



**OPINION – Matthew Kroenig, et al.**

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**To Decipher President Putin’s Nuclear Threats, Watch what He does—not What He Says**

Now that Russian President Putin has ordered his country’s nuclear forces on high alert for the first time since the end of the Cold War, this is a time for vigilance. No signs yet suggest the bulk of Russian nuclear forces actually are on high alert as part of Moscow’s “special regime of combat duty.” But what’s clear is that President Putin’s televised order last week was designed to tell the US, NATO, and the West to desist from supporting Ukraine—or risk unimaginable consequences. While Washington and its allies have been right to avoid overreaction so far, President Putin will likely continue his nuclear saber-rattling, and there is still a risk that he would use nuclear forces in Ukraine.

Although the announcement was an alarming development, it was also foreseeable. Nuclear signalling is a key part of Russia’s military strategy and its self-image as a world power. That the Kremlin is now showing signs of implementing its so-called escalate-to-deescalate strategy should come as no surprise to those familiar with Russian doctrine. The West must recognize this for what it is: a form of nuclear blackmail to which the US and its allies should not capitulate.

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For years, Moscow has made nuclear weapons a centrepiece of its military doctrine. In the event of a major war, the Russian Federation has signalled its willingness to threaten a “deescalatory” nuclear attack to achieve its objectives. To that end, President Putin has made it clear during crises that he might threaten (or, in extreme cases, execute) an early nonstrategic nuclear strike—hoping to end the confrontation on terms favourable to the Kremlin. Unlike the US, Russia has signalled willingness to take this step even if the crisis is of its own making. At the heart of this

strategy is Russia's arsenal of tactical, battlefield-ready nuclear warheads. Even more concerning, these Russian weapons outnumber the US' arsenal of similar weapons by a magnitude of almost ten to one.

***Deterrence and Dramatic Moves:***

This level of nuclear posturing has been visible in the past. During the 2014 invasion and illegal annexation of Crimea, President Putin bragged that he wanted to remind Russians (and, by extension, the West) that "Russia is one of the leading nuclear powers," and "it's best not to mess with us." Although he never raised the nuclear alert, he later said he'd considered doing so. Most likely, this heightened state of readiness—just like President Putin's explicit threats in his pre-invasion speech and the recent exercises of Russia's strategic forces—is designed to deter NATO from direct intervention in Ukraine. Both the US and the Alliance have shown no desire to enter the conflict directly, and President Putin's statement about a Russian nuclear alert is designed to make sure it stays that way.

President Putin issued nuclear threats because he has been surprised by the strength and unity of the US and NATO response and frustrated with Russia's slower-than-expected military advance. With these nuclear threats, he is trying to sow divisions within the Alliance and get the White House to back off. But Western moves to assist Ukraine have been dramatic. Germany has pledged to increase its defense spending by one hundred billion euros and, despite a previous ban on shipments of arms to an active war zone, Germany has, along with other EU members, announced weapons shipments. Even Turkey, which had previously shown reluctance to limit Russian movement through the Bosphorus and Dardanelles straits, is now willing to close the passages to some Russian

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warships. President Putin might be betting that actions speak louder than words, and that a nuclear alert could more effectively scare Western leaders into cutting their support for Ukraine.

Despite this nuclear blackmail, NATO should continue to stand strong. President Putin does not want to fight a nuclear war with the US any more than the United States wants to fight a nuclear war with Russia. The US is a nuclear superpower, and a nuclear exchange with the

Pentagon would result in unacceptable consequences for President Putin. Asked if the West should worry about the possibility of a nuclear war, US President Biden answered with an intelligent and resolute, "no." US Strategic Command echoed this sentiment, stating that the United States remains at an "appropriate posture" to deter Russia.

***Danger Signs:*** Still, it's important to take these threats seriously. Typically, Russia's tactical nuclear warheads are kept in centralized storage and warheads are not deployed on strategic bombers. This enhanced readiness alert could allow Russian forces to take steps such as mating their warheads to their bombers or the short- and medium-range missiles that have already been deployed close to the frontlines (such as the short-range SS-26 ballistic missiles or the medium-range S-400 air defense systems, both of which are dual-capable).

Last week's alert could also lead to some strategic delivery systems—such as SSBNs or ICBMs—being deployed or dispersed. SSBNs, which are nuclear-powered, can be flushed out of port into the open ocean; mobile ICBMs can drive away from their sheltered garrisons and move around Russia's large landmass. Reports this week of Russian exercises

involving submarine and mobile ICBM deployments fit this pattern. Still, these exercises are short of a full mobilization of Russia's nuclear forces.

**Game of Chicken?** Yet despite the incendiary rhetoric from President Putin this weekend, Moscow has not shown major indications of moving in this direction...a senior US Department of Defense official noted that there have not been any "noticeable muscle movements" that would indicate a heightened combat readiness for Russia's nuclear forces, and this week's exercises do not completely change that picture. Though the US and its allies should continue to carefully monitor such measures, they should see these threats for what they are—part of President Putin's pattern, as White House Press Secretary Psaki said, of "manufacturing threats that don't exist."

To be sure, if President Putin finds himself in an increasingly desperate wartime situation, he may consider the use of low-yield nuclear weapons on the battlefield in Ukraine to reverse his losses. Washington should begin developing a plan to deter this kind of attack in close consultation with NATO allies. But, at this early stage of the war, President Putin's nuclear alert is almost certainly an elaborate bluff meant to scare the US and its allies and partners. They should not give him the satisfaction. Instead, the West should remain resolute in its efforts to support the Ukrainian people in their fight for freedom.

Source: <https://www.atlanticcouncil.org/blogs/new-atlanticist/to-decipher-President-Putins-nuclear-threats-watch-what-he-does-not-what-he-says/>, 04 March 2022.

OPINION – Gordon Bare

**An Old Nuclear Strategy for a New Threat**

In the late 1970s, the US and NATO faced an emerging theatre nuclear imbalance with the Soviet deployment of SS-20 INF with nuclear warheads capable of striking Europe and U.S. forces deployed there. On top of the Soviet's massive superiority in conventional armoured forces with 20 divisions in the former East Germany as the spearhead of 100 plus divisions of the Warsaw Pact, these deployments made problematic NATO's strategy of flexible response. That doctrine called for forward deployed conventional forces, shorter range nuclear strike options, and ultimately supported by the U.S. strategic nuclear triad.

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**But the political problems were immense even for a NATO accepting of American leadership, inured to the Cold War, and with half today's membership. In the second half of the 1970s, America's armed forces and national morale were slowly recovering from Vietnam.**

This triple threat doctrine was adopted in 1961 by the Kennedy administration as the expansion of Soviet nuclear forces created a rough strategic nuclear parity which called into question the massive retaliation doctrine of the Eisenhower administration. The response conceived by the Carter administration and carried to fruition by the Reagan administration – a dual-track approach of force deployment coupled with an arms control offer – was a masterpiece of strategic planning and diplomatic coordination. The deployment consisted of 108 U.S. Army Pershing II ground-mobile ballistic missiles of 1100 mile range. The second component comprised 464 mobile U.S. Air Force Ground Launched Cruise Missiles (GLCMs) of 1730-mile range. Both systems carried adjustable yield nuclear warheads and had accuracy on the order of 30 meters.

The most significant challenge was not the technical hardware – the Pershings were essentially a nuclear version of a World War II-era German V-2 and the GLCMs a V-1 Buzz Bomb, with really smart guidance systems. But the political problems were immense even for a NATO

accepting of American leadership, inured to the Cold War, and with half today's membership. In the second half of the 1970s, America's armed forces and national morale were slowly recovering from Vietnam. Communism was on the march in Afghanistan and half a dozen African countries. Communist parties were close to entering government in several European countries. Stagflation and gas lines in both the U.S. and Europe sapped economic vitality. To his great credit, President Carter reversed the decline in the defense budget. But Carter had unilaterally canceled the so-called neutron bomb, which German Chancellor Schmidt had strongly supported over vehement opposition from many in his own party. The decision to deploy INF was, to a significant degree, compensation for that ill-judged action.

**The rationale for INF was more political than military. Existing U.S. nuclear forces, particularly invulnerable submarine-launched missiles, were superior in many respects. The essential issue, however, was whether Europe could really count on the U.S. to use its nuclear forces to repel a Soviet attack confined to Europe if nuclear forces were not stationed there. For the U.S, INF provided the possibility of nuclear deterrence without the added risk of firing missiles from U.S. soil.**

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Schmidt, and Helmut Kohl, who succeeded him in 1982, worked hard to overcome strong domestic disapproval and massive demonstrations at home and gain other European Allies' approval. Front line Germany was the key deployment location and the destination for the Pershings. Securing

agreement to deployments in other Allies, thereby spreading the risk and demonstrating Alliance solidarity to the German Bundestag and public, was critical to German approval. Italy, The Netherlands, Belgium and Britain eventually agreed to base GLCMs as well as Germany. Soviet Premier Brezhnev and his successor Yuri Andropov made opposition to deployment the central element of their foreign policy and launched a massive propaganda campaign exploiting anti-nuclear front groups and the popular "nuclear freeze" movement. To ease the pressure, President Reagan in 1981 proposed a "zero option" under which the U.S. would refrain from deploying its INF weapons with ranges between 500 and 5500 kilometers if the Soviet Union eliminated all its equivalent systems.

The Soviets rejected this proposal, and deployment went forward in December 1983 – the darkest days of the Cold War since the Cuban missile crisis. Russia suspended ongoing arms control negotiations but, as deployments proceeded, agreed to return in a new format. Some commentators in both the U.S. and Europe, including the arms control community, viewed the zero option as somehow asking too much of the Soviets, but Reagan stuck to his guns.

Finally, in December 1987, the sides agreed to the zero option and included shorter-range nuclear systems as well. Two factors made this possible. First, the successful American deployment of INF over strong opposition firmly established American and NATO credibility. Second, the succession of General Secretary Gorbachev brought in a leader intent on revitalizing the sagging Russian economy and willing to establish positive relations with the West. By 1991 the two sides had destroyed 2692 missiles under intrusive verification procedures, including on-site inspection.

By the mid-2000s, as President Putin cemented his absolute authority, Russia began a major rearmament program including the deployment, particularly to the Kaliningrad exclave, of multiple battalions of cruise missiles with prohibited range known as the SSC-8. Beginning in 2013, the Obama administration raised these violations in the Standing Verification Commission but declined to publicize them. Russia responded by falsely claiming U.S. deployments of anti-ballistic missiles were a violation. After continuing to pursue diplomacy for two years, the Trump administration declared Russia in material breach and in 2018 initiated the Treaty's withdrawal provision and requested funding for three missile systems with the previously prohibited ranges.

Today's challenges are as great as NATO faced in the depths of the Cold War. The Russian cyberattack on Estonia in 2007 resulted in little other than ritual condemnation by NATO. The Russian invasion of Georgia in 2008 resulted in only minor sanctions at the time by the U.S., quickly removed as part of the Obama administration's "reset" with Russia, and even fewer by the Europeans.

The 2014 Russian seizure of parts of Donbas and Luhansk and the annexation of Crimea resulted in modest sanctions, largely symbolic NATO deployments to Poland and the Baltics, energetic but ineffectual diplomacy by France and Germany, and no lethal military aid from the U.S. until inconsistently undertaken by the Trump administration. In the runup to the current

onslaught, military aid has been dribbled out, and economic sanctions were not substantial until the

third day of the invasion. Only with the actual invasion did the U.S. begin to supply Stinger anti-aircraft missiles, the most effective light weapon available. U.S. forces sent to Europe as the crisis yielded to war have not included nuclear systems.

After the annexation of Crimea in 2014, President Putin stated that he would have been prepared to use nuclear weapons if the

occupation had been militarily challenged. Russian nuclear doctrine explicitly permits the use of nuclear weapons, particularly at the tactical level. President Putin has now declared a high alert for his nuclear forces. Belarus may permit the deployment of Russian nuclear weapons on

its territory. The White House has essentially ignored President Putin's nuclear threats. There are currently an estimated 100 U.S. air deliverable nuclear weapons stored in five original members of NATO; none are in the front-line states. This is a token force, appropriate for the peaceful interlude of the first fifteen

years of the post-Cold War era.

