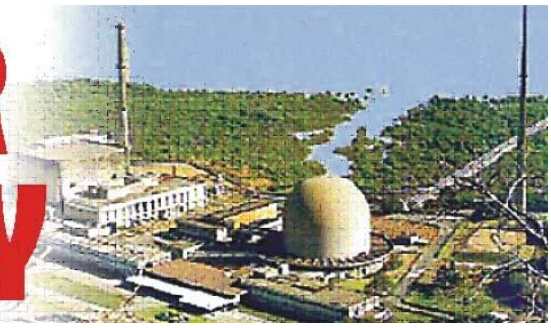
NUCLEAR SECURITY



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

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OPINION – Manoj Joshi

Donald Trump's Review could Help India Nuance its Nuclear Doctrine

The Trump disruption continues. Now, it is reaching into the area of US nuclear policy. The new American nuclear posture review (NPR) comes on the head of a series of decisions taken by the Trump Administration that has brought a more combative edge to the American nuclear strategy.

Late last year, Trump ordered the Department of Energy, which oversees the US nuclear weapons programme, to be ready to conduct a nuclear test within six months, if ordered. As it is, he has authorised a $1.2 trillion programme to overhaul the nuclear weapons complex and authorised the development of a new nuclear warhead, the first time in 34 years, according to Time magazine. All this has led to the Bulletin of Atomic Scientists moving their famous atomic clock 30 seconds forward towards Doomsday.

The Americans are reacting primarily to Russia which it says is developing low yield or tactical weapons to gain coercive advantage in a crisis. The new US NPR is aimed at meeting the Russian challenge and preserving deterrence stability. Even while emphasising that it will not enable "nuclear war-fighting", the Pentagon claims that it will give the US new options for which it seeks to develop new weapons.

None of these developments affects India directly, but many of the dilemmas that Trump is responding to have a resonance in India. Primarily, adversaries who believe that they can use low yield nuclear weapons to lower the nuclear weapons use threshold and create a shield behind which they can conduct hostile activity.

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CONTENTS

Pakistan's development of TNW has often been explained by the argument that they seek to offset the increasing gap in their conventional capabilities. In reality they are a means to give Pakistan a shield against an Indian response to terrorist attacks carried out by its proxies. This is a dangerous game. But it does pose a conundrum for India's nuclear doctrine which speaks of No First Use and eschews Tactical Nuclear Weapons. In a 2015 conversation with former US official Peter Lavoy, Lt Gen (retd.) Khalid Kidwai, who had steered Pakistan's strategic plans division from 2000 to 2013, said that the rationale for Pakistan's tactical nuclear weapons was India's Cold Start doctrine. He claimed it was "Pakistan's defensive, deterrence response to an offensive doctrine". He bragged that through tactical nuclear weapons, "we have blocked the avenues for serious military operations by the other side." Only after some prodding he responded to the point in everyone's mind—that India's so-called Cold Start doctrine is the product of the frustration of dealing with Pakistan's use of terrorist proxies. However, Kidwai claimed that terrorism and militancy were consequences of India's refusal to allow self-determination in Kashmir and the 1979 Soviet invasion of Afghanistan. Pakistan was merely a victim, taking steps to preserve itself.

The Pakistani doctrine poses problems for India. Kidwai grumbled that "some people (read India) via massive retaliation bluster," not realising that Pakistan, too, had similar capacity. In the run up to the election in 2014, the BJP manifesto called for an update of the Indian nuclear doctrine. In August 2015, however, PM Modi said there would be no review. Though that October, the National Security Adviser, AK Doval, said that India was shifting its posture from "credible minimum deterrence" to simply "credible deterrence." The only other comment, semi-official, came when in 2013 Shyam Saran, the then chairman of the National Security Advisory Board reaffirmed the NFU pledge and said, regardless of the size of the attack, Indian retaliation would be "massive."

The American change could well persuade India to nuance its approach as well. Its big problem was the use of the word "massive" in terms of a response to a Pakistani tactical nuclear weapon strike. No one believes that India would wipe out Lahore, if Pakistan used a low yield nuclear weapon against an Indian military formation, and that, too, in Pakistan.

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In the draft nuclear doctrine of 1998 the formulation was "punitive retaliation with nuclear weapons to inflict unacceptable damage to the aggressor". Returning to it is one option, but with a careful nuance to ensure India does not shift to a posture of "nuclear wear fighting." This calls for new concepts and possibly a newer generation of weapons.

There are other options a US shift may open up. Primary being that if the US breaks the test ban, India can test its thermonuclear weapon which fizzled out in Pokhran in 1998. Of course, this would torpedo the Indo-US nuclear deal, but Trump could be open to renegotiating it. Another option that low-yield weapons can give India is in following the new US strategy suggesting possible use to respond to a non-nuclear attack on critical infrastructure. So far India has not addressed the problem of a catastrophic attack on power grids and telephone networks. But it's not too late to think about it now.

Source: https://www.hindustantimes.com/, 25 February 2018.

OPINION – Paul R. Pillar

The Forgotten Benefits of Deterrence

During the Cold War, no concept was more central to US national security strategy and to the relationship between the superpowers than

deterrence. The concept long predates the Cold War, of course, but during that four-decade competition between the US and USSR, strategists and scholars developed a detailed and still valid doctrine of deterrence. Nuclear weapons and a strategic arms race made that doctrine especially necessary and significant, but the complexities of deterrence extended to other levels of international conflict and competition, such as the confrontation in Europe between armies of NATO and the Warsaw Pact.

Deterrence is a very useful component of national security policy, in at least two respects. It is a way to avoid highly damaging outcomes without having to disarm or disable an adversary—which often would be exceedingly painful and costly to do. It is a way to protect interests that may be difficult or even impossible to defend, if an undeterred adversary ever were to attack those interests.

Deterrence can be useful to the US even when it is not one of the parties to a deterrent relationship, and even when those being deterred include purported friends and allies of the US as well as its adversaries. If mutual deterrence between local or regional rivals keeps a war from breaking out, so much the better for everyone, including the US, having an interest in wars not breaking out. This may even save the US from getting dragged directly into such a war. Mutual deterrence between regional rivals also can be an ingredient in preventing anyone from dominating an entire region.

Deterrence has a wide range of applicability, but that applicability, even on national security matters, too often goes unrecognized. Much discussion of international terrorism, for example, has contained the assumption that terrorists cannot be deterred. But more careful analysis of the motivations of terrorists reveals that deterrence can be an important element in counterterrorism.

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Since the end of the Cold War, the perceived applicability of deterrence—but not its real applicability—has contracted even more. Its benefits and usefulness are too often forgotten. One probable reason for this is a legacy of the supposedly unipolar moment that immediately followed the Cold War. Feeling freed from a balance of terror and the need to share superpower space with another state, triumphalist American thinking paid more attention to notions of hegemony than to the fine points of deterrence. To a large degree, American discourse has not broken out of that pattern. Thinking still is predominantly in terms of hegemony: preserving or establishing it on behalf of the US, or preventing someone else from establishing it instead. Such a frame of mind misses possibilities for competition and cooperation to take place simultaneously at different levels, while relying on deterrence to prevent any really bad outcomes growing out of the competition.

Another reason for blindness to the role of deterrence is the notion that regimes considered to be our adversaries somehow don't think like the rest of us. This is an example of coming to believe one's own rhetoric—rhetoric, in this case, designed to sustain hostility to an adversary by portraying him has more extreme or fanatical than ourselves and as such not amenable to deterrence.

The forgetting or downplaying of deterrence has been an ingredient in several continuing problems in US national security policy. The unfortunate story of how the US seems to have entered into a

new Cold War with Russia not long after ending the old one with the USSR—a story that has included such miscues as the eastward expansion of NATO and Western political manipulation in Ukraine—reflects the thought pattern described above. It is thinking couched in terms of one side or the other dominating an area. The thinking overlooked the alternative possibility of letting a mixture of competition and cooperation with Moscow play out more freely while deterring—more easily than NATO could during most of the original Cold War—the worst things that Russia might try to inflict on Western interests.

Much discussion of competition with China in the East Asia Pacific region is couched in similar terms of dueling hegemonies. Along with failure to explore the full possibilities of how deterrence can prevent the worst outcomes where US and Chinese interests are clearly divergent, US policy has given insufficient attention to possibilities of mutually beneficial cooperation on other levels—such as with the Chinese-created Asian Infrastructure Investment Bank or China's Belt and Road initiative.

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North Korea's regime comes closest to fitting the description of a gang that thinks differently from the rest of us, at least in the sense that there are plausible scenarios in which the regime is placed in extremis and all bets regarding previously observed limitations are off. But this regime is no more suicidal than other regimes. And the centrality of nuclear weapons in the current standoff with North Korea makes the old Cold War doctrine all the more applicable. Deterrence is why North Korea believes it needs to hang on to its nuclear weapons, deterrence is why it is dissuaded from using those weapons for other purposes, and deterrence must be at the core of any resolution of the Korean imbroglio.

