



A FORTNIGHTLY NEWSLETTER ON NUCLEAR DEFENCE, ENERGY AND PROLIFERATION FROM
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OPINION – Manpreet Sethi

ICAN Win, Can Disarmament Too?

A Treaty on the Prohibition of Nuclear Weapons was concluded by 122 nations, all non-nuclear, at the UNGA in July 2017. Popularly referred to as the Ban Treaty, this marked a significant event. A multilaterally negotiated legally binding instrument that prohibits development, testing, production, manufacture, acquisition, transfer, possession, and stockpiling of nuclear weapons, as well as their use or threat of use had been concluded for the first time. It opened for signature on September 20, when 50 countries quickly signed it the same day.

It is heartening that the Nobel Prize Committee chose to award the Nobel Peace Prize for 2017 to the International Campaign for Abolition of Nuclear Weapons (ICAN), the advocacy group that was largely behind the success of the ban treaty. Four hundred and sixty eight non-governmental organisations under ICAN's umbrella worked with commitment and passion over the last ten years to draw attention to the catastrophic consequences of any use of nuclear weapons. ICAN became the representative of public frustration and the force of civil society on dangers that the presence of nuclear weapons spelt for the world. The Nobel citation to ICAN rightly highlights their groundbreaking efforts towards creating public awareness.

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However, once the celebrations are over, ICAN must give serious thought to actual elimination of nuclear weapons because for all the seminal

importance of the ban treaty, it cannot become a serious step towards disarmament unless nuclear possessors accept to eliminate their arsenals. At this juncture, none of the NWS appears to be in a mood to do so. In fact, if anything, the rift between the nuclear weapon states (NWS) and the non-nuclear weapon states (NNWS) is likely to deepen at the next NPT RevCon in 2020. The

world seems to be caught between these two camps – those wanting to make nuclear weapons *somehow* disappear and those asserting their salience *like never before* since

the end of the Cold War. In fact, the ongoing stand-off between USA and DPRK has only made the possibility of their acceptance of the ban treaty, and by extension of others, even more remote. In this context, it is important that all supporters of real elimination of nuclear weapons appreciate the fact that the pathway to elimination is as important as the process of elimination itself. Only by following the right measures that enhance security rather than creating more insecurities and rifts is universal nuclear disarmament going to be possible.

India has advocated a step by step approach where each step reinforces the possibility of the next. With the ban treaty, a step has been taken, even if only by non-possessors of the weapon for now. The next task should be to build bridges to cover three chasms – between NGOs and governments; between NWS and NNWS; and between adversarial nuclear rivals.

India has always maintained that while the goal of nuclear disarmament is worthy of pursuit, the manner in which it is obtained is as important. It is for this reason that India has advocated a step by step approach where each step reinforces the possibility of the next. With the ban treaty, a step has been taken, even if only by non-possessors of the weapon for now. The next task should be to build bridges to cover three chasms – between NGOs and governments; between NWS and NNWS; and between adversarial nuclear rivals. ICAN can make a real difference by reaching out to all stakeholders to make the pursuit of the cause of disarmament as inclusive as possible. Consensus will have to be forged, however difficult it may appear.

The cost of electricity can be divided into plant-level costs, grid-level costs, and other costs. Plant-level costs consist of capital, operation and maintenance, and fuelling cost. Capital cost is reflected in the cost of generation by way of interest on debt and return on equity. For nuclear power plants, capital cost is high, but fuelling cost is low. For coal-fired power plants, capital cost is low, but fuelling cost is high. The capital cost of solar and wind is continuously decreasing; fuelling cost is nil.

Lastly, it may be recalled that at the dawn of 2017, the *Bulletin of Atomic Scientists* that maintains a Doomsday Clock to indicate the proximity of the world to Armageddon, adjusted the hand of the minutes closer to midnight by 30 seconds. So, we are at only two and a half minutes to 'midnight'. Events through 2016 that included acts of nuclear brinkmanship by USA, Russia, North Korea and Pakistan were the reasons for the growing pessimism on the fate of the world. Much the same has continued 2017 too. But, the conclusion of the ban treaty and the

acknowledgement of its import through the award of the Nobel Peace Prize to ICAN are promising developments. For their promise to be realized, however, ICAN must use its large network and influence to create a more consensual and inclusive atmosphere in which NWS can be made to move towards, what the Peace Prize announcement described, "the balanced, gradual and carefully monitored elimination of nuclear weapons."

At a personal level, ICAN's recognition touches a chord since the cause of universal nuclear disarmament has been

dear to me for over two decades. My hope now is that this moment should be prudently seized by right thinking individuals, organisations and nations to move forward constructively. History shows that momentum for disarmament is never easy to build, nor sustain. Civil society movements have been active in the past and yet not gotten results. ICAN has succeeded in creating public sentiment. It must now help create the necessary atmosphere in which governments are willing to disarm. This cannot happen by conclusion of a treaty that nuclear weapon possessing nations refuse to become party too. It can happen when they are made to agree to go down one step at a time, each of which strips the nuclear weapon of its salience. Pushing for a universal no first use commitment by all nuclear possessors could

be one way of doing so.

Source: <https://thewire.in/>, 08 October 2017.

OPINION – R.B. Grover

The Cost of Electricity

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Electricity reaches a consumer through the grid. Laying a grid needs significant investment. A distributor buys electricity from a generator, adds transmission and distribution charges, a charge to recover technical losses, operating expenses, and his profit to determine the tariff to be charged from a consumer. Since several generators are connected to the grid, interaction with the grid and grid-management policies influence the working of a generator. At present, electricity markets do not assign any price to system effects, that is, to the complex interactions among various generators connected to the grid.

In recent years, a large capacity based on variable renewable energy (VRE) sources has been connected to the grid. These sources are intermittent, but get priority feed-in due to nil fuelling cost. A grid manager must ensure that enough dispatchable generation capacity is connected to the grid to meet the peak load in the evening when solar power is not available. Dispatchable generation is provided by baseload technologies like coal and nuclear, and by large hydropower. Grid-level costs have several components: grid connection, grid extension and reinforcement, short-term balancing costs, and long-term costs for maintaining adequate back-up supply. VRE sources demand much higher back-up, grid connection and reinforcement costs. This aspect needs attention during policy formulation. In December 2016, the Central Electricity Authority issued a draft national electricity plan (DNEP), which refers to system effect and resulting system cost at several places.

The emphasis on VRE sources without any investment in energy storage has converted daily load profile for dispatchable generating stations into a “duck curve”, that is, with a reduced electricity load during the day when solar is available and a rapid ramp up in the evening. This lowers the capacity factor of dispatchable generators. The DNEP acknowledges technological and operational challenges posed by the integration of VRE into the grid.

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A recent report by the Department of Energy, US, highlights another element that is smoothening of transients in the grid by the inertia of the rotating mass present in thermal power plants, while solar plants have no such feature. System costs have been quantified by the Nuclear Energy Agency of the OECD and differ across countries depending on the extent of presence of sources like natural gas. According to this quantification, system cost of VRE sources is much higher than nuclear and coal. True parity of VRE sources will be achieved only when the sum of generation cost and system cost matches with that from dispatchable sources.

Other Costs: Other costs include those arising from the influence of electricity generation on health, influence on existing generation capacity due to adding new capacity, cost of accidents, security of supplies and net energy gain for society. In the *Economic Survey 2016-17* (Volume 2), an attempt has been made to estimate grid-level costs and some other costs. The survey uses the term ‘social cost of carbon’ to represent economic cost of greenhouse gas emissions. It also adds health costs, costs of intermittency, opportunity cost of land, cost of government incentives and cost arising from stranded assets. It, thus, includes not

only system cost, but a significant part of other costs as well. It estimates that the total social cost of renewables was 11 per kWh, around three times that of coal.

Conventional metrics like levelled cost of electricity generation cannot be relied on to compare intermittent and dispatchable electric supply options. India's electricity requirements are enormous. It doesn't need a 'technology versus technology' debate, but a policy framework that integrates all low-carbon energy technologies with coal in a manner that ensures reliability and security of electric supply along with affordability and climate-resilient development.

Source: <http://www.thehindu.com>, 03 October 2017.

OPINION – Nick Butler

New Nuclear – A Chance to Start Again

There is a place for new nuclear in the future energy mix and that place should not be limited to state controlled economies such as Russia and China. Nuclear can provide power free of emissions. The industry is safer than many others in the energy business. But nuclear has to win that place. It has to be competitive. The question is whether the industry is capable of responding to the challenge. Within November, Rossi will take over as the chief executive of EDF Energy in the UK. With the job comes responsibility for Britain's first (and according to one of the energy industry's leading players, perhaps last) new nuclear plant, Hinkley Point C. The plant is set to be one of the most expensive structures ever built, with the costs estimate pushed up again in July to £19.6bn. HPC is least eight years behind schedule (it was originally supposed to be providing the power to

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...That is true in Britain where the decision to proceed in 2016 was only taken because the PM's staff could not identify an alternative source of power – they should have asked more widely and not relied on those already fully committed to one outcome.

Instead they gave EDF the go-ahead but placed the entire construction risk on EDF. Since the company is state owned the ultimate burden rests with French taxpayers. Unsurprisingly HPC is as unpopular in Paris as it is in the UK. At an intriguing conference on the "Global Positive Future" held under the "high patronage" of President Macron at the beginning of September there was no mention of nuclear power. If Mr Macron accepts the tighter financial discipline implied by the proposed eurozone reforms, repeated payments to EDF will become impossible. Many in EDF, once a great company at the heart of the post-1945 reconstruction of France, see the project as an albatross. Control over EDF's activities in the UK has been moved back to Paris.

Despite all this Mr Rossi could still emerge as a hero. As a new arrival he can look again at the project and decide that instead of throwing good money after bad, it is time to call a halt

and look for lower cost solutions. Price has become the key issue since the original deal on HPC was agreed in 2013. A price of £92.50 per megawatt hour, index linked for 35 years from whenever the project is commissioned, was ridiculous then and is even more so now. Given the inflation we have seen since 2013 that starting price is now over £100 per MWh.

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The deal symbolised the inability of well intentioned but inexperienced ministers and civil servants to negotiate complex commercial deals. The deal involved no competition and no provision for review if market circumstances changed. The decision demonstrated the unaccountable power of well funded lobbyists. Circumstances have changed. Over the last four years the price of every available alternative has declined. The cost of offshore wind has fallen to below £60 per MWh in the UK and to just €43 per MWh in Spain. Gas is plentiful and there is no reason to think that a balanced mixture of wind power and natural gas cannot meet future energy needs. There are alternatives. In the end the price of power will determine whether nuclear has a future not just in the UK but also across Europe. Germany may be religiously opposed to nuclear for reasons which rational observers find hard to grasp but France and other countries are not. The looming question is whether the large French fleet of nuclear stations built in the 1970s and 1980s will be replaced as they reach retirement.