While Russia violated the INF Treaty, the U.S. was distracted in the Middle East and European perceptions of an endless golden age of tranquillity and a general distaste for nuclear weapons, including by military men, combined to defer serious attention even as Russia violated the INF Treaty. NATO can no longer afford this lethargy in light of Russia's estimated 1000 to 2000 non-strategic warheads. What is called for now is the immediate deployment of additional dual-capable strike aircraft together with their

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nuclear armaments to forward airfields in Poland, likely the staunchest of the Allies, possibly to Romania, and to some number of the Baltics. Every effort should be made to get full NATO approval but not at the expense of delay. If necessary, a coalition of the willing centred on Poland should be constructed and open to other NATO members to join. The UK and France should be invited to forward deploy elements of their own national deterrents.

The second phase should be a U.S. announcement of immediate development of mobile ground-based missile systems with an explicit plan for forward deployment, possibly refurbished older systems, possibly new hypersonic systems. This should be done on the most accelerated time-scale possible as a major component of an expanded defense budget. It should be accompanied by an offer to forego deployment in the event of some acceptable peace agreement in Ukraine and removal of forward deployed nuclear forces by President Putin or his successor.

A sea change is underway in the American and European world view; its strength and duration are unknown. Partnership with Allies is important, but overemphasis can lead to paralysis or lowest common denominator outcomes. The steps outlined above would effectively recouple America's nuclear deterrent to European security and remove any doubt about the willingness of NATO to defend its eastern members. One should be clear that this entails risk to the United States. But so does inaction or wishful thinking that President Putin does not really intend to seek to reconstruct a European empire as he has said he will do. It worked once, it can again.

Source: [https://www.realcleardefense.com/articles/2022/03/09/an\\_old\\_nuclear\\_strategy\\_for\\_a\\_new\\_threat\\_820774.html](https://www.realcleardefense.com/articles/2022/03/09/an_old_nuclear_strategy_for_a_new_threat_820774.html), 09 March 2022.

**OPINION – John Ulliyot, Thomas D. Grant**

**The Lesson of Budapest? Hold On to Your Nuclear Weapons**

Powerful images of the Ukrainian people's unexpectedly stiff resistance to Russian invasion have shined a spotlight on the 1994 Budapest Memorandum. Under the agreement, Ukraine gave up the nuclear weapons on its territory. In exchange for this concession, Russia and the West pledged to respect the former Soviet state's sovereignty and territorial integrity. Then, in 2014, Russia seized Crimea, territory that was indisputably Ukrainian.

Naturally, Ukrainians wondered whether they had left themselves exposed by giving up their nuclear deterrent 20 years earlier. Today, as Russia aims to subjugate the entire country, that question is again on at the front of Ukrainians' minds. Many countries, including malign actors watching Russia's actions, will inevitably now seek their own nukes. President Putin is demonstrating that these weapons give an aggressor license to attack and that without them, a peaceful nation is at the aggressor's mercy.

Until now, there had been grounds for cautious optimism about nuclear non-proliferation. South Africa developed its own atomic bomb and had a

small stockpile but got rid of its arsenal voluntarily as it moved toward ending apartheid. Brazil and Argentina in the 1960s through the 1980s were in an escalating race to build their own atomic

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**Brazil and Argentina in the 1960s through the 1980s were in an escalating race to build their own atomic weapons, but both eventually agreed to stop. Libya ended its efforts to obtain weapons of mass destruction in the early 2000s, when it became clear that the security risks of continuing those efforts far outweighed any gains. Nuclear-weapons programs in Syria and Iraq were ended by forcible interventions.**

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Making clear to countries that might contemplate developing or holding nuclear weapons that they are safer without them has been essential to preventing proliferation. Until this week, only two countries since 1945 had faced an attack quite like Russia's against Ukraine today—that is, an attack aimed at the total eradication of their national sovereignty. Kuwait was saved by prompt, American-led international action against Iraq in 1991. Israel has saved itself from extinction numerous times.

Now Ukraine is locked in a battle for its existence. President Putin has repeatedly declared that Ukraine is not a state, and he insists on surrender terms that would leave the country as nothing more than an appendage to his regime. Because President Putin's forces have failed to achieve the quick and easy win in Ukraine that he expected, he hints at nuclear escalation. Whatever the endgame, Russia's invasion of Ukraine sends a powerful signal to all countries with unrealized nuclear ambitions: If you abandon your nuclear program and entrust your security to formal guarantees and conventional deterrence, you gamble with your future. If you give up your nukes, you give up your national security ace-in-the-hole. The U.S. and its allies have an enormous responsibility to get this new security challenge right.

Source: <https://www.wsj.com/articles/the-lesson-of-budapest-hold-on-to-your-nukes-ukraine->

*russia-invasion-nuclear-weapons-proliferation-11646257487, 02 March 2022.*

OPINION – John D. Maurer

### Maintaining America's Nuclear Deterrent

The ongoing Russian invasion of Ukraine and President Putin's recent nuclear threats against his neighbours are drawing renewed attention to the critical importance of nuclear weapons. President Putin's recent threats, while outrageous, are only the latest indicator that nuclear danger is increasing. China is expanding its missile forces and threatening its neighbours with nuclear attack, North Korea is testing ever more powerful missiles, and Iran is inching closer to nuclear weapons. Even traditional American security partners like Japan and South Korea are considering independent nuclear forces.

President Putin's invasion and subsequent nuclear threats continue an ominous global trend towards strategic competition and nuclear brinkmanship among the great powers. Against this backdrop, the Biden administration is preparing

to issue its Nuclear Posture Review (NPR)... Russia's invasion of Ukraine demonstrates the tremendous importance of getting nuclear-weapons issues right. Russia, China, and other hostile powers threaten America's allies and interests across the globe. America's nuclear arsenal will play a critical role in helping the country stand with its partners to deter aggression in the future.

The US must avoid provoking adversaries unnecessarily. Yet many current policy proposals designed to reduce the chances of inadvertent nuclear escalation would also undermine faith in American nuclear deterrence, making major

**Russia and Belarus are not alone in their aggressive and irresponsible posture either. The United States continues to exploit a questionable reading of the NPT that prevents states from "possessing" nuclear weapons but allows them to host those weapons. Five European states currently host approximately 100 U.S. nuclear weapons: Belgium, the Netherlands, Germany, Italy and Turkey — even though public opinion strongly opposes these deployments. Suddenly, the "unthinkable" is unfolding before our eyes. This is how a regional conflict turns into a global nightmare.**

conventional and nuclear conflict more likely. Deterrence and crisis management can only proceed in tandem. The new NPR should therefore eschew guidance that would weaken deterrence, and instead commit to stability in declaratory policy, continued force modernization, and arms-control policies rooted in and promoting American strength.

**Currently, the US has a policy of "calculated ambiguity," in which it threatens to use nuclear weapons in response to "extreme circumstances" including both nuclear and large-scale non-nuclear attacks. In recent years, the policy of calculated ambiguity has been criticized for being too broad.**

**No First Use:** One of the most anticipated elements of the NPR is a possible modification to American nuclear "declaratory policy," or the conditions under which the United States might employ nuclear weapons in a conflict. Declaratory policy is an important component of the review, since unlike force development or arms control (which take time to bring to fruition), the president could alter declaratory policy at any time. Currently, the US has a policy of "calculated ambiguity," in which it threatens to use nuclear weapons in response to "extreme circumstances" including both nuclear and large-scale non-nuclear attacks. In recent years, the policy of calculated ambiguity has been criticized for being too broad.

Then-candidate Biden campaigned on reducing the role of American nuclear weapons by adopting a declaratory policy of "sole use" or "no first use," in which the US would promise only to use nuclear weapons in retaliation for an adversary nuclear strike. No first use would narrow the cases in which the US would use nuclear weapons, forswearing their employment in response to mass-casualty conventional attacks or chemical and biological weapons. Proponents of no first use argue that the current ambiguous declaratory policy poses escalation risks, since adversaries might become

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convinced that the US would attack them in a crisis. A no-first-use pledge would reassure these adversaries and remove provocations that might drive them to violent behavior. Over time, proponents argue, a no-first-use policy would also contribute to greater normative restraint on the use and perhaps even possession of nuclear weapons.

All reasonable people share President Biden's desire to reduce the importance of nuclear weapons in world affairs, but unfortunately no first use is not the "quick fix" that its proponents claim. Such a policy would not even solve the narrow crisis-stability problem it seeks to address. Adversaries are unlikely to be reassured by a verbal promise to avoid nuclear use, especially one that could be reversed at any time. Nor does it contribute to America's ability to deter Russian and Chinese aggression, a challenge that is best met with the current policy of calculated ambiguity.

Finally, far from advancing the cause of normative restraint, an American no-first-use policy could contribute to nuclear proliferation. Many American partners would see no first use as a reduction in America's commitment to their security, which might drive them to seek independent nuclear forces. There are other areas where current nuclear declaratory policy might be improved, especially as it pertains to the relationship of nuclear weapons to emerging capabilities like cyber-attacks. But shifting entirely to a no-first-use declaratory policy during the worst security crisis of the post-Cold War era would be a terrible idea, especially for an administration that hopes to rally American partners and create broad coalitions to contain adversaries. Hopefully, the Biden administration has listened to American



partners' concerns and will avoid radically altering declaratory policy.

**Missile Modernization:** Another critical element of the Nuclear Posture Review will be the Biden administration's planning guidance for American strategic nuclear forces, especially the mix of delivery systems the US will invest in over the coming decades. Currently, the US deploys its strategic nuclear weapons on a "triad" of delivery vehicles: land-based intercontinental ballistic missiles, stealthy submarine-based ballistic missiles, and manned bombers armed with air-launched cruise missiles. After decades of delaying modernization, the American triad is a patchwork of older systems. As a result, the United States plans to replace virtually every missile, submarine, and bomber in its arsenal in the next few decades.

Funding for bombers and submarines enjoys bipartisan support. Modernizing the land-based missile force is more controversial, however, with prominent voices seeking to halt new development.

Some opponents of modernizing intercontinental ballistic missiles argue that the missiles are inherently dangerous. American intercontinental ballistic missiles, which are deployed in fixed underground silos, are more vulnerable to an adversary attack when compared to stealthy submarines and mobile bombers. Vulnerable missiles (so the argument goes) could create crisis instability, since an American president might be tempted into launching them precipitously to avoid their being destroyed on the ground. Others oppose modernizing intercontinental ballistic missiles on fiscal grounds. They argue that expensive nuclear modernization will undermine the funding of other security priorities, and that the United States could

continue to extend the life of its existing missiles at a much lower cost.

Faced with President Putin's recent nuclear threats, these arguments against intercontinental ballistic missile modernization ring hollow. As with declaratory policy, the US should recognize that crisis stability depends first and foremost on deterring premeditated and entirely intentional attacks on the US and its partners. In deterring adversary aggression, the threat of escalation to nuclear war is a feature of the American nuclear arsenal, not a bug. Rendering that threat credible is the best way to prevent opponents from approaching the threshold of conflict in the first place.

Intercontinental ballistic missiles contribute to the credibility of American nuclear deterrence. Their responsiveness to command is one of their critical features, since (unlike submarines and bombers) they are ready to execute their mission every hour of every day.

Furthermore, the relative vulnerability of any single missile is offset by their wide deployment across the Midwest. Unlike submarines or bombers, large portions of which could be disabled by attacks on a handful of ports and airbases, destroying the intercontinental ballistic missiles force would require adversaries to attack each of 400 silos with multiple weapons, creating an insurmountable "sponge" whose destruction would consume so many munitions as to leave an adversary even more vulnerable to American retaliation.

What's more, extending the life of existing missiles is neither fiscally realistic nor strategically desirable. Notional plans for life extension can only "save costs" over new missile procurement by

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cannibalizing existing missiles to support an ever shrinking and less reliable missile force. The argument is not, therefore, really between modernization and life extension, but between modernization and unilateral force reduction. Unilaterally reducing American missile forces at a time when China and Russia are racing to modernize their own forces and threatening their neighbours would weaken deterrence.

It would also, ironically, complicate the future arms-control negotiations through which safe reductions in intercontinental ballistic missiles could occur. Such negotiations will be all but impossible if Chinese and Russian leaders can enjoy the benefits of fewer American missiles without making any reductions in their own forces. Thus far, the Biden administration has signaled support for continued development of next-generation intercontinental ballistic missiles. Hopefully, the new Nuclear Posture Review will confirm this commitment to modernizing American strategic nuclear forces.