The case of Iran, which presents a much different set of issues, provides probably the best example of coming to believe our own rhetoric about the other guy supposedly being fanatical and not thinking like the rest of us. Amid much rhetoric designed to stir up worries about Iran, clear logic about deterrence has been lacking. Some of what has been ensconced in that rhetoric has been self-contradictory, such as in the argument we heard a few years ago for a military attack as a way to prevent an Iranian nuclear weapon. The argument contended, on one hand, that Iranian leaders were too fanatical and irrational to be trusted with nuclear weapons, and that their irrationality meant that deterrence could not be trusted to work. But on the other hand it contended that after getting attacked by a foreign power, the same Iranian leaders would be models of rationality and cool decision-making who would be deterred from striking back by the prospect of further attacks.

Since the nuclear agreement of a couple of years ago took the possibility of an Iranian nuke off the table, the lack of clear thinking about deterrence persists with regard to other activity involving Iran. Iran's military inferiority and vulnerability vis-à-vis Israel and in some respects its Gulf Arab rivals would deter it from doing all sorts of undesirable things even if it wanted to do them. The value of deterrence in the other direction also is too infrequently recognized. Instead of seeking to disable or disarm every Iranian capability in places such as Syria, Lebanon, or Iraq, we should recognize the role of some such capabilities in deterring rivals of Iran from starting new wars and destabilizing the region further. And we should recognize that in any region, a deterrence-based competition that prevents not only the starting of new wars but also the domination of the region by any of the regional competitors is in the best interests of the US.

Source: http://nationalinterest.org/, 21 February 2018.

OPINION – Olga Oliker, Andrey Baklitskiy

The Nuclear Posture Review and Russian 'De-Escalation'

There is a growing certainty in the West that Russia has adopted an "escalate to de-escalate" nuclear strategy, which lowers the bar for nuclear

weapons use to a terrifyingly low level. Importantly, it's referenced as fact in the Trump administration's new Nuclear Posture Review, which argues that the US itself therefore needs new low-yield nuclear weapons to deter Russia at lower levels of conflict. But the evidence of a dropped threshold for Russian nuclear employment is weak. Moreover, even if this was Russia's doctrine, a shift to more American reliance on lower-yield nuclear weapons would be the wrong solution to the problem.

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Understanding Russian Doctrine: What do people mean when they say "escalate to de-escalate?" The words themselves are not particularly helpful. Any action that is neither a perfectly symmetrical nor smaller response to adversary action is escalation. Any threat (nuclear or otherwise) to raise the costs of conflict is a threat of escalation. And countries both escalate and threaten to do so fairly regularly as they seek to convince adversaries to rethink plans. The fact is that most escalation is intended to, well, de-escalate.

In 2000, however, following the NATO air campaign in Yugoslavia, Russia's new military doctrine allowed for first use in case of large-scale conventional aggression against Russia or its allies. It is plausible that at this time, plans indeed looked something like "escalate to de-escalate.

Western analysts have developed a range of descriptions of Russian nuclear strategy that all fall, with varying degrees of consistency and contradiction, under the "escalate to de-escalate" umbrella. The new NPR and political scientist Matthew Kroenig hold that Russia intends to use nuclear weapons early in a conflict to attain an advantageous battlefield outcome. So does current Pentagon official Elbridge Colby. Juri Luik and Tomas Jermalavicius believe Russia would turn to nuclear weapons in the face of imminent battlefield defeat: e.g., to make up for conventional inferiority in a conflict with the NATO alliance. Evelyn Farkas holds that Russia simply likes escalation, nuclear and otherwise.

The notion that Russia might use nuclear weapons on the battlefield may originate in arguments in a 1999 paper published in the Russian military journal Voennaia Mysl. The authors, military officers and analysts V.I. Levshin, A.V. Nedelin, and M.E. Sosnovskii, posited that the use of nuclear weapons in a heretofore conventional conflict could demonstrate credibility and convince the adversary to stand down for fear of further escalation. The argument for more nuclear steps on the escalation ladder has been made more recently as well. It was even promised by a senior Russian official prior to the release of a new military doctrine almost a decade ago. However, neither that doctrine nor the one that followed it in 2014 (the most recent) in fact lowers the nuclear use threshold. As one of us has argued previously, the official statements, followed by a doctrine that did not deliver on them, suggest that proponents of a lowered threshold ultimately lost a bureaucratic fight. To this day, Russian "escalation" advocates occasionally publish an article, still hoping to change the policy — but continue to fail.

Nor does Russian doctrine call for the use of nuclear weapons if Moscow is losing a conventional conflict. To the contrary, military doctrine clearly states that nuclear weapons will be used only in response to an adversary using nuclear or other WMD and/or "when the very existence of the state is in jeopardy." One can argue what does and does not qualify as existential jeopardy, but the scenarios in which Western analysts envision Russian nuclear escalation — most of which involve ending a conventional conflict — seem to fall short by most definitions.

In the past, Russia's bar for nuclear use has been both higher and lower. In 1993, Moscow dropped the no-first-use pledge it inherited from the Soviet Union. In 2000, however, following the NATO air campaign in Yugoslavia, Russia's new military doctrine allowed for first use in case of large-scale

conventional aggression against Russia or its allies. It is plausible that at this time, plans indeed looked something like "escalate to de-escalate." But soon after that, proponents of reliance on nuclear weapons found their views eclipsed by Russian government decisions to instead invest in conventional forces. At the time, this was mainly because Russia believed most of its battles would be smaller-scale. Today, however, Russia is increasingly confident that its conventional capabilities can play at least some of the strategic deterrence roles historically played by nuclear weapons.

A Secret Plan to Escalate?

Those who believe in a lowered Russian threshold for nuclear use thus believe that Russia's formal doctrine is intentionally disingenuous. Indeed, speculation about a secret annex to the doctrine that clandestinely lowers the nuclear threshold abounds. But as Kristin ven Bruusgaard has pointed out in in War on the Rocks, if Russia's goal is deterrence, a stated strategy of restraint at odds with a real strategy of escalation seems counterproductive. Deterrence works best when the adversary understands which actions will trigger an undesirable response.

Three categories of evidence are offered to support the argument that Russia's true nuclear threshold today is lower than its doctrine indicates: exercises, capability, and rhetoric. Like other nuclear states, Russia runs exercises that involve nuclear weapons. The vast majority of these test strategic readiness, command and control, and interoperability. In a handful of recent cases, various sources have reported that nuclear use was simulated in otherwise conventional Russian exercises, supposedly boosting the evidence for "escalate to de-escalate."

It does not, however, appear that scenarios for these exercises fit the model of a small-scale nuclear strike early in a conflict—as one of us has argued in the past. If one believes the strikes happened, conditions of a battlefield defeat posing an existential threat to the state are more plausible. However, as Bruno Tertrais explains, the evidence for simulated nuclear use in large conventional exercises is itself not fully convincing. Importantly, Russia's most recent large-scale military exercise focused on its Western flank, Zapad 2017, did not have any evident nuclear strike component, despite positing a conflict with the NATO alliance.

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Then there's Russian capability, specifically smaller-scale, shorter-range nuclear capabilities suitable for the battlefield. Russia maintains a substantial legacy arsenal of nonstrategic weapons, which some may believe suggests a willingness to use them. Moreover, in recent years, Moscow has emphasized the development of new warfighting systems that can be deployed with either nuclear or conventional firepower, the oft-touted Iskander being one example. Russia is also working on hypersonic systems. Finally, the "accidental" leak of plans (in the form of a presentation slide) for a nuclear torpedo in 2015 fueled speculation that Russia is thinking creatively about nuclear warfighting (although the destructive power of the purported weapon would surely have strategic, not merely "de-escalatory," effects).

Some may argue that capability is evidence enough of possible "escalate to de-escalate" plans, and the West should therefore respond in kind. This is wrong, for two reasons: First, weapons can be used for all sorts of things, and one cannot plan for all possible contingencies — only those that seem plausible. Russia could also, in principle, plan to set off all of its nuclear weapons at once, or fire some of them into space. If a possible strategy is not supported by the evidence, it should not drive planning.

Second, the argument that capabilities prove intent works both ways. The US also has low-yield nuclear capabilities (and will have more if proponents have their way). Should Russia therefore expect the US to use nuclear weapons first if American conventional forces were losing, say in a fight against Russia over Ukraine? Indeed, such an approach would be consistent with the American doctrine outlined in the new Nuclear Posture Review.

But while the review may make this scenario less ludicrous than it was in the past, Russia would still be dangerously paranoid to base its planning on the possibility. There is no evidence of US plans to start an offensive war against a major nuclear power like Russia or China, much less to use a preemptive nuclear strike to "de-escalate" a conventional conflict once it went wrong.

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So what is Russia's very large nonstrategic arsenal for, and why is it emphasizing dual-use systems? First, as regards the nonstrategic arsenal as a whole, Russia is quite simply loath to give up something it has a lot of without getting something else in return. Second, Moscow knows that its nuclear capabilities make Brussels and Washington nervous. Russians did not discuss a nuclear role for the Iskander—and, indeed, rejected the possibility—until the Western press started describing the system as dual-capable. To be blunt, if not reassuring, Moscow has noticed that an emphasis on dual-capable systems keeps the West off-balance, and sees that as a clear benefit.