Can new nuclear meet the cost challenge? The question is open. Financing remains the key challenge for the other nuclear projects hoping for a share of the UK market. A different and more easily funded reactor must be found to replace the European pressurised reactor. Around the world there are alternatives which are simpler to build and therefore potentially less expensive. Smaller reactors are available which could be constructed in series at the existing nuclear sites. Rolls Royce has started to expand its nuclear reactor business, previously dedicated to military use. The Chinese have created the new Dragon reactors. It would be a grave admission of weakness for the newly confident France under resident P Macron if the country's nuclear industry, once the very symbol of national technical capabilities could not respond. Mr Rossi can start

the process of change. He should accept that those who question HPC are not anti-nuclear or anti-French fanatics. He should explain in detail why the costs of Hinkley have increased since. And he should accept the reality that the current price is uneconomic in a world where industrial energy costs matter.

The risk of a loss of face and the fear of claims for compensation seem to be holding back both the company and some parts from the UK government from reaching this rational conclusion. Abandoning HPC would be hugely popular in the UK, in Paris and among EDF's long suffering shareholders. Such a decision would also help remove the reputation which the electricity retailers have earned for remoteness and arrogance in the face of consumer concerns. The move would help Anglo-Franco relations, which will matter

as the Brexit process proceeds. Finding an alternative would restore confidence in the company and in existing energy policies which otherwise look to be broken. It could also help to restore the reputation and viability of the nuclear sector well beyond the UK and France.

Source: <https://www.ft.com/>, 02 October 2017.

OPINION – Steve Kidd

Uranium – What are the Dynamics between China and Kazakhstan?

China has relied heavily on Kazakhstan for uranium needs. However as the Chinese programme slows, it has become time for the world's top uranium producer to look to other markets. It is now common knowledge that Kazakhstan has become easily the world's leading producer of uranium, with an incredible expansion since 2005 from around 5000t per annum to over 20,000t (out of a world total of around 60,000t) in each of the past few years. This has happened at a time when

It is now common knowledge that Kazakhstan has become easily the world's leading producer of uranium, with an incredible expansion since 2005 from around 5000t per annum to over 20,000t (out of a world total of around 60,000t) in each of the past few years. This has happened at a time when overall production in the remainder of the world has been static, with a decline in Australia offset by small increases elsewhere.

overall production in the remainder of the world has been static, with a decline in Australia offset by small increases elsewhere. Almost all of the 50% increase in world production since 2005 can be attributed to this one country.

This has happened at a time where the world demand for uranium, measured by reactor requirements, has remained stable at close to 60,000t per annum. Reductions in Germany and Japan have been matched by increases elsewhere, notably in China but also in other countries where reactor numbers are expanding. To some extent, the world production expansion has offset a reduction in secondary supplies coming to the market. The HEU deal between Russia and the USA has ended, but there have been compensating increases in secondary supplies, particularly from the enrichment companies either "underfeeding" or "re-enriching" (almost magically creating additional uranium). So overall secondary supplies have only fallen by a few thousand tonnes each year. The net effect has been a substantial increase in world uranium inventories of approximately 150,000 tonnes since 2005 (but concentrated very much in the second half of this period). There have been increases in the European Union, the USA and Japan (after the Fukushima accident in 2011) but easily the biggest explanation is the amazing level of Chinese buying.

China's Nuclear Programme and Uranium Strategy: Most people also know that China now has the world's biggest nuclear building programme. It has 37 reactors in operation and 20 of the 58 units currently under construction. Its annual uranium requirements are therefore now rising very rapidly, from 2000t per annum in 2010, to around 7500t today and 11,000t in 2020. Yet

China's uranium purchasing has run well ahead of this. Trade statistics show that since 2010, China has imported 120,000t of natural uranium to add to domestic production of around 9000t over these seven years. Matching this with calculated reactor requirements indicates an inventory build-up of 90,000t in this short period.

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Will this level of Chinese buying persist or will it drop away at a target level of strategic inventory? Or will it increase further if China starts approving lots of new reactor projects again? What is the strategic target – five years of forward requirements in 2020, 2025 or 2030? How big will the Chinese nuclear programme be in the 2020s.

We do not know much about the level of Chinese inventories before the heavy importing started in 2010, but a guesstimate is 10,000-20,000t. It could have been more. China therefore now has a strategic uranium inventory of at least 100,000t. Building this up has been a key element in China's nuclear strategy.

Relatively poor domestic uranium resources have long been the biggest fear within China about undertaking a large nuclear programme. Could it be excluded from the world uranium market by economic sanctions? This may appear far-fetched today, when uranium producers from around the world are keen to do business in China. Lingering barriers to supplying directly from countries such as Australia and Canada have gradually been removed. But the world can change and China observed carefully how Indian reactors went short of fuel when that country fell outside the world market politically.

China's uranium buying has been the mirror image of the Kazakh production boom, with 70% of China's imports sourced from there. The remainder has been acquired from countries including Australia, Canada, Namibia and Uzbekistan. From another angle, Chinese imports account for just over half of Kazakh production since 2010. This raises interesting questions. Will this level of Chinese buying persist or will it drop away at a target level of strategic inventory? Or will it increase further if China starts approving lots of new reactor projects again? What is the strategic

target – five years of forward requirements in 2020, 2025 or 2030? How big will the Chinese nuclear programme be in the 2020s?

Given that there are currently two uranium-buying entities in China (CNEIC and CGN-URC), to what extent is the uranium purchasing and inventory level coordinated and managed centrally? We know that there is a degree of competition between these organisations, but to what extent does the Chinese state force an optimum strategy? Can China possibly squeeze more production out of its domestic mines, as it clearly plans? Can it establish a major reprocessing plant by 2030, saving on fresh natural uranium – also part of its stated strategy? What will happen when Namibia's new Husab uranium mine, effectively owned by CGN-URC, ramps up production to 6000t per annum? Is Kazakhstan's production level threatened by this and by China contracting with more companies from different countries? Will China invest in further large overseas uranium mines? And, can the Chinese begin to dominate the world uranium market?

The question about China's dependence on Kazakhstan has been brought into focus by the continued weakness in the uranium market, with prices stuck in the low US\$20s per pound, plans for a 10% production cut in Kazakhstan 2017 and signs that Chinese nuclear expansion is slowing sharply. China's uranium import peaked in 2014 and so did sourcing from Kazakhstan. Imports from Kazakhstan were over 3000t lower in 2016 than in 2014. Hence Kazakhstan has been strengthening its uranium marketing in other countries. It has had some success in Russia, where ARMZ's acquisition of Uranium One provides better direct access to Kazakh supply. But the Russian market is soft, as the reactor programme slows under technical and financial issues and reactor exports are slow to materialise. Russia also has abundant secondary supplies, with surplus enrichment capacity and re-

enrichment of tails as important as in the West.

One suggestion is that China has over-cooked its uranium imports, having bought at a level appropriate for a much larger programme than will finally see the light of day. But what does China want in its strategic inventory? This is very opaque but certainly China has paid prices way above today's spot price level. But most buyers went on a contracting spree in the years between the price peak in 2007 and the Fukushima accident in 2011. China will justify its buying in terms of security of supply, but does it need to enhance this still more? Husab's production is an interesting question. On

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the assumption that about two thirds of it will go to China (it may amount to more than this, given difficulties in selling incremental output at good prices in an oversupplied world market), an additional 4000t will soon be on its way there. It is reasonable to see this as eating further into

China's imports of material from other countries, and that must include Kazakhstan.

It is also reasonable, however, to believe that there will be no sudden uncoupling of the link between Chinese demand and Kazakh supply. Instead, that is likely to happen gradually over time. Given the good relationship, there will still likely be a strong flow of uranium from Kazakhstan to China in ten years' time and beyond. More of it will be from Chinese joint ventures there. But China wants to have more control of its uranium supply via equity investments, and that will inevitably go far beyond Kazakhstan and eventually beyond Husab too.

Future for Kazakh Uranium Production: Slowing sales to China are undoubtedly a major influence on the recent Kazakh production cut. The gradual uncoupling of the Chinese-Kazakh relationship and the need to sell much more in other markets explains national producer Kazatomprom's new marketing focus and, in particular, to its plans for a trading subsidiary with an office in Switzerland.

Some success has been achieved in recent years in selling more uranium in the USA, but progress in Europe has been limited. A soft market has not helped and winning a higher market share in such an environment is far from easy. But if Kazakhstan is to limit its reduction in overall uranium output to the announced 10%, Kazatomprom must certainly deliver on its intentions to sell more everywhere outside China. Even if Kazakh production falls to 22,000tU in 2017, it will still represent approximately a third of world demand.

Kazatomprom is likely to market an increasing share of national output, as it is generally expected that it will take back shareholdings from some of its joint venture partners in its operating mines. An agreement with Cameco at the Inkai mine may be replicated with other partners (particularly the Japanese who, in any case, have largely not taken up their entitlement to material since the Fukushima accident in 2011). Kazatomprom's supply from Inkai is set eventually to rise to 60% of increased output of 4000t, as opposed to 40% of 2300t in 2016. The Chinese joint ventures may be an exception to this, as China's international uranium strategy is clearly to take equity in its supplying mines and Sino-Kazakh cooperation throughout the overall fuel cycle is expanding.

Kazatomprom clearly feels it has missed out on sales opportunities in Europe and North America by lacking pricing flexibility and by being too slow and bureaucratic to respond to opportunities. It now intends to offer a much wider range of options to its customers in terms of the types of contracts that it signs with them. This will include relatively small spot market deals, but also new formats on longer term contracts, taking on board what the trading and financial community has achieved in recent years in increasing overall market liquidity. One can see a new trading operation within the world's largest producer as

yet another attempt to reform the uranium market. Most uranium continues to be sold under opaque long- term contracts negotiated by uranium producers and nuclear power plant operators. Attempts to reform this over the years, for example by standardising contract formats or establishing a uranium futures market with NYMEX, have found little favour in a conservative industry.