**Nonstrategic Nuclear Weapons:** A third important element of the upcoming NPR will be its approach to nonstrategic nuclear weapons, i.e., those weapons whose ranges are shorter than several thousand miles, and thus fall outside the traditional triad of strategic weapons. Currently, the US maintains relatively few nonstrategic weapons, especially compared to Russia's larger arsenal. The 2018 review called for the US to modestly expand its nonstrategic nuclear forces to deter adversaries from using small nuclear strikes within large conventional conflicts. Since then, the US has pursued several new capabilities, including a new submarine-launched cruise missile and a low-yield warhead for its submarine-launched ballistic missiles.

Nonstrategic nuclear weapons are one of the most controversial elements of nuclear strategic debates, and the upcoming review could very well

trim American nonstrategic nuclear programs. Counterintuitively, nonstrategic weapons attract such controversy because their limited range and yield makes their use that much easier to imagine. The overwhelming threat of strategic nuclear destruction is considered by many to be a reliable deterrent to large-scale nuclear use, but a country armed with a limited nuclear capability might use such a capability on the battlefield, in the hopes that its adversary would back down. Nonstrategic nuclear weapons thus pose a special risk to the norm of nuclear non-use. Furthermore, by launching a limited nuclear strike, a country might

set off a spiral of nuclear attack and counterattack that would result in a much larger and more destructive nuclear war. For these reasons, many experts opposed the 2018 NPR's emphasis on expanding American nonstrategic nuclear capabilities.

The real question, though, is how to prevent the use of nuclear weapons at all, not just by the US. The revisionist political objectives of American

adversaries, combined with America's still-significant conventional combat capabilities, are driving asymmetric responses to traditional American strengths, including the possibility of limited nuclear war. There is no silver bullet to meet this threat, and any solution will require some combination of normative pressure, explicit arms limitation, and broad-spectrum deterrence, including the ability to fight and prevail conventionally against an adversary employing limited nuclear strikes. Yet American leaders must avoid a situation where the destructive power of the strategic nuclear arsenal makes American deterrent threats incredible. Deterring limited nuclear use by adversaries during future crises requires the ability to threaten retaliation against limited nuclear use without employing the larger strategic nuclear force.

A small but robust nonstrategic nuclear capability can provide greater credibility to American nuclear

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threats across the spectrum, making limited nuclear use less likely in the first place. The right mix of capabilities to deter nonstrategic nuclear attack is a tricky subject, but it undoubtedly includes a modernized and diverse nonstrategic nuclear component. Submarine-based nonstrategic weapons could contribute to that deterrent mission in the same way that they do the strategic one: by creating redundancies in striking capability that make it harder for an adversary to avoid nuclear retaliation. Other types of weapons might feasibly achieve the same objective. If it decides against submarine-based nonstrategic nuclear weapons, the Biden administration should outline its own plan to diversify American capabilities. The new NPR provides an opportunity to build on the 2018 review's work in addressing this threat, rather than closing the door on this important discussion.

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**Arms Control:** A final point to watch in the upcoming NPR is its roadmap for future nuclear-arms-control negotiations to limit the Russian and Chinese arsenals. In a world of rising international tensions, next steps on arms control remain frustratingly elusive. Russia's cheating on legacy arms-control agreements had already put the regime under tremendous strain. Now, the Biden administration's budding "Strategic Stability Dialogue" is unlikely to survive Russia's invasion of Ukraine. China, in turn, has not shown any serious interest in arms control, pursuing rapid nuclear expansion instead. As a result, there is a very strong chance that when the New START expires in 2026, the nuclear arsenals of the great powers will be totally unconstrained for the first time since 1972.

**The breakdown of U.S.-Russian arms control is a significant loss for both countries. To date, the US has struggled to produce an actionable plan for restoring arms control dialogue with China and Russia.**

The breakdown of U.S.-Russian arms control is a significant loss for both countries. To date, the US has struggled to produce an actionable plan for restoring arms control dialogue with China and

Russia. Some experts now favour downplaying formal agreements in favour of looser policies aimed at reinforcing normative restraints on nuclear weapons, in the hopes of preserving at least portions of the previous arms control regime. The US should bolster normative restraints on the use of nuclear weapons, but norms alone will not move adversaries like China and Russia to curtail their nuclear ambitions.

In the long run, a "dual track" strategy represents the best way to create conditions under which rigorous, formal, and verifiable arms limitation could re-emerge. This was the approach that the US and its partners practiced during the Cold War, most famously in the leadup to the 1987 INF Treaty. Under the dual-track approach, the US and its partners committed to deploying robust nuclear forces for self-defense and deterrence,

while simultaneously negotiating nuclear-arms limitation with the Soviet Union. A dual-track approach leverages the paradoxical yet strong synergies between building arms and negotiating their

limitation, in which the construction of new weapons incentivizes adversary participation in negotiation, and the conclusion of favourable agreements improves the balance of forces. Success in arms limitation requires strong leadership, effective negotiation, fortuitous political circumstances, significant time, and a fair amount of luck. The dual-track approach is no panacea, but it does provide the basic structure under which rigorous, formal, and verifiable arms limitation could re-emerge over the longer term, in ways that purely normative constraints cannot. The NPR would do well to embrace it as the most promising way forward.

**Conclusion:** President Putin's unprovoked attack on Ukraine and his outrageous nuclear threats have done the US a great favour. President Putin

has thrown into sharp relief the tremendous threat to international security in the early 21st century posed by the aggressive and volent designs of authoritarian regimes. International security will depend first and foremost on deterring these hostile actors in partnership with our allies. Policies aimed at improving crisis stability that weaken deterrence will therefore be self-defeating, achieving neither stability nor security. Since our adversaries are determined to leverage their nuclear arsenals in the pursuit of their goals, any program to deter and contain them will require a recommitment to a strong American nuclear deterrent. The Nuclear Posture Review should reflect this reality: This means taking unapologetic steps to bolster deterrence through robust nuclear modernization, reassuring partners by demonstrating Washington's commitment to their defense, and setting out an ambitious plan to build future arms control by negotiating from strength.

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**Today, Israel's bomb "remains in the basement." To maximize the efficacy of this still-ambiguous nuclear doctrine, the country's nuclear weapons and strategy should remain conspicuously relevant deterrents against a fully broad spectrum of possible military harms. In its most refined expression, this doctrine would include nuclear deterrence of certain non-nuclear enemy threats and also be recognizably "seamless."**

certain subtler components of national strategic power. Among other things, these less obvious components include more evident coverage of broad-spectrum enemy threats and corollary perceptions of threat credibility. Today, Israel's bomb "remains in the basement." To maximize the efficacy of this still-ambiguous nuclear doctrine, the country's nuclear weapons and strategy should remain conspicuously relevant deterrents against a fully broad spectrum of possible military harms. In its most refined expression, this doctrine would include nuclear deterrence of certain non-nuclear enemy threats and also be recognizably "seamless."

Regarding such inherently complex calculations, a great deal would depend upon presumed enemy rationality and on the variable plausibility of issuing nuclear threats against non-nuclear attacks. Meaningfully, this critical dependence would apply both to assorted enemy first strike attacks and to various retaliatory or counter-retaliatory strikes. But how to apply with a view to both strategy and international law? Pertinent insights must sometimes be counter-intuitive. It is unreasonable to argue that Israel's nuclear deterrence posture should always parallel or at least closely mirror a particular enemy's expected level of military destructiveness. A logical place for Jerusalem's nuclear strategists to begin here would be within the ambit of those enemy threats that are non-nuclear but nonetheless unconventional. Most obvious in this regard would be credible enemy threats of biological warfare and/or biological terror attack. Though non-nuclear by definition, biological warfare attacks could still produce grievously

Source: <https://warontherocks.com/2022/03/maintaining-americas-nuclear-deterrent/>, 10 March 2022.

**OPINION – Louis René Beres**

**Israeli Nuclear Deterrence Against Broad Spectrum Attacks: Strategic and Legal Considerations**

**Starting Point: Defining the Spectrum of Israel's Deterrent Capacity:** From the beginning, Israel's military defense policies have emphasized technological innovation and purposeful destructiveness. Though such an emphasis has never been incorrect, it has more-or-less ignored

injurious or near-existential event outcomes for Israel. These outcomes would likely “spill over” more-or-less obviously into United States national security concerns.

What about enemy conventional threats that would involve neither nuclear nor biological harms, but were still potentially massive enough to produce existential or near-existential injury to Israel? In such all-too-credible cases, a prospective conventional aggressor could reasonably calculate that Jerusalem would make good on at least some of its decipherable nuclear threats. Plausibly, Israel’s nuclear deterrent threat credibility could prove dependent upon certain antecedent doctrinal shifts from “deliberate nuclear ambiguity” (the so-called “bomb in the basement”) to “nuclear disclosure.”

**Deliberate Nuclear Ambiguity and Non-Rationality:** In the absence of any prior shifts away from “deliberate

nuclear ambiguity,” a potential aggressor state might not understand or accept that Israel maintains a broad array of differentiable nuclear retaliatory responses. Without such an array, Israeli nuclear deterrence could be more-or-less severely diminished. Additionally, any such diminution could impact certain vital US national security processes and/or objectives.

In part, at least, the nuclear deterrence advantages for Israel of moving from traditional nuclear ambiguity to selective nuclear disclosure would lie in the signal(s) it could “telegraph” to various non-nuclear foes. This signal would warn such adversaries (e.g., Iran) that Jerusalem was not limited to launching retaliations that employ only massive or disproportionate levels of nuclear force. A still-timely Israeli move from

nuclear ambiguity to nuclear disclosure – as long as such a doctrinal move were suitably nuanced and plainly incremental – could improve Israel’s prospects for deterring large-scale conventional attacks. It would accomplish this law-maximizing goal by allowing for “tailored” nuclear threats.

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After America’s defeat in Afghanistan, a not-yet-nuclear Iran might expect (rightly or wrongly) a militarily less formidable Israel. Even if Israel’s state enemies were to remain rational, there will still arise certain attendant dangers of an unintentional or inadvertent nuclear war. Such existential dangers could be produced by enemy hacking operations, computer malfunction (an accidental nuclear war) or decision-making miscalculation (whether by the enemy, by Israel itself or by both/all parties.) In the portentous third scenario, variously damaging synergies could surface that would prove difficult or even impossible to halt or reverse.

**At present, Israel has no regional nuclear adversaries, but the steady approach of an operationally nuclear Iran could encourage rapid nuclearization among such Sunni Arab states as Saudi Arabia or Egypt. Also notable, following the turnover of Afghanistan to Taliban and possibly other Islamist forces, non-Arab Pakistan will likely become a more direct adversary of the US and Israel.**

**The Abraham Accords and Emergent Islamist Foes:** How, Israeli nuclear strategists should competently inquire, will the Trump-era “Abraham Accords” and America’s loss in Afghanistan affect such dangers? Have these Accords given Israel any tangible reasons for greater security confidence? Could they really enhance “peace” where the included parties were never actual adversaries? And have former President Trump’s agreements actually hardened the Middle East Sunni-Shia dualism, thus making Iran a still-greater existential threat to Israel (a hardening with tangible implications for US defense policy)? At present, Israel has no regional nuclear adversaries, but the steady approach of an operationally nuclear Iran could encourage rapid nuclearization among such Sunni Arab states as Saudi Arabia or Egypt. Also

notable, following the turnover of Afghanistan to Taliban and possibly other Islamist forces, non-Arab Pakistan will likely become a more direct adversary of the US and Israel.

This transformation could emphasize sub-state terror surrogates. Not to be forgotten, the Pakistani jihadist group Lashkar-e-Taiba carried out the large-scale Mumbai, India attack in 2008. On September 1, 2021, Israel officially moved into the U.S. Central Command's (CENTCOM) area of responsibility. After taking over from European Command (EUCOM), Jerusalem likely sees its new role as defending U.S. and Israeli interests simultaneously, primarily by countering Iran within CENTCOM's designated sphere of authority. This countervailing power would be directed at Iran-backed anti-Israel insurgents (especially Hezbollah and Houthi) and at a quickly expanding Iranian nuclearization.

***The Question of "Palestine" and "Assured Destruction"***: There is more. Salient issues of Israeli nuclear deterrence against non-nuclear threats could be impacted by Palestinian statehood. Once Palestine came into de jure or formal existence as a state, any shift in Israel's nuclear strategy from deliberate ambiguity to nuclear disclosure could reduce Jerusalem's incentive to preempt against Iran. But this expectation could make strategic sense only if Israel were first made to believe that its nuclear deterrent threat was now being taken with abundant seriousness by Iran. Should Israel opt for more open nuclear deterrence based on an "assured destruction" ("counter value") strategy, Jerusalem would likely choose a small number of relatively inaccurate nuclear weapons.

