayev mentioned. "For this reason, nuclear disarmament has become a key part of Kazakh foreign policy and we will be continuously struggling for a world free of nuclear arsenals."... Tokayev also mentioned there has been "some progress in this area" but "the whole record is not that positive."

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"We are also concerned at the lack of progress made by the NPT review conferences," Tokayev . . . mentioned referring to the NPT. He warned that the world has "entered a new, increasingly bitter, period of geopolitical confrontation." ... "Mutual distrust between global powers is dangerously deepening. The world is falling prey to a new set of military conflicts. For the first time in two generations, we face the prospect of the use of nuclear weapons, and not even as a last resort."

Source: <https://economictimes.indiatimes.com/tech/tech-bytes/cm-com-plans-to-make-india-a-tech-hub-the-world-can-rely-on/articleshow/94249547.cms>, 26 September 2022.

NUCLEAR WASTE MANAGEMENT

UK

UK's Nuclear Waste Cleanup Operation could Cost £260bn

The cost of decommissioning the UK's 20th-century nuclear waste could rise to £260bn as the aged and degrading sites present growing challenges, according to analysis presented to an international group of experts. As the government pursues nuclear energy with the promise of a new generation of reactors, the cost of safely cleaning up waste from previous generations of power stations is soaring.

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Degrading nuclear facilities are presenting increasingly hazardous and challenging problems. Ageing equipment and electrical systems at Sellafield, which is storing much of the country's nuclear waste and is one of the most hazardous sites in the world, are increasing the risk of fire, according to the Nuclear Decommissioning Authority. They require increasing maintenance and present growing risk. Last October a faulty light fitting started a blaze at a Sellafield facility which led to its closure for several weeks.

Four areas of the country are being considered for the GDF but no decision on where it will be located has yet been made. "While we are clear about the current legacy of waste which already exists, a GDF would have to handle additional waste from new facilities being developed," the NWS said.

Analysis by Stephen Thomas, a professor of energy policy at the University of Greenwich, estimates the total bill for decommissioning the UK's nuclear waste mountain will grow to £260bn. Thomas told a conference of international experts the cost of decommissioning Sellafield had risen from to £110bn, according to freedom of information requests. Other sites that need decommissioning are the 11 Magnox power stations, built between the 1950s and 1970s,

including Dungeness A in Kent, Hinkley Point A in Somerset and Trawsfynydd in north Wales, and seven advanced gas-cooled reactors built in the 1990s, including Dungeness B, which closed last year, Hinkley Point B and Heysham 1 and 2 in Lancashire.

Deterioration of one of the Magnox stations, Trawsfynydd, which shut down in 1991, is such that substantial work is needed to make it safe, according to the NDA. "Work that would then need to be undone to complete reactor dismantling," the agency said. Thomas told the International Nuclear Risk Assessment Group similar problems are expected at other Magnox sites. The

timetable for decommissioning the old nuclear power stations has been abandoned, with no new timescale yet published. The Nuclear Waste Service (NWS) has said deferring decommissioning for 85 years from shutdown, which was previous policy, is not suitable for all the reactors because of their different ages and physical conditions. Decommissioning of some Magnox stations will have to be brought forward, the NWS has said. Attempts to speed up the decommissioning would only add to the growing bill,

Thomas said, which he estimated had increased to £34bn. ...

Four areas of the country are being considered for the GDF but no decision on where it will be located has yet been made. "While we are clear about the current legacy of waste which already exists, a GDF would have to handle additional waste from new facilities being developed," the NWS said. "The actual cost will ... depend on the number of new nuclear projects that the UK develops in future and any additional waste from

those stations." The cleanup of past nuclear waste will take more than 100 years, the NDA has said. Highlighting the challenges of the degrading and hazardous facilities, the authority said in its annual report that robots and drones were

increasingly being used to carry out site inspections.

Source: <https://www.theguardian.com/environment/2022/sep/23/uk-nuclear-waste-cleanup-decommissioning-power-stations>, 23 September 2022.



Centre for Air Power Studies

The Centre for Air Power Studies (CAPS) is an independent, non-profit think tank that undertakes and promotes policy-related research, study and discussion on defence and military issues, trends and developments in air power and space for civil and military purposes, as also related issues of national security. The Centre is headed by Air Marshal Anil Chopra, PVSM AVSM VM VSM (Retd).

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