Kazatomprom's evident desire to maximise its uranium sales clearly also has important implications for the overall level of uranium prices. As a low-cost producer with a currency that has fallen sharply against the US dollar in recent years, it is in a good position to defend its overall market

share (given the reduction in the Chinese business) and possibly expand it. Low prices are not welcome to any producer, but profit targets can be achieved by selling more in new markets. This must provide further support for those who believe that uranium prices are set to remain in the

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US\$20s per pound for a long period, maybe throughout the whole of the 2020s. This period would therefore be a re-run of the 1990s, when prices were stuck around the US\$10 per pound level for over a decade. After the new mines at Cigar Lake in Canada and Husab in Namibia, no further major new mines may be necessary, as Kazakhstan can take up market slack.

Source: <http://www.neimagazine.com>, 13 September 2017.

OPINION – Juliana Adelman

Atoms for Peace or Weapons of Mass Destruction?

While the public war of words between US President Trump and North Korean leader Jong-un seems to have quietened down, for those who remember the Cold War it is hard not to feel a creeping sense of *déjà vu*. While many scientific developments have been "weaponised", nuclear technology is one that probably strikes the most

fear. Eisenhower's famous 1953 "Atoms for Peace" speech to the UN represented these tensions between a technology with potential for mass destruction but also for huge benefits. Eisenhower told the UNGA: "The US knows that if the fearful trend of atomic military build-up can be reversed, this greatest of destructive forces can be developed into a great boon, for the benefit of all mankind. The US knows that peaceful power from atomic energy is no dream of the future. The capability, already proved, is here today."

The speech suggested setting up an international atomic energy agency under the UN, the continued stockpiling of "fissionable materials" and further research into how to use nuclear technology for the benefit of mankind in energy, medicine and agriculture. The agency came into being and indeed held its 61st conference in September. At the conference the director celebrated the continued extension of nuclear power including most recently in Afghanistan. Yet nuclear energy, even in peace, still brings risks, as we were most recently reminded by the accident at the Fukushima plant in 2011. While incidents like this are rare, they can have tremendous impacts and continue to make many people consider atomic energy more "fearful" than "great boon".

Ireland has never opened a nuclear power plant, although it has been debated at several points in the past. Throughout the 1970s there was considerable discussion of nuclear power across the island. A Nuclear Energy Board was established in 1968 with the aim of introducing nuclear power to the Republic at a time when many other European countries were also establishing nuclear power plants. The UK had four such plants by 1968. France's nuclear expansion took place in the 1970s

and the country still has the most nuclear power plants in Europe (58). A major driving force of the early plans was a sense of increasing dependence on imported oil, as the increasing demands for electricity could not be met with materials such as peat or hydroelectric power.

Studies were conducted and Carnsore Point was proposed as the site for Ireland's first nuclear power plant. The plan was largely stopped, not by the intervention of politicians or scientists, but by the public. Mass protests in the 1970s also suggested a growing international movement against nuclear power even in peace. In 1978, *Fortnight* reported on the three-day occupation of Carnsore Point by at least 10,000 people including speakers from "Italy, France, Germany and America relating the experience of their own country", videos of protests in other countries as well as "some fine Irish music". Photographs might now be confused with those from a music festival: lots of young people wearing improvised rain gear and even musical performance (notably Christy Moore). Yet there was a serious determination among the protesters. *The Irish Times* predicted that the event "will be remembered as a turning point by all those who took part". The publicity surrounding the bulldozing of a cairn built by the protesters induced further public outcry. Sometimes symbols are powerful things.

By 1986 the nuclear power option had faded into the background. A gathering at Carnsore was reported by Cummins in *The Irish Times* as "other-worldly"; a combination of oddballs, vegetarians and Romany over from England. Something of the urgency had passed, only hundreds rather than thousands had materialised and the Chernobyl

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disaster would have made it difficult for the government to adopt a bullish attitude towards nuclear power. The battle over nuclear power had been decided well before the 1999 Act banned its use in the Republic.

Source: www.irishtimes.com/, 05 October 2017.

OPINION – Leigh Cuen

This is What Trump Got WRONG about Nuclear Weapons and Global Politics

President Trump caused quite a stir when he delivered a vehement speech at the UN headquarters in New York City on September 19. He threatened to “totally destroy” North Korea and called Iran a “rogue state whose chief exports are violence, bloodshed, and chaos.” Both nations responded with displays of reciprocal hostility. North Korean leader Jong Un felt so insulted by Trump’s words that he promised to take the “highest level of hard-line countermeasure in history,” according to *The New York Times*. A North Korean official also hinted Kim might soon conduct the “biggest ever hydrogen bomb test in the Pacific.” Trump shot back on September 23 with tweets threatening North Korea “won’t be around much longer” if this continues. He also denounced Iran for “working with North Korea,” tweeting: “Not much of an agreement we have!”

Trump’s tweet about Iran conflates two political issues — the agreement with Iran and Iran’s relationship with North Korea — which aren’t connected at all. It’s unclear whether the increasingly close relationship between North Korea and Iran includes their distinct nuclear programs. North Korea is openly developing a nuclear arsenal of military weapons. Meanwhile, Iran claims its program is purely for nuclear energy and scientific research. It does not have any known weaponry. According to an analysis from *Tablet*, most reports about nuclear cooperation have been “vague, contradictory, or politically motivated.” Whether or not Iran “works

with” North Korea in any other capacity is unrelated to the nuclear deal Iran made in 2015, called the JCPOA. The US, the UK, Germany, China, and France were among the countries that signed the JCPOA with Iran, which guarantees that the Middle Eastern nation’s nuclear program doesn’t make or research weapons.

To make matters worse, one of Trump’s tweets also claimed: “Iran just test-fired a Ballistic Missile capable of reaching Israel.” Yet *The Jerusalem Post* reported that the Israeli military denied having any evidence that Iran recently tested a ballistic missile. According to Trump administration officials who spoke to CNN,

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the American intelligence community also rejected Trump’s claim about the Iranian missile. So Trump basically antagonized two hostile nations, then, without evidence, accused one them of acting in bad faith. It’s clear symbiotic diplomacy was never the Trump administration’s strength. The White House

makes so many inaccurate statements about foreign nations that it is often hard to untangle the facts from the bravado. So we teamed up with PolitiFact to look at some of the biggest lies the Trump administration has told about global politics. Here’s the truth:

Trump Exaggerates the State of Both American and Iranian Nuclear Programs: During his speech at the UN, Trump said, “We cannot abide by [the Iran nuclear] agreement if it provides cover for the eventual construction of a nuclear program.” He called the nuclear agreement President Obama signed “an embarrassment to the US,” suggesting the JCPOA deal still allows Iran to develop a dangerous nuclear program. However the IAEA, considered the foremost authority on this matter, has repeatedly deemed Iran to be in compliance with the nuclear deal. Iran doesn’t have any nuclear weapons and doesn’t appear to be moving toward making them any time soon. Trump’s own State Department has twice certified that Iran is complying with the deal.

According to *The Wall Street Journal*, Secretary of State Tillerson urged Trump to officially certify

Iran's compliance. "Most of the complaints about Iran don't have anything to do with the agreement. They complain about ballistic missiles and other things, but that's not part of the agreement," Republican senator Paul told *Politico*. In the meantime, it looks like Trump may decide to pull the US out of JCPOA on his own, regardless of the fact that the chair of the Joint Chiefs of Staff, Marine General Dunford, recently said the Iran deal has effectively delayed Iran's ability to make nuclear weapons....

Trump has a habit of exaggerating the nuclear capabilities of foreign powers. And he's done the same regarding American nuclear facilities. In August, Trump tweeted that making the American nuclear arsenal "stronger and more powerful" than ever before was his first order of business as president. This contradicts the White House website, which lists at least a dozen executive orders and memoranda that came before any mention of nuclear facilities. Instead, the president prioritized repealing Obama-era policies for health care and environmental protections. "There is a total of nothing that has changed substantially about the US nuclear arsenal over the few months that Trump has been in office," Bunn, a nuclear-policy specialist who teaches at Harvard University's John F. Kennedy School of Government, told *PolitiFact*. "We have the same missiles and bombers, with the same nuclear weapons, that we had before."

Trump doesn't Understand Chinese Relations with the US or North Korea: During the 2016 presidential campaign, Trump claimed China has "total control" over North Korea. But the fact is North Korea has repeatedly conducted military exercises, including a nuclear test, despite China's

public opposition. China is one of North Korea's closest allies, at least in terms of geography and economic trade. Tillerson has correctly pointed out that China now accounts for around 90% of North Korean trade. Yet, despite Trump's claims, economic ties do not prove China has complete political control over another country....

On the other hand, China is also one of the US's biggest trade partners, although Trump doesn't claim this means China has "total control" over his homeland. If the White House seems confused about China's relationship with North Korea, the Trump administration is sometimes even less accurate when it describes American relations with China. Back in July, when Priebus was the White House chief of staff, Priebus claimed that China and North Korea have consistently meddled in American elections.

Experts were shocked by these accusations, for which *PolitiFact* was unable to find even a shred of supporting evidence... Before he became president, Trump also made several false claims about trade deficits and taxes related to China. Then on September 13, Trump tweeted America should mimic China's

"business tax rate of 15%." This suggestion skews the facts. According to the accounting firm PwC, that Chinese rate applies only to certain industries and the regular corporate tax rate is 25%....

Source: www.teenvogue.com/, 05 October 2017.

OPINION – Jonathan Powers

Nuclear Strike No Longer an All-Encompassing Taboo

In the Cold War days, some of us used to say, "Better red than dead" – to rebuff those who believed in nuclear deterrence as a way of political

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In the Cold War days, some of us used to say, "Better red than dead" – to rebuff those who believed in nuclear deterrence as a way of political life that gave them security. Now those of us who are frightened that Trump could start a nuclear war over Iran or North Korea should coin a new phrase. How about: "Better alive than going to the grave with Jong-un."

life that gave them security. Now those of us who are frightened that Trump could start a nuclear war over Iran or North Korea should coin a new phrase. How about: "Better alive than going to the grave with Jong-un"? Admittedly that doesn't have the same snappy ring, but get my point? At the UN recently, President Trump (aka Fire and Fury) threatened to "totally" destroy North Korea if the US was forced to defend itself. This past weekend (Oct 7-8) Senator Corker, the chair of the US Senate's Foreign Affairs Committee, and at one time an important backer of Trump, the candidate, said that Trump could set the nation "on the path to World War 3".