A "counterforce" strategy, on the other hand, would require a larger number of relatively

accurate weapons, ordnance that could destroy even the most hardened enemy targets. To a certain presumptive extent, "going for counterforce" could render all Israeli nuclear threats more credible. This conclusion would rest largely on the untested assumption that because the effects of nuclear war-fighting nuclear weapons would be more precise and controlled, they would be more amenable to actual use. By definition all such nuclear choices will affect international legal standards of permissible weapons and belligerent conduct.

**Credible nuclear deterrence, essential to Israeli security and survival in a world made more dangerous by the creation of Palestine, would require "usable" nuclear weapons. If, after all, these weapons were patently inappropriate for any reasonable objective, they likely would not deter. At the same time, the more usable such nuclear weapons become in order to enhance nuclear deterrence, the more likely it becomes that they will someday actually be fired.**

In making its nuclear choices, Israel will have to confront a paradox. Credible nuclear deterrence, essential to Israeli security and survival in a world made more dangerous by the creation of Palestine, would require "usable" nuclear weapons. If, after all, these weapons were patently inappropriate for any

reasonable objective, they likely would not deter. At the same time, the more usable such nuclear weapons become in order to enhance nuclear deterrence, the more likely it becomes that they will someday actually be fired. While this paradox would seem to suggest the rationality of Israel deploying only the least-harmful forms of usable nuclear weapons, the fact that there could likely be no coordinated agreements with enemy states on deployable nuclear weapons points to a different conclusion.

Israel, if confronted by a new state of Palestine, would be well-advised to do everything possible to prevent the appearance of any Arab and/or Iranian nuclear powers, including calculably cost-effective non-nuclear preemptions. Under any and all conditions, Israel would require a believable (hence usable) nuclear deterrent, one that could be employed against non-nuclear threats without igniting "Armageddon" for regional belligerents. In the worst-case scenario, Israeli nuclear weapons could also serve damage-limiting military

purposes against Iranian weapons (both nuclear and non-nuclear) should nuclear deterrence fail.

Among other serious impacts, the creation of a sovereign Palestine could have dramatic effects on Israel's forthcoming decisions on "anticipatory self-defense." Israel's own presumptive nuclear weapons status and strategy would strongly influence this decision. More precisely, should Jerusalem determine that Israel's nuclear weapons could support preemption by deterring hostile target states from retaliating, this status might encourage certain Israeli defensive first strikes. If, on the other hand, Jerusalem were to calculate that these target states would be unimpressed by any threats of an Israeli nuclear counter-retaliation, this status would likely not encourage such Israeli defensive attacks.

The prospect of non-rational judgments in the wider Middle East region is always plausible, especially as the influence of Islamist/Jihadist ideology remains determinative among Iranian decisional elites. Still, various dangers of a nuclear conflict will obtain even among fully rational adversaries, dangers of both a deliberate and inadvertent nuclear war. Always, therefore, Israel's nuclear deterrent must remain oriented toward dominating escalatory processes at multiple and intersecting levels of conventional and unconventional enemy threats. Whatever happens in direct or indirect consequence of this recommended orientation, impacts will be discernible in certain US defense and foreign policies. This is the case whether or not a "formal" state of war obtains.

**Last Words: "I Believe":** In the end, the most persuasive forms of military power on planet earth are not guns, battleships or missiles. They are believable promises of "life everlasting" or immortality. Though "an immortal person is a contradiction in terms," what is most utterly

important to human beings is always obtaining power over death. Ultimately, Israel's most compelling forms of strategic influence will derive not from high technology weaponry per se (always a preoccupation in Tel-Aviv), but from the incomparable advantages of intellectual power. These overriding advantages must be explored and compared according to two very specific but overlapping criteria of law and strategy. In certain plausible circumstances, these complex expectations would not be "in synch" with each other, but contradictory. Here, inter alia, underlying "mind over mind" challenges to Israel would become excruciatingly difficult. The

United States, after all, incorporates humanitarian international law into its own domestic law.

"Deterrence," as we learned early on from Herman Kahn's 'Thinking About the Unthinkable in the 1980s,' "is not just a matter of military capabilities." It is deeply concerned with variously corresponding "perceptions of credibility." In the matter of employing nuclear deterrent threats against diverse non-nuclear attacks, virtually all pertinent scenarios would be sui generis and starkly complex. Though Kahn supplied earlier generations of nuclear strategists with the analytically useful metaphor of an "escalation ladder," he also acknowledged that nuclear "players" could sometimes "leapfrog" on this ladder. What happens then, especially if the out-of-order action is counter-intuitive?

A final observation is needed: Israel's nuclear posture and strategy will generally affect security policies of the United States. This impact obtains whether Jerusalem's primary existential disposition is oriented toward nuclear or non-nuclear attack scenarios. Such scenarios are not

**In the matter of employing nuclear deterrent threats against diverse non-nuclear attacks, virtually all pertinent scenarios would be sui generis and starkly complex. Though Kahn supplied earlier generations of nuclear strategists with the analytically useful metaphor of an "escalation ladder," he also acknowledged that nuclear "players" could sometimes "leapfrog" on this ladder. What happens then, especially if the out-of-order action is counter-intuitive.**

necessarily exclusive of one another; conventional conflicts could sometime escalate into unconventional ones. Regarding what can be learned from these disciplined musings, Israeli military planners and decision-makers should soon prepare to support a conspicuously full-spectrum nuclear deterrence option. "Deterrence is not just a matter of military capabilities" we learned from seminal nuclear strategist Herman Kahn. "It has a great deal to do with perceptions of credibility."

But how should Jerusalem take optimal steps to enhance such indispensable perceptions? Among other things, the correct answer lies in a carefully calculated shift away from deliberate nuclear ambiguity to one of selective nuclear disclosure. The unmistakable point here would not be to convince pertinent adversaries of Israel's basic nuclear capacities (these are already well recognized), but rather the amenability of these destructive capacities to variously calibrated and nuanced military applications.

In historical terms, there is considerable irony to any such expectation. Soon, it will be important to convince state enemies that Israel's nuclear military forces are not too destructive or indiscriminately destructive for operational use. Now, in conformance with this seemingly eccentric task, Israel's intelligence communities will sometimes need to focus less on keeping nuclear secrets (the traditional intelligence branch responsibility in such circumstances) than on supporting nuclear disclosures. Inevitably, providing such support will represent a daunting intellectual task, not just a political one, and will call less for traditional policies of sotto voce communication than for selective national policies of intentional disclosure. Inter alia, in these processes, Israel's intelligence community goals will extend far beyond any "classical" obligation

to safeguard military secrets to a unique responsibility for rendering strategic nuclear policy clarifications.

Fulfilling these complex goals ought never to be considered a matter of ordinary politics or "common sense." In absolutely all cases, these represent deeply challenging issues of "mind over mind," theory-based issues that are simultaneously ongoing or foreseeable military operation elsewhere. In this connection, for example, a conflict involving nuclear weapons on the Korean peninsula or in the Ukraine could have very tangible reverberations in Jerusalem and Washington. World politics and world law must

always be assessed as a system. Should there ever be any nuclear conflict activity involving North Korea or Ukraine, Israel and the United States would be impacted in several immediately meaningful ways.

In the final analysis, we may add to Herman Kahn's original 1984 clarification, deterrence is not just a

matter of military capabilities or perceptions of credibility. It is also a matter of binding and universal international law. For Israeli nuclear deterrence, strategic and legal considerations are likely overlapping, inter-penetrating and mutually reinforcing. Neither set of concerns should ever be examined in isolation from the other.

Source: <https://www.jurist.org/commentary/2022/03/louis-rene-beres-israeli-nuclear-deterrence-against-broad-spectrum-attacks/>, 09 March 2022.

## NUCLEAR STRATEGY

### CHINA

#### China Boosting Nuke Stockpile to be on Par with US, Russia, Says Ex-Diplomat Jayant Prasad

China is increasing its nuclear weapon stockpile and delivery systems rapidly with the goal to get strategically on a par with the US and Russia,



veteran diplomat Jayant Prasad said March 9... “China is augmenting its nuclear weapon and delivery systems very rapidly.... It is trying to become a strategic co-equal of the US and of Russia.” ...Prasad expressed concern over the possibility of China sharing nuclear material and technologies with Pakistan, and the fact that Beijing is building facilities on the Makran coast in Pakistan and the country’s naval bases, while also having a base in Djibouti, in the Horn of Africa. China has the third largest nuclear weapons stockpile after the US and Russia. It officially operates about 20 silos for the DF-5 missile, an ICBM, but the discovery of a second missile field in July 2021 indicated it was making space for 230 new silos. “This effectively raises Chinese ICBM capacity — if all the silos are filled with ICBMs — more than 11-fold,” said Prasad. In November 2021, a US Defense Department report said China has plans to have at least 1,000 warheads by 2030, exceeding the pace and size the department projected in 2020.

**Beijing is building facilities on the Makran coast in Pakistan and the country’s naval bases, while also having a base in Djibouti, in the Horn of Africa. China has the third largest nuclear weapons stockpile after the US and Russia.**

**‘India Needs to Effectively Use Andaman & Nicobar’:**

On the issue of submarine warfare, the former diplomat said there are regional anti-submarine warfare assets in place, including those of India, that track Chinese nuclear submarines. “They’re easily trackable when they come through the South China Sea into the Indian Ocean. China started sending in their nuclear submarines into the Indian Ocean in 2014 and we have kept track of them”.... He added that, as counter-measures, India must first improve NC3 and ISR systems — the early warning intelligence, surveillance and reconnaissance capacity. “We must augment our interdiction capacity by using the Andaman and Nicobar Islands more effectively”....

**‘Strategy Moving Towards Launch on Warning’:**

China became the first nation to propose and pledge a NFU policy when it first gained nuclear capabilities in 1964, and other countries such as India follow this policy too. However, experts...said China’s rapid drive to expand its nuclear arsenal shows a pivot towards a ‘launch on warning’ strategy — launching a retaliatory nuclear-weapon strike against an opponent as soon as an incoming enemy missile is detected....

*Source: <https://theprint.in/diplomacy/china-boosting-nuke-stockpile-to-be-on-par-with-us-russia-says-ex-diplomat-jayant-prasad/865963/>, 09 March 2022.*

**CHINA–RUSSIA**

**US Nuclear Forces Chief ‘Very Concerned’ by Russia-China Cooperation**

In the wake of Russia and China’s strengthened ties, the U.S. admiral who oversees America’s nuclear forces said on March 8 he is “very concerned” about potential “cooperative aggression” from the two nations. As China refuses to condemn Russia’s invasion of Ukraine, and a day after China’s foreign minister called Russia his country’s “most important strategic partner,” U.S. Strategic Command’s chief, Adm. Chas Richard, said his organization must have plans ready for scenarios in which the two collaborate. “I’m very concerned about what opportunistic aggression looks like. I’m worried about what cooperative aggression looks like”... adding that his command’s job includes deterring them both.

**China’s rapid drive to expand its nuclear arsenal shows a pivot towards a ‘launch on warning’ strategy — launching a retaliatory nuclear-weapon strike against an opponent as soon as an incoming enemy missile is detected....**

Alluding to Russia and China’s growing arsenals and to Russia’s recent nuclear saber rattling, Richard said the U.S. must further re-examine the “capability, capacity and posture” of America’s strategic forces. He suggested all of these would

have to be reassessed continuously. "We do not know the endpoints of where either of those other two are going either in capability or capacity. We're just now starting to work out what three-party stability looks like, what three-party deterrence dynamic works out".... "On top of that, we are learning a number of lessons in real time on how actual crisis deterrence works. It is different from the steady-state deterrence that most of us have experienced." Richard in September 2021 formally declared that China has achieved strategic breakout, which means a major expansion of its military capabilities that requires the U.S. military to react. In testimony, he said Beijing intends to have at least 1,000 warheads by 2030, exceeding previous Pentagon estimates and that its goals are unclear. "I don't know that we have any idea of what the endpoint and/or speed".... "When I first testified here, we were questioning whether or not China would be able to double that stockpile by the end of the decade. They're actually very close to doing it on my watch, and I think we need to factor that into our calculations as we think through what we need to defend ourselves."

