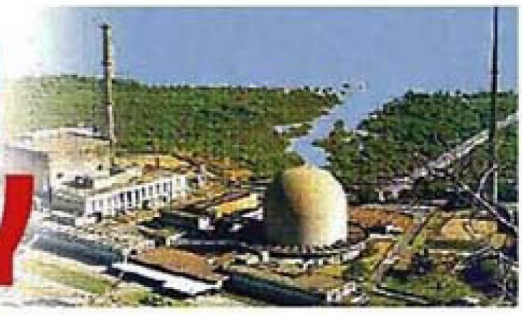
NUCLEAR SECURITY



A FORTNIGHTLY NEWSLETTER ON NUCLEAR DEFENCE, ENERGY AND PROLIFERATION FROM CENTRE FOR AIR POWER STUDIES

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OPINION – Rudy Perkins

It's Time to Cease Nuclear Arms Race and Disarm

You'd think we'd have learned from the Iraq war. Among others, Israel's Prime Minister Benjamin Netanyahu urged Congress to launch that war, asserting the U.S. "must destroy the [Iraq] regime" because of the risk of "a nuclear-armed Saddam." Thousands of lives and over a trillion dollars were wasted, allegedly to stop Iraq's WMD. The weapons weren't there, but that war's repercussions continue. Trump, suddenly forgetting the Iraq disaster, reinforced Israel's June 13 first-strike attack on Iran, allegedly to block Iran's nuclear weapons development. On June 21, Trump announced his own bombing there, stating: "Our objective was the destruction of Iran's nuclear enrichment capacity and a stop to the nuclear threat posed by the world's number one state sponsor of terror."

In his recent column supporting Trump's decision ("Twelve Day Iran War: Why and what's next," Daily Hampshire Gazette, July 28), Richard Fein asserts Iran "has been developing … nuclear weapons." But as recently as March 2025, Trump's National Intelligence director contradicted this assertion, stating the intelligence community "continues to assess that Iran is not building a nuclear weapon and [its] Supreme leader…has not authorized the nuclear weapons program that he suspended in 2003," an assessment *The New York Times* reported still held in June. The IAEA, in June, did not affirmatively find that Iran had diverted enriched uranium for weapons, but did raise noncompliance and violation concerns. I agree nuclear proliferation

In his recent column supporting Trump's decision ("Twelve Day Iran War: Why and what's next," Daily Hampshire Gazette, July 28), Richard Fein asserts Iran "has been developing … nuclear weapons." But as recently as March 2025, Trump's National Intelligence director contradicted this assertion, stating the intelligence community "continues to assess that Iran is not building a nuclear weapon and [its] Supreme leader…has not authorized the nuclear weapons program that he suspended in 2003," an assessment *The New York Times* reported still held in June.

is a serious concern, but regarding all countries, including Israel, not just Iran.

Iran's a NPT signatory, hasn't been accused of actually having nuclear weapons, and its Fordo, Isfahan and Natanz sites were under IAEA inspections. In contrast, Israel hasn't signed the NPT, its Dimona nuclear facility isn't under IAEA inspections, and its suspected nuclear weapons – an estimated 90 or more – have been widely reported, including in a declassified Kissinger/Nixon memo. The nuclear double-standard is obvious. The NPT offered this tradeoff for non-nuclear-weapons states: forswear nuclear weapons (NPT Article II), in exchange for "the inalienable right" to develop nuclear energy for peaceful purposes (which would include peaceful nuclear enrichment) (Art. IV), and the nuclear weapons states' pledge (Art. VI) "to pursue negotiations in good faith on … cessation of the nuclear arms race at an early date and to nuclear disarmament … ."

Iran's "nuclear enrichment capacity" is not prohibited by the NPT, if for peaceful purposes. Moreover, Obama's JCPOA agreement with Iran allowed nuclear enrichment, limited to the 3.67% level needed for nuclear power plants. Unfortunately, Trump unilaterally withdrew from the JCPOA, effectively killing that deal. Fein argues Israel's attack was self-defense because Iran has threatened Israel and has been developing nuclear weapons [if true]. This seems like a variant of Bush's disastrous "Bush Doctrine" Iraq war justification, that an adversary seeking or possessing nuclear weapons is grounds for a preventative "self-defense" attack.

Fein argues Israel's attack was self-defense because Iran has threatened Israel and has been developing nuclear weapons [if true]. This seems like a variant of Bush's disastrous "Bush Doctrine" Iraq war justification, that an adversary seeking or possessing nuclear weapons is grounds for a preventative "self-defense" attack.

Does that mean Iran could attack Israel's Dimona nuclear facility, in "self-defense" because Israel has developed nuclear weapons and threatened Iran? Surely, we can't endorse such a dangerous doctrine. Concerning preemptive self-defense, better to review criteria from the widely cited 1837 "Caroline" case for when that might be justified, for example, when an adversary's attack is "imminent" and there's no peaceful alternative to defuse it. Here, peaceful diplomatic alternatives were undermined. First by Trump leaving the JCPOA, second by Israel, attacking the day before more scheduled U.S.-Iranian negotiations. Given no showing, or even claim, that Iran actually has a nuclear weapon, an Iranian nuclear attack wasn't imminent. So, the Israeli-American attacks wouldn't meet Caroline criteria for valid self-defense.

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As for nuclear threats posed by a "state sponsor of terror," Trump may worry about Iran, but we should also worry about Israel. Fein acknowledges that "Netanyahu is carrying out a genocidal war against the Palestinians." I and many others agree. Israel's bombardments have killed thousands of civilians and made the streets of Gaza resemble Hiroshima. Leaders holding nuclear triggers, and a failing moral compass, should terrify everyone. We need broader diplomatic steps towards nuclear disarmament, like the proposed treaty for a Middle East WMD-free zone. In or out of the NPT, it's time to live up to its Article VI goal: Cease the nuclear arms race and disarm.

Source: https://www.amherstindy.org/2025/08/07/opinion-its-time-to-cease-nuclear-arms-race-and-disarm/, 7 August 2025.

OPINION – Austin Headrick

The US Made the Mistake of Nuclear War Once—Never Again

This year marks 80 years since the U.S. dropped nuclear bombs on Hiroshima and Nagasaki, killing between 110,000 and 210,000 people. Yet, despite the lessons of this dark chapter of history, more countries are investing in expanding their nuclear arsenals as we face the threat of a renewed nuclear arms race.

Global military spending approaches $3 trillion, fueling violence across the world. This spending pays for the Russian bombs dropped on Ukraine, the U.S.-backed genocide in Gaza, and the escalation of militarized violence across the world. Meanwhile, nuclear development and expansion continue in all nine nuclear-armed states alongside growing fears of nuclear war in Ukraine, Taiwan, India, Pakistan, or the Korean Peninsula. We're adding fuel to the fire.

The Bulletin of Atomic Scientists' Doomsday Clock, a symbol that represents the estimated likelihood of a human-made global catastrophe, is now only 89 seconds to midnight—unacceptably close to disaster. Global military spending approaches $3 trillion, fueling violence across the world. This spending pays for the Russian bombs dropped on Ukraine, the U.S.-backed genocide in Gaza, and the escalation of militarized violence across the world. Meanwhile, nuclear development and expansion continue in all nine nuclear-armed states alongside growing fears of nuclear war in Ukraine, Taiwan, India, Pakistan, or the Korean Peninsula. We're adding fuel to the fire.

U.S. President Donald Trump recently called the bombing of Iran's Fordow nuclear site "essentially the same thing" as the bombings of Hiroshima and Nagasaki on August 6 and 9, 1945. This comparison is unfounded and disrespectful. Stories from the A-bomb survivors all share a common theme: In one instant, the bombs turned an average summer day into a nearly incomprehensible hellscape. Even the B-29 bomber pilots who turned back to see the inferno they had unleashed looked down in shock at the burning city. The scale and destruction of these attacks are unlike any bombing the world has seen since.

The anniversary of the bombings must serve not only as a reminder of past devastation, but also as a call for a world free from the existential threat of nuclear war. Instead, we are headed in the opposite direction. To expand the U.S. nuclear arsenal, the Trump administration has requested an $87 billion budget in FY26 for nuclear weapons alone—up 26% from the nuclear weapons spending in 2025. The budget request will drastically increase spending on nuclear weapons, while cutting spending on nuclear nonproliferation, cleanup, and renewable energy programs. This is a continuation of the bipartisan trend in the U.S. to continue expanding our nuclear arsenal. For 80 years, A-Bomb survivors have been warning that nuclear weapons can never again be used to destroy lives, yet we are closer today than ever before.

As the only country to ever use nuclear weapons in war, the U.S. has a unique responsibility to lead the world back from the brink of nuclear catastrophe. Rather than increasing an already unprecedented military budget, the U.S. should instead lead the world as a model for investing in healthcare, education, infrastructure, and social welfare.

As the only country to ever use nuclear weapons in war, the U.S. has a unique responsibility to lead the world back from the brink of nuclear catastrophe. Rather than increasing an already unprecedented military budget, the U.S. should instead lead the world as a model for investing in healthcare, education, infrastructure, and social welfare. People around the world are calling for a shift from spending on weapons and war to investing in meeting people's basic needs. The 10% for All campaign envisions moving just one tenth of global military spending into human needs. Diplomatic efforts are also crucial to

stopping a nuclear arms race. Washington and Moscow must also come to the table to discuss the New START—the last nuclear arms control treaty between the two countries which will expire in February 2026. Currently there is little sign of discussion between the U.S. and Russia to find a meaningful proposal to address nuclear proliferation concerns.

To prevent the horrors of Hiroshima and Nagasaki from ever happening again, and to realize the full aspirations of the Treaty on the NPT, leaders must actively pursue a world free of nuclear weapons. The only world safe from nuclear war is one where nuclear weapons no longer exist. That world is possible—if we choose it. Join advocates across the U.S. urging Congress to take a meaningful step toward a world safe from nuclear war.

Source: https://www.commondreams.org/opinion/never-again-nuclear-war, 6 August 2025.

OPINION – Ira Helfand

After Eighty Years, Nuclear Threat Remains Grave

As we approach the eightieth anniversary of the U.S. bombings of Hiroshima and Nagasaki this month, on August 6 and 9, respectively, the danger of nuclear war is great and growing. So far this year, five of the nine nations that possess nuclear weapons have been engaged in active military operations that could have, and might still, escalate to the use of those weapons. Russia continues its war of conquest in Ukraine and its oft-repeated threats to use nuclear weapons. Israel and the United States have attacked sites in Iran that might be used to build nuclear bombs. And India and Pakistan fought another, fortunately brief, war over Kashmir.

Nuclear war is a real and present danger that we must acknowledge and confront. A large-scale nuclear war between the United States and Russia, according to the best available science, would kill hundreds of millions of people in the first afternoon, and lead to a global famine that kills some six billion people, three quarters of humanity, in the first two years. Even a more limited nuclear war, as might have taken place between India and Pakistan, could trigger a global famine that kills two billion people worldwide, including 130 million in the United States.

The world can no longer indulge in the denial which has marked our thinking since the end of the Cold War. Nuclear war is a real and present danger that we must acknowledge and confront. A large-scale nuclear war between the United States and Russia, according to the best available science, would kill hundreds of millions of people in the first afternoon, and lead to a global famine that kills some six billion people, three quarters of humanity, in the first two years. Even a more limited nuclear war, as might have taken place between India and Pakistan, could trigger a global famine that kills two billion people worldwide, including 130 million in the United States.

Former U.S. Secretary of Defense Robert McNamara famously observed that we did not survive the Cuban Missile Crisis because we knew what we were doing. Rather, he said, "We lucked out. It was luck that prevented nuclear war." The current policy of all nine nuclear states (which besides the ones named above include England, France, China, and North Korea) is really nothing more than a hope for continued good luck. And that, of course, is crazy. Sooner or later, luck runs out. If we do not eliminate nuclear weapons, it is not a question of "if" but only a question of "when" they will be used.

It doesn't have to be that way. Nuclear weapons are not a force of nature over which we have no control. They are machines that we have built. We know exactly how to dismantle them. We have already dismantled some 50,000 of these weapons over time and could easily dismantle the estimated 12,000 that remain. But, for that to happen, we need to convince the leaders of the nuclear armed states to do so. Here in the United States, the Back from the Brink campaign has built

a national network demanding fundamental change in U.S. nuclear policy. It calls for the United States to begin negotiations with the other eight nuclear armed states for a verifiable, enforceable agreement to eliminate their nuclear arsenals, according to an agreed upon timetable.