I would surmise, even though I have no polling evidence, that an overwhelming majority of the world would not accept the use by the US of nuclear weapons in any circumstances, even if they believe in what I think is the false notion of "deterrence". In Europe I doubt if more than 5% do. But in America it is another matter. According to a survey carried out in the US and analysed at length in Harvard University's "International Security" some 50% of American adults believe that their use would be justified, especially if it saved the lives of 20,000 American soldiers. (Which is less than the 38,000 US soldiers stationed in South Korea today).

It's the same argument that President Truman used to justify the atomic bombing of Hiroshima and Nagasaki. In order to protect the lives of hundreds of thousands of American soldiers who were fighting their way from the south of Japan to Tokyo the bombs had to be used. In fact we now know from well-regarded historians that this was not the most important argument that persuaded Truman to give the order to bomb. It

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In August 1945, 85% of Americans told pollsters they approved of Truman's decision. Support for that decision has declined over the years. A poll in 2015 said that only 46% thought it was justified, but even that is a lot. Hence the false idea that Americans consider the further use of nuclear weapons a taboo.

was the fear that the US ally, the Soviet Union, invading from the north, would get to Tokyo first if the US didn't immediately intimidate Japan to surrender. In August 1945, 85% of Americans told pollsters they approved of Truman's decision. Support for that decision has declined over the years. A poll in 2015 said that only 46% thought it was justified, but even that is a lot. Hence the false idea that Americans consider the further use of nuclear weapons a taboo.

Hersey's popular book that sold millions of copies, "Hiroshima", did much to build up the sense of taboo, but over time it wasn't sufficient. All Americans were not inoculated against future use. Harvard professor, Pinker disagrees. In his widely-acclaimed book, "The Better Angels Of Our Nature", he argues that for Americans "the only acceptable wars are surgical routs achieved with remote-control technology". There has been in recent years, he argues, an "expansion of prudence, reason, fairness, self-control, taboos and conceptions of human rights."

At the time of the last Korean War in 1953-55 Truman again nearly used nuclear weapons to halt the Chinese coming to the aid of the North, but was dissuaded by Churchill. Advisors to President Kennedy including his (later pacifist-inclined) secretary of defence, McNamara, considered their use against the Soviet Union during the Cuban crisis and were mentally prepared in extremis to use them. During the Vietnam War, President Nixon and his secretary of state, Kissinger, thought seriously about using nuclear weapons against the North. Arbatov, an advisor to the Soviet president, Brezhnev, confided to me that there had been two or three occasions when the generals had argued to

Brezhnev that they should be considered for use in a first-strike against the US. If Trump feels unconstrained to use them he won't be the first president to think the unthinkable.

A sophisticated poll by YouGov in 2015 examined how America would react if Iran was caught violating the 2015 Agreement that sharply reduced world sanctions in return for Iran giving up its nuclear research program. Most likely on October 15 Trump will announce he thinks it has. YouGov asked its sample what would they think if Iran then attacked an aircraft carrier in the Persian Gulf killing over 2,000 military personnel and then the US retaliated with airstrikes and a ground invasion. A 56 % majority of those polled agreed that if Iran did not then surrender a nuclear strike was OK. Even women did not think differently. The taboo is no longer all-encompassing. We don't have such a detailed and careful poll of American attitudes to a possible nuclear strike on North Korea. But one can guess. If Trump decided to he might have the support of a good half of the population. He knows that. Do we?

Source: <https://www.indepthnews.net>, 11 October 2017.

NUCLEAR STRATEGY

INDIA

Indian Air Force Chief Says can Hit Pakistan Nuclear Sites in Next Surgical Strike

In a major warning to Pakistan, Indian Air Force Chief BS Dhanoa said his forces are capable of hitting nuclear sites across the border if another decision on a surgical strike is taken by the government. When asked about the tactical nuclear arsenal of Pakistan, Dhanoa said, "The Air Force has the capability to locate, fix and strike across the border." He was addressing a press meet in New Delhi on the eve of the Air Force

Day. "We are ready for a full spectrum operation," he said.

Dhanoa, however, added that any decision on another surgical strike which also involves the Indian Air Force has to be taken by the government. Speaking in that context, Dhanoa said he needs "42 squadrons" to carry out a full spectrum operation in case of "a two-front war". He said the IAF will achieve the sanctioned strength of 42 fighter squadrons by 2032. ...

Source: <https://www.msn.com>, 05 October 2017.

USA

Trump's Overhaul of US Nuclear Weapons Policy may Make Nuclear War More Likely

President Trump's ongoing nuclear posture review has begun to yield findings indicating the US may create new nuclear weapons for the first time in decades - and it could increase the chances of nuclear war. The US's last nuclear posture review, carried out under former President Obama in 2010, was "explicit about its

But in the seven years since the Obama administration's evaluation, the world has changed significantly. Russia has emerged as a serious adversary in almost every dimension of US foreign policy. China has commenced a massive land grab in the South China Sea. North Korea has demonstrated thermonuclear and ICBM capability. In light of this new challenge, Trump's review seeks to answer the question: Can America still deter adversaries with its existing arsenal.

objective," Joseph, a senior scholar at the National Institute for Public Policy told Air Force Magazine in September. Essentially, under Obama, the US prioritized stopping the spread of nuclear weapons, didn't consider Russia, China, or North Korea, as a threat, and maintained that the US shouldn't build any new nuclear platforms. But in the seven years since the Obama administration's evaluation, the world has changed significantly. Russia has emerged as a serious adversary in almost every dimension of US foreign policy. China has commenced a massive land grab in the South China Sea. North Korea has demonstrated thermonuclear and ICBM capability. In light of this new challenge, Trump's review seeks to answer the question: Can America still deter adversaries with its existing arsenal?

With the current framework of mutually assured destruction, or the strategy whereby any nuclear exchanges between nuclear powers would result in the total destruction of both countries, reports indicate that defense officials are concerned that the US is self-deterred from using its strategic nuclear forces. Basically, a rising question over if the US would actually initiate the end of the world by using its massive nuclear arsenal against Russia or China may erode the credibility of the deterrent.

Russia has continued to develop nuclear weapons custom-built to defeat US defenses, but the US has focused mainly on modernization. So some involved in the review have started advocating for the US to build smaller nuclear weapons, which Reif, director for disarmament and threat reduction policy at the Arms Control Association, told Business Insider would be more "usable." A new class of smaller nuclear weapons "would lower the threshold for use" without providing any real advantages, according to Reif. Reif challenged the idea of mini-nukes by asking what targets would require a small nuclear weapon instead of conventional bombs. The US has massive ordnance penetrator bombs meant to smash bunkers deep underground.

The proliferation of precision-guided munitions now means that smaller explosives hitting closer to targets preclude the need for massive nuclear explosions that would almost certainly in any use case kill civilians. Additionally, the US already has tactical, low-yield nuclear weapons stashed around Europe. Besides signaling the US's resolve to participate in nuclear war should the need arise, it's unclear what purpose these weapons would serve. "The US already has hundreds of nuclear warheads that

can be detonated or configured to detonate at low yields," said Reif. "New low-yield weapons are a solution in search of a problem."

"If the US moves now to develop a new nuclear weapon, it will send exactly the wrong signal," Andreasen, a former State Department official told Politico. "If the world's greatest conventional and nuclear military power decides it cannot defend itself without new nuclear weapons, we will undermine our ability to prevent other nations from developing or enhancing their own nuclear capabilities and we will further deepen the divisions between the US and other responsible countries."

Source: <http://www.businessinsider.in/>, 06 October 2017.

US Nuclear Weapons Modernization

US nuclear forces, operated by the Air Force and Navy, have entered a years-long period that will see the modernization of warheads, bombs, and delivery systems. Many of these land-, air-, and sea-based systems, which constitute the so-called nuclear triad, entered service during the Cold War and will reach the end of their life cycles in the coming decades.

The ballistic missiles, submarines, bombers, fighters, and air-launched cruise missiles in operation today will be gradually phased out for newer systems. The United States will also develop new nuclear warheads and upgrade facilities that produce and maintain nuclear weapons. However, while some modernization efforts are already underway, debate persists in Washington over their direction and extent, especially given the massive investments they will require. The Congressional

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Budget Office estimates that maintaining and modernizing US nuclear forces will cost \$400 billion between 2017 and 2026.

How did the Nuclear Triad Emerge?: The triad emerged and evolved, more by accident than design, over the four decades of the Cold War as the United States and Soviet Union responded to each other's advances. "No one set out to create the triad," says Stephen Schwartz, editor and co-author of *Atomic Audit: The Costs and Consequences of US Nuclear Weapons Since 1940*. "It arose out of inter-service rivalry, pork barrel congressional politics, competition between defense contractors, fear of the Soviet Union, and highly redundant nuclear targeting."

Each leg of the triad reinforces the US strategic nuclear deterrent, which has been the bedrock of national defense since the 1950s. In the early stages of their development, nuclear weapons were so large they could only be delivered by bomber aircraft. They were used for the first and only time against Imperial Japan, in 1945. The first intercontinental-range ballistic missiles were incorporated into the US nuclear arsenal by the late 1950s. The first ballistic missile submarine for strategic deterrence began operations in the early 1960s.

What are the Legs of the US Nuclear Triad?:
Ground. The ground-based leg of the US nuclear triad, managed by the US Air Force, is the largest of the three in terms of number of delivery platforms. It comprises four hundred Minuteman III intercontinental-range ballistic missiles (ICBMs), which were first deployed in 1970. ICBMs are missiles capable of striking targets more than 5,500 km away. Each Minuteman III can deliver one warhead, though the missile originally designed to carry three to multiple targets. The United States keeps ICBMs on nearly constant alert. They are in underground silos spread out across thousands of acres of farmland in Colorado, Montana, Nebraska, North Dakota, and Wyoming.

Sea. The sea-based leg of the US nuclear triad, by far the largest in terms of total deployed warheads, comprises more than two hundred Trident II submarine-launched ballistic missiles (SLBMs),

which can be launched from fourteen Ohio-class nuclear-powered submarines (SSBNs) based in Washington State, on the west coast, and Georgia, on the east coast. Twelve of the fourteen SSBNs are at sea at all times, with five each in the Pacific and Atlantic Oceans always on "hard alert" in designated patrol areas, ready to launch their missiles within minutes of receiving an order from the president. Each Trident II SLBM can deliver four to five independently targetable nuclear warheads, although the missile is capable of carrying up to eight warheads.

Air. The air-based leg of the US nuclear triad comprises two types of heavy bombers, which are based in Louisiana, Missouri, and North Dakota: forty-four B-52H Stratofortresses and sixteen stealth B-2A Spirits. The B-52H, which has been modified extensively over its fifty years of service, carries nuclear-tipped, air-launched cruise missiles. The B-2A, which became operational in 1997, can be armed with three different nuclear bombs. The Air Force used another aircraft, the B-1B Lancer, for nuclear missions until 1997, but has since modified it to carry only conventional weapons.