This brings us to the last category of evidence for a clandestine lowered threshold: Russian rhetoric. While some Russian pundits recklessly talk of turning countries to ash, senior officials, including President Vladimir Putin, have been far more careful with their threats. Putin may mention that the Crimea crisis could, in some contingencies, have led him to place nuclear weapons on alert. However, this never happened, and it is something of a stretch to interpret that as meaning he would have used a tactical nuclear weapon to end a conventional conflict. Moreover, in the face of recent nuclear rhetoric from America's own president, the comments Putin has made seem almost circumspect.

Putin's rhetoric is meant not to signal plans to use nuclear weapons recklessly, but rather to remind any who may have forgotten that Russia is a nuclear weapons state. While this is prospectively destabilizing, it does not indicate a deep occult doctrine, much less a doctrine that has been consistently and publicly rejected. Russian rhetoric reflects the fact that Russia, much like the Soviet Union before it, sees NATO posing a threat that needs to be deterred. Moscow continues to believe, and Russian generals in private conversations emphasize, that any conventional conflict with NATO risks rapid escalation without "de-escalation" — into all-destroying nuclear war. It must therefore be avoided at all costs. This logic is consistent with that put forward by American scholars who have argued that nuclear weapons kept the peace during the Cold War. The success of the nuclear peace, in this view, lay in the threat of extreme escalation, not the bespoke step-by-step deterrence the Nuclear Posture Review seems to advocate and that the postulated Russian "de-escalation" doctrine would implicitly endorse.

Today, however, Russians worry that the US may have stopped believing in the magnitude of the risk, a concern that has surely increased with the release of the new Nuclear Posture Review. Russian exercises, brinksmanship, and occasional saber-rattling are therefore meant in part to remind the US (and NATO) that major nuclear powers do not fight wars with each other because the dangers

of doing so are simply too great.

Indeed, the actual escalation scenarios often on the minds of Russians get little attention in the West. Moscow is deeply concerned about the prospect of "air-space war" against Russia along the lines of NATO campaigns in Yugoslavia in 1999 or the Iraq wars of 1990 and 2003. There also seems to be a genuine fear that a US conventional counterforce strike against Russian nuclear forces will leave Russia's second-strike capability small enough to be absorbed by eventual US missile defense capabilities. Development of new, "more usable" nuclear weapons would increase those worries. And it is easy to see how even a conventional US air campaign targeting command and control systems, many of which are dual-use, could be seen in Moscow as putting "the existence of the state in jeopardy" and thus allow a nuclear response.

Moscow is deeply concerned about the prospect of "air-space war" against Russia along the lines of NATO campaigns in Yugoslavia in 1999 or the Iraq wars of 1990 and 2003. There also seems to be a genuine fear that a US conventional counterforce strike against Russian nuclear forces will leave Russia's second-strike capability small enough to be absorbed by eventual US missile defense capabilities.

None of this is to say that Moscow's nuclear policies are purely defensive. There is evidence to suggest that a coercive element also exists, even if a "de-escalatory" one does not. A coercive nuclear strategy is one in which nuclear weapons are used not (or not only) to deter an adversary from taking violent action against oneself or an ally, but also to try to change their behavior, policy goals, and intentions more broadly. Dmitry Adamsky has postulated that Russia includes its nuclear capability in an integrated coercion strategy that also incorporates conventional, cyber, and information tools, but that its actual plans and weapons match neither Russia's rhetoric nor plausible intent. Ven Bruusgaard also describes a Russian view of deterrence, nuclear and otherwise, that integrates coercion, although she does not believe the actual nuclear threshold has been lowered. The Nuclear Posture Review, too, notes the possibility of coercive Russian nuclear threats, although it seems more confident in Russia's ability — and intent — to back them up. Neither Adamsky or Ven Bruusgaard provide specific goals for Russian coercion or evaluate if those goals were met. Meanwhile, recent US government statements regarding North Korea and much of the Nuclear Posture Review itself suggest the development of a coercive element in Washington's nuclear strategy as well. Its effectiveness, however, is no less questionable.

The combination of America's conventional might and variety of nuclear options is more than enough to make anyone think twice about the advantages of trying to "escalate to de-escalate" in an actual fight with the US.

The Lesson for Washington: So how should the US be responding to Russia's nuclear strategy? The best prescription seems to be sticking to conventional weapons to fight and deter conventional wars while relying on existing robust nuclear arsenals to deter nuclear attack. Washington already has conventional capabilities to deter and counter any large-scale conventional aggression which are likely sufficient even for some categories of nuclear first strike. In addition, the US has both tactical and strategic nuclear weapons (though we are at pains to think of any scenario that would require the use of lower-yield capabilities). Note that this equation wouldn't change even if Moscow was hiding its true intentions. The combination of America's conventional might and variety of nuclear options is more than enough to make anyone think twice about the advantages of trying to "escalate to de-escalate" in an actual fight with the US.

If anything, US emphasis on new lower-yield capabilities — effectively an "escalate to de-escalate" strategy of the sort many attribute to

Russia — would undermine the deterrent balance, potentially triggering the very sorts of crises low-yield proponents hope to avert. This is because American development of new nuclear capabilities suitable for warfighting would call into question America's military superiority and the sufficiency of its existing conventional and nuclear forces. Here, the US could stand to learn from the Russian experience. Moscow is right to emphasize non-nuclear deterrence, but its rhetoric on nuclear weapons and eager pursuit of dual-use systems has limited, if not undermined, the credibility of its stated high threshold for nuclear use. Indeed, the ways in which Russia's behavior has led others to question its strategy demonstrates that the higher and clearer one's nuclear threshold, the better. Coercive advantages, themselves questionable, are surely not worth the risk of deterrence failure.

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Source: Olga Oliker directs the Russia and Eurasia Program at the Center for Strategic and International Studies. War on the Rocks, 20 February 2018.

OPINION – Harry J. Kazianis

Why North Korea and America could be at War by April

Despite some media outlets' endless fawning over all things North Korea during the Winter Olympics, the catalyst that nearly brought Washington and Pyongyang to war last year—the murderous Kim regime's quest for nuclear weapons and missiles that can strike the US homeland—is only growing more powerful by the day. In fact, we seem destined to re-live the tension-filled events of 2017 all over again. Know this: come springtime, the US and North Korea could very well find itself at war as tensions are set to spike once more.

As the Temperature Rise Outside, So Does Tensions in Asia. Thanks to a unique set of overlapping events it seems all but certain the détente brought about by the Olympics will end up being short-lived. First, we need to understand the fundamental problem that is pushing Washington and Pyongyang toward a potential military clash.

From North Korea's perspective, the regime looks at nuclear weapons as the ultimate guarantor of its survival, even enshrined in its constitution. Kim Jong Un correctly understands that his chances of someday ending up in The Hague for war crimes like Slobodan Milosevic or dead and buried like Mullah Omar, Saddam Hussein or Muammar Qaddafi rise exponentially without atomic arms.

Nations that continue to trade with Pyongyang or evade sanctions must be held to account. If China and Russia, for example, continue to go around UN Security Council sanctions—sanctions they voted for—they must pay a price. For these reasons, Pyongyang is not likely to ever give up its nuclear weapons—ever. This fact, above all else, is driving Northeast Asia toward a conflict the world has not seen in decades.

The Trump administration looks at North Korea's nuclear weapons as an existential threat, with National Security Advisor H.R. McMaster even going as far as saying that the Kim regime is undeterrable. Only complete nuclear disarmament and the elimination of North Korea's missile programs will satisfy Washington.

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With such profound disagreements driving the crisis, Washington is getting ready to enhance its "maximum pressure" campaign. Vice President Mike Pence recently announced a new round of sanctions which will be unveiled in the coming days that will be "the toughest and most aggressive".

Additionally, Washington and Seoul are set to begin their annual joint military exercises involving 230,000 troops—one of the largest such drills on the planet—at the end of April. With North Korea already complaining that such exercises are unacceptable and having already demanded their cancellation, such drills along with additional sanctions could very well see North Korea respond in dramatic fashion.

This is where we begin to enter the danger zone. Over the last several years, North Korea has conducted a series of missile tests that many times have started in March and go all the way through late fall. While the North has not tested any missiles since November 2017, Pyongyang could use the excuse of annual US-South Korea military exercises to once again test their rockets before the drills commence. Such tests could include a fully operational ICBM being fired deep into the South Pacific with a dummy warhead passing through the atmosphere and splashing down into the ocean. North Korea, completing such a test, would prove to the world and the Trump administration that it could indeed hit the US homeland with a nuclear weapon, raising the stakes dramatically.

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Then there is the nightmare scenario. The Kim regime could decide that it must test a fully-operational nuclear weapon to the world, or what many North Korea experts call the 'Juche Bird.' In such a test, North Korea would forgo a dummy warhead and fire off into a remote part of the Pacific a nuclear armed ICBM and detonate it. Such a test, the first atmospheric atomic explosion since 1980, could very well be the spark that sets the Trump administration down the path to a war, or at least a "bloody nose" response.

What should the Trump Administration Do?

Knowing the timeline of events and how North Korea could respond, is it time for the Trump administration to change tack? Should the administration, for example, cancel joint exercises and stop upping the pressure on North Korea? Never. But it may be time to shift our thinking on what would be an acceptable outcome to this crisis.