The campaign is supported by more than seventy cities and towns, including Boston, Philadelphia, Baltimore, Washington, D.C., Chicago, Milwaukee, Minneapolis, Des Moines, Los Angeles, San Francisco, Tucson, and Salt Lake City; by state legislatures in California, Oregon, and Rhode Island; by legislative bodies in Maine and New Jersey; and by more than 400 advocacy groups. Resolutions "urging the United States to lead the world back from the brink of nuclear war and halt and reverse the nuclear arms race" are before both the U.S. House of Representatives and the U.S. Senate. H. Res. 317, introduced in April by Representative James McGovern, Democrat of Massachusetts, has attracted twenty-eight co-sponsors; S. Res. 323, introduced on July 16 by Senator Edward Markey, Democrat of Massachusetts, has four co-sponsors.

We need to build on this momentum and create a broad movement, like the Nuclear Freeze Campaign of the 1980s, to eliminate nuclear weapons before they eliminate us. "Let all the souls here rest in peace; for we shall not repeat the evil." That is the inscription on the cenotaph in the Peace Memorial Park in Hiroshima. As the specter of nuclear war looms ever larger, that pledge should be the guiding star. It is not enough to remember and honor the dead. We must use this somber anniversary to organize the strongest possible movement to eliminate nuclear weapons so that, indeed, the evil is not repeated.

Source: https://progressive.org/op-eds/after-eighty-years-nuclear-threat-remains-grave-helfand-20250801/, 1 August 2025.

OPINION – John Mueller

Iran Should Abolish Its Nuclear Program

Amid all the discussion of Iran's nuclear program, and Israeli and U.S. efforts to destroy it, one fact remains largely ignored: Iran scarcely needs a nuclear arsenal. To begin with, any detonation of such a weapon against Israel, which reportedly has hundreds of nuclear weapons and clearly has the ability and credibility to deliver them, would be a disaster for Iran. Israel's inevitable counterattack would likely destroy not only Iran's unpopular regime, but also the ancient Persian civilization in which it is embedded.

Iran doesn't need to keep a few nuclear weapons around to deter a nuclear attack initiated by Israel out of the blue. Israel is much more likely to apply its superiority in conventional weaponry, which, as has been seen of late, can be very damaging and much more focused. Israel would have no need to escalate to the nuclear level.

Second, Iran doesn't need to keep a few nuclear weapons around to deter a nuclear attack initiated by Israel out of the blue. Israel is much more likely to apply its superiority in conventional weaponry, which, as has been seen of late, can be very damaging and much more focused. Israel would have no need to escalate to the nuclear level.

And third, the value of nuclear weapons to deter conventional attacks is severely undercut by recent experience. Although Israel (and the U.S.) might have hesitated if Iran had had nuclear weapons, they likely would have attacked anyway, relying on their ability to devastate Iran in retaliation for any use of Iran's nukes. It is also relevant to note that nuclear weapons do not have an impressive record at deterring conventional attacks, as the United Kingdom found in 1982 when Argentina seized Britain's Falkland Islands, leading to a short war fought entirely with conventional weapons. In the present case, Israel has repeatedly been attacked by non-nuclear countries and entities; its extensive nuclear arsenal appears to have been irrelevant to its responses, which have relied entirely on conventional weapons and methods.

The Deal: Accordingly, Iran and its regime might

well be more secure if the country abandoned its nuclear weapons program, which has proved to be absurd, expensive, useless and ultimately the chief reason for (not a deterrent of) armed attacks by alarmed foes such as Israel and the United States. One possible solution would be for Iran to accept a version of Donald Trump's proposed deal. According to its terms, Iran would credibly abandon its nuclear weapons program (perhaps while retaining the "right" to publicly reverse that development) and would be welcomed, like Germany and Japan after World War II, into a global system that promises dignity and economic growth and is sanctions-free. As often noted, Iran has the potential to be a wealthy country. That goal seems to be genuinely popular with Iran's population, some 80% of whom, some studies suggest, are restive over the current regime's corruption and incompetence. And the process would likely also receive enthusiastic and productive support from Iran's extensive and often well-heeled diaspora.

Iran and its regime might well be more secure if the country abandoned its nuclear weapons program, which has proved to be absurd, expensive, useless and ultimately the chief reason for (not a deterrent of) armed attacks by alarmed foes such as Israel and the United States. One possible solution would be for Iran to accept a version of Donald Trump's proposed deal.

The deal might also involve some reduction or at least attenuation of Iran's support for various anti-Israel proxy forces in the Middle East, such as Hamas in Gaza and Hezbollah in Lebanon. Prospects for such a reduction are enhanced today not only because that policy has never been very popular in Iran, but also because the proxies (like Iran itself) have been severely discomfited by Israeli attacks of late.

Iran has reason to doubt Trump's reliability: After all, although a nuclear deal went into effect in 2016 under the Obama administration, Trump abruptly withdrew from it when he became president for the first time the following year. Trump might be more reliable now, however, because he would benefit greatly, both domestically and internationally, if such a danger-deflating deal were consummated.

Iran's Potential Objections: For the deal to be consummated, however, negotiators are up against some deep concerns from the Iranian regime. First, Iran has reason to doubt Trump's reliability: After all, although a nuclear deal went into effect in 2016 under the Obama administration, Trump abruptly withdrew from it when he became president for the first time the following year. Trump might be more reliable now, however, because he would benefit greatly, both domestically and internationally, if such a danger-deflating deal were consummated. (He might even be successful in gaining the Nobel Peace Prize that he is said to covet.) Moreover, he seems to be sincere in his utter contempt for the absurdity of the Iran-Israel confrontation in which, as he recently put it pungently, "We basically have two countries that have been fighting so long and so hard that they don't know what the f* they're doing. Do you understand that?"

Second, the regime in Iran might be wary of the prospect that while a deal might eventually lead to prosperity for the country, it might also lead to the development of a theocracy-challenging middle class. Indeed, a deal seems the most likely route to successfully achieve the "regime change" in Iran that is so fondly desired by many outsiders.

A version of Trump's deal seems a rational solution to Iran's massive social and economic problems and only requires a clear concession from Iran to cease the costly development of useless nuclear weapons. The final problem in accepting this deal is that, as Thomas Friedman of The New York Times has recently suggested, Iran, like Israel, is "led by religious nationalists who think God is on their side."

This perspective could have negative consequences, as suggested by the reaction of

the Iranian regime after being attacked by Saddam Hussein's Iraq in 1980. Saddam quickly concluded that the attack was a mistake and sought to obtain a face-saving agreement allowing Iraq to withdraw. But that development, however rational, was quashed by Iran's theocratic ruler, Ayatollah Ruhollah Khomeini, who piously (and spookily) declared: "Even our total defeat in this war shall be a blessing from the Almighty and a sign of His Wisdom which we cannot fully understand." The war, disastrous for both sides, therefore continued for nearly a decade—though eventually Khomeini did overcome his fatalistic anxieties and agree to a deal, while declaring that process to be akin to drinking poison. Trump's deal, then, offers a rational solution to a problem that scarcely exists. But that doesn't guarantee its acceptance.

Source: https://www.cato.org/commentary/iran-should-abolish-its-nuclear-program, 4 August 2025.

OPINION – Taha Ali

Being Strategic Nuclear Power: Superior Statecraft Beyond Deterrence

In traditional international relations analysis, nuclear capability has tended to be conceived in terms of deterrence. Not entirely unexpectedly, given the historical spectre of Hiroshima and Nagasaki, the post-Hiroshima postulates of Mutual Assured Destruction (MAD), and the ongoing anxieties about nuclear proliferation, this is only to be expected. Yet, such a limited conceptualisation may do a disservice to a more profound and complex involvement that nuclear technology also has in contemporary statecraft. Civilian nuclear capability, in theory tapped for peaceful energy production, has become a powerful strategic nuclear tool for states, even non-nuclear ones. Its use is not in the explosive power of the bomb but in the insidious and multi-faceted manner it influences alignments, deploys technological status, and creates geopolitical leverage.

Civilian nuclear capability, in theory tapped for peaceful energy production, has become a powerful strategic nuclear tool for states, even non-nuclear ones. Its use is not in the explosive power of the bomb but in the insidious and multi-faceted manner it influences alignments, deploys technological status, and creates geopolitical leverage. Perhaps the least appreciated aspect of nuclear power is its power to tie states into long-lasting strategic alliances. The building, running, and maintenance of nuclear reactors require extended technological collaboration, legal contracts, and, in many instances, fuel supply reliance. This establishes a form of alliance entrenchment, so-called technostrategic dependency.

Nuclear Power as Alliance Capital: Perhaps the least appreciated aspect of nuclear power is its power to tie states into long-lasting strategic alliances. The building, running, and maintenance of nuclear reactors require extended technological collaboration, legal contracts, and, in many instances, fuel supply reliance. This establishes a form of alliance entrenchment, so-called technostrategic dependency.

Consider, for instance, the UAE, which in 2009 entered into a historic agreement with South Korea to construct the Barakah nuclear power plant. It was not just an energy deal; it was a declaration of the UAE's westward strategic tilt and South Korea's new position as a middle-power nuclear supplier. It also deepened UAE-South Korea defence relations, such as the deployment of South Korean troops in the UAE for training purposes—a very rare phenomenon in Gulf security arrangements. In the same manner, India's civilian nuclear cooperation agreements, particularly the 2008 U.S.-India Civil Nuclear Deal, have been used as strategic glue. The agreement, which had the effect of bringing India out of its nuclear isolation in spite of its non-signatory status to the NPT, was a signal of a significant shift of global power. Rather than reactors or uranium shipments, the deal represented American acceptance of India as a responsible nuclear state, and by extension, a

balancing counterweight to China. It was a reward for India's record of nuclear restraint in the diplomatic sphere, and it cleared the way for more comprehensive defence and technology collaboration between Washington and New Delhi.

Nuclear Infrastructure as Strategic Leverage: Civilian nuclear power is also a representation of modernity and state capability. In a world system in which appearances are just as vital as substance, nuclear energy programs provide states with the ability to show scientific capability, bureaucratic control, and industrial savvy. This prestige is particularly vital for rising powers that desire to be recognised in the global community. Take the cases of Brazil and Argentina. In the latter part of the 20th century, the two nations pursued parallel nuclear programs that were both competitively motivated yet status-seeking. Their final cooperation under the ABACC (Brazilian-Argentine Agency for Accounting and Control of Nuclear Materials) not only minimised regional tensions but also enabled both to present themselves as responsible custodians of advanced technology.

Egypt, for example, has consistently sought to reactivate its nuclear power program as not only a solution to energy deficits but as an emblem of Nasserist ambitions and scientific renaissance. Indonesia and Turkey have also placed their nuclear aspirations in the context of being indications of 21st-century preparedness. That they are frequently postponed or financially questionable makes no difference to their symbolic capital.

Even nations distant from weapons aspirations view nuclear capability as a sign of national development. Egypt, for example, has consistently sought to reactivate its nuclear power program as not only a solution to energy deficits but as an emblem of Nasserist ambitions and scientific renaissance. Indonesia and Turkey have also placed their nuclear aspirations in the context of being indications of 21st-century preparedness. That they are frequently postponed or financially questionable makes no difference to their symbolic capital. Prestige, in such a context, is not narcissism—it is a soft power asset. A state with the capability to master the nuclear fuel cycle or run a reactor under IAEA controls sends the message to the world that it is one of an elite group of technologically advanced and norm-following states.

Nuclear Infrastructure as Strategic Leverage: Aside from alliance-building and prestige, nuclear installations also serve as strategic leverage—both internally and externally. Internally, governments are likely to deploy nuclear energy programs for the accruing of political power, building patronage networks, and justification of huge infrastructure spending. Externally, nuclear energy programs can become bargaining chips in regional diplomacy or tools of influence within international organisations.

Japan, on the other hand, is a form of leverage that is unique. Being the only nation attacked with nuclear weapons and still being a significant nuclear energy producer, Japan enjoys a robust civilian program viewed by most analysts as a possible deterrent. Its mastery of the entire nuclear fuel cycle, including reprocessing plant facilities, makes it have the technological capability to go nuclear within months if its security scenario deteriorates. This "turn of the screwdriver" capability, never officially enshrined as doctrine though, plays a humble role in Tokyo's strategic deliberations, especially in the context of rising China and nuclear-armed North Korea.