What Other Nuclear Weapons does the US Have? The United States also has approximately five hundred nuclear bombs adapted for tactical use with various fighter aircraft. About 150 of these are located at bases in five NATO ally states, but modernization plans may include reducing the total number of deployed tactical nuclear weapons. Though they have no fixed definition, tactical nuclear weapons are generally distinguished from strategic ones by their shorter delivery ranges, and they are designed for battlefield scenarios in which conventional weapons might otherwise be used. (Tactical nuclear weapons have never been used in battle.)

What Modernization is Planned for Each Leg of the Triad?
Ground. The planned replacement for the Minuteman III ICBM, known for now as the Ground-Based Strategic Deterrent (GBSD), is still in the design phase. In the meantime, the Air

Force is continuing to upgrade the Minuteman III.

Sea. First deployed in 1981, Ohio-class submarines will be replaced beginning in the early 2030s with Columbia-class submarines, which are expected to operate through the 2080s. Assuming current requirements and cost projections hold, the Navy will likely operate between ten and twelve Columbia-class SSBNs, which will feature sixteen missile launch tubes, four fewer than the Ohio-class SSBNs have. The submarine-launched Trident II is undergoing improvements to extend its service life through the early 2040s. The Navy will likely reduce the number of deployed SLBM warheads as well.

Air. The US Air Force is developing a new stealth bomber, the B-21 Raider, which will be capable of delivering both nuclear and conventional payloads. Meanwhile, the Air Force is expected to upgrade and keep the B-2A Spirit in service through 2058 and the nuclear-capable B-52H through 2040.

The Air Force has put out contracts to develop a new weapons system, known as the Long-Range Standoff (LRSO) cruise missile, which may be capable of delivering both conventional and nuclear warheads and be interoperable across the US nuclear bomber force. It is not expected to be operational until 2030.

What Arms Control Agreements Cap the US Nuclear Arsenal?: Russia is the only other nuclear weapon state with an arsenal comparable to that of the United States. The New START Treaty entered into force in February 2011 and limits US- and Russian-deployed warheads to 1,550 and deployed delivery vehicles—individual ICBMs, SLBMs, and heavy bombers—to 700. The United States and Russia report their strategic warhead and delivery vehicle counts to each other on a biannual basis.

The United States entered another bilateral treaty, the INF Treaty, with the Soviet Union in 1988; it remains in place with Russia. To comply with the INF Treaty, both countries destroyed their ground-launched, ballistic, and cruise missile systems—both nuclear-capable and conventional—with ranges between five hundred and five thousand

kms. However, the Obama administration said in 2014 that Russia's testing of certain missile systems violated the agreement. Russia has reportedly deployed these banned systems, although Moscow denies that it has violated the treaty.

Why is Nuclear Modernization Debated? Shortly into his tenure, President Obama declared "America's commitment to seek the peace and security of a world without nuclear weapons." Despite this, most of the ongoing triad modernization began under his administration, and fewer US nuclear weapons were eliminated under him than under any other post-Cold War president. President Donald J. Trump declared shortly after his election in 2017 that he would seek to "greatly strengthen and expand [US] nuclear capability," and he ordered the Department of Defense to conduct a review of the US nuclear posture, which is expected to be completed by early 2018.

Some aspects of nuclear modernization face political opposition, with critics noting that the triad itself is an artifact of Cold War-era strategic thinking. In 2017, a group of Democratic senators sought to slow development of the LRSO, citing strategic concerns and high costs. Others, including former Defense Secretary William J. Perry, have recommended abolishing the ICBM force, arguing that the other two legs of the triad would be sufficient for deterrence.

Source: Ankit Panda, <https://www.cfr.org>, 04 October 2017.

BALLISTIC MISSILE DEFENCE

AUSTRALIA

New Fleet of Australian Frigates to be Built for Missile Defence in Face of Rogue Threat

Australia's next fleet of navy frigates will be tailored to shoot down incoming missiles in a recognition of the growing threat posed by rogue regimes such as North Korea. PM Turnbull will announce on 03 October that the nine "future frigates", which the government wants to start building in 2020, will be equipped with an

ambitious combination of the US-made Aegis combat system meshed with locally made SAAB Australia technology. While the frigates are primarily meant for anti-submarine warfare, the inclusion of Aegis will tilt the purpose towards air and missile defence in a clear signal of the government's growing concern about the threat of missiles. "Recent events in our region have proven that Australia's future frigates must be equipped to defend Australia from the threat of medium and long-range missile attacks," Mr Turnbull said in written comments provided in advance of the announcement. "This technology will enable the future frigates to engage missiles at long range."

The frigates will not provide a comprehensive missile shield across Australia. But according to Davies, a defence expert with the Australian Strategic Policy Institute, the latest Aegis system would allow the future frigates to operate with US and Japanese partners as a kind of defence network to provide some protection to specific targets in the region. The combat system is the brains of a warship, allowing it to detect threats, pinpoint targets and fire weapons. Aegis, made by US giant Lockheed Martin, will be meshed with a system made by SAAB Australia that can work closely with the ships' Australian-made radar and specialises in tackling shorter-range threats. The combat system is estimated to make up about \$3 billion of the total \$35 billion cost of the frigate program. Other future Australian warships will use the SAAB system which Defence Industry Minister Pyne said would bring about \$1 billion worth of work to local industry.

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The Aegis system the frigates will use would be optimised for shorter-range missiles but could catch intercontinental range missiles in the early phase of their flight, meaning the ships would need to be stationed in the seas close to North Korea. US and Japanese destroyers are already equipped with Aegis ballistic missile defence systems and the latest SM-3 missiles, and are critical in trying to intercept any nuclear missiles fired by North Korea if the current tensions deteriorate into conflict.

Dr Davies said a so-called "co-operative engagement capability" would allow the frigates to act as eyes and ears to allied ships and vice versa. Defence Minister Payne stressed that being able to work with allies was a key part of the program. But Dr Davies said the frigates would need to be upgraded with longer-range interception missiles than those already planned if they are to shoot down intercontinental ballistic missiles - the kind that North Korea could use to threaten Australia.

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Dr Davies said the Aegis announcement signalled a prioritisation of missile defence in addition to anti-submarine warfare but added that "they are 7000 tonne ships and there's no reason they can't do both". The government is already considering ship-based, ballistic missile-defence on the Air Warfare Destroyers, which will hit the water over the next couple of years but for which an upgrade is already planned over the next decade. Beyond North Korea, the US and its allies are also concerned in the longer run about China's vast arsenal of ballistic missiles.

Source: <http://www.smh.com.au/>, 02 October 2017.

NUCLEAR ENERGY

GENERAL

IAEA Releases Projections on Global Nuclear Power Capacity Through 2050

The IAEA's annual publication on energy and electricity projections show that nuclear power's global potential up to 2050 remains high, although its expansion is expected to slow in coming years. The newly released 37th edition of Energy, Electricity and Nuclear Power Estimates for the Period up to 2050 (Reference Data Series No. 1 (RDS-1)) documents these trends in detail by region. Projections are presented as low and high estimates, reflecting different driving factors that have an impact on nuclear power deployment.

Interest in nuclear power remains particularly strong in the developing world, the publication highlights. However, compared with the 2016 projections for 2030, the 2017 projections were reduced by 45 GW(e) by 2030 in both high and low cases.

Over the short term, the low price of natural gas, the impact of renewable energy sources on electricity prices, and national nuclear policies in several countries following the accident at Fukushima Daiichi Nuclear Power Plant in 2011 are expected to affect nuclear growth prospects. Yet, commitments agreed to at the 21st session of the United Nations Climate Change Conference (COP21) could have a positive impact on nuclear energy development in the future.

The high projections indicate an increase from 2016 levels by 42% in 2030, by 83% in 2040 and by 123% in 2050. The low projections, on the other hand, indicate a decline in capacity by 12% in 2030 and 15% in 2040, before rebounding to present levels by 2050.

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The wide range in these projections is also due to the considerable number of reactors scheduled to be retired around 2030 and beyond, particularly in North America and Europe, and whether new nuclear capacity would be built to replace these retirements.

The leading influential factors that might affect the future of nuclear power are discussed in detail in the recent IAEA report on International Status and Prospects for Nuclear Power 2017.

Regional Trends:

Northern America: In both low and high cases, nuclear electricity production is expected to change significantly in this region over the next two decades. **Latin America & the Caribbean:** Nuclear electricity production is projected to increase in both low and high cases, but its role will remain small in the coming decades.

Northern, Western and Southern Europe: Several countries in these regions have announced a phase-out of nuclear power. The regions' nuclear power capacity will therefore change significantly in the coming years. **Eastern Europe:** Nuclear electricity production is projected to continue to grow in both low and high cases, albeit at different rates.

Africa: In the low case, nuclear electrical generating capacity is projected to stay at the present level of 2 GW(e) until 2030 and to increase to 7 GW(e) by 2050. The development of nuclear power is expected to face

uncertainty.

Western Asia: Although the single nuclear power reactor in the region provided only 2 TW''h in 2016, nuclear electricity production is expected to increase significantly in both the low and high cases. **Southern Asia:** The existing nuclear power reactors in the Southern Asia region are relatively young, and the majority are expected to remain in operation until the middle of the century.

Nuclear electricity production is projected to continue to grow in both the low and high cases. Central and Eastern Asia: Nuclear electrical generating capacity is projected to increase significantly in both low and high cases. South-eastern Asia: Nuclear electricity will appear in the electricity production mix of this region only after 2030.

Source: Shant Krikorian and Ayhan Evrensel, <https://www.iaea.org>, 04 October 2017.

HUNGARY

Commission Still Silent on Hungarian Nuclear Contract

The European Commission is dragging its feet in sharing reasons why it gave a green light to the Paks II nuclear plant project in Hungary and why Vice-president Oettinger travelled with a lobbyist working for the Hungarian government. In November 2016, the EU executive ended an infringement procedure against Hungary over an alleged non-compliance with EU public procurement rules when the contract to extend the Paks plant was awarded to Russia's Rosatom. It cited "technical exclusivity", agreeing to Hungary's argument that that only Rosatom's reactor fitted the requirements for the building works.