...Richard used the hearing to reiterate his advocacy for nuclear modernization, and specifically the Minuteman

III intercontinental ballistic missile's planned replacement, known as the Ground Based Strategic Deterrent....Richard declined to say whether President Putin's placement of Russian nuclear forces on "special combat readiness," triggered a Russian force posture change, but said in a separate context U.S. and Russia nuclear deconfliction hotlines are "a long way" from being needed...."The scenarios that we are seeing right now potential escalation, limited nuclear use in a conventional aggression scenario StratCom has been preparing for this for years along with other combatant commands".... "We have new analysis that we're using. We got criticized for that. We got told that it was highly improbable or somehow self-serving for us to think our way through this, but we ignored that such that to this point nothing

has happened that we didn't anticipate, we hadn't thought about and hadn't prepared for,"

*Source: <https://www.defensenews.com/pentagon/2022/03/08/us-nuclear-forces-chief-very-concerned-by-russia-china-cooperation/>, 09 March 2022.*

## **GERMANY**

### **Germany to Buy US-Made F-35s Capable of Carrying Nuclear Weapons**

Germany will replace some of its ageing Tornado bomber jets with United States-made F-35A Lightning II aircraft capable of carrying nuclear weapons, according to the country's defence minister. Defence minister Christine Lambrecht said on Monday that Germany will also upgrade its Eurofighter Typhoon fighter jets for electronic warfare – a capability that is also currently fulfilled by the Tornado jets.

The Eurofighter will be replaced beginning in 2040 with the Future Combat Air System, or FCAS, that's being jointly developed with France and Spain, she said. Germany's air force (Luftwaffe) commander, Ingo Gerhartz, said the

Russian war in Ukraine made it necessary to choose Lockheed Martin's F-35s. Previously, the government had considered replacing the Luftwaffe's Tornados with a mix of different US and European-made aircraft. ...

*Source: <https://www.aljazeera.com/news/2022/3/15/germany-to-buy-us-made-f-35s-capable-of-carrying-nuclear-weapons>, 15 March 2022.*

## **JAPAN–USA**

### **Japan Hosting US Nuclear Weapons Completely Unacceptable, Says PM Kishida**

Japanese PM Kishida has rejected the suggestion that Japan enter into a nuclear sharing arrangement with the US as the Ukraine-Russia

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war in Eastern Europe rages on. A nuclear sharing arrangement is a part of the NATO's nuclear deterrence policy that allows for member countries without nuclear weapons of their own to be involved in delivering nuclear weapons in the event of their use, including from their territory.

On February 28, PM Kishida said, "It [hosting US nuclear weapons] is completely unacceptable given our country's stance of maintaining the three non-nuclear principles." He reaffirmed that Tokyo would not be entering into a nuclear sharing deal with the US. Japan has stuck by its core principles of not producing, possessing or allowing nuclear weapons on its territory since World War II when devastating bombs destroyed Hiroshima and Nagasaki. PM Kishida's remarks on February 28 came in response to former prime minister Shinzo Abe's suggesting that Japan start discussing a nuclear sharing agreement with the US similar to arrangements among NATO nations....

Source: <https://www.indiatoday.in/world/russia-ukraine-war/story/japan-hosting-us-nuclear-weapons-unacceptable-pm-kishida-ukraine-russia-war-news-1919099-2022-03-01>, 01 March 2022.

## **RUSSIA**

### **Will Russia Use Nuclear Weapons in Ukraine? President Putin's Nuclear Strategy Explained after Deterrent Put on Alert**

The world may have edged another step closer on February 27 to the previously unthinkable prospect of strategic nuclear weapons being used during armed conflict, something that has not been seen since 1945. President Putin ordered Russia's nuclear deterrent forces to raise

**Tokyo would not be entering into a nuclear sharing deal with the US. Japan has stuck by its core principles of not producing, possessing or allowing nuclear weapons on its territory since World War II when devastating bombs destroyed Hiroshima and Nagasaki.**

their alert status to the highest level. It is also the first time strategic nuclear weapons have been readied since the Yom Kippur war in 1973. Russia's Defence Minister Shoigu said that the West had taken "unfriendly actions" towards Russia and that Western sanctions were "illegitimate". As a result, Russia had placed its deterrence forces on "a special regime of duty". The move was immediately condemned by the US as an "unacceptable escalation", while Jens Stoltenberg, NATO's Secretary General, called President Putin's nuclear alert order "dangerous rhetoric" that had made the world "much more dangerous".

While experts are unsure exactly what this new alert levels signals, most likely it means that the crews and infrastructure which control strategic missiles, submarines and bombers will move into a higher state of preparedness. "We've never heard announcements like that before," according to Pavel Podvig.... "My best guess is that he was referring to the way the command-and-control systems operate. "Normally, under the day-to-day

**Russia's Defence Minister Shoigu said that the West had taken "unfriendly actions" towards Russia and that Western sanctions were "illegitimate". As a result, Russia had placed its deterrence forces on "a special regime of duty". The move was immediately condemned by the US as an "unacceptable escalation", while Jens Stoltenberg, NATO's Secretary General, called President Putin's nuclear alert order "dangerous rhetoric" that had made the world "much more dangerous".**

status, the system is not capable of transmitting orders to launch nuclear weapons" .... "But you can bring it into the status where it is capable."

Naturally such actions have prompted concern that President Putin might be willing to push the nuclear button. When it comes to nuclear weapons, there is an important distinction to note – between strategic and non-strategic nuclear arms. Strategic nuclear

weapons are those with which most of us are probably more familiar: weapons to be used on targets far away and which can wreak horrific

destruction across enormous areas...non-strategic nuclear weapons – or tactical nuclear weapons – are generally for use in battlefield situations, and at far closer range. Though often smaller than strategic nuclear weapons, they can still wreak enormous destruction and would be more likely to be used inside Ukraine than strategic weapons. Tobias Ellwood, chairman of the Commons Defence Select Committee, has admitted that in the “worst-case scenario” President Putin could deploy tactical nuclear weapons on the battlefield.

Experts and politicians have pointed out that President Putin’s threat might simply be a means to distract people from Russia’s initial failures in Ukraine. UK’s Defence Secretary Wallace said...President Putin was engaged in a “battle of rhetoric” by trying to “remind the world” he had a deterrent....Some experts agree that President Putin, by raising the nuclear deterrence, is revealing his own weakness and insecurity....Many have pointed out that, after previous successes invading Georgia and Crimea, when there was little pushback from the West, President Putin seems to have wildly miscalculated his invasion of Ukraine. Experts point to his isolation over the past two years of the pandemic, even going so far as to accuse him of acting out of desperation or even madness. ...

Source: <https://inews.co.uk/news/russia-nuclear-weapons-ukraine-President-Putin-strategy-deterrent-forces-high-alert-explained-1488495>, 28 February 2022.

## Russia Accused of Nuclear Terrorism as World Looks on Aghast

President Putin was denounced for his “recklessness” after Ukraine said that Russian forces attacked a nuclear power plant, raising the stakes in the war and prompting calls for an even more robust response to the Kremlin’s aggression. NATO foreign ministers and European leaders condemned what Kyiv described as an assault on the Zaporizhzhia facility in southeast Ukraine, Europe’s largest atomic generator. If confirmed, it would be the first time an operating nuclear plant has been deliberately targeted by

military forces. “The reckless actions leading to damage to the Zaporizhzhia nuclear plant were despicable,” U.K. PM Johnson and French President Macron said in a statement after holding talks. Both nations pledged further humanitarian support “in the face of President Putin’s increasingly savage and evil actions.” German

Foreign Minister Baerbock said that “all channels” had been used to communicate to Russia that it shouldn’t commit such an act. “There are rules in this world, even for the Russian president”....

Russia’s Defense Ministry said that its forces have held the nuclear plant since Feb. 28 and accused Ukraine of a “provocation.” While Ukraine’s nuclear

agency said that radiation levels at the site were normal, stocks dropped and commodities pushed higher as investors digested the implications of such an attack for the course of the war. Troops were close to a second nuclear plant, U.S. Ambassador to the UN...told the Security Council

**In today’s increasingly contested operational environment, the United States must revamp its space force design and warfighting strategy so it can conduct maneuver warfare in orbit and beyond. Doing so would enable the U.S. military to take deliberate measures to deter, avoid, and defeat threats—to field an active defense in space—instead of simply allowing its passive constellations to absorb attacks until they fail.**

**Space Nuclear Thermal Propulsion (SNTF) is a high-thrust system that heats hydrogen as a propellant. It is the nuclear equivalent of a chemical rocket but more efficient, enabling the spacecraft to fly longer missions with less propellant. Space Nuclear Electric Propulsion (SNEP) is a low-thrust alternative that consists of a nuclear reactor to generate electricity to power the spacecraft and a slow, but fuel-efficient propulsion system.**

on March 4, without naming the facility. "Russian forces are now 20 miles, and closing, from Ukraine's second largest nuclear facility".... The South Ukraine facility near Yuzhnoukrainsk is the country's second largest plant.... Russia's actions were roundly criticized on March 4 at the Security Council, with a further meeting to convene on March 7 and discuss a resolution calling for unhindered humanitarian access in Ukraine. With more than a million people fleeing the fighting to neighbouring countries, efforts are underway to try and establish humanitarian corridors to allow safe passage.

The Zaporizhzhia incident adds to a growing list of allegations against Russia as it presses its war against Ukraine...according to Petro Kotin, the head of Ukraine's Energoatom regulator, about 100 Russian military vehicles broke through a roadblock near the nuclear plant, entering the city of Energodar, and began to fire on the facility. A shell hit the plant's first production unit, which was undergoing maintenance.

**Security Crisis:** The second and third units were put into safe "cold mode" and the fourth remains in operation, as it's at the most distance from the shelling zone...according to Energoatom's latest information, radioactivity levels at the plant are within the norm. "If there were to be any emissions, they would go toward Crimea and the Black Sea" ...."Most would be in Ukraine, but some could go to Russia, depending on how the winds turn." The incident marked a further deterioration in the conflict, which has seen Russia accused of deliberately targeting civilians as it tries to remove the leadership in Kyiv and install a pro-Russia government, triggering one of the worst security crisis in Europe since World War II. It's "a crime, nuclear terrorism" Lithuanian President Nauseda said...calling on the EU to give up gas and oil imports from Russia and disconnect all the nation's banks from the SWIFT financial system

**Unlike nuclear weapons, SNTP reactors are essentially a heater; they contain no explosives and remain in a "cold, subcritical state" until the reactor is turned on for a prolonged period in space. The relatively low radioactivity of un-fissioned Uranium-235 is comparable to radioactivity found in natural sources on Earth such as soil, rocks, and water.**

in response. "This goes far beyond the behavior what we call normal human beings"....

Even as the death toll mounts, the nuclear allegations shocked an already horrified world. President Biden spoke with Ukrainian President Zelenskiy as reports of the Zaporizhzhia attack emerged. "Europe must wake up," Zelenskiy said.... "Only urgent Europe actions can stop Russian troops." Russia already controls Ukraine's defunct Chernobyl nuclear facility...and its forces had been closing in on Zaporizhzhia for days. The IAEA has voiced safety concerns, acknowledging the unprecedented nature of combat taking place in and around operating nuclear reactors.

Source: <https://www.bloomberg.com/news/articles/2022-03-04/russia-accused-of-nuclear-terrorism-as-world-looks-on-aghast>, 04 March 2022.

**BALLISTIC MISSILE DEFENCE**

**USA**

**US Deploys Two Patriot Missile Defense Batteries in Poland: Pentagon**

The US has sent two Patriot surface-to-air missile batteries to Poland to defend against any "potential threat" to US or NATO forces in the alliance's territory... as Russia's war in Ukraine grinds on. The missile batteries, normally stationed in Germany, were repositioned at Poland's "invitation" .... The move is seen as reflecting growing fear that a Russian missile could – deliberately or not – cross the border from neighbouring Ukraine into NATO member Poland.... US Vice President Kamala Harris was headed to Poland on March 9 to continue how to discuss how to best provide "military assistance" for Ukraine.

The Pentagon official said the Patriot missiles were sent to Poland as "a purely defensive deployment being conducted proactively to

counter any potential threat to US and Allied forces in NATO territory"..."100 percent in keeping with the seriousness with which we take our Article 5 commitments" to defend fellow members of the transatlantic alliance. The official did not specify where in Poland the batteries were now based, nor their operational status — saying only that they were "manned." The Patriot surface-to-air missile defense system is capable of countering and destroying ballistic missiles, cruise missiles or aircraft.

Source: <https://www.ndtv.com/world-news/us-deploys-two-patriot-missile-defense-batteries-in-poland-pentagon-2813788>, 09 March 2022.