Considering Pyongyang in the 1990s allowed its own people to starve and millions to die rather than slash its military budget, it is likely the Kim regime will do anything to develop its offensive capabilities. If we accept the logic that North Korea will never give up its nuclear weapons, and we also accept that a war of choice against Pyongyang to disarm them would be too costly, we owe it to ourselves to find what I would call the least worst policy option. As I have argued before, containing North Korea economically and diplomatically is that option. Washington will never, ever, accept a nuclear armed Kim regime, and we will make sure a price is paid for Pyongyang's choices.

No one wants to see a regime that has prison camps three times the size of Washington, D.C. exist, let alone have nuclear weapons that can kill millions. However, an aggressive long-term pressure campaign, one that unleashes economic warfare on North Korea and permanently damages its economy and denies the regime's ability to give its elites the creature comforts they so desire, would see North Korea pay for its actions considerably.

Put another way: if North Korea wants nuclear weapons the price for those weapons must be

made astronomically high. But this also means that nations that continue to trade with Pyongyang or evade sanctions must be held to account. If China and Russia, for example, continue to go around UN Security Council sanctions—sanctions they voted for—they must pay a price. That means sanctioning any individual, company or even banks that are profiting from such trade. The Trump administration should even consider pushing back in areas of strategic interest to each nation—for China that means Taiwan and the South China Sea and for Russia Ukraine—to make sure we demonstrate the seriousness of our resolve and intentions. To be brutally honest, none of the strategy outlined above will be easy. Such a pressure campaign could take decades to get North Korea to give up its nukes. And to be even more honest, considering Pyongyang in the 1990s allowed its own people to starve and millions to die rather than slash its military budget, it is likely the Kim regime will do anything to develop its offensive capabilities.

In fact, the United States eliminated over 90% of its tactical nuclear weapons post-Cold War, so pro-disarmament theory holds that the likelihood of nuclear war should have also receded to a matching degree. Yet the same individuals now say we are closer to war despite these reductions.

That is why there must be an additional pillar to this maximum pressure strategy: shinning a giant spotlight on North Korea's horrifying human rights record. Along with a weak economy, this is Pyongyang's second Achilles heel. Anytime the administration talks about the Kim regime, making its case for maximum pressure, the human rights of the North Korea people must be part of that conversation. From President Trump's powerful State of the Union message highlighting a North Korean defector to Vice President Pence taking Otto Warmbier's father to the Olympic Games, such pressure on the regime is something North Korea can't counter.

If implemented to its maximum extent, North Korea will be pressured from all sides—and will likely push back even harder. This is where the Trump administration must communicate the limits of what it will tolerate, preferably through private channels. For example, if North Korea were to detonate a nuclear weapon in the atmosphere, spreading radioactive fallout over a large area, such an action should be communicated as unacceptable and could very well trigger a military response.

President Reagan said "nuclear war cannot be won and must never be fought," but that prudent message appears to have been lost on President Putin. Moscow has long been concerned about the balance of forces between itself and the United States. The apparent proposed changes to the U.S. nuclear force structure will send a clear signal of resolve which adversaries can ignore at their own peril.

Get Ready for Trouble: When the Olympic flame fades from PyeongChang we should brace ourselves for what could be the most tension filled few months internationally we have seen since the Cuban Missile Crisis. The challenge for the Trump administration is to navigate what will be a tense spring that could very well see the resumption of a conflict on the Korean peninsula that never truly ended and has the potential to claim millions of lives. Through a mix of ingenuity and creativity and avoiding the siren song of war, America and its allies can contain and deter North Korea. It won't be easy or cost free, but it is the best option we have to secure our homeland and our interests.

Source: http://www.foxnews.com/, 21 February 2018.

NUCLEAR STRATEGY

USA

New Nuke Cruise Missile could Go on Zumwalt-Class Destroyers

The Nuclear Posture Review (NPR) includes a long-term plan that could put nuclear cruise missiles aboard the new Zumwalt class (DDG 1000) of stealthy Navy destroyers, according to the commander of US Strategic Command.

Air Force Gen. John Hyten, StratCom chief, said the plan to develop a new, low-yield nuclear Sea-Launched Cruise Missile (SLCM, or "Slick-em") would not be limited to using ballistic submarines as the sole launch platform, as many assumed when the NPR was endorsed by Defense Secretary Jim Mattis earlier this month. "It's important to know that the NPR, when it talks about the Sea-Launched Cruise Missile, does not say 'Submarine-Launched Cruise Missile,'" Hyten said in a Feb. 16 keynote address in Washington, D.C., at the National Defense University's Center for the Study of Weapons of Mass Destruction.

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In response to questions, he said, "We want to look at a number of options — everything from surface DDG 1000s into submarines, different types of submarines" for the SLCMs.

"That's what the president's budget has requested of us – to go look at those platforms, and we're going to walk down that path," Hyten said.

... Hyten said the US will be modifying "a small number of existing submarine-launched ballistic missile warheads to provide a prompt, low-yield capability, as well as pursuing a modern nuclear-armed sea-launched cruise missile in the longer term." He added, with some regret, that both are necessary to enhance US deterrence against growing tactical and strategic nuclear threats from Russia and China. "I don't have the luxury of dealing with the world the way I wish it was," he said. "We, as a nation, have long desired a world with no or at least fewer nuclear weapons. That is my desire as well. The world, however, has not followed that path."

New developments with the Xian H6K strategic bomber, a version of the Russian Tupolev Tu-16 twin-engine bomber, has given China a nuclear triad of bombers, land-based missiles and submarines "for the first time," Hyten said. He also cited repeated statements from Russian President Vladimir Putin about modernizing his own nuclear force and developing a new generation of low-yield weapons. "Russia has been clear about their intent all along," he said.

In the question-and-answer period at National Defense University, an official from the Russian Embassy in Washington challenged the general's assessment of the threat posed by his country. Hyten responded, "We listen very closely to what your president says, and then watch closely" through a variety of means to see Putin's thoughts put into action. "We have to consider those a threat." Earlier, he said, "Our adversaries are building and operating these strategic weapons, not as a science experiment, but as a direct threat to the United States of America." ...

Source: Richard Sisk, https://www.military.com, 26 February 2018.

Pentagon Prepares New Ballistic Missile Defense Review

After publishing the National Defense Strategy and Nuclear Posture Review in the first eight weeks of the year, the next report on the Pentagon's agenda will detail Washington's plan for ballistic missile defense, APA reports quoting Sputnik. The report is expected within a few weeks, according to the Hill. While it's not totally clear what the Ballistic Missile Defense Review will say, it will likely align with the Pentagon's 2019 budget request for $12.9 billion toward ballistic missile defense and $3.9 billion for the Missile Defense Agency.

The 2019 White House defense budget calls for 43 Aegis missile interceptors at a cost of $1.7 billion, four Ground-based Midcourse Defense interceptors and 10 silos for $2.1 billion, 82 THAAD interceptor batteries and 240 PAC-3 missiles, setting the budget back a cool $1.1 billion.

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interceptor batteries and 240 PAC-3 missiles, setting the budget back a cool $1.1 billion.

"It is very important that we will be able to defend all of the US and its territories. I hope that what we're seeing is an increased urgency to deploy more of existing systems and to develop new systems," Representative Mac Thornberry (R-TX) told the Hill ...following a House Armed Services Committee hearing.

The US National Security Strategy released earlier this year recognized great power competition with Russia and China as a higher national security priority than terrorism. Deputy Assistant Secretary of Defense for Strategy Elbridge Colby told reporters on 29 January 2018 that the strategy was not calling for more competition but "recognizes the reality of increasing effectiveness and capability of what the strategy calls the 'revisionist rivals,' particularly China and Russia.... We are already in a state of competition."...

Meanwhile, the nuclear review called for the creation of new weapons that some Russian officials said would lead to a renewed arms race. The CEO of Russian state-owned corporation Rostec, Sergey Chemezov, told the *Washington Post*, "the closer relations are between Russia and America, the more arms should be reduced — first and foremost nuclear arms. And what do we see now? The US is adopting a new program.... It will lead to another arms race, because we will have to do the same as the Americans."

Source: http://en.apa.az/world-news/, 20 February 2018.

BALLISTIC MISSILE DEFENCE

INDIA

'Dhanush' Ballistic Missile Successfully Test-Fired

India on 23 February 2018 successfully test-fired the nuclear-capable 'Dhanush' ballistic missile with a strike range of 350 kms from a naval ship off Odisha coast, defence officials said. The surface-to-surface missile, a naval variant of the indigenously-developed 'Prithvi' missile, was test-fired from the ship positioned near Paradip in the Bay of Bengal at around 10.52 am, the officials said. 'Dhanush' missile is capable of carrying a payload of 500 kg and hitting both land and sea-based targets, the sources said, adding that its trial was carried out by the SFC of the defence forces. "The missile launch was part of a training exercise by the SFC of Indian Navy," one official said.

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Describing the test launch as "a complete success", the officials said all mission objectives were met during the trial. "The missile launch and its flight performance were monitored from DRDO telemetry and radar facilities in the Odisha coast," they said. The single-stage, liquid-propelled 'Dhanush', has already been inducted into the defence services. It is one of the five missiles developed by the DRDO under the Integrated Guided Missile Development Programme (IGMDP).

Source: http://www.ddnews.gov.in/, 24 February 2018.