Civilian Programs and Normative Power: There is also a normative aspect to civilian nuclear strategy. By staying under the cover of international regulations and staying within export regimes such as the NSG, states can establish moral high ground for themselves in global debates on non-proliferation. This is particularly significant for states such as India that have previously been criticised for being outside the NPT. With responsible civilian programs, these nations establish a record of good statecraft that can be used to secure membership in global institutions

of international governance—be it the NSG, the IAEA Board of Governors, or even the UN Security Council. Nuclear capability is not just a source of energy or status symbol anymore, but also a prerequisite for leadership on the global stage.

Rethinking Power: Beyond the Bomb: If we extend our definition of power beyond the strictly military, we see that nuclear energy facilities, even under their civilian guise, serve as a tool of strategic leverage. That leverage need not take the form of deterrence in the classical sense, but it has an enormous impact on allies, enemies, and global institutions alike.

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It is thus time to rephrase the term atoms for peace, which has been employed for so long to characterise civilian nuclear power. Peace may be the avowed objective, but strategy is the ubiquitous partner. Whether it is the geopolitics of the uranium supply chain, the dominance of Russian-designed reactors in Eastern Europe, or Chinese Hualong One reactors being exported as part of the Belt and Road Initiative, the peaceful atom is now irrevocably a part of global power politics.

Conclusion: Nuclear power, even as a civilian presence, is never unpolitical. It is an extension of technological prowess, an instrument of alliance consolidation, and a tool of regional and global leverage. Although it won't deter in the traditional military sense, it most assuredly influences strategic conduct. The strategic value of the peaceful atom lies exactly in its ambivalence: it is developmental and threatening, peaceful and dynamic, symbolic and tangible. To states looking to increase their standing without going nuclear, civilian nuclear energy presents a powerful and underemphasized option.

Source: https://dras.in/being-strategic-nuclear-power-superior-statecraft-beyond-deterrence/, 2 August 2025.

OPINION – William D. Hartung

We Need to Stop the Nuclear Arms Race Before it Stops Us

Last week, President Trump reported that he had ordered nuclear-armed US submarines to move closer to Russia in response to veiled nuclear threats uttered by former Russian president Dimitri Medvedev. The rhetorical combat between Trump and Medvedev underscored the risk that a war of words between Washington and Moscow could escalate into a real war—a war between nations with enough nuclear firepower to end life as we know it.

But upon closer scrutiny, Trump's response to Medvedev was puzzling. As David Sanger of The New York Times pointed out, US ballistic firing submarines "don't need to be repositioned. They can reach targets thousands of miles away. In fact, moving them can expose their position." Is it possible that our current commander in chief—the man with the authority to launch World War III—doesn't understand how nuclear delivery systems work? In response to Trump's talk of repositioning the submarines, a Russian government spokesperson took the high road, telling a group of reporters "there can be no winner in a nuclear war. This is probably the key premise we rely on. We do not think there is talk of escalation."

This soothing rhetoric contrasted sharply with Vladimir Putin's threats to resort to the use of tactical nuclear weapons during the early stages of Russia's invasion of Ukraine. The loose talk by both men underscores the danger of our current moment—a period of accelerated investment in nuclear weapons in the United States, Russia, and China at the same time that relations between Washington and both Beijing and Moscow are at a low ebb. To make matters worse, the last US-

Russia arms accord—New START—is scheduled to expire next year.

The distance between tough-guy posturing and the start of an actual conflict is too close for comfort. That's why the Bulletin of the Atomic Scientists' famous "Doomsday Clock" is now set at 89 seconds to midnight, the closest it has been to catastrophe since the beginning of the nuclear age. And even as the great powers rush to build a new generation of nuclear weapons, there is no consistent dialogue among Russia, China, and the US about their nuclear postures or nuclear intentions. Meanwhile, nuclear weapons advocates in the US Congress and the conservative think tank world are aggressively pushing for a return to some of the riskiest practices of the Cold War era, from multi-warhead, long-range nuclear missiles to larger stockpiles of tactical nuclear weapons in Europe, to above ground nuclear testing. These measures risk dragging us back to the attitudes that prevailed in US national security circles before the peace movement of the 1980s transformed Ronald Reagan from the man who called the Soviet Union the "evil empire" and joked that the bombing would start in five minutes to the one who publicly acknowledged that "a nuclear war can never be won and must never be fought."

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Before public pressure soured Reagan's opinion of the utility of nuclear weapons, there were some extraordinary statements made about nuclear war being "survivable." For example, Colin Gray and Keith Payne teamed up for an infamous 1980 article in Foreign Policy titled "Victory Is Possible" in which they claimed that the United States could get through a nuclear war with Russia while losing "only" 20 million people. And Reagan civil defense official T.K. Jones famously told progressive journalist Robert Scheer that "with enough shovels" Americans could dig makeshift shelters—dirt holes with wooden planks on top—to ride out a nuclear conflict. Scheer's 1982 book prompted by that conversation was a mainstay of antinuclear organizing and education as the peace movement grew in power during the 1980s.

As nuclear hawks push for a return to dangerous Cold War era practices and attitudes, the antinuclear movement is on its back heels, struggling to raise funds and generate attention amid the fusillade of horrific acts emanating from Moscow, Tel Aviv, Washington, and other global capitals. Genocide in Gaza, ongoing wars in Ukraine and Sudan, simmering trade wars, real-time ravages of climate change, rising authoritarianism, and growing global inequality are causing widespread devastation and trauma, leaving many people feeling powerless to push back in any meaningful fashion. In this political environment, with lives at risk on a daily basis, getting people to focus on the risk of a nuclear confrontation is a hard sell. But from the ban-the-bomb movement of the 1950s and '60s to the vibrant peace movement of the 1980s, people have risen to the occasion before, reining in the nuclear arms race and reducing global nuclear arsenals.

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To be effective, a new antinuclear movement will have to be woven into the fabric of a society-wide drive for peace and social justice writ large, in

which organizations concerned with specific threats to our common future make common cause, all the while respecting each other's unique priorities and perspectives. We need to build a new community of advocates and organizers on a global scale that can survive the current assault on our lives and livelihoods while putting forth a robust vision of a more just, more tolerant, more joyful future. We need the patience to build relationships among people and organizations working on parallel tracks while being mindful of what Dr. Martin Luther King Jr. described as "the fierce urgency of now."

As evidenced by the turnout at the "No Kings" demonstrations and the increase in courageous voices of resistance that refuse to be intimidated by neo-McCarthyite tactics, people are beginning to find their footing in the face of the relentless assault on basic rights and basic decency emanating from the current administration in Washington. The struggle for the future of America and the world is on, and no one can afford to sit on the sidelines.

Source: https://www.thenation.com/article/world/trump-russia-nuclear-war-arms-race/#, 5 August 2025.

OPINION – Josh Hammer

America Must Never Apologize for Dropping the Bombs on Japan

This week marks the 80th anniversary of President Harry Truman's fateful decision to drop atomic bombs on the Japanese cities of Hiroshima and Nagasaki (respectively, Aug. 6 and 9, 1945). To date, those two bombings represent the only instances in which nuclear weapons have been deployed in war. At least 150,000 Japanese perished—a majority of them civilians. But the bombings were successful in achieving their intended effect: Japan announced its formal surrender to the Allies six days after the second bombing, thus finally bringing the bloodiest conflict in human history to an end.

For decades, ethical opposition to Truman's decision has mostly come from left-wing critics. That seems to be changing. Last year, Tucker Carlson claimed that nuclear weapons were created by "demonic" forces and asserted that the United States was "evil" for dropping the bomb on Japan. Director of National Intelligence Tulsi Gabbard also posted a highly peculiar video in June that, while falling short of apologizing for the bombs, did pointedly warn of "warmongers" who are bringing the world to the brink of "nuclear holocaust." This is misguided. Looking back eight decades later, Truman's decision deserves not condemnation but a tragic and grudging gratitude. It was the right decision, and America must never apologize for Hiroshima and Nagasaki.

Director of National Intelligence Tulsi Gabbard also posted a highly peculiar video in June that, while falling short of apologizing for the bombs, did pointedly warn of "warmongers" who are bringing the world to the brink of "nuclear holocaust." This is misguided. Looking back eight decades later, Truman's decision deserves not condemnation but a tragic and grudging gratitude. It was the right decision, and America must never apologize for Hiroshima and Nagasaki.

Critics often portray Truman's decision as an act of monstrous brutality—a flex of raw military might by a sadistic and trigger-happy superpower. But such characterizations, drenched in presentist moral narcissism, do a grave disservice to the reality on the ground and the countless lives Truman undoubtedly saved. They are also a grave disservice to the memory of all those killed by the Japanese at Pearl Harbor on Dec. 7, 1941. Carlson and his fellow ultra-pacifists should visit Pearl Harbor and stand over the sunken USS Arizona, the final resting place of more than 900 sailors and marines. One can still see and smell the oil leaking from the ships, all these decades later; it is an extraordinary experience.

Shocking sensory intakes aside, the sober reality is that the bombings of Hiroshima and Nagasaki, no matter how morbid and macabre, were strategically and morally correct. When Truman authorized the use of the atomic bombs, he faced

a truly appalling alternative: a full-scale land invasion of Japan. Operation Downfall, the planned invasion of the Japanese home islands, had projected American and Japanese casualties potentially reaching as high as a million lives each. The Imperial Japanese, steeped in a kamikaze warrior ethos, had proven time and again—at Iwo Jima, Okinawa, and elsewhere—that they would fight to the last man, woman, and child. Schoolchildren were being trained to attack American troops with sharpened bamboo sticks. Fighting to the death was not mere speculation; it was core Imperial Japanese doctrine.

The under-discussed truth is that Imperial Japan was just as ruthless and barbaric as its Nazi German wartime ally. And the atomic bombs—absolutely horrific though they were—finally shocked Japan into surrender. They punctured Japan's carefully curated myth of divine invincibility and left Tokyo's bellicose leadership with no doubt that continued resistance could only mean utter annihilation. More than 100,000 Americans had already been killed in the Pacific theater, and those who had survived were overjoyed by Truman's decision: They knew they would live and return home to their wives and children.

Truman's decision also affirmed a deeper American nationalistic sentiment: that from an American perspective, the safety and security of American lives must necessarily be prioritized over foreign lives. Truman did not see any moral virtue in sacrificing our soldiers on the altar of an abstract globalism or a relativistic humanitarianism. His first obligation as commander-in-chief was to protect American lives by securing a final, unconditional end to the war. In this, he succeeded—resoundingly.

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Critics often claim Japan was already on the brink of surrender. They point to back-channel diplomacy and note the Soviet declaration of war the day prior to the bombing of Nagasaki. But Truman didn't have the benefit of postwar memoirs or archival research. He had bloodied maps, hundreds of thousands of dead soldiers, grieving families, and military intelligence suggesting the Japanese military would never accept unconditional surrender without a shock so great it shattered their will to fight.

This, too, reflects a clarity that modern Western leaders often lack: the resolve to act decisively, to bear the weight of terrible decisions in pursuit of peace and justice. Truman's choice was not only militarily sound but morally defensible. The bombings were not, as many armchair critics have argued over the decades, a cheap form of ethical utilitarianism; Truman's decision to bomb was simply reflective of how real war-and-peace decisions must be made in the heat of the moment, when the stakes are the highest.

It is fashionable now to question the morality of Truman's decision from the safety of the present. But it is an act of historical myopia to pretend that the atomic bombings were gratuitous or overly callous. They were not. They were the tragic price of a brutal victory and the necessary cost of hard-fought peace. War, we know, is hell. Indeed, that is a very good reason to avoid starting wars in the first place. But once upon a time, Western societies understood that once a horrific war has been initiated, there can be no substitute for absolute victory. That lesson has long been forgotten. It is past time to learn it once again.

Source: https://www.newsweek.com/america-must-never-apologize-dropping-bombs-japan-opinion-2110537, 8 August 2025.

NUCLEAR STRATEGY

RUSSIA

Russia Withdraws from Unilateral Moratorium on Land-Based Missile Deployment

Russia announced on Monday that it has abandoned the moratorium on the deployment of land-based intermediate- and short-range missiles. According to a statement from the Russian Foreign Ministry, the decision was made after the conditions for maintaining a unilateral moratorium on the deployment of such weapons disappeared, removing the self-imposed restrictions.

