

Nuclear, Missile & Space Digest

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A Fortnightly Newsletter from the Indian Pugwash Society

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- Zarif: compensation not pre-condition for reviving nuclear deal

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- Minister: US will never attack Iran's nuclear facilities, Israel may act alone

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- Xinhua, February 12, 2021

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A. India

Nuclear Energy Production

Department of Atomic Energy

PIB, February 3, 2021

Union Minister of State (Independent Charge) Development of North Eastern Region (DoNER), MoS PMO, Personnel, Public Grievances, Pensions, Atomic Energy and Space, Dr. Jitendra Singh said nuclear energy is an important component of the country's energy mix and is being pursued along with other sources of energy in an optimal manner. In a written reply to a question in the Lok Sabha today, he said, Nuclear energy is a clean, environment friendly base load source of power available 24X7. It also has huge potential which can ensure long term energy security of the country in a sustainable manner.

There are presently 22 reactors with a total capacity of 6780 MW in operation and one reactor, KAPP-3 (700 MW) has been connected to the grid on January 10, 2021. In addition, there are 8 reactors (including 500 MW PFBR being implemented by BHAVINI) totaling to 6000 MW under construction at various stages. The Government has accorded administrative approval and financial sanction for construction of 12 nuclear power reactors - 10 indigenous 700 MW Pressurized Heavy Water Reactors (PHWRs) to be set up in fleet mode & 2 units of Light Water Reactors (LWRs) to be set up in cooperation with Russian Federation.

On progressive completion of the projects under construction and accorded sanction, the nuclear capacity is expected to reach 22480 MW by 2031. The Government has also accorded 'In-Principle' approval for five new sites for locating nuclear power plants in future.

<https://www.pib.gov.in/PressReleasePage.aspx?PRID=1694793>

Preliminary survey shows deposits of Lithium in Mandya district of Karnataka

Department of Atomic Energy

PIB, February 3, 2021

The Government today said that preliminary surveys on surface and limited subsurface by Atomic Minerals Directorate for Exploration and Research (AMD), a constituent unit of Department of Atomic Energy have shown presence of Lithium resources of 1,600 tonnes (inferred category) in the pegmatites of Marlagalla - Allapatna area, Mandya district, Karnataka.

Lithium is a key element for new technologies and finds its use in ceramics, glass, telecommunication and aerospace industries. The well-known uses of Lithium are in Lithium ion batteries, lubricating grease, high energy additive to rocket propellants, optical modulators for mobile phones and as convertor to tritium used as a raw material for thermonuclear reactions i.e. fusion. The thermonuclear application makes Lithium as "Prescribed substance" under the Atomic Energy Act, 1962 which permits AMD for exploration of Lithium in various geological domains of the country. Due to the continuously increasing demand of Lithium ion batteries, the requirement of Lithium has increased over last few years.

<https://www.pib.gov.in/PressReleasePage.aspx?PRID=1694796>

Space Activities in India

Department of Space, February 3, 2021

Government today said that ISRO has got a structured technology transfer mechanism to transfer the identified technologies developed by ISRO for spin-off and other commercial applications on non-exclusive basis. In a written reply to a question in the Lok Sabha, Union

Minister of State (Independent Charge) Development of North Eastern Region (DoNER), MoS PMO, Personnel, Public Grievances, Pensions, Atomic Energy and Space, Dr. Jitendra Singh said that the commercialization will be done by NSIL, the commercial arm of DOS. So far around 363 technologies have been transferred to more than 235 industries. Some of the popular technologies are Li-ion, NavIC receiver, Distress alert transmitter, sensor, special materials, coatings, etc.

Government has created a National Level Autonomous Nodal Agency namely Indian National Space Promotion and Authorization Centre (IN-SPACE) under DOS as the enabling mechanism for private players to carry out Space Activities. Till now, Department of Space has been approached by 26 Indian private industries seeking support for their space activities, spanning across the complete spectrum of space activities including developing launcher, building satellites, developing applications, establishing ground infrastructure. Department of Space is extending every possible support to all the Indian industries in their space activities, including technical guidance, reviews, facility sharing, launch support etc. The first manned mission of Gaganyaan is planned after two unmanned flights, and the first unmanned flight is scheduled by December 2021.