Paks II is a controversial project of Hungary's PM Orban, who concluded the deal with Russian president Putin in January 2014 without a public tender. Rosatom will build two 1,200-megawatt reactors at the old Paks nuclear facility, some 100 km south of Budapest. Russia is also to provide Hungary with a €10 billion loan to finance the investment. Construction is expected to start early next year. Earlier 2017 the Commission gave a definitive green light by closing a separate investigation into possible illegal state aid.

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Looking for a Justification: A Hungarian MEP, Javor, has been trying to find out for almost a year why the Commission decided to clear Hungary on

the public procurement case, and what "technical exclusivity" means. On 21 September, the Green politician sent a new request for access to document to the Commission. The Commission has 15 working days to answer, according to EU rules. In January, the EU executive denied Javor access to documents, arguing that the infringement procedure

can be reopened at any time. It also said that the state aid investigation, which was still open at the time, was another reason for not disclosing the information.

The Commission added that it saw no overriding public interest in the disclosure of the documents about the € 12 billion nuclear project. Javor contested the Commission's legal arguments and has pursued his request in the same procedure, which was met by several delays by the Commission.

...

Source: <https://euobserver.com/>, 04 October 2017.

JAPAN

Fukushima Operator can Restart Nuclear Reactors at World's Biggest Plant

The operator of Japan's stricken Fukushima Daiichi nuclear power plant has been given initial approval to restart reactors at another atomic facility,

marking the first step towards the firm's return to nuclear power generation more than six years after the March 2011 triple meltdown.

Japan's nuclear regulator on 11 October approved an application from Tepco to restart two reactors at Kashiwazaki-Kariwa – the world's biggest nuclear power plant – even as the utility struggles to decommission Fukushima Daiichi. The process

Japan's nuclear regulator on 11 October approved an application from Tepco to restart two reactors at Kashiwazaki-Kariwa – the world's biggest nuclear power plant – even as the utility struggles to decommission Fukushima Daiichi. The process will involve reviews and consultations with the public, and the restart is also expected to encounter strong opposition from people living near the plant on the Japan Sea coast of Niigata prefecture.

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The Nuclear Regulation Authority (NRA) ruled that the No 6 and No 7 reactors, each with a capacity of 1,356 megawatts, met stringent new safety standards introduced after the Fukushima disaster. The authority's five commissioners voted unanimously to approve the restarts at a meeting. The decision drew criticism from anti-nuclear campaigners.

...Tepco said in a statement that it took the regulatory authority's decision seriously and would continue making safety improvements at its plants while it attempted to decommission Fukushima Daiichi and compensate evacuees. Despite the NRA's approval, it could take years for the Kashiwazaki-Kariwa reactors to go back into operation. The governor of Niigata, Ryuichi Yoneyama, has said he will not decide on whether to agree to the restarts until Tepco completes its review of the Fukushima accident – a process that is expected to take at least another three years.

... Nuclear power is expected to become a key issue in the election later (October) this month. The prime minister, Shinzo Abe, has argued that reactor restarts are necessary for economic growth and to enable Japan to meet its climate change commitments. The government wants nuclear to provide about 20% of Japan's energy by 2030. But the newly formed Party of Hope, which has emerged as the main opposition to Abe's Liberal Democratic party, wants to phase out nuclear power by 2030. Opinion polls show that most Japanese people oppose nuclear restarts.

Source: Justin McCurry, <https://www.theguardian.com>, 04 October 2017.

UK

Hinkley Point C Project Powers Ahead

More than 1,900 workers are involved in the

Hinkley Point C nuclear power plant building project on the Bristol Channel coastline of Somerset. The bustling site is a sign that Britain is on track to secure its future energy security, even though the French utility Electricite de France SA, or EDF, announced in July that there were risks of delays and budget overruns. China General Nuclear Power Corp, or CGN, is investing £6 billion in Hinkley, which will cost £18 billion. "Already a number of CGN people have joined us on the Hinkley project," said Mayson, a senior director at EDF. "That cross-fertilisation of ideas is invaluable."

The deal between CGN and EDF was signed in October 2015 when President Jinping visited Britain. The British government approved it in 2014. Hinkley Point C's lead investor, EDF, and its Chinese partners say they are confident about the project. They worked together on the Taishan nuclear power station in Guangdong province, southern China, using the same EPR technology or third-generation pressurised water reactor design. EPR technology, developed by the French group, attracted concerns when its implementation at

Flamanville, France, and Olkiluto, Finland, was plagued by delays and budget overruns.

But construction of the Taishan project is expected to be completed in 2018. It will be the world's first nuclear power station using EPR. "CGN has built a large number of stations in China," Mr Mayson said. "That ability to build to time and scale is very important to make sure Hinkley is built in the most efficient way." It will be the first new nuclear plant to be built in Britain since the 1990s and will supply 7pc of the country's electricity when completed in 2025. It will also be a central part of Britain's efforts to replace and phase out ageing power stations. Overall capacity in Britain has fallen by 12pc since 2012 as coal-fired power plants are gradually shut down to comply with the government's commitments to tackle climate change. In addition to Hinkley's significance as a pioneering project, it is a landmark for China's nuclear industry. The role

It will be the first new nuclear plant to be built in Britain since the 1990s and will supply 7pc of the country's electricity when completed in 2025. It will also be a central part of Britain's efforts to replace and phase out ageing power stations. Overall capacity in Britain has fallen by 12pc since 2012 as coal-fired power plants are gradually shut down to comply with the government's commitments to tackle climate change.

that CGN is playing in the project is not as “a hands-on investor”, Mr Mayson said. Its contribution also includes technical and programme implementation, he said.

EDF and CGN are also collaborating on the Bradwell B nuclear plant, a planned project in Essex. CGN is the majority investor and will use the Hua-long Pressurised Reactor 1000, known as HPR1000, which is third-generation technology.

Source: <http://www.telegraph.co.uk/>, 04 October 2017.

The Changing Face of Nuclear Power

The troubled history of Britain’s replacement nuclear power station Hinckley Point C (HPC) will have received scant, if any, coverage in the US. But the story is an illustration of the blind alley in which nuclear power finds itself. The debate is one that is being (or will be) enacted in many other countries that rely on nuclear power as part of their energy mix. Eight years behind schedule, HPC should have come on stream by the end of 2017, but is not now likely before 2025 at the earliest (and probably later even than that distant date). In the meantime, repeated delays have added to the costs.

A Rising Price Tag: Now estimated at £19.6 billion (\$26 billion), it would be one of the most expensive structures ever built in the UK. Last year, the British government pushed the financial risk onto French power generator and owner-to-be of the plant EDF Energy as part of a deal that has already settled on an eye-watering £92.50/MWhr fee for power produced, index linked for 35 years, the *Financial Times* reported. Since that part of the agreement was made in 2013, inflation has pushed that figure to over £100/MWhr, the *Financial Times* reported, compared to offshore wind at £60/MWhr and unsubsidized new natural gas generation at even less. Never mind the rights and wrongs on how an inept series of UK

government politicians and civil servants got lobbied into agreeing to such a position. The fact remains no one, probably not even EDF themselves — and certainly not their shareholders — really wants the project to go ahead.

Fortunately, alternatives are emerging. Part of the rationale for HPC was that in an age of growing but variable renewable power sources, such as wind and solar, the country needed a reliable, always on, low carbon base load power supply. Nuclear isn’t zero-emission and estimates of the energy needed to build the massive plants suggest the carbon footprint of the site is substantial before a single KW is produced. However, such numbers are not counted in the estimates so much like the massive hidden CO2 footprint of biomass

– deforestation, pelletizing and transportation costs – they can be ignored or conveniently overlooked when lauding environmental achievements. Lower carbon power sources are emerging and finally governments, in the U.K. and elsewhere, are giving them some semblance of recognition.

A New Kind of Nuclear: Rolls Royce has made reliable mini-reactors for submarines for decades and China has a model

called the Nimble Dragon, designed by the China National Nuclear Corporation (CNNC), that a recent Reuters report suggested could be produced commercially now and gain licensing within a couple of years. The small modular reactor (SMR) is initially seen by developers as a solution for more remote sites, where its cost is more competitive than extending power grids. But as factory line manufacturing becomes more automated and unit volumes rise, costs per MWhr will fall. SMRs typically have a capacity of less than 300 megawatts (MW) — enough to power around 200,000 homes — compared to at least 1 gigawatt (GW) for standard reactors and the 3.2 GW planned capacity of HPC. Supporters suggest multiple SMRs could be sited together at pre-

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existing nuclear sites as old facilities reach the end of their life. This makes use of existing distribution infrastructure, a local skilled workforce and a receptive local community. ...

Source: agmetalmminer.com/, 05 October 2017.

USA

Advocacy Groups Seek Nuclear Fuel Permit Revocation at SONGS

During the October meeting of the California Coastal Commission, advocates in support of eliminating the spent nuclear fuel at San Onofre Nuclear Generating Station (SONGS) will seek once again to persuade the commission to revoke a permit it issued allowing plant operators to store it in a burial site in close proximity to the Pacific Ocean. The fuel currently can't be moved to a permanent facility because one is not available, but there could be other methods to stop the fuel from being set in a concrete monolith onsite... Prior to the California Coastal Commission meeting, the *San Clemente Times* met with eight different advocates and experts who have been vocal about removing the fuel from the San Onofre location and hope several of their concerns receive answers at the Oct. 11 meeting.

Concern: *What improvements can be made to thoroughly monitor these canisters for cracks?* Babiarz, of Public Watchdogs, a nonprofit organization based out of San Diego, asserts that despite presentations given at public meetings explaining that the waste can be examined, she said Southern California Edison has failed to explain how they plan on repairing cracks in the canisters if they transpire. Babiarz said this lack of acknowledgement to this concern could mean that the canisters cannot be repaired if a leak were to occur. "The community's concern is that these canisters cannot be monitored," Babierz said. Southern California Edison (SCE) is the majority owner of SONGS. It is estimated that 1,600-1,900 tons of the spent nuclear fuel rods

will begin to be buried by the end of 2017 or the start of 2018 when SCE officials said they expect to receive final permits from the Nuclear Regulatory Commission.

Concern: *What will be done if a crack in the canisters is discovered?* Gilmore, a systems analyst of San Onofre Safety (SOS), has been doing her own independent research on the canisters as well as all things SONGS for several years. "It's really about the weakest link," Gilmore said. "You've got 5/8ths of an inch of stainless steel. Whether it's the AREVA canisters or the Holtec canisters, you've got ventilation systems in both (which could release radiation if a crack occurs). The question is which one's worse." Gilmore cited research of other nuclear canisters that had corroded, and she is concerned the same kind of stainless steel canisters could crack under pressure, which could release curries of radiation.