The moratorium was based on the Intermediate-Range Nuclear Forces Treaty, signed between the US and the former USSR in 1987, which banned all of the two nations' nuclear and conventional ground-launched ballistic missiles, cruise missiles, and missile launchers with ranges of 1,000–5,500 kilometers (620–3,420 miles) and 500–1,000 kilometers (310–620 miles)

The statement noted that the US and NATO allies had not reciprocated Russia's efforts to restrict missile deployment, citing the movement of missile launch platforms to Europe, the Philippines, and Australia as a direct threat to Russian security. Russia would withdraw from the moratorium to maintain strategic balance and counter this new threat, it added.

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Source: https://www.aa.com.tr/en/world/russia-withdraws-from-unilateral-moratorium-on-land-based-missile-deployment/3650596, 4 August 2025.

USA

Trump Orders US Nuclear Subs Repositioned over Statements from Ex-Russian Leader Medvedev

In a warning to Russia, President Donald Trump said he's ordering the repositioning of two U.S. nuclear submarines "based on the highly provocative statements" of the country's former president, Dmitry Medvedev, who has raised the prospect of war online. Trump posted on his social media site that, based on the "highly provocative statements" from Medvedev, he had "ordered two Nuclear Submarines to be positioned in the appropriate regions, just in case these foolish and inflammatory statements are more than just that."

The president added, "Words are very important, and can often lead to unintended consequences, I hope this will not be one of those instances." It wasn't clear what impact Trump's order would have on U.S. nuclear subs, which are routinely on patrol in the world's hotspots, but it comes at a delicate moment in the Trump administration's relations with Moscow.

The president added, "Words are very important, and can often lead to unintended consequences, I hope this will not be one of those instances." It wasn't clear what impact Trump's order would have on U.S. nuclear subs, which are routinely on patrol in the world's hotspots, but it comes at a delicate moment in the Trump administration's relations with Moscow. Trump said later that he was alarmed by Medvedev's attitude. "He's got a fresh mouth," Trump said in an interview with Newsmax.

Trump has said that special envoy Steve Witkoff is heading to Russia to push Moscow to agree to a ceasefire in its war with Ukraine and has threatened new economic sanctions if progress is not made. He cut his 50-day deadline for action to 10 days, with that window set to expire next week.

The post about the sub repositioning came after Trump, in the wee hours of Thursday morning, had posted that Medvedev was a "failed former President of Russia" and warned him to "watch his words." Medvedev responded hours later by writing, "Russia is right on everything and will continue to go its own way."

And that back-and-forth started earlier this week when Medvedev wrote, "Trump's playing the ultimatum game with Russia: 50 days or 10" and added, "He should remember 2 things: 1. Russia isn't Israel or even Iran. 2. Each new ultimatum is a threat and a step towards war. Not between Russia and Ukraine, but with his own country." Asked as he was leaving the White House on Friday evening for a weekend at his estate in New Jersey about where he was repositioning the subs, Trump didn't offer any specifics. "We had to do that. We just have to be careful," he said. "A threat was made, and we didn't think it was appropriate, so I have to be very careful."

Trump also said, "I do that on the basis of safety for our people" and "we're gonna protect our people." He later added of Medvedev, "He was talking about nuclear. When you talk about nuclear, we have to be prepared," Trump said. "And we're totally prepared." He told Newsmax that the submarines were being moved "closer to Russia." Medvedev was Russia's president from 2008 to 2012, while Vladimir Putin was barred from seeking a third consecutive term, and then stepped aside to let him run again. Now deputy chairman of Russia's National Security Council, which Putin chairs, Medvedev has been known for his provocative and inflammatory statements since the start of the war in 2022. That's a U-turn from his presidency, when he was seen as liberal and progressive.

Medvedev has frequently wielded nuclear threats and lobbed insults at Western leaders on social media. Some observers have argued that with his extravagant rhetoric, Medvedev is seeking to score political points with Putin and Russian military hawks. One such example before the latest spat with Trump came on July 15, after Trump announced plans to supply Ukraine with more weapons via its NATO allies and threatened additional tariffs against Moscow. Medvedev posted then, "Trump issued a theatrical ultimatum to the Kremlin. The world shuddered, expecting the consequences. Belligerent Europe was disappointed. Russia didn't care."

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Source: https://www.live5news.com/2025/08/01/trump-says-he-has-mobilized-2-nuclear-submarines-response-threats-russias-former-president/, 1 August 2025.

BALLISTIC MISSILE DEFENSE

GERMANY

Germany Plans to Buy 500+ Skyranger Air Defense Systems

Rheinmetall CEO Armin Papperger says the German defense company anticipates receiving an order from the Bundeswehr later this year for additional Skyranger air defense gun systems worth between six and eight billion euros ($7-9 billion). Speaking during a conference call with analysts, Papperger declined to disclose specific quantities, citing agreements with the German Ministry of Defense. "We will not talk about quantities for security reasons," he said. The deliveries are expected to be completed by 2035, with procurement split into two periods — from now until 2029, and from 2029 to 2035. "These are the two periods the government is planning with," Papperger noted.

As reported by hartpunkt, the Bundeswehr is planning a major expansion of its ground-based air defense capabilities. Well-informed sources

told the outlet that demand for the lowest-tier interception layer alone could reach 500 to 600 Skyranger gun systems across all branches of the armed forces. Based on industry pricing estimates for each unit, this would align with Rheinmetall's projected contract value. In February 2024, the Bundeswehr awarded Rheinmetall a 595 million euro contract to develop and deliver a demonstrator and 18 production Skyranger 30 systems mounted on Boxer vehicles. The prototype was handed over in January 2025, and the series vehicles are expected to enter service in 2027 and 2028.

According to Rheinmetall, the Skyranger 30 is designed to close Germany's capability gap in short-range and very short-range mobile air defense. It can operate both autonomously and as part of a networked system. Using programmable AHEAD airburst ammunition, it is particularly suited to countering drones. The turret combines a 30×173 mm KCE revolver cannon, short-range surface-to-air missiles, and an integrated sensor suite. For the Bundeswehr variant, Rheinmetall will integrate MBDA's DefendAir missile — previously known as the Small Anti-Drone Missile (SADM) — intended as a low-cost solution for drone defense. The Skyranger will carry 9 to 12 of these missiles, with a range of up to five kilometers. DefendAir development is scheduled for completion between 2025 and 2028, with qualification by 2029 and procurement starting in 2030.

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The KCE revolver cannon remains the Skyranger's primary weapon, with an effective range of up to 3,000 meters. Rheinmetall says it has demonstrated high firepower and precision during testing under challenging weather conditions. The 30 mm airburst munitions are programmed at the muzzle based on measured velocity, compensating for slight variations in propellant charges and improving accuracy against small aerial targets.

For detection, the system uses Hensoldt's SPEXER 2000M 3D MkIII radar. Each panel covers 120 degrees, allowing full 360-degree coverage with three panels. Hensoldt states the radar can detect and track more than 300 targets simultaneously, from micro-drones to combat aircraft and missiles, with ranges of up to 40 kilometers. It can also operate while on the move. An electro-optical suite from Chess Dynamics complements the radar for target identification and tracking. The Skyranger 30, with its hybrid cannon-missile architecture, is intended to provide a mobile, layered defense solution.

Source: https://defence-blog.com/germany-plans-to-buy-500-skyranger-air-defense-systems/, 9 August 2025.

PHILIPPINES

Philippines Advances Plans to Acquire More BrahMos India Missile Systems

According to information published by the Philippine News Agency on August 8, 2025, the Philippine Department of National Defense (DND) is preparing to expand its inventory of Indian-made BrahMos cruise missile systems, signaling a deepening of the country's strategic defense posture in the Indo-Pacific. During a state visit to India, Philippine Defense Secretary Gilberto Teodoro Jr. confirmed that the existing BrahMos batteries are now considered a core element of the nation's deterrent capability and that plans to acquire additional systems are actively progressing.

Speaking to Indian media on the sidelines of President Ferdinand Marcos Jr.'s state visit from August 4 to 8, Secretary Teodoro emphasized the operational and strategic value of the BrahMos system, describing the experience with the initial three batteries as "very enlightening" and a foundation for broader, long-term collaboration. This statement reinforces the Philippines' growing interest in cementing defense ties with

New Delhi through sustained acquisition programs and joint capability development.

The Philippines became the first foreign customer of the BrahMos missile system when, in January 2022, then Defense Secretary Delfin Lorenzana signed a PHP18.9 billion contract with BrahMos Aerospace for three shore-based missile batteries. The system, capable of delivering precision strikes at supersonic speeds of up to Mach 3, provides the Armed Forces of the Philippines (AFP) with a potent tool for coastal defense and area denial operations amid growing regional security tensions.

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President Marcos previously indicated that the BrahMos acquisition aligns with the next phase of the AFP modernization program, focused on maritime security and credible deterrence. The push for additional systems is expected to include upgrades to training, logistics support, and the possible integration of new BrahMos variants with longer ranges and multi-platform deployment capabilities, including naval and air launch options.

The move comes as the Philippines seeks to enhance its defense self-reliance and operational readiness, particularly in contested maritime zones. The BrahMos missile system, jointly developed by India's DRDO and Russia's NPO Mashinostroyeniya, is seen as a force multiplier in the region, and its expanding presence in Southeast Asia represents a notable shift in the balance of deterrence amid ongoing strategic competition.

The BrahMos systems already deployed in Philippine service are the Shore-Based Anti-Ship Missile System (SBASMS) configuration, optimized specifically for maritime strike missions. This variant is designed to target and neutralize hostile surface vessels, such as warships and amphibious assault platforms, at ranges exceeding 290 kilometers, with upgraded variants now reaching up to 450 kilometers. Firing at speeds nearing Mach 3 and featuring a sea-skimming trajectory, the missile presents a severe challenge to enemy naval air defenses. Its deployment along the Philippine coastline and island territories provides a mobile, high-speed deterrent capable of defending the country's maritime zones, including areas of strategic concern in the South China Sea.

The acquisition and expansion of the BrahMos missile system are of strategic importance for the Philippines because they directly enhance the nation's ability to defend its maritime sovereignty in a region marked by intensifying geopolitical tensions. As an archipelagic state with vast maritime claims and critical sea lines of communication, the Philippines faces growing challenges in protecting its territorial integrity. By deploying a highly capable shore-based anti-ship system like BrahMos, the country gains a credible and immediate deterrent against potential naval incursions.

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The missile's precision strike capability and rapid response profile contribute to a robust area-denial posture that significantly increases the cost of hostile actions against Philippine interests. More than just a defense acquisition, the BrahMos system symbolizes the Philippines' intent to develop a modern, self-reliant military posture while reinforcing its role in maintaining regional security and stability in the Indo-Pacific.

Source: https://armyrecognition.com/news/army-news/2025/breaking-news-philippines-advances-plans-to-acquire-more-brahmos-india-missile-systems, 8 August 2025.

USA

Lockheed Launches Hub to Prototype Golden Dome Command Systems

Lockheed Martin has launched a prototyping hub to develop possible command-and-control solutions to be offered as a critical part of the Golden Dome homeland missile defense shield's architecture, the company announced. Within 36 days of the original idea, the company established the capability at its Center for Innovation facility in Suffolk, Virginia, also known as "the Lighthouse," Thad Beckert, the company's director of strategy and business development for its rotary and mission systems division, told reporters.

"Prototyping is already underway at the Lighthouse," a company statement reads, "where real capabilities are being tested against current and future threat scenarios, from ground to space." When President Trump first announced his plans to develop the Golden Dome for homeland missile defense, Lockheed began thinking about what would be needed for such a capability when it comes to command-and-control.

"When you think about the combatant commander or the commander at all levels of operating within the operating theater, they all have to have an integrated awareness and that integrated awareness comes from making sure that when you see a threat, you know what that threat is and the best way to engage that threat," Beckert said.

When you think about the combatant commander or the commander at all levels of operating within the operating theater, they all have to have an integrated awareness and that integrated awareness comes from making sure that when you see a threat, you know what that threat is and the best way to engage that threat," Beckert said.

"You want to have more than one shot at that threat. You also want to know that you're putting the right weapon on the right threat, and you're matching it against what you think might be coming. When you take all that together, that is a challenging problem, and when you scale it to the national level and beyond, that is one of the biggest challenges that's ever been undertaken in the command and control world," he said. Adding, "This has not been done yet."