<https://www.pib.gov.in/PressReleasePage.aspx?PRID=1694822>

Prime Minister's vision for space technology will create large scale employment opportunities in this sector: Dr Jitendra Singh

*Department of Space
PIB, February 4, 2021*

Union Minister of State (Independent Charge) Development of North Eastern Region (DoNER), MoS PMO, Personnel, Public Grievances, Pensions, Atomic Energy and Space, Dr. Jitendra Singh said today that the Prime Minister's vision for space technology is to unlock India's potential in space sector; to transform skill, capacity and

creativity to make the country self-reliant and technologically advanced. In a written reply to a question in the Rajya Sabha, the Minister said, the vision seeks to create opportunities for large scale employment generation in the space sector. India as global space technology powerhouse will play a major catalytic role in the advancement of socio-economic use of space assets, while guiding & promoting private sector through enabling policy environment.

The vision will transform the approach in space sector from supply driven to demand driven model for optimum utilization of national resources while harnessing capacity & creative skills and focus shall be more on R&D, cutting-edge technology, newer frontiers in space, space exploration, human space flight with a view to attract & exploit the potential of the future generation. The vision will also provide enhanced benefits to the common man, through further development of technology-delivered public services in a faster, cheaper and efficient manner.

<https://www.pib.gov.in/PressReleasePage.aspx?PRID=1695085>

India has launched 328 satellites from 33 different countries till date: Dr Jitendra Singh

Private participation in space activities will lead to development of cutting edge Technologies, new applications & services: Dr Jitendra Singh

Department of Space, February 10, 2021

Union Minister of State (Independent Charge) Development of North Eastern Region (DoNER), MoS PMO, Personnel, Public Grievances, Pensions, Atomic Energy and Space, Dr. Jitendra Singh said that Rs 900 Crore was allocated to ISRO for F.Y. 2020-21 for developing capacity for launching of satellites. In a written reply to a question in the Lok Sabha, he said that the Department of Space has been involved in launching satellites of foreign

countries since long. Total number of satellites launched till date is 328 from 33 different countries and the revenue earned till date is 25 M USD and 189 M Euros. Moreover, Government of India has established NewSpace India Limited (NSIL), a PSU under Department of Space to commercially launch satellites and become financially self-reliant.

ISRO is striving towards achieving Atmanirbharta in the field of capacity development in launching satellites; therefore, no policy is envisaged for seeking foreign cooperation in this direction. In another related question, Dr Jitendra Singh said that ISRO facilities are extended to Indian industries and academia for testing their space systems. Satellites from M/s. Space Kidz India and M/s. Syzygy Space Technologies have undergone testing at UR Rao Satellite Centre, ISRO. He said, participation of private sector in space activities in India is expected to result in development of cutting edge Technologies, new applications & services. Overall it will make a bigger impact on space economy, he added.

<https://www.pib.gov.in/PressReleasePage.aspx?PRID=1696776>

Training of Astronauts and Progress of Gaganyaan Mission

*Department of Space,
PIB, February 10, 2021*

Union Minister of State (Independent Charge) Development of North Eastern Region (DoNER), MoS PMO, Personnel, Public Grievances, Pensions, Atomic Energy and Space, Dr. Jitendra Singh in a written reply to a question in the Lok Sabha today said that following initiatives have been taken by the Government for Indian leg of crew training:

- I. Expert team is constituted to define the training curriculum.
- II. Plan finalized for astronaut training building including requisite facilities with regard to Gaganyaan mission. Work order for the same has been released.

The details of progress of Gaganyaan is as follows:

- I. The preliminary design of Gaganyaan system is completed.
- II. Memorandum of understanding (MoUs) signed and in effect with;
 - Indian Air Force for crew management activities for Indian human space flight programme;
 - Seven (7) DRDO labs for design and development of human centric products; and
 - Academic institutes for development of Microgravity payloads.