NUCLEAR ENERGY

CHINA

China to Topple US as Biggest Nuclear-Energy Nation

Beijing is forecast to triple its nuclear capacity in the next 20 years, ousting the US as number one nuclear-power producer, according to the IEA. "China is coming back strong. Today there are about 60 nuclear power plants under construction and more than one-third of them are in China. China is growing and as a result of that we'll soon see China overtaking the US as the Number 1 nuclear power in the world," the IEA CEO Fatih Birol said, as quoted by Marketwatch.

According to the IEA, the US, which has been the leader in the industry since the 1960s, is facing two problems that will lead to losing its lead. First, America isn't investing enough in nuclear power (neither does Europe). Second, it's not doing enough to extend the lifetime of existing plants.

"If it continues like that, the US nuclear capacity will go from 20 percent to 7 percent," Birol said. The US nuclear industry will face the same drawbacks it sees in solar energy. "China is learning by doing, bringing costs down and therefore they are now ready to export technology and are much more cost effective than others. And they challenge the established exporters such as the US, Japan, Korea and European countries," he said. ...

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Source: https://www.rt.com/, 24 February 2018.

GENERAL

IAEA Expands International Cooperation on Small, Medium Sized or Modular Nuclear Reactors

The IAEA is launching an effort to expand international cooperation and coordination in the design, development and deployment of small, medium sized or modular reactors (SMRs), among the most promising emerging technologies in nuclear power.

Significant advances have been made on SMRs, some of which will use pre-fabricated systems and components to shorten construction schedules and offer greater flexibility and affordability than traditional nuclear power plants. With some 50 SMR concepts at various stages of development around the world, the IAEA is forming a Technical Working Group (TWG) to guide its activities on SMRs and provide a forum for Member States to share information and knowledge, IAEA Deputy Director General Mikhail Chudakov said.

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...Global interest in SMRs is growing. SMRs have the potential to meet the needs of a wide range of users and to be low carbon replacements for ageing fossil fuel fired power plants. They also display enhanced safety features and are suitable for non-electric applications, such as cooling, heating and water desalination. In addition, SMRs offer options for remote regions with less developed infrastructure and for energy systems that combine nuclear and alternative sources, including renewables.

The first three advanced SMRs are expected to begin commercial operation in Argentina, China and the Russian Federation between 2018 and 2020. SMR development is also well advanced in about a dozen other countries. The TWG, comprising some 20 IAEA Member States and international organizations, is scheduled to meet for the first time on 23-26 April 2018 at the IAEA's headquarters in Vienna.

It is part of an expanding suite of services the IAEA offers Member States on this emerging nuclear power technology. These include an SMR computer simulation programme to help educate and train nuclear professionals; a methodology and related IT tool for training in assessing the reactor technology of different SMRs; and the SMR Regulators' Forum.

The forum, set up in 2015, enables discussions among Member States and other stakeholders to share SMR regulatory knowledge and experience. It contributes to enhancing safety by identifying

and resolving issues that may challenge regulatory reviews of SMRs and by facilitating robust and thorough regulatory decisions.

...An expeditious deployment of SMRs faces challenges, including the need to develop a robust regulatory framework, new codes and standards, a resilient supply chain and human resources. And although SMRs require less upfront capital per unit, their electricity generating cost will probably be higher than that of large reactors. Their competitiveness must be weighed against alternatives and be pursued through economies of scale. Detailed technical information on SMRs under construction or design can be found at the IAEA's Advanced Reactor Information System.

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"Realistically, we could expect the first commercial SMR fleet to start between 2025 and 2030," said Hadid Subki, Scientific Secretary of the TWG and a Team Leader in SMR Technology Development at the IAEA. "We trust this new Technical Working Group will help further the advancement of SMR technology and guide the Agency in its programmes and projects in this field."

Source: https://www.iaea.org/, 16 February 2018.

INDIA

Civil Nuclear Liability Issue is Well Settled in India

Dr Anil Kakodkar, former chairperson of Atomic Energy Commission of India and Secretary to the Government of India, opines that the issue of Civil Nuclear Liability in the country is well settled with the setting up of the insurance pool. He further advised the foreign vendors to not to be perturbed by it and said the Indian law should be emulated by other countries as well.

"The Civil Nuclear Liability issue is resolved. Earlier I was opposed to the legislation, but now I think other countries should emulate it," Dr Kakodkar told Nuclear Asia on the margin of the Nuclear Energy World Expo 2018 in Mumbai. He also had advice for the foreign vendors, who are complaining that the Indian law is not same as other countries. "Foreign vendors need to get out of this mind-set that it (the law) is not same as their law. But, who said it has to be the same?" he added.

The Government of India has set up Rs 1,500-crore nuclear insurance pool. It was put in place by the DAE in June 2015 and set up by General Insurance Company and other insurance companies. It provides insurance coverage to operators and suppliers for any nuclear liability towards the third party under the Civil Liability of Nuclear Damage Act, 2010.

"Protecting the citizens is the responsibility of the state. The Indian legislators have passed a law that has created an example by setting an insurance pool. And as far as responsibility is concerned, one cannot hold utility responsible for the fault of the vendors," the former Indian nuclear chief said. Foreign vendors, not openly, but in informal gatherings have been raising the issue of the civil nuclear liability regime in India as a roadblock.

While the government has settled the issue of civil nuclear liability, the foreign vendors –he said in reference to Areva and Westinghouse – have "their own problems". ... He lauded the Indian government for approving construction of 10 indigenous PHWRs in fleet mode. He insisted that the imported reactors also need to be built in fleet mode to keep up the momentum. "The Government has done its job. If the industry falters, it is to be blamed," Dr. Kakodkar added. India presently has 22 nuclear reactors operating across the country with a cumulative capacity of over 6,700 MW. The government has plans to increase it by 10 times by 2032.

Earlier, while inaugurating the conference, Dr Kakodkar also built up case for nuclear energy. He touched upon the competitiveness of solar energy and the sliding tariffs making things

difficult for nuclear industry. "Solar energy has emerged as competitive with low tariffs, but the infrastructure costs are seldom taken into account....One has to understand, nuclear energy is the only energy available 24/7, 365 days, unlike other renewable resources that are intermittent," said the nuclear scientist said. He further added that mix of nuclear and solar is perfect solution for Indian requirements.

The Solar Energy has been receiving huge subsidies from the government along with easy access to loans. Presently, Solar has an installed capacity of 20,000 MW and the government is aiming to increase it to 1,00,000 MW by 2022. To add to this solar power is priced at Rs 3 a unit as against the nuclear energy that is around Rs 5 a unit.

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Source: Nuclear Asia, 24 February 2018.

SOUTH AFRICA

South Africa Needs to Plan for Nuclear, Says NIASA

The Nuclear Industry Association of South Africa (NIASA) has today called on the country's energy industry and the government to take a long-term view of energy planning and not be distracted by current oversupply. NIASA's comments were in reaction to budget speech by Finance Minister Malusi Gigaba.

Gigaba's speech, delivered to a plenary sitting of South Africa's National Assembly, set out details of spending for specific plans following on from President Cyril Ramaphosa's 16 February 2018 State of the Nation address. Although neither speech specifically mentioned the country's plans for nuclear energy, both Ramaphosa and Gigaba have said that procurement of new nuclear power is not currently a priority for the country. According to comments Tweeted by the National Treasury, Gigaba said: "We cannot afford nuclear. Due to slow economic growth, South Africa currently has excess electricity; therefore, we do not need additional capacity now."

Ramaphosa, then deputy president, made similar comments in January at a press conference at the World Economic Forum in Davos, Switzerland. According to the IOL news agency, Ramaphosa said South Africa's proposed nuclear power plant programme would only be considered in the broad context of affordability. .."As South Africans we need to align the nation towards a common goal of creating jobs and ensure we do not expend our limited resources on unnecessary distractions. Economic development is key to achieve this and the foundation is a robust energy policy, which is forward looking and not laced in emotional sentiments," he said.

Electricity demand is expected to increase in the next 20 years, due to urbanisation and increased industrial production. Thus, a balanced energy mix, which includes stable and advanced energy technologies such as nuclear are critical to secure the future which we all desire.

"Electricity demand is expected to increase in the next 20 years, due to urbanisation and increased industrial production. Thus, a balanced energy mix, which includes stable and advanced energy technologies such as nuclear are critical to secure the future which we all desire," Msebenzi said. He also noted the potential of nuclear technology to drive job creation and socio-economic development through major opportunities in supply chain localisation.

Msebenzi said the South African nuclear industry acknowledged and supported the decision to allow state utility Eskom to purchase additional power from independent power producers of renewable energy, despite the assertion of oversupply. We support this move, as we do not see nuclear as being in competition with other

energy technologies, but advocate for a balanced energy mix, which speaks to the economic development ambitions of the country. That being said, we equally caution against rushed decisions, which only fix short-term challenges," he said.

South Africa's current Integrated Resource Plan (IRP), drawn up in 2010 and now in the process of being updated, called for construction of 9600 MWe of new nuclear capacity over the period to 2030. Eskom in December 2016 released a request for information to support the future procurement of the new nuclear capacity under the existing IRP. However, the South African High Court subsequently found ministerial determinations underpinning the nuclear procurement plans to be unlawful and unconstitutional, ruling that the request for information, as well as various intergovernmental nuclear cooperation agreements, must be set aside.