Lockheed has a deep level of command-and-control experience including developing and fielding the Command and Control, Battle Management and Communications (C2BMC) system, which is the C2 for the U.S.' global missile defense architecture. Yet, the company does not plan to develop solutions in a vacuum and acknowledges the need to work across U.S. industry with other defense primes as well as companies considered non-traditional in the defense world.

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"If you think about the capabilities that we've been talking about here for command-and-control. It's beyond what Lockheed Martin makes," Beckert said. "It'll

include other capabilities that others that are currently fielded out in the environment... that will be part of this layer defense," he continued. "So we have to take in all of those solutions and think about the best way to do both command-and-control — two separate actions — and make sure that we create that optimized defense."

The prototyping hub "will be open to industry," Beckert noted, and will be designed so companies can come together and work at higher classification levels and bring capabilities together in one place. The prototypes will be based on existing capabilities, which is necessary to move at the speed required to meet the Administration's goals. Yet while existing capabilities will be leveraged, Beckert noted that "these weren't designed originally to operate as a single, unified command-and-control capability. We have to bring them together and have them start exchanging data, not just any data, mission-thread-informed data, so that we can look at the mission and we can make sure that... the new way is faster, and that is success."

The U.S. Air Force has begun transferring F-16 Fighting Falcon warplanes from South Korea's Kunsan Air Base to Osan Air Base, located about 80 miles closer to the North Korean border. The transfer, which began July 31, is in preparation for the Air Force's "super squadron" test, which began its initial phase last October. At the time, nine F-16s and 150 Airmen moved to Osan.

Source: https://www.defensenews.com/industry/2025/08/05/lockheed-launches-hub-to-prototype-golden-dome-command-systems/, 5 August 2025.

EMERGING TECHNOLOGIES AND DETERRENCE

USA

Air Force Moves F-16s Closer to North Korea in New 'Super Squadron'

The U.S. Air Force has begun transferring F-16 Fighting Falcon warplanes from South Korea's Kunsan Air Base to Osan Air Base, located about 80 miles closer to the North Korean border. The transfer, which began July 31, is in preparation for the Air Force's "super squadron" test, which began its initial phase last October. At the time, nine F-16s and 150 Airmen moved to Osan. The second phase of the exercise, approved in April by the chief of staff of the Air Force, will begin this upcoming October and calls for a second super squadron at Osan. Preparations for this next phase of the test will see a total of 31 F-16s and about 1,000 Airmen transferred there over the summer. The movement will be temporary, the Air Force has stated.

"Osan is receiving additional F-16s as part of the Air Force's Super Squadron Test Part II initiative, which is a force-optimization test designed to see if a larger, consolidated squadron can generate more combat power and operate more efficiently," Capt. Bryce Hughes, 51st Maintenance Group Officer and Sortie Generation Flight commander, said in a service release. The move marks an effort to consolidate air combat power and test logistics, maintenance and manpower capabilities, while bolstering the Seventh Air Force's support to South Korean defense forces.

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Kunsan Air Base will maintain its role as a major hub for U.S. air component forces in South Korea, while the shift to Osan is hoped to provide a more robust defense against threats from an increasingly belligerent North Korea. "We'll meet this change with the same warfighter mindset the Wolf Pack has maintained through our history, and strengthen our ability to accept follow-on forces, defend the base and take the fight north," Col. Peter Kasarskis, 8th FW commander, said in a release when the new phase was initially approved.

While the test is ongoing, the 51st Fighter Wing will expand joint training exercises with the Republic of Korea Air Force and maximize its combat readiness proficiencies. With a legacy inherited from the Korean War, the 51st Fighter Wing maintains a "Fight Tonight" posture in defense of the Republic of Korea and provides leading defense capabilities to the peninsula, including counter air and fire, interdiction, air strike control and close air support, among other warfighting capabilities. "The 51st Fighter Wing is leading the charge on the Super Squadron Test," said Col. Ryan Ley, 51st Fighter Wing commander, in a release. "I'm proud of what the Mustangs have accomplished already, and I look forward to testing the limits of what we can do over the next year."

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Source: https://www.defensenews.com/news/your-air-force/2025/08/06/air-force-moves-f-16s-closer-to-north-korea-in-new-super-squadron/, 6 August 2025.

VATICAN CITY

Pope Leo Criticises Nuclear Deterrence on 80th Anniversary of Hiroshima Bombing

Pope Leo criticised the "illusory security" of the global nuclear deterrence system, in an appeal on the 80th anniversary of the United States dropping an atomic bomb on the Japanese city of Hiroshima at the end of the Second World War. Leo, the first U.S.-born pope, said in his weekly audience that the destruction in Hiroshima, which killed about 78,000 people instantly, should serve "as a universal warning against the devastation caused ... by nuclear weapons."

"I hope that in the contemporary world, marked by strong tensions and bloody conflicts, the illusory security based on the threat of mutual destruction will give way to...the practice of dialogue," said the pontiff. While the Catholic Church for decades gave tacit acceptance to the system of nuclear deterrence that developed in the Cold War, Leo's predecessor Pope Francis changed the Church's teaching to condemn the possession of nuclear arms.

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Francis, who died in April after a 12-year papacy, also strongly backed the U.N. treaty to ban nuclear weapons, which formally went into force in 2021 but has not gained support from any of the nuclear-armed nations. Leo's appeal on Wednesday came hours after representatives from 120 countries, including the U.S., attended an annual ceremony in Hiroshima to mark the atomic bombing.

Among those attending the ceremony was a delegation of Catholic bishops from Japan, South Korea and the U.S. including Cardinals Blase Cupich of Chicago and Robert McElroy of Washington, D.C. "We strongly condemn all wars and conflicts, the use and possession of nuclear weapons and the threat to use nuclear weapons," the bishops said in a joint statement on Wednesday.

Source: https://tinyurl.com/mpt64y5b, 6 August 2025.

NUCLEAR ENERGY

GENERAL

Five Countries Account for 71% of the World's Nuclear Generation Capacity

Five countries account for more than two-thirds of the world's total nuclear electricity generation

capacity. The United States has the most capacity, followed by France, China, Russia, and South Korea, based on IAEA data as of June 2025. Globally, 416 nuclear power reactors are operating in 31 countries, with a total installed net generating capacity of 376 GW.

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The development of nuclear power plants for commercial electricity generation began in the United States in the late 1950s with the commissioning of the Shippingport Atomic Power Station in Pennsylvania. Most of the operating U.S. nuclear generating capacity was constructed between 1967 and 1990.

Electric utilities in the United States currently operate 94 nuclear reactors, and the country is the world's largest producer of nuclear electricity. Domestically, nuclear electricity accounted for 782 GWh, or 19% of U.S. electricity generation, in 2024. U.S. nuclear electricity accounted for 30% of the global total in 2023. The U.S. nuclear reactor fleet operates at a comparatively high capacity factor (92% in 2024) because of increased utility efficiency in managing planned and unplanned generation outages.

China has the fastest nuclear growth rate in the world with 57 reactors commissioned since 1991. Another 28 reactors with a combined capacity of 30 GW are currently under construction, according to IAEA data. Once completed, China's total installed nuclear capacity would surpass that of France. China's operating reactors produced over 433 GWh in 2023, or 5% of China's total electricity generation.

France maintains the second-largest nuclear reactor fleet in the world and the largest nuclear reactor fleet in Europe with 57 reactors with a total installed generating capacity of 63 GW. Nuclear reactors in France generated over 320 GWh of electricity in 2023, which was nearly 65% of the country's total electricity generation. Following the global oil crisis of the early 1970s, developers built 52 nuclear reactors in France between 1975 and 1990 in order to strengthen its energy security.

China has the fastest nuclear growth rate in the world with 57 reactors commissioned since 1991. Another 28 reactors with a combined capacity of 30 GW are currently under construction, according to IAEA data. Once completed, China's total installed nuclear capacity would surpass that of France. China's operating reactors produced over 433 GWh in 2023, or 5% of China's total electricity generation. China has acquired nuclear electricity technology from other countries such as France, Canada, and Russia. Recently, China adapted the U.S. company Westinghouse's AP1000 reactor design into its CAP1000 design.

Russia operates 36 nuclear reactors with a total installed generating capacity of 27 GW; another 4 units totaling 4 GW are under construction. Rosatom, Russia's state-owned nuclear energy corporation, is updating the country's reactor fleet from the smaller, light-water graphite-cooled RBMK units to the larger and more efficient light-water only VVER-1000 and VVER-1200. Russia is currently the world's largest vendor of nuclear generating technology.

South Korea's energy policy is driven by energy security considerations and the desire to minimize dependence on imported fossil fuels. South Korea started developing its nuclear power program in the 1970s and currently operates 26 reactors with another 2 reactors under construction. South Korea's state-backed Korea Hydro & Nuclear Power is an international nuclear vendor; it built the United Arab Emirates' Barakah power plant and will be the vendor for the Dukovany power plant expansion in the Czech Republic.

Source: https://www.eia.gov/todayinenergy/detail.php?id=65904, August 11, 2025.

INDIA

India Targeting Tenfold Rise in Nuclear Energy by 2047: PM Modi

Prime Minister Narendra Modi on 15 August said India is rapidly working on 10 new nuclear reactors and has pledged to increase its nuclear energy capacity tenfold. Addressing the nation from the ramparts of the Red Fort on Independence Day, he said India is taking major initiatives in the field of nuclear energy while keeping the energy needs of the future in mind. "Work is progressing rapidly on 10 new nuclear reactors and, by 2047, we have pledged to increase our nuclear energy capacity tenfold... We are bringing major reforms in the nuclear energy sector," he said.

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"In the field of energy, we all know that we are heavily dependent on many countries for our energy needs whether it is petrol, diesel or gas... We have to spend billions of rupees to import them. It is very important to make the country self-reliant in this regard," Modi said. The prime minister said that in the past 11 years, solar energy capacity has increased 30-fold. "We are building new dams so that hydropower can be expanded and clean energy can be made available," he said. He added that India is also investing thousands of crores of rupees in the Hydrogen Mission.

Source: https://www.deccanchronicle.com/nation/india-targeting-tenfold-rise-in-nuclear-energy-by-2047-pm-modi-1897660, 15 August 2025.

India Sets Out Two-Pronged Strategy for Nuclear Expansion

India's government has set out the key features of its Nuclear Energy Mission to achieve 100 GWe of nuclear capacity by 2047, featuring plans for new large capacity reactors as well as small modular reactors. Minister of State Jitendra Singh set out plans for the deployment of large and small Indian-designed reactors in a 6 August written reply to the Lok Sabha, the lower house of the Indian parliament. He provided a similar answer to the upper house, the Rajya Sabha, on 24 July. Minister of Finance Nirmala Sitharaman announced the Nuclear Energy Mission for Viksit Bharat as part of her budget speech in February (Viksit Bharat is the government's strategy to make India into a completely developed nation by 2047). The mission is a significant contributor to plans for India to reach net zero carbon emissions by 2070, Singh said.

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The main features of the Nuclear Energy Mission are "to augment power production from nuclear energy with least carbon emission and to cater the base load requirement which is currently supported by fossil fuel base power plants," Singh said. "Nuclear Energy Mission envisages deployment of large as well as small nuclear power plants in green fields, in brown fields, as captive plants and for off-grid applications in remote locations. This initiative aims for an active partnership with private sector, R&D of SMRs and enabling measures for new advanced technologies."

Singh outlined the three types of SMR that are being designed and developed by India's Bhabha Atomic Research Centre for demonstration: the

200 MWe Bharat Small Modular Reactor (sometimes referred to as BSMR-200); a 55 MWe SMR; and a 5 MWt high temperature gas cooled reactor for hydrogen production by coupling with suitable thermochemical process for hydrogen production.

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In-principle approval has been obtained for construction of the three demonstration reactors, which are likely to be constructed in 60 to 72 months after receipt of administrative sanction of projects, Singh said: "Lead units of BSMR & SMR are planned to be installed at DAE sites in collaboration with NPCIL. These plants are designed & developed considering deployment as captive power plant, for repurposing of retiring fossil fuel-based plants and for hydrogen production to support transport sector with prime objective of decarbonization by increasing the penetration of nuclear energy in industrial & transport sector."

India currently has 24 operating reactors with a total capacity of 8,780 MWe, and 18 reactors, with a total capacity of 13,600 MWe (including the 500 MW Prototype Fast Breeder Reactor, the PFBR) are at various stages of implementation, Singh said. "On their progressive completion, the installed nuclear power capacity will reach 22,380 MW from 8,780 MW at present.