**40 nuclear power plants in 33 countries supplied 2553 TWh of electricity in 2020, about 10 percent of the world's energy consumption. Countries such as China, Russia, and India are building new nuclear power plants while European countries like Germany have a planned program that involves shutting down six functional plants by 2022.**

TWh of electricity in 2020, about 10 percent of the world's energy consumption. Countries such as China, Russia, and India are building new nuclear power plants while European countries like Germany have a planned program that involves shutting down six functional plants by 2022. Italy has already shut down its nuclear plant while Austria never used a nuclear facility it built. Belgium, Spain, and Switzerland have also

planned a nuclear phase-out by the end of the decade. In the wake of the Ukraine crisis, Musk has raised a fair point to counter the European dependence on Russia for its energy which is not surprising given his previous views on the technology.

**NUCLEAR ENERGY**

**EUROPE**

**Elon Musk Says Europe should Return to Nuclear Energy Amid the Ukraine Crisis**

Technoking Elon Musk thinks that Europe should restart its dormant nuclear power stations and called it an obvious choice on a March 6 evening tweet.

Musk's tweet has come within days of Russian troops attacking the largest nuclear power plant in Europe, leading to fears of radiation leaks. However, Musk seems unperturbed by them, going even further to call them a "mistake." While the latter is better debated with nuclear energy experts, Musk does have a point with regards to nuclear power and energy security.

**Centers of Power:** The Zaporizhzhia nuclear power plant in the news recently single-handedly meets 20 percent of Ukraine's energy needs.... 440 nuclear power plants in 33 countries supplied 2553

**In 2021, Musk had said that extremely safe nuclear power plants were a possibility and reasoned about choosing nuclear in another tweet. This view is also shared by others such as Bill Gates whose company Terra Power is attempting new types of nuclear reactors and President Biden himself whose recent infrastructure law has set aside \$6 billion to preserve nuclear power reactors in the U.S.**

**Nuclear as a Safe, No-Emission Source of Power:**

In 2021, Musk had said that extremely safe nuclear power plants were a possibility and reasoned about choosing nuclear in another tweet. This view is also shared by others such as Bill Gates whose company Terra Power is attempting new types of nuclear reactors and President Biden himself whose recent infrastructure law has set aside \$6 billion to preserve nuclear power reactors in the U.S.... The U.S. military is also looking at a mobile nuclear power station to address their energy needs overseas, while NASA wants to power missions on the Moon using nuclear energy. In the face of threats to energy security, countries in Europe would probably be better off sticking longer with their existing infrastructure than trying to rapidly switch to renewables that still need to be scaled up immensely to address the energy demand. This advice works for the U.S too.

Source: <https://interestingengineering.com/elon-musk-europe-nuclear-energy>, 07 March 2022.

## URANIUM PRODUCTION

### RUSSIA

#### US Weighing Sanctions on Russia's Nuclear Supplier Rosatom: Report

A senior US administration official anonymously told Bloomberg on March 9 that the White House was consulting with those involved in the nuclear power industry about the potential impact of imposing punitive measures against Russia's atomic energy company. Established in 2007, the state-owned Rosatom Corp., also known as Rosatom State Nuclear Energy Corporation, is considered one of the world's largest nuclear energy companies and is a major supplier of fuel and technology to power plants across the globe.

Rosatom, which controls Russia's uranium production, is an important source of revenue for the Russian Federation. The company and its subsidiaries account for some 35 percent of the world's uranium enrichment. It has agreements to ship nuclear fuel to countries across Europe, and supplies 16.5 percent of the uranium imported into the US. The US official said Washington had put all options on the table.

On March 8, a source familiar with the matter told Reuters that although US President Biden had placed a ban on American imports of Russian oil and other energy products, sanctions had not been introduced to imports of uranium for nuclear power plants. Any restrictions on Rosatom, if imposed, would be part of Washington's sweeping

punitive measures against Moscow in response to the Russian military offensive against Ukraine, which started in February....

Source: <https://www.presstv.ir/Detail/2022/03/10/678305/US-Russia-nuclear-Rosatom-Biden-Ukraine-sanctions->, 10 March 2022.

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**The U.S. power industry relies on Russia and its allies Kazakhstan and Uzbekistan for roughly half of the uranium powering its nuclear power plants. The industry has been lobbying the White House to continue to allow uranium imports from Russia despite Moscow's invasion of neighbouring Ukraine.**

#### US Ban on Russian Energy Imports does not Include Uranium

U.S. President Biden's ban on American imports of Russian oil and other energy products, announced on March 8, does not include a ban on imports of uranium for nuclear power plants.... The U.S. power industry relies

on Russia and its allies Kazakhstan and Uzbekistan for roughly half of the uranium powering its nuclear power plants. The industry has been lobbying the White House to continue to allow uranium imports from Russia despite

Moscow's invasion of neighbouring Ukraine. There is no U.S. uranium production or processing, though several companies have said they would like to resume domestic production in Texas or Wyoming if nuclear power producers sign long-term

supply contracts. A White House document released after Biden announced the oil ban and summarizing the Russian sanctions did not mention uranium....

Russia's uranium production is controlled by Rosatom, a state-run company formed by Russian President Putin in 2007. The company is an important source of revenue for Moscow, and exempting U.S. uranium imports is likely to fuel continued questions about how American businesses are financially supporting Russia's economy. The National Energy Institute (NEI), a trade group of U.S. nuclear power generators, said

it supports development of an American uranium industry. "U.S. utilities contract with a worldwide network of companies and countries for their fuel requirements to mitigate the risks of potential disruption." ... The U.S. Congress has been paying more attention to Russia's prowess as a global producer of uranium and other metals. "We need to look at alternative sources (for uranium), including in the United States," Senator Dan Sullivan...told Reuters....

Source: <https://www.mining.com/web/us-ban-on-russian-energy-imports-does-not-include-uranium-source/>, 08 March 2022.

## **NUCLEAR PROLIFERATION**

### **AUSTRALIA**

#### **Nuclear Proliferation Risks of AUKUS Must be Addressed: Chinese Envoy**

China's PR to the UN in Vienna Wang Qun said on Mach 9 that the United States, Britain and Australia must address international concerns about the nuclear proliferation risks of their AUKUS deal. Wang made the remarks when addressing a meeting of IAEA Board of Governors on the "Transfer of nuclear materials in the context of AUKUS and its safeguards in all aspects under the NPT".

The IAEA board on Mach 7 decided by consensus to incorporate the AUKUS issue as a formal agenda item at China's proposal.... Wang noted the core issue is whether AUKUS involves the illegal transfer of nuclear weapon materials....The issue bears on the integrity, effectiveness and authority of the NPT and the interests of all IAEA member states, and thus must be clarified.... "If the AUKUS does involve the illegal transfer of nuclear weapon materials, the three countries must completely abolish the cooperation that openly and directly

violates the NPT, impairs the international nuclear non-proliferation regime, and undermines global strategic stability and international security order"...."Otherwise, the IAEA member states have the right and responsibility to continue the intergovernmental discussion process to resolve the issue so as to safeguard the authority and effectiveness of the NPT as well as the integrity of the IAEA safeguards system"....

China has proposed the establishment of a special committee, open to participation of all IAEA member states, to continue in-depth discussions on AUKUS and submit recommendations to the agency's board and its general conference.... He stressed that before a consensus is reached on a resolution, the US, Britain and Australia should not carry out cooperation on nuclear-powered submarines, and the IAEA secretariat should not negotiate safeguard issues with the three countries. The envoy called on all IAEA member states to focus on the core issues of AUKUS and seek solutions to safeguard the NPT and the international non-proliferation regime.

Source: <http://www.ecns.cn/news/2022-03-11/detail-ihawiaxw7024033.shtml>, 11 March 2022.

### **IRAN**

#### **Iran Says Lack of US Decision on Nuclear Deal Makes Talks 'More Complicated Every Hour'**

The US does not have the will to reach an agreement to revive a 2015 nuclear deal with Iran at talks in Vienna where it is insisting on "unacceptable proposals", Iran's top security official, Ali Shamkhani, said on March 10. The 2015 deal that lifted sanctions on Iran in return for curbs on its nuclear programme was on the verge of being restored after 11 months of negotiations until Russia presented a new obstacle by demanding written guarantees from the US that Western sanctions over its invasion



of Ukraine would not affect its trade with Iran. Shamkhani... said on Twitter that in the absence of a political decision by the US the talks "become more complicated every hour"....

US Under Secretary of State for Political Affairs, Victoria Nuland accused Russia of seeking to reap extra benefits from its participation in the effort to restore the nuclear agreement. European negotiators from France, Britain, and Germany have temporarily left the talks as they believed they had gone as far as they could and it was now up to the United States and Iran to agree on outstanding issues. Iran's chief negotiator, Ali Bagheri Kani, returned to Tehran unexpectedly after Russian Foreign Minister Sergei Lavrov outlined Moscow's new demands. Iran's foreign minister said at the time that Tehran would not let its interests be harmed by "foreign elements". Bagheri Kani flew back to Vienna on March 9.

Source: <https://www.wionews.com/world/iran-says-lack-of-us-decision-on-nuclear-deal-complicates-talks-460852>, 10 March 2022.

### **Iran Nuclear Talks Stumble Over Unresolved Russian Demands**

Parties trying to revive the Iran nuclear deal scrambled on March 9 to resolve last-minute Russian demands that threaten to scupper negotiations...with the US appearing unwilling to engage with Russia on the matter. Western powers on March 8 warned Russia against wrecking an almost completed deal on bringing the US and Iran back into compliance with the 2015 accord. Iran's top negotiator returned to Vienna on March 9 from consultations in Tehran. Russia's envoy to the talks, Ulyanov, dismissed any suggestion Moscow

was holding up an agreement and said a final text had in any case not been completed.

Eleven months of talks to restore the deal, which lifted sanctions on Iran in return for curbs on its nuclear programme, have reached their final stages with several diplomats saying there was broad agreement. But just as the final issues were being resolved, Russia presented a new obstacle by demanding written guarantees from the US that Western sanctions targeting Moscow over its invasion of Ukraine would not affect its trade with Iran....Moscow's demands had not received a positive

reaction. "In view of the new circumstances and wave of sanctions against Russia we have the right to protect our interests in the nuclear field and wider context," Ulyanov said. He said the US and the EU had to make it clear that neither now or in the future sanctions could hit the implementation of nuclear projects in Iran as well as its trade and economic relations....

### **U.S. Not Playing:**

U.S. Under Secretary of State for Political Affairs Victoria Nuland on March 8 accused Russia of seeking to reap extra benefits from its participation in the effort to restore the nuclear agreement, but...Washington would not be playing "Let's Make a Deal." Two Western diplomats said it was still not clear what the exact nature of Moscow's demands were, while a European diplomat said Russia was demanding sweeping guarantees on trade between Moscow and Tehran, demands that were deemed unacceptable....

Source: <https://www.reuters.com/world/irans-chief-negotiator-bagheri-kani-returned-vienna-2022-03-09/>, 09 March 2022.

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**NORTH KOREA**

**North Korea Appears to be Restoring its Dismantled Nuclear Test Site, Says South Korea**

North Korea appears to be “restoring” its Punggye-ri nuclear test site, South Korea has said, with signs of new construction spotted in satellite imagery for the first time since it was shuttered in 2018. North Korea has not tested a nuclear bomb since 2017, but it has suggested it could resume such testing because denuclearisation talks with the United States and its allies remain stalled.

Images captured by commercial satellite in early March showed signs of activity at the Punggye-ri site, including construction of a new building, repair of another building, and what is possibly lumber and sawdust, specialists at the California-based James Martin Center for Nonproliferation Studies (CNS) said in a report. “Activity to restore part of the tunnels... has been detected,” South Korea’s military later said in a statement, without elaborating on the type of activity.

Source: <https://www.ndtv.com/world-news/factbox-n-korea-appears-to-be-restoring-its-dismantled-nuclear-test-site-2823253>, 15 March 2022.

**UKRAINE**

**Russia, without Evidence, Says Ukraine Making Nuclear “Dirty Bomb”**

Russian media cited an unnamed source on March 6 as saying that Ukraine was close to building a plutonium-based “dirty bomb” nuclear weapon... Russian President Putin ordered an invasion of Ukraine on Feb. 24, with the aim to “demilitarise” and “denazify” its pro-Western neighbour and prevent Kyiv from joining NATO. The West, dismissing that rationale as a pretext, has responded with harsh sanctions on Moscow and heavy military and other aid to Kyiv.