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Source: World Nuclear News, 21 February 2018.

USA

Nuclear Reactors could Run as Long as 80 Years under Trump Plan

The US Energy Department is throwing its support behind a request by utilities to extend the life of some nuclear power reactors — keeping them in operation for as long as 80 years. An official with the department, who asked not to be named to discuss its decision-making process, said the agency was conducting research and working with utilities seeking permission from the Nuclear Regulatory Commission to allow nuclear reactors built in the 1970s to keep operating to 2050 and beyond.

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Already, the utilities Exelon Corp., and Dominion Energy Inc. and NextEra Energy Inc. have said they plan to ask regulators to extend 60-year licenses by 20 years for eight reactors in Virginia, Pennsylvania, and Florida. Requests for as many as as 20 more are expected to follow, according to the nuclear industry. The plans have already raised the ire of anti-nuclear campaigners, who cite decades of wear and tear on the nation's reactors, as well as the 2011 Fukushima disaster in Japan.

...President Donald Trump began a review in June 2017 of ways to revitalize the nation's nuclear industry. Ultimately, the decision on extending the operating license of a reactor lies in the hands of the independent Nuclear Regulatory Commission, but the industry says the help is appreciated. "You are talking about continuing the operation of a perfectly safe and reliable power plant. Make that comparison with the new construction of a plant," said Jerud Hanson of the Nuclear Energy Institute, a lobbying group. "The cost savings are substantial."

The costs of retrofitting an existing plant can vary, on a case-by-case scenario, but are likely to be in the hundreds of millions of dollars, he said. Construction of a new plant runs well into the billions. Southern Co., which is building two reactors in eastern Georgia, the first new American nuclear project to be approved in three decades, has seen the cost estimates double to more than $25 billion.

...Already, a majority of the 99 commercial nuclear reactors operating in the US have sought and received permission by the Nuclear Regulatory Commission to extend their licenses from 40 to 60 years. Others say that

allowing a nuclear reactor to operate for 80 years doesn't address the underlying economic headwinds.

"What you are seeing with extending the license is companies preserving an option, but it's an option that very few will likely exercise," said Peter Bradford, a former member of the NRC. "Unless the federal government is somehow prepared to either put taxpayer dollars into steam generator replacements or to somehow mandate that the customers have to pay for it, it's just not going to happen."

Source: https://www.bloomberg.com/, 21 February 2018.

NUCLEAR COOPERATION

CANADA–INDIA

Canada, India may Focus on Defence, 'Civil' Nuclear Cooperation

Canadian PM Justin Trudeau arrived in India…for a week-long visit aimed at enhancing business ties between the two countries. Trudeau and Indian PM Modi are also expected to focus on areas including civil nuclear cooperation, space, defense, energy and education.

…At Davos in January, while US President Donald Trump supported new tariffs on imports, Trudeau and Modi came out forcefully against a drift toward protectionism in the global economy. In 2017, two-way merchandise trade between Canada and India amounted to $8.4 billion, split equally between exports to and imports from India, according to Indian media….

Source: https://www.pakistantoday.com.pk/, 17 February 2018.

INDIA–VIETNAM

In a move that could put China on the back foot, strategic partners India and Vietnam are to boost defence ties and sign pacts on civil nuclear cooperation and port development during a visit by Vietnamese President Tran Dai Quang. The two countries will also exchange views on developments in the South China Sea where Vietnam and some other South-East Asian nations are locked in a maritime dispute with China, Vietnam's ambassador to India Ton Sinh Thanh told reporters in New Delhi.

The three-day visit comes at a time when India is warily watching China make inroads into its neighbourhood with an increased naval presence as well as a stepped up infrastructure profile in countries like the Maldives, Nepal and Sri Lanka as part of its multi-billion dollar Belt and Road Initiative. … The Vietnamese president's visit would aim to make the partnership more comprehensive with the addition of economic, scientific and cultural elements, he said, adding that one of the agreements expected to be signed was in the area of peaceful uses of civil nuclear energy.

Apart from the civil nuclear pact, which will be signed between the two governments, three other pacts—including one on the development of a port in the Nghe An province in north-central Vietnam —will be signed with Indian companies….

Source: Elizabeth Roche, livemint, 28 February 2018.

RUSSIA–UZBEKISTAN

Uzbekistan, Russia Preparing Road Map for Nuclear Energy Co-Op

Uzbekistan and Russia will prepare an action plan for cooperation in the field of nuclear energy, Uzbek Foreign Minister Abdulaziz Kamilov said. Kamilov made the remarks following the talks with his Russian counterpart Sergey Lavrov. "The sides are preparing a plan of practical actions ("road map") to strengthen bilateral cooperation for 2018 on the use of nuclear energy for peaceful purposes," Kamilov said.

Earlier, Moscow offered Uzbekistan to build a nuclear power plant with two new generation power units in the country. On 29 December 2017, an agreement on cooperation in the field of using atomic energy for peaceful purposes was signed between the governments of the two countries

within the visit of the Rosatom delegation to Tashkent.

Among the promising directions are the creation of national infrastructure and training of personnel for the nuclear energy of Uzbekistan, the construction of a nuclear power plant and research reactors in the country, as well as their support throughout the life cycle. The agreement also covers the exploration and development of uranium deposits in Uzbekistan, the reclamation of uranium tailings, the production of radioisotopes and their use in industry, medicine and agriculture, scientific and basic research. The agreement envisages the creation of joint working groups for the implementation of specific projects and scientific research, as well as the exchange of experts, holding of seminars and symposia.

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Source: https://www.azernews.az/, 25 February 2018.

USA–SAUDI ARABIA

Why Trump Might Bend Nuclear Security Rules to Help Saudi Arabia Build Reactors in the Desert

Next month, Saudi Arabia will announce the finalists of a sweepstakes. The prize? Multibillion-dollar contracts to build a pair of nuclear power reactors in desolate stretches of desert along the Persian Gulf. For Saudi Arabia's crown prince Mohammed bin Salman, the reactors are a matter of international prestige and power, a step toward matching the nuclear program of Shiite rival Iran while quenching some of the kingdom's domestic thirst for energy.

For the Trump administration, the contest poses a thorny choice between promoting US companies and fighting nuclear proliferation. If the administration wants to boost the chances of a US consortium led by Westinghouse, it may need to bend rules designed to limit nuclear proliferation in an unstable part of the world. That could heighten security risks and encourage other Middle Eastern countries to follow suit.

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"If the Saudis were to get an agreement without restrictions, it would set a dangerous precedent in the region and [be] a significant break with American nuclear policy for the last 50 years," said Jon Wolfsthal, a consultant on nuclear weapons who was a director for arms control and nonproliferation at the National Security Council under President Barack Obama.

The issue is a test of President Trump's foreign policy and his self-professed bargaining prowess. Trump; his son-in-law, Jared Kushner; and Energy Secretary Rick Perry have made pilgrimages to Riyadh to cozy up to the young crown prince and try to win big contracts for US firms. Yet little has come to fruition.

Now, as Mohammed prepares to visit the US in March 2018, the Saudi deadline looms for Westinghouse, which is winding its way through bankruptcy and is eager to find customers for its much-praised AP1000 design. Without a diplomatic deal, Westinghouse and a South Korean group, which uses US parts and technology and would be bound by the same rules, could be

sidelined in favor of Russian or Chinese state companies.

The key rules governing nuclear sales to Saudi Arabia are spelled out in a document known as a 123 agreement, named after a section in the 1954 Atomic Energy Act…. The US-proposed 123 agreement for Saudi Arabia, dating to the George W. Bush administration, would impose the strictest limits on uranium enrichment and the reprocessing of spent fuel, both of which could be used to produce material for nuclear bombs.

Saudi Arabia has argued that it should be free — as its sovereign right — to mine and enrich its own uranium deposits, as long as it abides by the international NPT, which bars the diversion of materials to a weapons program. The China National Nuclear Corp. has signed preliminary agreements with the Saudis to explore nine potential uranium mining areas. Prince Turki al-Faisal, a former intelligence chief, told Reuters in December that Saudi Arabia would "have the same right as the other members of the NPT, including Iran."

The need to build nuclear reactors in Saudi Arabia, which has the world's largest petroleum reserves, isn't obvious. The kingdom says it wants to curtail the burning of oil to generate electricity at home. Doing so would free up more oil for exports, the kingdom's main source of revenue. Saudi electricity consumption doubled between 2005 and 2015.

Mohammed, who harbors ambitions for an invigorated, more diverse Saudi economy, invited foreign firms to submit proposals last fall. In mid-November 2017, executives from the world's five leading nuclear reactor design and construction firms — including the Pennsylvania-based Westinghouse — made presentations to Saudi officials…. The push to provide nuclear power to Saudi Arabia has divided US policymakers.

…Henry Sokolski, who is the executive director of the nonprofit Nonproliferation Policy Education Center and who served in President George H.W. Bush's Pentagon, asked, "How do we feel about the stability of the kingdom? The reactors are bolted to the ground for a minimum of 40 years and a maximum of 80 years. That's enough for the whole world to change." But others say that if the US doesn't build the reactors, then Russia's Rosatom or the China Nuclear Engineering and Construction Group will, providing fewer safeguards against proliferation and eroding US diplomatic strength in the region….