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Gorakhpur Update: In a separate written answer, Singh said that two of those new units, Gorakhpur 1 and 2, for which the government accorded administrative approval and financial sanction in 2014 - are expected to be completed "by 2031-32". Excavations began at the site in Haryana, in 2018, but Singh told the Lok Sabha that remediation of localised weak zones in soil strata discovered during "confirmatory geo technical investigations" had delayed the start of nuclear island construction. Earlier this year, Minister of Power Manohar Lal Khattar said that first concrete for Gorakhpur 1 is expected to be poured in October.

The procurement of long lead-time equipment has begun, and some major equipment has already been received on site, Singh said. The Indian government describes Gorakhpur units 1 and 2 as "under construction", although the International Atomic Energy Agency's PRIS database does not consider a reactor to be under construction until the first major placing of concrete for the base mat of the reactor building is made.

Source: https://www.world-nuclear-news.org/articles/india-sets-out-two-pronged-strategy-for-nuclear-expansion, 7 August 2025.

India Set to Allow its Private Firms to Mine and Import Uranium to Help Nuclear Expansion

India aims to allow private firms to mine, import and process uranium as part of plans to end a decades-old state monopoly over the nuclear sector and bring in billions of dollars to boost the industry, two government sources said. Prime Minister Narendra Modi's government plans to expand nuclear power production capacity by 12 times by 2047 and it is also relaxing requirements to allow foreign players to take a minority stake

in power plants, Reuters reported in April. If it meets its expansion goal, nuclear will provide 5% of India's total power needs, according to government estimates.

Until now, the state has maintained control over the mining, import and processing of uranium fuel because of concerns over the possible misuse of nuclear material, radiation safety and strategic security. It will retain its grip on reprocessing spent uranium fuel and managing plutonium waste, in line with global practice. But to help meet a surge in demand for nuclear fuel as it expands nuclear power production, the government plans to draw up a regulatory framework that would allow private Indian firms to mine, import and process uranium, the two government sources told Reuters. They asked not to be named because the plans are not yet public.

India has an estimated 76,000 tonnes of uranium enough to fuel 10,000 megawatts of nuclear power for 30 years, according to government data. But the sources said domestic resources would only be able to meet about 25% of the projected increase. The rest would have to be imported and India would need to increase its processing capacity. In announcing its budget on February 1, the government made public its plans to open up the sector without giving details.

The proposed policy, which the sources said was likely to be made public in the current fiscal year, will also permit private players to supply critical control system equipment for nuclear power plants, they said. The Finance Ministry, Department of Atomic Energy and Prime Minister's Office did not respond to Reuters' requests for comment. Outside India, countries including Canada, South Africa and the United States allow private firms to mine and process uranium.

Domestic Supply is Not Enough: India has an estimated 76,000 tonnes of uranium enough to fuel 10,000 megawatts of nuclear power for 30 years, according to government data. But the sources said domestic resources would only be able to meet about 25% of the projected increase. The rest would have to be imported and India would need to increase its processing capacity. In announcing its budget on February 1, the government made public its plans to open up the sector without giving details.

Some of India's big conglomerates subsequently began drawing up investment plans. But analysts said amending the legislation could be complex. "It's a major and bold initiative by the Indian Government which is critical for achieving the target," said Charudatta Palekar, independent power sector consultant. "The challenge will be to define quickly the rules of engagement with private sector." New Delhi will have to change five laws, including the ones regulating mining and electricity sectors and India's foreign direct investment policy to enable private participation in many identified activities, the sources said.

Source: https://www.reuters.com/sustainability/boards-policy-regulation/india-set-allow-its-private-firms-mine-import-uranium-help-nuclear-expansion-2025-08-13/, 13 August 2025.

KAZAKHSTAN

Kazakhstan Begins Construction of First Nuclear Power Plant

Kazakhstan has officially launched the construction of its first nuclear power plant, marking a historic step in the country's energy development. The ceremony, held in the Almaty region, included the symbolic laying of a capsule and the start of engineering surveys. Speaking at the event, Almasadam Satkaliyev, Chairman of the Atomic Energy Agency, said the project would have far-reaching benefits. "The implementation of the project will allow Kazakhstan to form a new generation of highly qualified specialists, strengthen its research base, and create conditions for educational and technological breakthroughs," he noted in his speech delivered on Friday.

Satkaliyev called the plant a "strategic project" that would drive the development of the nuclear industry, boost regional infrastructure, and foster long-term economic growth. The investment is estimated at $14–15 billion, with an additional $1 billion earmarked for social initiatives. The

initial phase of the project began on Friday near the village of Ulken, where specialists started site surveys and drilling operations. The head of Russia's state nuclear corporation Rosatom, Alexey Likhachev, joined Satkaliyev for the official launch.

Teams from Rosatom's engineering division have already begun drilling the first exploratory well and collecting soil samples. According to Rosatom, the studies will assess seismic stability, hydrogeological features, and other site parameters to ensure the safety and reliability of the future facility. Over the course of the surveys, at least 50 wells will be drilled at depths ranging from 30 to 120 meters. The collected data will help determine the plant's final location. "Engineering surveys take about 18 months," Interfax quoted Asset Makhambetov, Deputy Chairman of the Atomic Energy Agency, as saying. "That is, at least 12 months of year-round surveys plus data analysis." The findings will form the basis for the plant's design and technical specifications, he added.

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The agency confirmed that three potential sites in the Zhambyl district of Almaty region are being studied. Rosatom subsidiary JSC Atomenergoproekt will lead the engineering work, supported by Kazakhstani organizations. The surveys will examine geological, seismic, hydrological, and climatic conditions, including seasonal groundwater changes and potential flood risks. The plant will be built by Russia's state-owned nuclear energy corporation, Rosatom, under a "road map" agreement with Kazakhstan, featuring two VVER-1200 nuclear power units. Construction is expected to take around 11 years, with completion targeted for 2035–2036. Financing options, including Russian state export credit, are under consideration.

Kazakhstan's decision to pursue nuclear power follows years of energy shortages. The move received public backing in a nationwide referendum on October 6, 2024, when over 70 percent of voters approved the nuclear power plant project. Kazakhstan, the world's largest uranium producer, holds approximately 12 percent of the globe's recoverable uranium resources. Although the country has not used its uranium for electricity generation for decades, it previously operated a facility from 1973 to 1999 for power generation and desalination. This facility was closed following Kazakhstan's commitment to the global non-proliferation regime. Given its significant uranium resources and commitment to cleaner energy, Kazakhstan is well-positioned to advance its nuclear energy ambitions.

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Source: https://caspiannews.com/news-detail/kazakhstan-begins-construction-of-first-nuclear-power-plant-2025-8-8-35/, 9 August 2025.

NUCLEAR SECURITY

ZAMBIA

IAEA Team Visits Zambia on Nuclear Security Mission

The International Atomic Energy Agency has completed an advisory service mission to Zambia focused on assessing the country's nuclear security regime for nuclear and other radioactive

material out of regulatory control (MORC). The IAEA team recognized Zambia's commitment to nuclear security because of its efforts to prevent, detect, and respond to unauthorized acts involving MORC, and pointed out capacity building and coordination among stakeholders as areas for further enhancement.

The Visit: The International Nuclear Security Advisory Service (INSServ) mission was conducted at the request of the Republic of Zambia. Hosted by the Radiation Protection Authority of Zambia, the mission was led by Samer Quran, director of the National Center for Nuclear and Radiological Security at the Energy and Minerals Regulatory Commission in Jordan. The team was composed of five experts from Argentina, Egypt, Jordan, Norway, and the United State, as well as two IAEA staff members.

INSServ missions aim to support states in strengthening their ability to prevent, detect, and respond to criminal and intentional unauthorized acts involving nuclear or other MORC that is lost, missing, stolen, improperly disposed of, or inadequately stored or handled. The scope of the mission included the foundational elements of nuclear security systems and measures for MORC as well as detection and response systems and measures.

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"Following an International Physical Protection Advisory Service in 2023, the first INSServ mission in Zambia builds on the country's ongoing efforts to improve its nuclear security regime by leveraging the available IAEA assistance mechanisms," said Elena Buglova, director of the IAEA's Division of Nuclear Security. "We are looking forward to continued cooperation with Zambia's competent authorities for strengthening nuclear security."

Activities: During the Zambian mission, the team conducted a series of meetings with officials from the RPA; the Office of the President; the Cabinet Office; the Ministries of Home Affairs, Defense, Technology and Science, Justice, and Foreign Affairs and International Cooperation; the Zambia Police Service, the National Anti-Terrorism Center; the Immigration Department, the Zambia Airports Cooperation; the Civil Aviation Authority; and the Zambia Revenue Authority.

The team also conducted site visits to the Kenneth Kaunda International Airport, the Kazungula (land) Border, the RPA Inland Office in Livingstone, the Kapiri-Mposhi Railway Station, and the National Institute for Scientific and Industrial Research.

To further enhance Zambia's nuclear security capabilities, the team recommended that the country develop comprehensive training programs for its personnel, including exercises. The experts identified good practices in the field of information security and in processes aimed at reducing the risk of insider threats.

"The country has made progress in developing and implementing nuclear security measures at its borders and within its territory. The mission confirmed Zambia's commitment to further improvements concluding that the country should continue to build on its efforts to strengthen multiagency cooperation and coordination among national competent authorities responsible for nuclear security," said Quran.

Actions: To further enhance Zambia's nuclear security capabilities, the team recommended that the country develop comprehensive training programs for its personnel, including exercises. The experts identified good practices in the field of information security and in processes aimed at reducing the risk of insider threats. "The INSServ mission marks a significant milestone in Zambia's commitment to strengthening nuclear security.

The recommendations received will guide our efforts to build a robust and resilient nuclear security regime, protecting our people from the risks posed by nuclear and radioactive material outside regulatory control," said Boster D. Siwila, executive director of the RPA. The draft findings and recommendations were presented to the Republic of Zambia, and the final report will be presented in about three months.

Background: The effort was the 89th INSServ mission conducted by the IAEA since the program began in 2006. INSServ missions, based on the INSServ guidelines published in 2019, assist states in establishing, maintaining, and strengthening their nuclear security regime related to nuclear and other radioactive material out of regulatory control.

Source: https://www.ans.org/news/2025-08-07/article-7265/iaea-team-visits-zambia-on-nuclear-security-mission/, 7 August 2025.

NUCLEAR SAFETY

BANGLADESH

IAEA Team Launches Safety Review at Rooppur Plant

The Pre-Operational Safety Review Team (Pre-OSART) of the IAEA began a safety review at the Rooppur Nuclear Power Plant today, ahead of fuel loading at Unit-1 of the country's first nuclear power project. The 15-member Pre-OSART team is led by IAEA Senior Nuclear Safety Officer Simon Philip Morgan, with IAEA Operational Safety Section Head Juraj Rovney serving as deputy team leader.

The team started work in 11 areas of the plant this morning, said Dr Md Kabir Hossain, project director of the plant. The mission will continue until August 27, he added. The plant will proceed to fuel loading and initial operations at Unit-1 following the IAEA's Pre-OSART mission report, according to the project director. The $12.65 billion Rooppur Nuclear Power Plant is being constructed in Ishwardi upazila of Pabna, featuring two VVER-1200 reactors with financial and technical support from Russia, and will have a generation capacity of 2,400MW. As per international regulations, the IAEA's Pre-OSART mission is usually conducted three to six months before the first fuel load to ensure plant safety.

The plant will proceed to fuel loading and initial operations at Unit-1 following the IAEA's Pre-OSART mission report, according to the project director. The $12.65 billion Rooppur Nuclear Power Plant is being constructed in Ishwardi upazila of Pabna, featuring two VVER-1200 reactors with financial and technical support from Russia, and will have a generation capacity of 2,400MW. As per international regulations, the IAEA's Pre-OSART mission is usually conducted three to six months before the first fuel load to ensure plant safety.

Speaking to The Daily Star, Engineer Md Ashraful Islam, site director of the plant, said, "Rooppur Nuclear Power Plant is at the final stage for fuel loading and starting operation at Unit-1, so conducting the Pre-OSART mission is vital for the plant." According to sources, the Pre-OSART team will review leadership and management systems, training and qualification, operational preparation, maintenance systems, technical aspects of the project, operational experience and feedback, radiation protection systems, chemistry, emergency preparedness and response, accident management systems, and commissioning processes.