"Once a crack starts, it grows on its own all the way through the wall," Glimore said.

Concern: *The site is close to the ocean, fault lines:* A major concern of Gilmore's is also the proximity of the

burial site to fault lines that run along the California coastline. The Newport-Inglewood and Rose Canyon fault lines were described at a meeting as having the potential to set off a magnitude 7.4 earthquake, which advocates say could be dangerous.... "(Southern California Edison) have a 30-year container for nuclear waste that's going to last who knows how long, 100,000 years, easily," English said. "This new facility that (SONGS) is proposing for the beach will be very close to the groundwater table." English said the projected rise of sea levels in coming years could eventually make human and animal life vulnerable to the nuclear waste, as the saltwater could also corrode the canisters.

"The problem is a lack of planning," English said. "(The nuclear regulators) don't like people looking over their shoulder. During the Carter Administration, they were projecting a federally approved high-level nuclear waste facility would

During the Carter Administration, they were projecting a federally approved high-level nuclear waste facility would be available for all nuclear waste across the country in 10 years. But there was no basis of the schedule." The SONGS spent fuel is currently in cooling tanks within the protective domes of the now-offline nuclear power plant, but officials have said at Community Engagement Panel meetings that it is safer in dry-cask storage.

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Concern: Adequate storage is not available: Another piece of legislation the advocacy groups hope to have amended are the provisions of Congress's H.R. 3053, which would allow for interim fuel storage, but Gilmore says there are too many holes in it. She argues thin canisters would be allowed to store the fuel and that doesn't provide safeguards for air quality management, in addition to a list of other things. Similar bills were introduced by Rep. Darrell Issa in 2015 and 2016.

Source: <http://www.sancclementetimes.com/>, 05 October 2017.

NUCLEAR COOPERATION

ASIA

Meeting of Nuclear Cooperation Forum in Asia

The application of nuclear science and technology in environmental protection was discussed at the 18th meeting of the Forum for Nuclear Cooperation in Asia (FNCA) at the ministerial level by the representatives of 12 countries of the Asia-Pacific region. The FNCA was established in 2000 on the initiative of the Japanese Nuclear Energy Commission. Its main goal is to ensure effective cooperation in the field of nuclear and radiation technologies between member states. They are Australia, Bangladesh, China, Indonesia, Kazakhstan, Malaysia, Mongolia, Thailand, the Philippines and Japan. The Forum is held once in two years.

According to Erlan Batyrbekov, Director General, National Nuclear Center of Kazakhstan, "The main purpose of the Forum is to combine resources and knowledge in solving problems, namely in the field of technology, and nuclear science. At present, mankind is facing many challenges, in particular, climate change, and environmental pollution. Nuclear science can solve this problem. Next week we are holding a special seminar with the Japanese Atomic Energy Agency to share our knowledge, and technology for work we have done at the Semipalatinsk test site, so they could use this to solve their environmental problems."

Source: http://kazakhstan.kz/en/view/news_kazakhstan/page_188029_, 13 October 2017.

SAUDI ARABIA–RUSSIA

Saudi Arabia, Russia to Cooperate in Nuclear Energy Sector

Russia's Rosatom State Atomic Energy Corporation and Saudi Arabia's King Abdullah City for Atomic and Renewable Energy have signed a programme for cooperation in the peaceful uses of nuclear energy. The programme was signed in Moscow during the visit of Saudi Arabia's King Abdulaziz to Russia. On behalf of Saudi Arabia, the document was signed by Alodan, chief atomic energy officer of King Abdullah City for Atomic and Renewable Energy (K"AR"ARE) and authorised by Khalid Al Falih, the Minister of Energy, Industry and Mineral Resources. On behalf of Russia, the document was signed by Pakermanov, president of Rusatom Overseas, and authorised by Likhachev, director general of Rosatom.

The programme provides for cooperation between Russia and Saudi Arabia in several key areas such

The programme provides for cooperation between Russia and Saudi Arabia in several key areas such as small and medium reactors that could be used for both power generation and water desalination, in the area of human resources and nuclear infrastructure development for the Saudi national nuclear programme. Russia and Saudi Arabia will also consider the advantages of construction of a Nuclear Science and Technology Centre based on the Russian-design research reactor in Saudi Arabia.

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Source: www.tradearabia.com, 10 October 2017.

URANIUM PRODUCTION

AUSTRALIA–MAURITIUS

Aura Energy Receives Environmental Approval for Tiris Uranium Project

The approval of this key element of the Tiris project approvals process follows the submission of the mining lease application for the project in May 2017 and the subsequent comprehensive process of ministerial and public consultations regarding the impact of the development of Tiris project. This approval has been finalised in line with the target schedule for the project.

... The ESIA, an exhaustive 1 000-page document, and mining lease application papers were subjected to extensive review by all relevant authorities and key stakeholders, including a stipulated public consultation process before the grant of the environmental approval. The environmental approval covers all mining and processing activities, including the establishment of all the required management plans for radiation management.

Key activities undertaken during the ESIA process, which was managed by a multi-disciplinary group of specialist consultants, included environmental baseline monitoring studies, flora and fauna within and around the tenement area, ecosystem and habitat sensitivity surveys, noise and air quality studies, water studies, and extensive community engagement. Additionally, the study focused on

archaeological and cultural heritage, population and migration patterns of Nomadic tribes in the region. Consultation between the Mauritanian Environment Ministry and International Radiation agencies also formed part of this process. Aura Energy will be required to set up a radiation monitoring system under the supervision and control of the National Radiation Protection, Nuclear Safety and Security Authority (ARSN). It was also recommended that a quarterly report be submitted on the state of implementation of the environmental and social management plan.

Source: www.miningreview.com/, 06 October 2017.

CANADA

Western Uranium Corporation Announces Options Grant

Western Uranium Corporation (CSE:WUC) (OTCQX:WSTRF) announces that it has granted an aggregate of 825,000 options ("Options") to purchase common shares to a number of officers and directors of Western under the Company's Incentive Stock Option Plan. Each option is exercisable to acquire one common share at an exercise price of CAD\$1.60 for a five-year term. The Options vest equally in three installments beginning on the date of grant and thereafter on October 31, 2017, and March 31, 2018.

Source: <http://markets.businessinsider.com/>, 06 October 2017.

NUCLEAR PROLIFERATION

NORTH KOREA

Trump Says Tillerson is 'Wasting His Time' with Negotiations

President Trump has undermined diplomatic efforts to solve the North Korea nuclear crisis, telling Secretary of State Tillerson not to bother trying to negotiate with the rogue nation's leader Jong-un. In a series of tweets on 02 October morning (AEST), Mr Trump said he "told Rex Tillerson, our wonderful Secretary of State, that he is wasting his time trying to negotiate with Little Rocket Man". "Save your energy Rex, we'll

do what has to be done!" the President continued. Mr Trump's tweets come a day after Mr Tillerson said the US had direct lines of communication with North Korea and that he was trying to "calm things down" following months of escalating rhetoric over Pyongyang's continued nuclear weapons and ballistic missile tests.

Speaking from Beijing over the weekend, Mr Tillerson, said the US made it clear through its direct channels to North Korea that it was seeking peace through talks. "We've made it clear that we hope to resolve this through talks," he said. "I think the most immediate action that we need is to calm things down. They're a little overheated right now, and I think we need to calm them down first." When asked whether North Korea would come to the negotiating table, the secretary of state said: "We are probing, so stay tuned."

Being nice to Rocket Man hasn't worked in 25 years, why would it work now? Clinton failed, Bush failed, and Obama failed. I won't fail. The US is attempting to pressure North Korea to halt its weapons program, which has seen it launch repeated missile tests, as well as what it claims is a successful test of a miniaturised hydrogen bomb which could be loaded on to a long-range missile. China told North Korean businesses operating in its territory to close down as part of fresh UN sanctions against the reclusive state.

Former high ranking Pentagon official Dr Roberts said Australia must develop greater missile defences to ward off a strike

from North Korea. Dr Roberts, who served as US deputy assistant secretary of defence for nuclear and missile defence policy between 2009 and 2013, warned Australia could be struck by a North Korean weapon. "Unfortunately, Australia doesn't really get to choose whether or not North Korea threatens it – it's the choice that the North Korean leader [Jong-un] makes," he said.

Several North Korean missiles were recently spotted moved from a rocket facility in the capital Pyongyang, South Korea's Korean Broadcasting System (KBS) reported on 29 September. The report cited an unnamed intelligence source saying South Korean and US officials detected missiles being transported away from North Korea's Missile Research and Development Facility at Sanum-dong in the northern part of Pyongyang. The report did not say when or where they had been moved.

Source: <http://thenewdaily.com.au/>, 02 October 2017.

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NUCLEAR NON-PROLIFERATION

GENERAL

More than 70 years since atomic bombs were used on the Japanese cities of Hiroshima and Nagasaki, the Nobel committee sought to highlight ICAN's tireless non-proliferation efforts. The decision sent a strong message to nuclear-armed nations at a time when US President Trump has threatened to tear up a 2015 deal curbing Iran's nuclear abilities and who in September alarmed delegates at the UNGA by warning he may be forced to "totally destroy" North Korea over Pyongyang's atomic weapons programme.

Anti-Nuclear Campaign ICAN Wins Nobel Peace Prize

Nuclear disarmament group ICAN won the Nobel Peace Prize on 06 October for its decade-long campaign to rid the world of the atomic bomb as nuclear-fuelled crises swirl over North Korea and Iran. More than 70 years since atomic bombs were used on the Japanese cities of Hiroshima and Nagasaki, the Nobel committee

sought to highlight ICAN's tireless non-proliferation efforts. The decision sent a strong message to nuclear-armed nations at a time when US President Trump has threatened to tear up a 2015 deal curbing Iran's nuclear abilities and who in September alarmed delegates at the UNGA by warning he may be forced to "totally destroy" North Korea over Pyongyang's atomic weapons programme. ICAN "is receiving the award for its work to draw attention to the catastrophic humanitarian consequences of any use of nuclear weapons and for its ground-breaking efforts to achieve a treaty-based prohibition of such weapons," said Norwegian Nobel committee president Andersen in announcing the prize in Oslo.

"We live in a world where the risk of nuclear weapons being used is greater than it has been for a long time," she said. But she stressed that the committee's decision wasn't aimed at any particular world leader, adding: "We're not kicking anyone's leg with this prize." Founded in Vienna in 2007 on the fringes of an international conference on the nuclear non-proliferation treaty, ICAN has mobilised campaigners and celebrities alike in its cause.