Why the Saudis Want More Energy: The need to build nuclear reactors in Saudi Arabia, which has the world's largest petroleum reserves, isn't obvious. The kingdom says it wants to curtail the burning of oil to generate electricity at home. Doing so would free up more oil for exports, the kingdom's main source of revenue.

Saudi electricity consumption doubled between 2005 and 2015. During the peak summer months, when temperatures soar past 120 degrees Fahrenheit, the kingdom burns about 700,000 barrels of oil a day for air conditioning. Add industrial and transportation use, and Saudi Arabia's domestic crude consumption has neared 3 million barrels a day, more than a quarter of its total output. Solar is another option. The Saudis could also tap its plentiful supplies of natural gas, much of which is flared and wasted.

Prestige, Parity and the Gold Standard: Prestige is another lure for Saudi Arabia. Its smaller oil-rich neighbor, the United Arab Emirates, which recently opened a new branch of France's Louvre museum, bought four South -Korean-model nuclear reactors now under construction….

…But the UAE also signed a 123 agreement in January 2009 that is called the gold standard. It agreed not to enrich or reprocess — although a passage says it could reconsider if others in the region start doing so. It plans to buy uranium from the US and ship spent fuel to Britain or France for reprocessing.

For Saudi Arabia, the UAE's gold standard set a high bar. "During the Obama administration, we were at an impasse," said Gary Samore, a former

White House arms control coordinator now at Harvard's Kennedy School of Government. "We wanted them to make a commitment similar to what Abu Dhabi did. We never overcame that issue in our negotiations." Now the Saudis have a new reason to press for concessions: The nuclear deal Obama and other allies reached with Iran allows Tehran to continue enrichment within strict limits for commercial use and with intrusive inspections. Trump has called it "the worst deal ever." The Saudi government noted that some clauses will expire after 15 years....

Friends and Foes: The nuclear cooperation agreement tests the Trump administration's efforts to cement ties with the crown prince. In addition to Trump's May trade and diplomatic mission, Kushner visited again the week before the crown prince's crackdown on opponents.... Any proposed 123 agreement must be submitted to Congress. If lawmakers do nothing to block it, the agreement would come into force after 90 legislative days.

Now the Saudis have a new reason to press for concessions: The nuclear deal Obama and other allies reached with Iran allows Tehran to continue enrichment within strict limits for commercial use and with intrusive inspections. Trump has called it "the worst deal ever." The Saudi government noted that some clauses will expire after 15 years.

...And Friends of Israel might object to providing nuclear technology to the Saudis. "I think the Saudis are smart enough to realize that it will run into major, major storms here in Congress" if it tries to alter the 123 agreement, said Jean-Francois Seznec, a consultant on Mideast business and finance.

The Marshall Plan Mirage: For a brief moment, it appeared as though the Trump administration would sweep away roadblocks to American nuclear developers. In 2015, retired Gen. Michael T. Flynn did work for ACU Strategic Partners to press for a "Marshall plan" for nuclear plants across the Middle East. In mid-2016, Flynn switched to advising IP3/Iron Bridge, which also sought a wave of Mideast nuclear construction.

When the newly elected Trump named Flynn national security adviser, Flynn instructed his staff to turn a memo written by IP3/IronBridge into a policy memo — an unusual step. Soon, however, Flynn was forced to resign and he is now cooperating with special prosecutor Robert S. Mueller III on an investigation of Russian meddling in the 2016 presidential campaign.

The Marshall Plan was Always a Mirage: The collapse in crude prices in 2014, domestic food and oil subsidies, and the war in Yemen have weighed heavily on the Saudi budget. The rebound in oil prices helps, but Saudi financial reserves have plunged from $755 billion in 2013 to less than $500 billion today, according to the International Monetary Fund.

...At the core of any US nuclear proposal lies the weakness of the US commercial nuclear business. Westinghouse, a former Toshiba subsidiary, went bankrupt after losing billions of dollars acting as contractor for four reactors in the US. Two reactors in South Carolina have been abandoned; two in Georgia remain under construction at twice the original cost, but are now managed by the Southern Co.

In January 2018, Brookfield Asset Management — a Canadian conglomerate involved in money management, real estate, oil and gas production, and more — bid $4.6 billion to buy Westinghouse. The main attraction is the refueling and maintenance services Westinghouse profitably provides existing reactors.

The sale of new reactors would be a bonus, but Brookfield isn't counting on it. One thing Westinghouse will not do under Brookfield is take on construction risk again. So the US group makes Fluor the contractor; the utility Exelon would train operators for the reactors, according to people who have met with Westinghouse. Only about half the money for a US-led project would be spent in the US, experts say. The Korean design would use several Westinghouse-designed coolant pumps, other parts and technology. In the end, the fate of

the US proposal will circle back to the political and diplomatic efforts to forge a 123 agreement.

Saudi Arabia "would like us to cave to some degree on some elements of the 123 agreement," said Rep. Brad Sherman (D-Calif.), a member of the House Foreign Affairs Committee. But, he added, "the fewer Mideast nuclear weapons states, the better. And the fewer nondemocratic nuclear states, the better. And the fewer states where I can't predict 10 years down the road what their attitudes will be toward the US, the fewer of those countries that have nuclear weapons the better."

Source: Steven Mufson, https://www.washingtonpost.com/, 20 February 2018.

NUCLEAR PROLIFERATION

IRAN

Iran Says may Withdraw from Nuclear Deal if Banks Continue to Stay Away

Iran will withdraw from the 2015 nuclear deal if there is no economic benefit and major banks continue to shun the Islamic Republic, its deputy foreign minister said....Under the deal with Britain, China, France, Germany, Russia and the US, Iran agreed to restrict its nuclear program in return for the removal of sanctions that have crippled its economy.

Despite that, big banks have continued to stay away for fear of falling foul of remaining US sanctions - something that has hampered Iran's efforts to rebuild foreign trade and lure investment. Adding to those concerns, US President Donald Trump told the Europeans on 12 January 2018 they must agree to "fix the terrible flaws of the Iran nuclear deal" or he would re-impose the sanctions Washington lifted as part of that pact.

But even if Trump relents and issues fresh "waivers" to continue suspending those sanctions, the existing situation is unacceptable for Iran, Deputy Foreign Minister Abbas Araqchi said. "The deal would not survive this way even if the ultimatum is passed and waivers are extended," Araqchi, Iran's lead nuclear negotiator, said in a speech at the Chatham House think tank in London. "If the same policy of confusion and uncertainties about the JCPOA continues, if companies and banks are not working with Iran, we cannot remain in a deal that has no benefit for us," Araqchi said. "That's a fact."

Trump sees three defects in the deal: its failure to address Iran's ballistic missile program; the terms under which international inspectors can visit suspect Iranian nuclear sites; and "sunset" clauses under which limits on the Iranian nuclear program start to expire after 10 years. He wants all three strengthened if the US is to stay in the JCPOA. Araqchi said Trump's interpretation of the sunset clauses was wrong. "There is no sunset clause in the JCPOA. Although the US administration and Trump are talking about sunset clause and that JCPOA is just for 10 years, that is not true," he said.

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...If the nuclear deal is linked to Iran's ballistic missile program or its regional activities, world powers "not only will lose the JCPOA, but will make other issues more complicated and more difficult to resolve," he said. "If we lose the JCPOA, we will face another nuclear crisis," Araqchi said. "For the Europeans or the world community, when we talk about maintaining the JCPOA and saving it, it's not a choice between the Iranian or the US market, it's not a choice for economic cooperation: it's a choice between having security or insecurity," he said.

Soure: https://www.reuters.com/, 22 February 2018.

Iran Rejects US Conditions for Upholding Nuclear Deal

Iranian foreign minister ... rejected as "improper" the conditions set by the US for upholding Iran's international nuclear agreement, Press TV reported.... The US as a party to the multilateral

2015 agreement cannot reset conditions for the deal, Mohammad Javad Zarif was quoted as saying.

"They have previously set some conditions that were improper. Their new conditions are improper as well," Zarif said. Recently western media reported that the US President Donald Trump "laid out six major areas where he wanted the Europeans to work with the US to put together a united front on demanding that the Iranians alter their behavior." They include "alleged" human rights violations, cyber threats and financial activities of the Islamic Revolution Guards Corps (IRGC), the reports said.

Iran said it will not take any measures beyond its commitment to the JCPOA, nor will it accept changes to this agreement now or any time in the future. Iran has threatened to likely withdraw from the nuclear deal if it cannot receive economic benefits.

Trump had earlier demanded the nuclear deal be altered to eliminate sunset clauses for some of the restrictions it places on Iran, and harden the inspection rules and to limit development of Iran's long-range missiles. The US is attempting to elude its commitments through making such demands, Zarif said, adding that "The Americans set conditions that the international community completely knows none of them can even be considered." ...Iran said it will not take any measures beyond its commitment to the JCPOA, nor will it accept changes to this agreement now or any time in the future. Iran has threatened to likely withdraw from the nuclear deal if it cannot receive economic benefits.

The statement did not make any mention of North Korea's nuclear program or whether the dialogue would be about denuclearization. But still, this is the first sign of willingness from North Korea in years, and it comes when the Trump administration has been signaling an openness to talk without preconditions.