Source: https://www.thedailystar.net/news/bangladesh/news/iaea-team-launches-safety-review-rooppur-plant-3959466, 10 August 2025.

SMALL MODULAR REACTORS

GENERAL

IAEA Expands Global Initiative to Boost Knowledge of SMRs

Policy makers in Asia have been learning about small modular reactors as part of a new IAEA initiative to inform governments, regulators and industry about the technology's potential role in

the energy mix. Hosted by Thailand, the second SMR workshop, known as an SMR School, came as momentum behind nuclear energy grows in Asia and beyond. The region is stepping up efforts on nuclear energy, with Asia responsible for two-thirds of the world's reactors under construction — mostly in China, with Uzbekistan starting construction of SMRs.

While the SMR School was underway in Bangkok from 21–25 July, IAEA Director General Rafael Mariano Grossi visited nearby Singapore, reaffirming IAEA support for countries in the ASEAN that are evaluating nuclear including SMRs as part of their clean energy strategies.

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Nuclear Power and ASEAN: "This visit confirmed what we are seeing worldwide: momentum is building, and ASEAN's interest in nuclear energy is real and promising," Mr Grossi said in Singapore. "This stable and low-carbon option clearly has a role to play in the region's energy future." The SMR School was hosted by Thailand's Office of Atoms for Peace (OAP), the country's nuclear regulatory body, and brought together around 40 participants from Azerbaijan, Cambodia, Estonia, Jordan, Kazakhstan, Kuwait, Malaysia, Mongolia, Saudi Arabia, and Uzbekistan as well as 50 Thai officials. The workshop followed the inaugural SMR School held in Kenya in May 2025 for the Africa region and is part of IAEA efforts to support informed decision-making around SMRs.

"The urgency of climate action is greater than ever," said Rungrueng Kitphati, Acting Secretary General of the OAP. "Thailand is actively exploring the role that SMRs can play in our country's energy mix, and we are committed to building a strong legal, regulatory and human resource foundation in line with international safety standards."

Global SMR Developments: SMRs are smaller with lower upfront costs and greater flexibility than traditional nuclear power plants and look set to widen access to nuclear power. The reactors are under development in several countries with units already operational in China and the Russian Federation, and interest is growing after a global consensus on expanding nuclear energy was reached at COP28 in Dubai in 2023.

"This school in Thailand was an opportunity to bring support to a new range of countries, from Central and Southeast Asia to the Middle East and Europe," said Dohee Hahn, Coordinator of the IAEA SMR Platform. "Participants included countries only now exploring SMRs, as well as those actively preparing for deployment."

Over the five-day programme, participants examined the technical, regulatory, economic and infrastructure aspects of SMR development — including energy system planning, safety and licensing, financing, legal frameworks, waste management, emergency preparedness, and stakeholder engagement. The curriculum was designed to reflect both the opportunities and the practical considerations of adopting SMRs.

A session on the strategic role of SMRs in achieving net zero was also held, with officials from OAP and the Thai Ministry of Energy joined by representatives of the Electricity Generation Authority of Thailand, PTT Public Limited Company and Global Power Synergy Public Company Limited. Liu Hua, IAEA Deputy Director General and Head of the Department of Technical Cooperation, delivered remarks on behalf of IAEA Director General Grossi.

SMR Lessons Learned: "We came with many questions: Why do we need these technologies? How do we ensure their safety? What skills are

needed?" said D. Baltabaev of the Uzatom Atomic Energy Agency of Uzbekistan, which is preparing to deploy its first SMRs. "We found not only answers but gained a strong understanding of engineering and regulatory aspects — and the confidence that SMRs are part of a sustainable, reliable energy future."

Noor Mashruddin of Malaysia's Ministry of Energy, Green Technology and Water, agreed the SMR School had offered a valuable learning experience. "It has been very useful," she said. "I appreciated hearing about the other countries' experiences, sharing best practices, and getting feedback from the IAEA experts."

Thailand, which explored nuclear power in the past, is now taking a fresh look in light of changing global and regional dynamics. "There were plans in the past, but they didn't move forward for various reasons," said Siriwat Chedsi of the Electricity Generating Authority of Thailand. "Today, things are different. The urgency is real. The technology has improved. That's why nuclear — specifically SMRs — is once again part of the conversation, with more serious intent than ever before.

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IAEA Support on SMRs: The SMR School is part of a wider package of IAEA support, including the SMR Platform and the Nuclear Harmonization and Standardization Initiative (NHSI), which assist countries in building the infrastructure needed for SMR development, deployment and oversight. The next SMR School will be held in Buenos Aires, Argentina, from 25–29 August, with additional sessions planned for 2026.

Source: https://www.iaea.org/newscenter/news/iaea-expands-global-initiative-to-boost-knowledge-of-small-modular-reactors, 4 August 2025.

CZECH REPUBLIC

CEZ Completing Temelin SMR Boreholes Survey

The Czech Republic's CEZ is completing a round of geological boreholes, with the results to be used in its site application for a small modular reactor at the Temelin nuclear power plant which it hopes to submit during 2026. The first survey related to the SMR project was carried out three years ago with four boreholes to a depth of 30 metres. The current round of drilling is in the southwestern edge of the existing nuclear power plant site and involves nine exploratory core boreholes drilled to a depth of between 50 metres and 200 metres.

The Czech Republic's CEZ is completing a round of geological boreholes, with the results to be used in its site application for a small modular reactor at the Temelin nuclear power plant which it hopes to submit during 2026.

A diamond crown has been used which can drill through the hardest rocks - the hard rocks means progress can be limited at times to two metres per hour. The aim is to refine data on the geological environment. Silvana Jirotková, Director of the SMR development department at ÈEZ, said: "Geologically, it is a very mapped location, suitable for nuclear energy. The surveys were carried out by workers in the 1980s before the construction of Temelín units 1 and 2. Other surveys were in connection with the preparation of the third and fourth units. In the case of the modular reactor, this is the second exploration, others will follow."

The premitting process is already under way for the project, with an environmental impact assessment currently under way, with CEZ hoping to submit it within the next year. The Czech Republic selected Rolls-Royce SMR as its partner for up to 3 GW of new nuclear capacity last year

and CEZ has taken a 20% shareholding in the UK-based company.

Background: The Rolls-Royce SMR is a 470 MWe design based on a small pressurised water reactor. It will provide consistent baseload generation for at least 60 years. 90% of the SMR - measuring about 16 metres by 4 metres - will be built in factory conditions, limiting on-site activity primarily to assembly of pre-fabricated, pre-tested, modules which significantly reduces project risk and has the potential to drastically shorten build schedules.

The aim is to build the first SMR in the Czech Republic there in the mid-2030s. There are also plans being developed for their deployment at the location of current coal-fired power plants. In the Czech Republic four VVER-440 units are currently in operation at the Dukovany site, which began operating between 1985 and 1987.

Last month CEZ and Rolls-Royce SMR signed an Early Works Agreement to start site-specific work for potential small modular reactors at the Temelin nuclear power plant. The aim is to build the first SMR in the Czech Republic there in the mid-2030s. There are also plans being developed for their deployment at the location of current coal-fired power plants. In the Czech Republic four VVER-440 units are currently in operation at the Dukovany site, which began operating between 1985 and 1987. There are also two units at Temelin and between them the six units generate about one-third of its electricity. A CZK407 billion (USD18.6 billion) contract was signed with Korea Hydro & Nuclear Power in June for two of its APR1000 reactors near the existing Dukovany units. The aim is to start construction in 2029. A further two APR1000 units may follow at Temelin.

The Rolls-Royce SMR design is a three loop PWR with an output of 470 MWe derived from 1,358 MWt. The Rolls-Royce SMR concept is centred on modularisation of reliable and proven technology, allowing maximum use of the factory environment to combine standard components with advanced manufacturing techniques. The factory-built modularisation approach is expected to drastically reduce the amount of on-site construction while its compact footprint and modular design means it can be located alongside energy intensive industrial processes.

Source: https://www.world-nuclear-news.org/articles/cez-completing-temelin-smr-boreholes-survey, 6 August 2025.

NUCLEAR COOPERATION

CZECH REPUBLIC–UK

Škoda Backs Rolls-Royce SMR Expansion

UK-based Rolls-Royce SMR has signed a MOU with Škoda JS, part of the Czech Republic's ÈEZ Group, to explore the production of key components for a global fleet of SMRs. In October 2024, Rolls-Royce SMR was selected by ÈEZ to deploy up to 3 GWe in the Czech Republic.

In July ÈEZ and Rolls-Royce SMR signed an Early Works Agreement (EWA) in order to start preparations for construction of the first SMR in the Czech Republic. The EWA builds on the recent signing by the UK and the Czech Republic of a five-year memorandum of understanding to accelerate co-operation on SMRs. Earlier this year, ÈEZ acquired a 20% stake in Rolls-Royce SMR in the form of a capital input.

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Ruth Todd, Rolls-Royce SMR's Operations & Supply Chain Director, said: "This agreement is another

important stride towards building and operating our SMRs in the Czech Republic and demonstrates our commitment to provide local opportunities to the Czech supply chain. Starting collaboration now will help Škoda JS supply its products to the required high standards and allow us to deliver this transformational opportunity together."

Silvana Jirotková, Director of the SMR Development Department at ÈEZ, said the memorandum between Škoda JS and Rolls-Royce SMR is a significant step in preparing the first Czech small modular reactor. "From the beginning, we have emphasised that involving Czech industry in the development and construction of new nuclear sources is our priority, and the cooperation between the British SMR developer and this traditional Pilsen-based company is proof of that."

The Rolls-Royce SMR is the UK's first domestic nuclear technology in more than 20 years – providing a British solution to a global energy dilemma. Each small modular reactor will produce enough stable, affordable, emission-free energy to power a million homes for at least 60 years.

Škoda JS CEO František Krèek noted: "We are ready, and we have the significant support of our owner (ÈEZ) to invest further significant resources in the development of the SMR industry. We also want to involve our engineering capacities in this project in addition to our production capacities." Separately, Rolls-Royce SMR also signed a contract with ÚJV Øež for the analysis, testing, and evaluation of critical SMR components. Based in the Czech Republic, ÚJV Øež is one of the world's foremost suppliers of technical and scientific services and has been serving Europe's industry for more than 60 years.

Discussions covered a broad range of potential collaboration areas, including nuclear infrastructure development, specialist training, radioactive waste and spent fuel management, and integration of nuclear power into national energy systems. "We welcome Uzbekistan's decision to join the club of states using atomic energy for peaceful purposes and implementing a national nuclear program," Moroz said, expressing Belarus's readiness to share its experience.

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Source: https://www.neimagazine.com/news/rolls-royce-smr-partners-with-skoda/?cf-view, 7 August 2025.

UZBEKISTAN–BELARUS

Uzbekistan and Belarus Deepen Nuclear Energy Cooperation

Uzbekistan and Belarus are moving to strengthen bilateral cooperation in nuclear energy, following a high-level meeting in Minsk on August 5. The talks were hosted by Belarusian Energy Minister Denis Moroz and attended by a delegation from Uzbekistan's Uzatom Atomic Energy Agency, led by Director Azim Akhmedkhadjaev.

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The Uzbek delegation is expected to visit the Belarusian Nuclear Power Plant in Ostrovets, where technical teams from both countries will explore concrete areas for cooperation. Moroz emphasized that the launch of the Belarusian plant has bolstered national energy security and driven innovation in sectors such as electric transport and housing electrification. "The nuclear power plant has become a springboard for Belarus to reach a new technological level," he said, adding that the facility complies fully with international safety standards.

Uzatom Director Akhmedkhadjaev commended Belarus's progress in the nuclear sector, calling it "advanced and highly successful." He expressed interest in involving Belarusian experts in Uzbekistan's nuclear development efforts. The Uzbek delegation also visited the dispatch control center of Belenergo, Belarus's national energy company, to observe nuclear grid integration in practice.

Uzbekistan signed a contract with Russia's Atomstroyexport, a subsidiary of Rosatom, in May 2024 to build a small modular nuclear power plant in the Jizzakh Region. The design includes six 55/MW reactors with a combined capacity of 330/MW. In February 2025, Uzatom also formed an international consortium to expand its nuclear capacity, incorporating technologies from Russia, China, Europe, and the United States.

Source: https://timesca.com/uzbekistan-and-belarus-deepen-nuclear-energy-cooperation/, 7 August 2025.