**The TASS, RIA and Interfax news agencies quoted “a representative of a competent body” in Russia on March 6 as saying Ukraine was developing nuclear weapons at the destroyed Chernobyl nuclear power plant that was shut down in 2000. Ukraine’s government has said it had no plans to re-join the nuclear club, having given up its nuclear arms in 1994 following the break-up of the Soviet Union.**

The TASS, RIA and Interfax news agencies quoted “a representative of a competent body” in Russia on March 6 as saying Ukraine was developing nuclear weapons at the destroyed Chernobyl nuclear power plant that was shut down in 2000. Ukraine’s government has said it had no plans to re-join the nuclear club, having given up its nuclear arms in 1994 following the break-up of the Soviet Union. Shortly before the invasion, President Putin said in a grievance-filled speech that Ukraine was using Soviet know-how to create its own nuclear weapons, and that this was tantamount to preparation for an attack on Russia. He cited no evidence for his claim.

Source: [https://www.reuters.com/world/europe/russia-without-evidence-says-ukraine-making-nuclear-dirty-bomb-2022-](https://www.reuters.com/world/europe/russia-without-evidence-says-ukraine-making-nuclear-dirty-bomb-2022-03-06/)

03-06/, 06 March 2022.

**NUCLEAR NON-PROLIFERATION**

**IRAN**

**US Says Revived Nuclear Deal ‘will not Absolve’ Iran of Non-proliferation Duties**

The US on March 9 told Iran that a revived nuclear deal would not let it off the hook over its failure to co-operate with UN inspectors or provide explanations for undeclared atomic activity. At a governors’ meeting of the IAEA that saw western diplomats walk out when Russia took the microphone, US envoy Louis Bono scolded Iran for obstructing the work of UN inspectors. Although negotiators say a deal is in sight after long-running talks on limiting Iran’s nuclear activities, Mr Bono said an agreement on that front “does not, cannot and will not absolve Iran” of its wider non-proliferation duties. “On too many occasions in the past”, the Iranian leadership “has failed to deliver on promises to co-operate”... “Iran’s failure to provide required clarifications is seriously affecting the ability of the agency to provide assurance of the peaceful nature of Iran’s nuclear programme.”

The IAEA is concerned about three locations where it says Iran has failed to explain the presence of nuclear material and accuses Tehran of harassing its inspectors and winding down surveillance envisaged by the deal with world powers. But hopes were raised of progress on that issue after IAEA chief Grossi visited Tehran last weekend and came back with a deal to exchange more information on the sites. Those discussions are running in parallel to the talks, also in Vienna, on restoring the JCPOA 2015 deal that has gradually lost its potency since the US withdrew in 2018. The aim of the talks is to bring Iran back in line with limits on its uranium enrichment and use of other sensitive technology, which in 2015 it agreed to observe in exchange for sanctions relief. Diplomats have described the talks on a revived deal as entering an endgame and moving beyond technical discussions to the moment where political leaders must make a final call....

Source: <https://www.thenationalnews.com/world/europe/2022/03/09/us-says-revived-nuclear-deal-will-not-absolve-iran-of-non-proliferation-duties/>, 09 March 2022.

## UKRAINE

### Russian Invasion 'Wouldn't have Happened' if Ukraine Still had Nuclear Weapons, Ukrainian Political Adviser Says

The Russian invasion "wouldn't have started" if Ukraine had not given up its nuclear weapons in the 1990s.... Ukraine was once home to thousands of nuclear weapons stationed there by the Soviet Union, which the country inherited when it became independent after the end of the Cold War. In 1994, Ukraine gave them up – and in exchange,

world powers including Russia promised not to violate its security. Ukraine signed the Budapest Memorandum when it joined the global NPT, which said Russia, the UK and the US "reaffirm their obligation to refrain from the threat or use of force against the territorial integrity or political independence of Ukraine".

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### 'Mistake' to Give Up Nuclear Weapons:

Asked if Ukraine made a mistake in agreeing to give up its nuclear weapons, Svitlana Zalishchuk, a foreign policy adviser to the Ukrainian deputy prime minister for

European integration...: "Yes, without a doubt. If we were the owner of nuclear weapons at the moment, I think that this war wouldn't have started, this tragedy wouldn't have been experienced by my nation...world powers that own nuclear weapons are "untouchable" and "are not

**In 1994, Ukraine gave them up – and in exchange, world powers including Russia promised not to violate its security. Ukraine signed the Budapest Memorandum when it joined the global NPT, which said Russia, the UK and the US "reaffirm their obligation to refrain from the threat or use of force against the territorial integrity or political independence of Ukraine".**

challenged with military force because nuclear war is a danger for the whole world". "Because voluntarily we gave up on our nuclear weapons and the Budapest Memorandum has been ignored, we find ourselves in the situation that we are in... If there is one country in this world, in Europe today, that can demand security

guarantees it would be Ukraine, exactly because we gave up our nuclear weapons, exactly because we received this assurance from the strongest powers in the world that they will protect us if anything happens"....

**'There was No Guarantee':** Beyza Unal, deputy director of the international security programme at...Chatham House, said she understands why Ukrainians might feel "betrayed" but said the memorandum gave their country "assurances" - not a "guarantee" - which are not legally binding and have no enforcement mechanism. She also pointed out the nuclear weapons Ukraine had

inherited could not have been used without investing in additional infrastructure. "It was Soviet inventory"...."You can't actually use those weapons without having any command-and-control structure that is linked to the weapon system.

It was almost impossible for Ukraine back in the day to use that even as a bargaining chip for the future." She said it is "unknown" whether Russia would have attacked Ukraine if the country had kept the weapons and invested in a post-Soviet nuclear programme. She gave the example of the 1973 Yom Kippur War that happened even though there were rumours Israel had started developing nuclear weapons before then. She said having nuclear weapons will not always prevent states from getting attacked, adding: "It's just speculation".

"What the world realised back in the 1960s, 1970s, was that if more and more countries have nuclear weapons, then that would cause a huge catastrophe"..."because in the end, someone would decide to use their weapons"....

Source: <https://news.sky.com/story/russian-invasion-wouldnt-have-happened-if-ukraine-still-had-nuclear-weapons-ukrainian-political-adviser-says-12556811>, 04 March 2022.

**NUCLEAR SAFETY**

**INDIA**

**New India Assurance Set to Insure Kudankulam Plant with Global Participation; Sum Assured of Over Rs 43,000 Crore**

New India Assurance (NIA) will soon complete the placement of property cover for units three and four of Kudankulam Nuclear Power Plant (KKNPP), with a sum assured of over Rs 43,000 crore. The cover is likely to be executed with the participation of major global reinsurers.... NIA, which has provided the property covers for the first two units of the plant with the participation of state-owned

GIC Re, has already won the NPCIL mandate for insuring two more units of the KKNPP after a competitive bidding in November 2021. The placement of Kudankulam insurance has to be completed soon, as the reinsurance market has shown a hardening tendency in view of the Russian invasion of Ukraine which has started impacting the reinsurance rates....

GIC Re — which has already participated in reinsuring the first two units of KKNPP, not only in terms of mandatory 5 per cent obligatory and taken much larger share — is currently having discussion with NIA for deciding its share, if any, in the other two units. KKNPP is one of India's largest nuclear plants, being set up by NPCIL. GIC Re has quoted a higher price of Rs 177 crore for its participation, while NIA has managed a lower quote of Rs 160 crore from

**GIC Re has quoted a higher price of Rs 177 crore for its participation, while NIA has managed a lower quote of Rs 160 crore from a set of international reinsurers located outside India. Going by existing reinsurance norms, in order of preference, NIA has to first approach GIC Re which has the first "right of refusal" for any reinsurance business in India.**

a set of international reinsurers located outside India. Going by existing reinsurance norms, in order of preference, NIA has to first approach GIC Re which has the first "right of refusal" for any reinsurance business in India.

As phases one and two of the plant have remained claims-free, NIA — India's largest insurer — has managed to get a cheaper reinsurance quote from international reinsurers. As per current regulations, once GIC refuses fully or partly, NIA — following the order of preference — can approach foreign reinsurance branches (FRBs) in India, reinsurers who are present in GIFT City (presently only GIC Re) and lastly cross-border reinsurers registered with IRDAI.... "Currently, senior officials of both GIC Re and NIA are discussing the placement of deal which will mutually benefit them and NPCIL. NIA is committed to comply with all reinsurance regulations and safeguarding the interest of NPCIL in terms the best reinsurance cost."

Insurance covers for nuclear plants are purely reinsurance driven, like aviation insurance, where the primary insurer reinsures over 90 per cent of the high value cover with large sum assured, and

more than one global reinsurer...this is done to ensure that in any case of mishaps, that can trigger large claims, financial compensations are easily mobilised from a clutch of large high net-worth reinsurers which would not be possible in the case of a limited number reinsurers.

NPCIL had mandated NIA among the domestic insurers, which had provided the cheapest bidding in terms of premium, after cancelling the first bidding in 2020. A

nuclear plant has two covers: a property cover and a liability cover. The liability cover for a nuclear plant is always covered by the Nuclear Pool, formed by the general insurers and managed by state owned reinsurer GIC Re. While the ground-breaking ceremony for construction of units three and four was performed in February 2016, due to technology changes, inflation and insistence of the supplier and operator for additional liability insurance, construction cost of these additional units has already gone up.

Source: <https://indianexpress.com/article/business/companies/nia-set-to-insure-kudankulam-plant-with-global-participation-7798179/>, 03 March 2022.

## **UKRAINE**

### **Chernobyl Nuclear Power Plant has Lost Electricity**

Chernobyl's nuclear power plant and all the facilities in the Chernobyl exclusion zone have been completely disconnected and are now without electricity.... Russian forces attacked the defunct nuclear facility on the very first day of

the invasion (Feb. 24), seizing it after heavy fighting and taking its roughly 210 staff hostage....

Now that the plant has been disconnected from the electrical grid, the roughly 20,000 spent nuclear fuel units held in the plant's cooling tanks will no longer receive active cooling.

Ukrainian officials have warned that this could increase the likelihood of the evaporation and discharge of nuclear material, and give a dangerous dose of radioactive material to the plant's personnel. Some

nuclear energy experts, however, have cautioned that, as the spent fuel rods are now 22 years old and much colder than they were, this event is unlikely. "The spent fuel rods are at minimum 22

years old. They have very little heat to dissipate" ....

"Their heat is low enough that experts I've talked to expect weeks or even months to heat the water enough to dry out the pool. Even then, natural air circulation should be sufficient"....

Meanwhile, officials from IAEA have expressed

increasing concern for the well-being of the staff at Chernobyl, who have been held hostage at the plant for two weeks. Workers would usually leave the radioactive plant after work hours ended but have now been forced to live at the site. Systems set up to monitor the nuclear material at Chernobyl's radioactive waste facilities stopped transmitting data to the UN's nuclear watchdog on Tuesday (March 8).

Safeguards are the technical measures that the IAEA uses to keep track of nuclear material. With these offline, the agency has no way of knowing the location of the plant's nuclear material, increasing the possibility that it could fall into the

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wrong hands...“remote data transmission from safeguards monitoring systems installed at the Chernobyl NPP had been lost,” and that while workers have “access to food and water, and medicine to a limited extent”, the “situation for the staff was worsening”.... Staff at the facility are responsible for decommissioning the site and ensuring the safe disposal of the radioactive material inside the plant’s defunct reactors. However, since the Russian occupation of Chernobyl, that work has been put on hold. Prior to the power outage, workers could only be contacted via email....

**With 15 operational reactors, Ukraine is the seventh-largest producer of nuclear electricity in the world.... The country, which relies on nuclear energy for more than half of its power supply, has made significant improvements in safety over the years.**

Eight of Ukraine’s 15 operational nuclear reactors are still online...including two at the Zaporizhzhya plant that was captured by Russian forces last week...Staff at the Zaporizhzhya plant, which briefly caught fire after being shelled during its capture, are working in shifts. Radiation at both Chernobyl and Zaporizhzhya has been reported to be at normal levels.

Source: <https://www.livescience.com/chernobyl-loses-electricity>, 09 March 2022.

### High-Risk Russian Strategy Targets Ukraine’s Nuclear Plants

Russia is directly targeting Ukraine’s nuclear facilities in a strategy to undermine Ukrainian resistance to the Russian invasion but the tactic carries grave risks....