Source: http://www.xinhuanet.com/, 25The February 2018.

NORTH KOREA

North Korea has Expressed Willingness to Talk to the US

The North Korean delegation to the Closing Ceremonies of the Winter Olympics said that Pyongyang was "willing to have talks" with the US, South Korea's presidential Blue House said.... North Korea agreed that inter-Korean relations should "improve together" with relations between North Korea and the US, the Blue House said after an hour-long meeting between South Korean President Moon Jae-in and North Korea's chief representative, Kim Yong Chol, in PyeongChang, on the sidelines on the Games.

The statement did not make any mention of North Korea's nuclear program or whether the dialogue would be about denuclearization. But still, this is the first sign of willingness from North Korea in years, and it comes when the Trump administration has been signaling an openness to talk without preconditions. "President Moon pointed out the urgency to hold dialogue between North Korea and the US in order to fundamentally the resolve the issues on the Korean Peninsula and to improve inter-Korean relations," the Blue House said. At the closing of the Games, the US is being represented by Ivanka Trump, the president's daughter and adviser. She is seated in the VIP box next to Moon and his wife.

North Korea's delegation is led by Kim Yong Chol, vice chairman of a key Communist Party committee dealing with inter-Korea relations and a former head of the North's military intelligence service. He is seated in the row behind Trump, just as Kim Jong Un's sister was seated in the row behind Vice President Pence at the Opening Ceremonies. It emerged that Pence had planned to meet Kim Jong Un's younger sister on the sidelines of the Opening Ceremonies, only for the plan to fall through at the last moment. There was no sign of any interaction between Ivanka Trump and Kim Yong Chol during the close ceremony. But after the aborted meeting during the opening, there has

been speculation about a working-level meeting between US and North Korean officials.

Although recent efforts at persuading North Korea to relinquish its nuclear weapons have involved multilateral talks, the problem is between Pyongyang and Washington. North Korea's antagonism toward the outside world is rooted in its hatred of the US, which all but destroyed the country with sustained bombing during the Korean War. That conflict ended in 1953 with an armistice — signed for the southern side by the US, not South Korea.

To this day, North Korea says that it needs nuclear weapons to fend off the US and insists that any normalization will require a peace treaty with the US, as the signatory to the armistice, not with South Korea. Choe was defiant when he led a North Korean delegation to a Swiss-organized meeting last September. The US government did not send any officials to the meeting, but two regular US interlocutors with North Koreans — former State Department official Evans Revere and Pacific Forum president Ralph Cossa — attended....

Source: Excerpted from https://www.washingtonpost.com/, 25 February 2018.

NUCLEAR SAFETY

JAPAN

Fuel Removal Gear in Place at Fukushima Daiichi Unit

A cover has been installed over the fuel handling machine that will help remove fuel from the storage pool of unit 3 of the Fukushima Daiichi nuclear power plant in Japan. The removal of the fuel is scheduled to start in mid-2018. The section of the reactor building that sheltered the service floor of unit 3 was wrecked by a hydrogen explosion three days after the tsunami of March 2011 - leaving the fuel pond exposed and covered by debris including many twisted steel beams.

Once the largest pieces of rubble had been removed, Tepco began construction of a separate structure to facilitate the removal by a remotely-operated crane of the 566 fuel assemblies from the storage pool. This 54-metre-tall structure includes a steel frame, filtered ventilation and an arched section at its top to accommodate the crane. Measuring 57m long and 19m wide, it is not fixed to the reactor building itself, but is supported on the ground on one side, and against the turbine building on the other.

Installation of the first of eight sections of the arched roof of the cover was carried out last August 2017. The fuel handling machine and crane were installed in November 2017. Tepco announced the final section of the arched roof had been put in place, about two weeks ahead of schedule. Removal of the fuel assemblies will be carried out from the middle of the year. The fuel removed from unit 3 will be packaged for transport the short distance to the site's communal fuel storage pool, but it will need to be inspected and flushed clean of dust and debris.

Source: World Nuclear News, 21 February 2018.

Pakistan has been voluntarily implementing the Code of Conduct since 2005 and has put in place all the necessary arrangements and systems consistent with the recommendations of the Code. "Pakistan's subscription to the Supplementary Guidance on the Import and Export of Radioactive Sources demonstrates its continued commitment to the latest international standards in the areas of nuclear non-proliferation, safety and security.

PAKISTAN

Pakistan Implementing International Standards on Nuclear Safety

Pakistan has assured the IAEA that it is voluntarily implementing the Guideline and Code of Conduct on the Import and Export of Radioactive Sources, Radio Pakistan reports. The Code of Conduct seeks to help countries ensure that radioactive sources are used in a manner consistent with the highest standards of safety and security. Foreign Office Spokesperson Muhammad Faisal, in a statement, said Pakistan has been voluntarily implementing the Code of Conduct since 2005 and has put in place all the necessary arrangements and systems consistent with the recommendations of the Code.

"Pakistan's subscription to the Supplementary

Guidance on the Import and Export of Radioactive Sources demonstrates its continued commitment to the latest international standards in the areas of nuclear non-proliferation, safety and security," he added. The spokesperson stressed that Pakistan has run a safe and secure peaceful nuclear programme for more than four decades....

Source: https://www.pakistantoday.com.pk/, 21 February 2018.

NUCLEAR WASTE MANAGEMENT

UK

Government 'Culpable' in Nuclear Clean up Bungle

The Government must share the blame for the bungling of a multi-billion pound nuclear clean-up contract after failing to protect taxpayers from spiraling costs, MPs have said. In a damning report the Public Accounts Committee (PAC) accused the Government of being "culpable" in the collapse of a contract to clean up Britain's redundant fleet of Magnox nuclear reactors.

The Nuclear Decommissioning Authority's £6.1bn deal was aborted almost a year ago after it bungled how the 14 year contract was awarded to the Cavendish Fluor Partnership (CFP) formed by Babcock and Fluor. The botched award led to a two year High Court legal battle which effectively put taxpayers on the hook to pay £122m in compensation to companies who bid for the Magnox work but failed to get it. The committee's report blamed the NDA for running "an overly complex procurement process" which ultimately ended nine years early.

The NDA also drastically under-estimated the scale of the work needed to decommission the sites at the time it awarded the contract, the report said. The PAC said the debacle had caused "untold reputational damage" to the NDA, but it added that the Government must share the blame for approving the authority's approach. Geoffrey Clifton-Brown, the committee's deputy chair, branded the contract "an appalling piece of mismanagement and financial waste" which had cost the taxpayer over £122m.

He also pointed the blame at the Government for failing in its duty to taxpayers by being "too hands off" in overseeing the deal. "It is wholly unacceptable that some details of what took place should remain so murky – not least the NDA's inability to fully account for some £500m of taxpayers' money paid to its previous contractor," he said. "But central government is also culpable. Having signed off the NDA's needlessly complicated procurement plan, it then failed in its duty to taxpayers as issues emerged and costs grew," he added. The committee has asked the NDA to update MPs within three months on its investigation into whether it overpaid its previous contractor and, if so, how it planned to recover money.

Source: Jillian Ambrose, https://www.telegraph.co.uk, 28 February 2018.

USA

Trump's Yucca Mountain Funding Refuels Political Fight over Nation's Nuclear Waste

When President Trump proposed his 2018 budget, it contained more money to continue the process that would send the nation's spent nuclear fuel deep within a Nevada mountain. It's refueled the arguments about what we should do with our nuclear waste.

President Donald Trump's budget includes money to jumpstart the removal of spent nuclear fuel from across the US and place it in Nevada. Illinois' congressional expert says it's well past time, but Nevada politicians are telling the nation "not in my backyard."

Trump's 2017 proposal contained $120 million to continue the safety studies to ensure storing the nation's spent nuclear fuel wouldn't harm anyone in the planned Yucca Mountain Repository, a man-made cave deep below a mountain 100 miles from Las Vegas. He's proposed the same amount this year. The project was stalled nearly a decade ago by ex-Nevada Senator Harry Reid and President Barack Obama.

With six power plants and eleven operating reactors, Illinois has more nuclear reactors than any other state. Much of the spent fuel is stored on site. According to the National Energy Institute, 76,000 tons of spent nuclear energy is currently being stored in temporary locations like Zion.

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Many Nevada politicians oppose Yucca. Nevada Senator Dean Heller has sponsored bills that would essentially stop the program. Reacting to Trump's budget, he said it would be catastrophic for Nevada, and he would "make sure that this project doesn't see the light of day."...

..."I applaud the president for his leadership on this important matter and urge Congress to pass the Yucca Mountain funding request," said Nye County Board Vice Chairman Dan Schinhofen. "Included in the budget request is $3.6 million for Nye County as the host community for the repository. These funds would be used for a number of crucial investments, including funding for programs for our county's seniors, housing assistance for veterans and to help provide medical services for central Nevada."

Consolidated interim storage facilities, which would place the nation's spent fuel in dry cask storage much as it is now but grouped into specific areas, would be achievable in 5 to 10 years, Shimkus said. Should plans commence, he estimated Yucca would be receiving spent fuel shipments in 15 to 20 years.

Source: https://www.ilnews.org/, 20 February 2018.

Centre for Air Power Studies

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

Centre for Air Power Studies

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