NUCLEAR PROLIFERATION

IRAN

Iravani Slams French 'Hypocrisy' over Nuclear Proliferation

Iran has sharply denounced France at the United Nations, saying Paris is distorting facts and promoting double standards over Tehran's nuclear program while ignoring Israel's undeclared arsenal. In a letter to UN Secretary-General António Guterres and Security Council President Eloy Alfaro de Alba, Iran's ambassador to the United Nations, Amir Saied Iravani, rejected France's remarks as "unwarranted, provocative, and politically motivated."

His response came after a French representative at the August 6 meeting on the "Non-Proliferation of Weapons of Mass Destruction" accused Iran of worsening what it called a "proliferation crisis." "Such a baseless allegation is not only wholly irrelevant to the subject matter of the meeting... but also represents a deliberate distortion of facts," Iravani wrote on Thursday.

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"Iran's nuclear program remains exclusively peaceful and fully transparent. Iran continues to honour its obligations under the NPT," he added. The ambassador condemned France's selective concern. He pointed out that Paris, a nuclear-armed state and permanent member of the Security Council, has long failed to meet its own obligations under Article VI of the NPT—which requires disarmament—and has played a central role in enabling Israel's clandestine nuclear weapons program.

"It is deeply disappointing and hypocritical that France... voices concern over Iran's peaceful nuclear program while ignoring its own long-standing role in undermining the non-proliferation regime," the letter stated. "France remains silent on Israel's nuclear arsenal, and has never called for its accession to the NPT." There is credible historical evidence that France played a significant role in helping Israel develop its nuclear capabilities during the 1950s and early 1960s.

According to declassified US State Department records, Israel received "substantial help from the French in the nuclear field" during that era. Academic research further reveals that France provided critical support in building Israel's Dimona plutonium reactor, including supplying a research reactor, construction assistance, uranium fuel, and necessary financing. The letter comes about two months after the Israeli regime launched an unprovoked aggression against Iran. The regime's military targeted Iranian peaceful nuclear sites on June 13, and nine days later, the United States joined the aggression and bombed the nuclear facilities in a flagrant violation of international law and Iran's sovereignty.

Despite the scale and significance of the attacks,

the Western states, including France, and even the IAEA, refrained from condemning the strikes, raising concerns in Tehran over the agency's impartiality and credibility. Iravani said France's silence on the attacks was tantamount to complicity. "Such complicity not only violates international law and the UN Charter but also threatens the integrity of the global non-proliferation regime."

Israel, which has never signed the NPT, is widely believed to possess between 200 and 400 nuclear warheads. It has maintained a policy of nuclear ambiguity for decades, refusing to allow any international inspections of its military nuclear sites. With consistent US backing, Israel has escaped scrutiny even as it remains the only state in West Asia with a nuclear arsenal.

Iran's envoy called on France to take a clear stance. "If France truly cares about the nuclear non-proliferation regime," he wrote, "it must end its double standards and hypocrisy, and unequivocally demand that Israel accede to the Non-Proliferation Treaty...and place its undeclared military nuclear program under the full-scope monitoring and verification of the IAEA."

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Meanwhile, France is pushing ahead with plans to extend and modernize its nuclear arsenal—despite its obligations under the NPT. President Emmanuel Macron announced in March that the Luxeuil air base will undergo a sweeping upgrade to rejoin France's nuclear deterrent force. "The Luxeuil air base is about to be upgraded in an unprecedented way and regain its full role in France's nuclear deterrent," Macron said during a visit to the site. The overhaul will require a "massive investment," he added, to accommodate two squadrons of Rafale fighter jets equipped to carry nuclear weapons. Under the €1.5 billion plan, the base will host F5 Rafale jets and ASN4G air-launched hypersonic nuclear missiles by 2035.

Source: https://en.isna.ir/news/1404051810579/Iravani-slams-French-hypocrisy-over-nuclear-proliferation, 9 August 2025.

URANIUM PRODUCTION

USA

US Uranium Industry Growth Continues

As Uranium Energy Corp's Sweetwater Uranium Complex is designated for fast-tracked permitting by the US Government, the US Energy Information Administration has confirmed "significant" year-on-year growth in the nation's uranium industry, both in output and employment. 2024 production of 677,000 pounds U3O8 (260 tU) was a "significant increase" from 2023 production of 50,000 pounds U3O8, according to the Energy Information Administration's Domestic Uranium Production Report, published on 5 August.

Exploration drilling during 2024 of 1,324 holes with total footage of 613,000 feet (186,842 metres), was up considerably from the 877 holes totalling 512,000 feet drilled in 2023. Development drilling - 2,462 holes with total footage of 1,260,000 feet was also up from 1,053 holes and 556,000 feet in 2023. Exploration and development drilling activities in 2023 were at the highest levels since 2013, both for number of holes drilled and for total footage drilled, the EIA said.

At the end of 2024, the Shootaring Canyon Uranium Mill in Utah and the Sweetwater Processing Plant, in Wyoming, were on standby, while the White Mesa Mill in Utah began processing using an alternative feed. In Wyoming, the Sheep Mountain heap leach facility reached a partial permitting and licensed stage. In-situ recovery (ISR) facilities at the Alta Mesa Project, Rosita Project, Lost Creek Project, the Smith Ranch-Highland Operation, Ross Central Processing Project, and Willow Creek Project were all operating at year-end, with a combined capacity of 14.1 million pounds U3O8 per year: up significantly from the an industry-wide ISR capacity of 7.5 million pounds in 2023.

Total employment in the U.S. uranium production industry was 506 full-time person-years in 2024, up from 340 full-time person-years in 2023 and the highest employment total since 2016. Total expenditure for land, exploration, drilling, production, and reclamation of USD160 million in 2024, up from USD107.4 million in 2023, was the highest since 2016. The Energy Information Administration is a statistical and analytical agency within the US Department of Energy.

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Sweetwater Fast-Tracked: Uranium Energy Corp's (UEC) Sweetwater ISR project is the latest to be designated as a "transparency project" by the US Federal Permitting Improvement Steering Council (the "Steering Council") as part of the implementation of a presidential Executive Order on Immediate Measures to Increase American Mineral Production, issued in March. The Executive Order directed federal agencies to fast-track permitting for certain infrastructure and critical mineral projects selected by the Steering Council. Sweetwater has been selected for fast-tracking and added to the FAST-41 transparency dashboard, the company said. FAST-41 is a federal infrastructure permitting initiative established under Title 41 of the Fixing America's Surface Transportation Act.

UEC President and CEO Amir Adnani said Sweetwater's selection "reinforces its national importance as a key project to achieve the United States' goals of establishing reliable infrastructure, supporting nuclear fuel independence." UEC acquired Sweetwater from Rio Tinto in 2024. It is to be UEC's third "hub-and-spoke" production platform, Adnani said. "On completing this tack-on permitting initiative, Sweetwater will be the largest dual-feed uranium facility in the United States, licensed to process both conventional ore and ISR resin," he added.

The Sweetwater Complex features the Sweetwater Processing Plant, a fully licensed and permitted 3,000 tonne per day conventional uranium mill. With an existing licensed capacity of 4.1 million pounds of U3O8 per year, UEC said completion of the ISR permitting initiative will see it become the largest licensed uranium production facility in the USA with dual-feed capability.

Source: https://www.world-nuclear-news.org/articles/us-uranium-industry-growth-continues, 7 August 2025.

TANZANIA

Tanzania Commissions Pilot Uranium Plant

A pilot uranium processing facility at the Mkuju River project located in southern Tanzania has been commissioned with the project set to inform the design of a main processing facility, which is planned to have an annual production capacity of up to 3,000 tons of uranium. The project announced recently is being driven by Mantra Tanzania (a subsidiary of Uranium One Group, part of Rosatom) which commissioned the pilot uranium processing facility. Tanzania's President Samia Suluhu Hassan, government officials, local community leaders and representatives from Rosatom organisations attended the facility's inauguration.

This milestone symbolises the strengthening of Russia-Tanzania cooperation in the field of nuclear energy, said Rosatom. "Rosatom offers its cutting-edge uranium processing technologies to develop distinctive geological potential of Tanzania. As with all our partners, we intend to advance cooperation with the country on the basis of equality and mutual understanding.

Strengthening Tanzania-Russia Ties: This milestone symbolises the strengthening of Russia-Tanzania cooperation in the field of nuclear energy, said Rosatom. "Rosatom offers its cutting-edge

uranium processing technologies to develop distinctive geological potential of Tanzania. As with all our partners, we intend to advance cooperation with the country on the basis of equality and mutual understanding. "In doing so, Rosatom consistently adheres to the principles of sustainable development while strictly upholding high environmental and social standards. We are delighted to assist Tanzania in taking a pivotal step toward integrating into the global nuclear energy landscape," said Alexey Likhachev, Rosatom Director-General.

Radioactive water from one of the UK's most secret nuclear bomb bases leaked into the sea. This happened due to the failure of old pipes that became unusable because of inadequate maintenance. According to the media outlet, official documents show that radioactive water from the base where Britain's nuclear bombs are stored entered the sea after old pipes repeatedly burst.

Located at the Nyota deposit, the pilot facility will test uranium processing technologies and develop optimisation solutions as needed. The data gathered will underpin the design of the main processing facility, which is planned to have an annual production capacity of up to 3,000 tons of uranium.

Uranium Project Slated to Create Thousands of Jobs in Tanzania: The main facility's construction is slated to begin in the first quarter of 2026, with operations expected to commence in 2029. The project's full-scale development is projected to create around 4,000 new jobs across Tanzania's mining sector and associated industries, said Rosatom. "Additionally, the project will contribute significantly to the development of regional infrastructure, including upgrades to the road network in the Namtumbo district. "The project fully adheres to Tanzanian and international environmental standards, employing an advanced environmental protection system featuring real-time ecosystem monitoring, closed-loop water recirculation, and biodiversity conservation initiatives."

SEPA stated that the leak at Coulport was caused by "shortfalls in maintenance," which led to the release of "unnecessary radioactive waste" in the form of low levels of tritium, a substance used in nuclear warheads. In a 2022 report, the agency blamed repeated failures by the naval forces to maintain equipment in the warhead storage area and said plans to replace 1,500 old pipes at risk of rupture were "sub-optimal.

Rosatom said this Russia–Tanzania collaboration exemplifies how responsible resource development – leveraging cutting-edge technology and steadfast environmental commitments – can catalyse economic transformation, stimulate regional infrastructure development, improve quality of life and enhance the welfare of local communities.

Source: https://www.esi-africa.com/research-and-development/nuclear-energy-tanzania-commissions-pilot-uranium-plant/, 7 August 2025.

NUCLEAR WASTE MANAGEMENT

UK

Radioactive Water Leaks from UK Nuclear Bomb Base into Sea

Radioactive water from one of the UK's most secret nuclear bomb bases leaked into the sea. This happened due to the failure of old pipes that became unusable because of inadequate maintenance. According to the media outlet, official documents show that radioactive water from the base where Britain's nuclear bombs are stored entered the sea after old pipes repeatedly burst.

The regulator discovered that radioactive material entered Loch Long, a sea loch near Glasgow in western Scotland, because the Royal Navy failed to properly maintain the network of 1,500 water pipes at the base.

Britain's Nuclear Bomb Base: It turns out that the weapons depot at Coulport on Loch Long is one of the most secure and secret military sites in the UK. It stores the Royal Navy's stockpile of nuclear warheads for its fleet of four Trident submarines

based nearby. However, files gathered by the Scottish Environment Protection Agency (SEPA), a government pollution watchdog, indicate that nearly half the components at this base had exceeded their intended service life when the leaks occurred.

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Attempts to Conceal Radioactive Water Leak: According to the media outlet, leaks of information were found in confidential inspection reports and emails provided to the investigative website Ferret and published by The Guardian. SEPA and the Ministry of Defence tried to keep these documents secret. They were released following an order by Scotland's Information Commissioner, David Hamilton, who oversees compliance with Scotland's Freedom of Information laws, after a six-year struggle by journalists to access the files.

The UK government insisted the files should remain classified on national security grounds, but in June Hamilton ruled that most of them should be disclosed. Hamilton said their release posed a threat to "reputations," not national security. Thus, the files about radioactive water leaks were made public in August after further delays, following a request by the Ministry of Defense for more time to review them, citing "additional national security considerations."

Source: https://newsukraine.rbc.ua/news/radioactive-water-leaks-from-uk-nuclear-bomb-1754762405.html, 9 August 2025.

Centre for Air Power Studies

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