**But Russian President Putin told Macron that he “had no intention of attacking nuclear power stations” and that he was “ready to act in line with IAEA norms”.... Russian forces could be within artillery range of the three reactors at Konstantinovka in southern Ukraine, situated between Kherson.**

After advancing Russian forces seized Ukraine’s defunct nuclear plant at Chernobyl and the still-operational reactors at Zaporizhzhia, their sights could be on a third facility, Konstantinovka, in the south. French President Macron said on March 7 a key priority of the West was to “avoid catastrophes” with Ukraine’s nuclear power plants in the Russian invasion. With 15 operational reactors, Ukraine is the seventh-largest producer of nuclear electricity in the world.... The country,

which relies on nuclear energy for more than half of its power supply, has made significant improvements in safety over the years....

Zaporizhzhia alone has six reactors of a more modern, safer design than the one that melted down at Chernobyl in 1986 in the world’s worst-ever nuclear disaster.

Russia has likely made taking Ukraine’s nuclear stations a priority as “that allows them to cut off power to the large cities”...Jean-Marc Balencie told AFP. “One of the Russians’ objectives is to get people to leave, to exhaust the resisters’ ability and will to defend”...“No more electricity means no more heating, no running water, no fridges or freezers.”...“they’ll want to take all of the nuclear plants to increase the pressure” on Ukrainians. But Russian President Putin told Macron that he “had no intention of attacking nuclear power stations” and that he was “ready to act in line with IAEA norms”.... Russian forces could be within artillery range of the three reactors at Konstantinovka in southern Ukraine, situated between Kherson — the first major city captured — and the Black Sea port of Odessa, a possible future target.

Most of Ukraine’s reactors “were planned by the Soviets, they have the blueprints in Moscow”...Once the army has control of a site, the Russians “can bring in their own teams of engineers to take care of the power

plant”.... Another option is forcing local staff to continue operating the site, as appears to be the case at Chernobyl.

The IAEA has warned that more than 200 security and maintenance staff there have been prevented from leaving since Russian forces took over on February 24. “Russians took over Chernobyl while the night shift was finishing its shift. The day shift was never able to come back”.... That poses a

problem given the strict division of tasks between the night and day shifts...."There is nuclear fuel which is kept in a special pool, in certain conditions in terms of temperature, quantity of minerals, and so on".... "But the night shift doesn't have access to this data. If the fuel is not maintained properly, this could generate a risk, like a local explosion".... Round-the-clock work with only one meal per day, no medicine or hygiene facilities and lack of sleep are also beginning to take their toll.

On March 7, "an employee ran away in some exclusion zone and nobody can find him"...leaving him stranded up to 60 kilometres from the nearest town in the depths of winter. The Russian capture of Zaporizhzhia, around 170 kilometres (105 miles) north of the annexed Ukrainian peninsula of Crimea, raised the spectre of nuclear disaster around the world, as shelling hit the plant and caused damage. It is unclear for now whether the nuclear plant was hit on purpose or by accident, although vital structures appear to remain intact...A fire broke out at the plant's training facility but there appears to have been no damage to the reactors.... Beyond intentional or unintentional shelling or bombing...a nuclear mishap could still occur if Ukrainian staff seek to sabotage plants. Resistance fighters could even attack a nuclear plant in Russia.... "We're in a world where things that seem impossible one evening become very real the next day..."

Source: <https://www.deccanherald.com/international/world-news-politics/high-risk-russian-strategy-targets-ukraines-nuclear-plants-1089349.html>, 08 March 2022.

### **Framework for the Safety and Security of Ukraine's Nuclear Power Plants Must be Agreed, IAEA Director General Tells Board of Governors**

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"We see what is happening on the ground in Ukraine. This time, if there is a nuclear accident, the cause will not be a tsunami brought on by mother nature. Instead, it will be the result of human failure to act when we knew we could, and we knew we

should." Framework for the Safety and Security of Ukraine's Nuclear Power Plants must be Agreed, IAEA Director General Tells Board of Governors. These were the words of warning with which Director General Grossi opened the regular session of the IAEA's Board of Governors in Vienna on March 7. "The military operations at nuclear power facilities of Ukraine have caused

**The military operations at nuclear power facilities of Ukraine have caused unprecedented danger of a nuclear accident, risking the lives of people living in Ukraine and in neighbouring countries, including Russia".... He reiterated the IAEA's readiness to assist with the safety and security of Ukraine's nuclear facilities and called on parties to agree a "feasible framework to re-establish the commitment to nuclear safety".**

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the commitment to nuclear safety"....

Talking of the situation at the Zaporizhzhya Nuclear Power Plant, Europe's largest, Mr Grossi stated: "Russian forces now control the management of the plant and the approval of technical decisions made by the Ukrainian operators. This is not a safe way to run a nuclear power plant. Nor is it safe or sustainable for internal and external communications to have been disrupted and cut off, as it has been reported to us by the Ukrainian operator and regulator. I

am deeply concerned about this turn of events.”

Source: <https://www.iaea.org/newscenter/news/framework-for-the-safety-and-security-of-ukraines-nuclear-power-plants-must-be-agreed-iaea-director-general-tells-board-of-governors>, 07 March 2022.

## **NUCLEAR WASTE MANAGEMENT**

### **NORWAY**

#### **Norway Procures ‘Cradle to Grave’ IT Solution**

Norwegian Nuclear Decommissioning (NND) has awarded a NOK123 million (USD13.7 million), 12-year contract to the ICCircle consortium for the design, development and maintenance of a bespoke integrated software system to support nuclear decommissioning and waste management... NND is responsible for decommissioning research reactors and other related nuclear infrastructure, as well as the safe handling, storage and disposal of radioactive waste.

Norway’s two research reactors - the nuclear fuel and materials testing reactor at Halden and the JEEP-II neutron scattering facility at Kjeller - were declared permanently shut down in June 2018 and April 2019, respectively. Their ownership and responsibility for them will move to NND from the Institute for Energy Technology (IFE). “NND has undertaken the strategic planning process for decommissioning and during this phase it was clear that data and information governance would be vital to successfully achieving our project goals,” said NND Director Pål Mikkelsen. .... ICCircle - which has been established as a legal entity in Norway - is an alliance of Spanish specialised engineering company INGENIC, UK-based innovative technical consultancy and R&D business Createc and Norwegian innovation company Catenda.

The multi-year project will result in an information and data management system designed to provide the insight and oversight NND needs to ensure safety and efficiency during its nuclear decommissioning and waste management process of key sites, which will run over at least

20 years. NND said, unlike in other countries where different companies are usually involved, it will solely be responsible for the entire process of planning, demolition, clean-up, treatment and transport of Norway’s radioactive waste, and final disposal of the waste....The ICCircle contract commenced in February, with NND set to begin its implementation phase at the Halden and Kjeller sites from this month.

Source: <https://www.world-nuclear-news.org/Articles/Norway-procures-cradle-to-grave-IT-solution>, 10 March 2022.

### **PAKISTAN**

#### **IAEA Mission Says Pakistan’s Regulatory Body Effective, Encourages Continued Focus on Radioactive Waste Management**

An IAEA mission said that new and updated nuclear safety regulations in Pakistan have significantly updated and strengthened nuclear and radiation safety in the country. The team also noted a few areas where challenges remain, including for Pakistan to continue to focus on decommissioning, spent fuel management and radioactive waste disposal.

At the request of the Government of Pakistan, the Integrated Regulatory Review Service (IRRS) team in the first week of March concluded an eight-day follow-up mission to review the country’s implementation of recommendations and suggestions made during an initial IRRS mission in 2014. The follow-up mission was hosted by the Pakistan Nuclear Regulatory Authority (PNRA). The team found that improvements in Pakistan’s regulatory functions and activities had improved nuclear safety by enhancing the development of regulations and strengthening arrangements for regulatory inspections, authorizations, emergency preparedness and response, occupational radiation protection and environmental radiation monitoring.

However, they noted that while a national policy is in place for the safe management of radioactive waste and spent fuel, decommissioning and waste disposal, Pakistan would benefit from more active involvement in international cooperation



in this area to gain from the shared experiences of other countries.

... The mission reviewed the regulatory framework for all civilian facilities and activities using radiation in Pakistan. Pakistan has five operating nuclear power reactors, providing over 7% of its electricity, with one additional reactor due to become operational this year. The country also has two research reactors and uses sealed radiation sources in medical and industrial applications. The team found that Pakistan has successfully implemented all 13 recommendations from the 2014 mission and had adequately addressed 29 out of 31 suggestions.... The IRRS team comprised six senior regulatory experts from Ethiopia, France, Germany, Slovenia, Switzerland, and the United Kingdom, as well as four IAEA staff members. The team conducted a series of interviews and discussions with PNRA staff and met with representatives from the Ministry of Foreign Affairs.

The review team welcomed the steps taken to improve the nuclear regulatory infrastructure. They highlighted: the new and updated regulations which provide a firm policy and updated legal basis for regulation of all nuclear facilities and activities; the successful regulation of the construction and commissioning of the three new nuclear power plants built in the last eight years; and, the major modernisation of the National Radiation Emergency Coordination Centre (NRECC) which strengthens Pakistan's ability to plan for, and respond to, a nuclear or radiological emergency....

The mission team also offered observations about how the regulatory framework for nuclear safety in Pakistan might be further enhanced in the coming years. They said that Pakistan should: Consider joining the Joint Convention on the Safety

of Spent Fuel Management and Safety of Radioactive Waste Management, and to invite an IAEA Integrated Review Service for Radioactive Waste and Spent Fuel Management, Decommissioning and Remediation (ARTEMIS) mission; explore further opportunities to reinforce engagement with the public in its decision-making; and consider a more refined application of a graded approach within its regulatory activities....

The final mission report will be provided to the Government in about three months....

*Source: <https://www.iaea.org/newscenter/presreleases/iaea-mission-says-pakistans-regulatory-body-effective-encourages-continued-focus-on-radioactive-waste-management>, 09 March 2022.*

## **USA**

### **DOE Awards \$36 Million to Reduce Waste from Advanced Nuclear Reactors**

The U.S. Department of Energy (DOE)'s Advanced Research Projects Agency-Energy (ARPA-E) on March 10 announced \$36 million for 11 projects seeking to increase the deployment, and use of, nuclear power as a reliable source of clean

energy and limit the amount of waste produced from Advanced Nuclear Reactors (AR). Nuclear power is one of the most reliable sources of energy in America, and the largest domestic source of clean energy—providing approximately 50% of the nation's carbon-free electricity, and about a fifth of U.S. electricity overall.

Nuclear power production, however, produces waste which must be disposed of and safely stored. Mitigating these waste and storage concerns will support the goals outlined in

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President Biden's Bipartisan Infrastructure Law to support the equitable expansion of the nation's clean energy sources, including nuclear energy. "Developing novel approaches to safely manage nuclear waste will enable us to power even more homes and businesses in America with carbon-free nuclear energy," said U.S. Secretary of Energy Granholm. "ARPA-E is doing just that by supporting companies and universities that are working on next-generation technologies to modernize advanced reactors and strengthen the nation's clean energy enterprise."

Projects funded through ARPA-E's "Optimizing Nuclear Waste and Advanced Reactor Disposal Systems" (ONWARDS) program will develop technologies that can resolve the waste and storage challenges associated with AR fuel cycles....ONWARDS was unveiled last year as ARPA-E's first program created to identify and facilitate technologies for AR used nuclear fuel

(UNF) recycling, waste forms, UNF disposal pathways and associated advanced safeguards technologies. DOE recently released a comprehensive supply chain report in response to President Biden's Executive Order "America's Supply Chains" signed in 2021. A key goal of the report is to enable the development of fuel for advanced reactor technologies that will further nuclear energy deployment as a reliable source of clean energy and improve waste management options. Another major goal focuses on developing an integrated waste disposal strategy, with an initial focus on a consent-based siting process for the

temporary, consolidated storage of spent nuclear fuel.

Source: <https://www.energy.gov/articles/doe-awards-36-million-reduce-waste-advanced-nuclear-reactors>, 10 March 2022.

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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).

Centre for Air Power Studies

P-284

Arjan Path, Subroto Park,

New Delhi - 110010

Tel.: +91 - 11 - 25699131/32

Fax: +91 - 11 - 25682533

Email: capsnetdroff@gmail.com

Website: [www.capsindia.org](http://www.capsindia.org)

**Edited by: Director General, CAPS**

**Editorial Team:** Dr. Sitakanta Mishra, Dr. Poonam Mann, Dr. Silky Kaur, Abhishek Saxena, Anubhav S. Goswami, Prachi Lokhande, Dhruv Tara Singh

**Composed by: CAPS**

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