It was a key player in the adoption of a historic nuclear weapons ban treaty, signed at the UN by 122 countries in July. However, the accord was largely symbolic as none of the nine known world nuclear powers put their names down. It still

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Reacting to its win, ICAN said the "moment is now" to push for a total nuclear arms ban. "This prize is a tribute to the tireless efforts of many millions of campaigners and concerned citizens worldwide who... have loudly protested nuclear weapons, insisting that they can serve no legitimate purpose and must be forever banished from the face of our earth," it said in a statement. ICAN's high-profile supporters include form UNSC Ban Ki-moon, Nobel laureate Tutu and the Dalai Lama.

The US leader has threatened to bin the agreement altogether, saying Tehran is developing missiles that may be used to deliver a nuclear warhead when the deal's restrictions are lifted in 2025. Tensions have also soared between the US and North Korea, which has test-fired two missiles over Japan and conducted a string of apparent underground nuclear tests 2017.

Atomic Tensions: Although global atomic weapons stockpiles have plummeted—from around 64,000 warheads in 1986 at the height of the Cold War to more than 9,000 in 2017 according to the Bulletin of Atomic Scientists—the number of nuclear-armed nations has grown. 06 October award—the climax to a week of prize-giving honouring the world's leading lights in the fields of physics, chemistry, medicine and literature—comes as Iran's nuclear deal is under increasing pressure from Trump.

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that may be used to deliver a nuclear warhead when the deal's restrictions are lifted in 2025. Tensions have also soared between the US and North Korea, which has test-fired two missiles over Japan and conducted a string of apparent underground nuclear tests 2017. "This is a time of great global tension, when fiery rhetoric could all too easily lead us, inexorably, to unspeakable horror," ICAN said.

'Good Omen': The UN welcomed ICAN's win on 06 October, with spokeswoman Vellucci telling reporters in Geneva that the prize was a "good omen" for the ratification of a nuclear ban treaty. EU foreign affairs chief Mogherini also congratulated ICAN, tweeting: "We share a strong commitment to achieving the objective of a world free from nuclear weapons." The Nobel committee has rewarded anti-nuclear weapons drives on several previous occasions, handing out the prestigious prize to Soviet dissident Andrei Sakharov in 1975, the international non-proliferation IPPNW group in 1985, and the IAEA's then head Baradei 20 years later.

More than 300 people and organisations were thought to have been nominated for 2017's Peace Prize, including the UN's refugee agency UNHCR, Syria's White Helmets rescue service and Congolese doctor Mukwege....

Source: <https://phys.org/news/>, 06 October 2017.

IRAN

Trump's Refusal to Recertify Sets Off Reconsideration of Iran Nuclear Deal

President Trump announced on 13 October that he will not recertify the Iran nuclear deal. The president has long promised to withdraw the US from the agreement, which he has called the

"worst deal ever." Withdrawing presidential certification to Congress does not take the US out of the deal itself, but it creates an opening for Congress to do so.

Lawmakers could reimpose sanctions on Iran that would break the deal. But key Congressional leaders say they are hesitant to do that or upend the agreement at least for now. Proponents of the deal say it is working to stifle Iran's nuclear program, but critics, such as foreign affairs analyst Jonathan Wachtel, former spokesman for UN ambassador Nikki Haley, say the time is now to reconsider the agreement.

...

With this step, the Trump administration hopes to eliminate the deal's expiration date of 15 years, tighten inspections on nuclear facilities, and remove the clause that allows Iran to continue nuclear research and development. "What is the

purpose of a deal that at best only delays Iran's nuclear capability for a short period of time? This as president of the United States is unacceptable," Trump said on 13 October afternoon.

Despite President Trump's harsh criticism of the deal, his administration recertified the deal twice during this term. The State Department is required to re-establish Iran's cooperation with the nuclear deal every 90 days under the law. The next deadline was to be on 15 October. While inspections are beneficial, says Wachtel, who until August was director of communications at the US Mission to the UN, they might not be enough to fully contain Iran's nuclear program.

...As NPR's Larry Kaplow writes, if the US were to completely withdraw from the agreement, Europe, China and other world powers would likely continue trade with Iran. According to the World Bank, Iran's economy boomed by 6.4 percent last year after economic sanctions were dropped. The

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Europeans and the Chinese “were very excited about the deal largely because of the business aspects of it,” including opportunities in Iran’s oil sector, Wachtel says. “They all want business. We know money talks. But the truth of the matter is we have to figure out things in terms of our national security.”

...As Congress considers whether to re-impose sanctions, Wachtel says it is also an opportunity for lawmakers to solidify the deal by removing the sunset clause and resolving the issue of off-limits sites for inspectors. “So there are fewer doubts out there so we can figure out what we’re getting into here and not end up in a situation in which Iran is ready to spring right into action,” he says. “And we were idiots with the wool pulled over eyes and just blind to what was going on.”

Source: Samantha Raphelson, <http://www.npr.org>, 13 October 2017.

NUCLEAR TERRORISM

GENERAL

An Alarming Report on the Safety of Nuclear Power Plants

The conclusions of a report of experts of the nuclear and terrorism, commissioned by Greenpeace, to study the safety of power plants – nuclear, French in the face of the risk of terrorist acts are so disturbing that the NGO will not make public 10 October a redacted version of the information in the most sensitive, reveals *Le Parisien* in its edition of 10 October. By commissioning these seven experts (three French, one German, two British and one American), the idea of the NGO defence of the environment was to “identify security vulnerabilities and to alert the public authorities and EDF”, which operates the 19 French plants, “the danger that this represents,” in the event of a terrorist attack, reports the daily.

According to *le Parisien*, “the report’s findings are so alarming that experts and Greenpeace, yet broken to the assumptions of the most worrisome have decided not to make public this morning that a redacted version of the information that is most

sensitive”. The strengthening of the protection would cost “between 140 and 222 billion euros” Only seven copies of this report will be submitted on 10 October morning by the director-general of Greenpeace France, Julliard, senior officials in charge of issues of defence and security institutions (ASN, IRSN and Cossen) and of the government, according to the same source.

The person in charge of a campaign from Greenpeace, Rousselet justifies this decision by explaining that it “is to alert public opinion and the public authorities, not to give ideas to some ill-intentioned people”. The experts conclude that there is a “deficit historical background of the protection of our facilities, especially the pools of cooling. The strengthening of the 62 pools of cooling and 58 reactors would cost” between 140 and 222 billion euros”, according to the experts, “that is, between three and five times what EDF has planned to spend to extend the shelf-life of plants”, has calculated the Parisian.

The experts have “imagined the worst to avoid it happens” explains the daily, which the director of the nuclear park of EDF, Philippe Sasseigne ensures that “all means are implemented in a coordinated way, between EDF and the State” to ensure the safety of the power plants in the face of new forms of threats.

Source: <https://sherbrooktimes.com/>, 10 October 2017.

NUCLEAR SAFETY

GENERAL

WANO, NEA Enhance Cooperation in Nuclear Safety

The WANO and the OECD Nuclear Energy Agency (NEA) are to cooperate on “the further development of approaches, practices and methods in order to proactively strengthen global nuclear safety” through a memorandum of understanding signed on 04 October at the NEA Headquarters in Paris. The signing ceremony was attended by WANO Chairman Régaldo and NEA Deputy Director-General and Chief Nuclear Officer Iracane.

The agreement, which concerns the safe operation of nuclear power plants and the human aspects of nuclear safety, will “facilitate information exchange between the stakeholders in NEA member countries and nuclear power plant operators, enhance the common understanding of nuclear safety culture challenges and support general efforts to further enhance nuclear safety worldwide”, the two organisations said in a joint statement.

NEA Director-General Magwood said global nuclear safety is “the responsibility of all stakeholders”, including the public, governments, independent regulators and the industry. The signature of the MOU “constitutes a further step forward for the NEA to ensure that decision-makers in our member countries have access to relevant and comprehensive information derived from industry experiences”, he said. He added: “Interactions with the global industry sector through WANO would increase opportunities for NEA committees to share best practices with, and recommendations to the industry. It would, therefore, contribute to the successful accomplishment of the NEA mission to assist its membership in achieving excellence in nuclear safety.”

WANO and the NEA have already identified safety culture as a “fundamental subject of common interest” and next year plan to launch a series of “country-specific discussions to explore the influence of national culture on the safety culture”. Régaldo said both WANO and the NEA “share common goals” regarding the safety and reliability of nuclear power worldwide, and their collaboration will bring mutual benefit for both organisations and their members. ...

Source: <http://www.world-nuclear-news.org/>, 04 October 2017.

NUCLEAR WASTE MANAGEMENT

UK-SCOTLAND

EDF Energy Respond to Ayrshire CND Nuclear Waste Concerns

EDF Energy have condemned claims that nuclear material travelling through South Ayrshire towns via freight trains are dangerous. Ayrshire CND raised concerns about the substances, believed to be transferred though Ayr, Prestwick and Barassie three times a week, for public health and safety. Ayrshire Campaign for Nuclear Disarmament (CND) believe this is against the Scottish Government policy and have researched the dangers of nuclear material transported by train.

There are fears that trains can leak radiation and are not allowed to stop in a rail siding to prevent an accident. But EDF Energy say this is not the case. EDF Energy spokesperson said: “Nuclear safety and the protection of the public and the environment are EDF

Energy’s highest priority. “As a responsible operator, EDF Energy rigorously adheres to Scottish Government policy on the management of radioactive substances as well as the requirements of the appropriate regulator, ONR Transport. “The production of spent fuel, which is not classified as Higher Activity Waste, is a normal part of our operations.

... The material is transferred from Hunterston to Sellafield. The flasks the spent fuel is sent in are made of single-forged steel, weigh 53 tonnes and have walls that are at least 39 centimetres thick. They comply with stringent regulator standards which include drop tests as well as being able to withstand fire and 200 metres of water depth pressure capability. Once EDF Energy is satisfied that the flasks have been checked they are handed over to a rail freight operator called Direct Rail Services (DRS).

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DRS is a wholly owned subsidiary of the Nuclear Decommissioning Authority. EDF Energy has been working with them for more than a decade to ensure the safe transport of spent fuel from all its stations in the UK, including Hunterston B. They argue the transportation of spent fuel by rail is

proven to be the safest method, as agreed by the regulator. Nuclear fuel has been transported by rail since 1962 and has travelled more than 12 million miles without any radiological release.

Source: <http://www.carrickherald.com/>, 09 October 2017.



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).

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