<https://www.pib.gov.in/PressReleasePage.aspx?PRID=1696779>

ISRO has adopted Atal Tinkering Labs across the country in the field of space education and technology: Dr Jitendra Singh

*Department of Space
PIB, February 11, 2021*

Union Minister of State (Independent Charge) Development of North Eastern Region (DoNER), MoS PMO, Personnel, Public Grievances, Pensions, Atomic Energy and Space, Dr. Jitendra Singh said that ISRO has adopted Atal Tinkering Labs across the country in the field of space education and technology. In a written reply to a question in the Rajya Sabha today, Dr Jitendra Singh said that the whole programme is divided into two phases. First phase includes 45 labs and 2nd phase covers balance 55. ISRO is also designing space education & space technology as an extra curriculum activity for the schools to utilise ATLS, which will have the endorsement of Ministry of Education.

<https://www.pib.gov.in/PressReleasePage.aspx?PRID=1697156>

IEA report on India sidelines nuclear

Nuclear Engineering, February 15, 2021

A recent 251-page report by the International Energy Agency (IEA) - India Energy Outlook 2021- focuses on renewables, gas, coal and bioenergy, with barely a mention of nuclear power outside the figures and tables. In the foreward, Executive Director Dr Fatih Birol highlight two developments - India's success in bringing electricity connections to hundreds of millions of its citizens in recent years and "the way in which India has grasped the transformative potential of renewables, and solar in particular".

IEA says the report's analysis is based on a detailed review "of existing or announced energy reforms and targets" including quadrupling renewable electricity capacity by 2030, more than doubling the share of natural gas in the energy mix, enhancing energy efficiency and transport infrastructure, increasing domestic coal output, and reducing reliance on imports. The Stated Policies Scenario (STEPS) "provides a balanced assessment of the direction in which India's energy system is heading, based on today's policy settings and constraints and assumed recovery from the COVID-19 pandemic in 2021. Other scenarios considered are the India Vision Case, based on a rapid resolution of the pandemic, complete realisation of stated energy policy objectives and faster economic growth than in STEPS. The Delayed Recovery Scenario assumes slower energy and economic development if the pandemic is more prolonged. The Sustainable Development Scenario explores how India could mobilise more clean energy investment consistent with a longer-term drive to net zero, while progressing other sustainable development goals.

<https://www.neimagazine.com/news/newsiea-report-on-india-sidelines-nuclear-8519849>

B. China

China conducts successful land-based mid-course missile interception test

CGTN, February 05, 2021

China on Thursday successfully conducted a land-based mid-course missile interception test, said the Ministry of National Defense. The test was for defensive purposes and not targeted at any country, the ministry said in a statement. The test on Thursday was the fifth land-based anti-ballistic missile (ABM) technical test China has publicly announced and the fourth land-based mid-course ABM technical test publicly known. Past ABM tests were carried out in 2010, 2013, 2014 and 2018 respectively, according to media reports and official statements. The flight of a ballistic missile usually consists of three phases in time order: boost phase in which the rocket booster will power the missile into sky, mid-course phase in which the booster stops as the missile traverses outside of the atmosphere, and reentry or terminal phase in which the missile reenters the atmosphere and dives onto its target.

It's technically easy to intercept a ballistic missile in the boost phase, because the missile is still close to the ground and accelerating, but it is difficult to get close to the launch site which is usually deep in hostile territory; in terminal phase, the interception is challenging because the speed of the diving missile is very high, observers said. Mid-course is the most vital phase in the interception of a ballistic missile, and a mid-course ABM means intercepting the missile while it is in its free flight phase outside of the atmosphere, Song Zhongping, a Chinese military expert and TV commentator, told the Global Times. One of the biggest difficulties of an interception lies in the high trajectory as the duration of the mid-course phase is relatively long, Song said, noting that the

target of interception is usually an intermediate-range or intercontinental ballistic missile. The latest test shows that China's ABM system is becoming mature with the success rate and reliability of interceptions increasing significantly, which is very important for China to build a complete ABM system, Song said.

<https://news.cgtn.com/news/2021-02-04/China-successfully-conducts-missile-interception-test-XCaJvPO7EQ/index.html#:~:text=China%20on%20Thursday%20successfully%20conducted,ministry%20said%20in%20a%20statement.>

China declares success in latest anti-missile intercept test

Liu Zhen

South China Morning Post, February 05, 2021

China tested its capability of knocking out an incoming missile during midflight on Thursday, with the defence ministry declaring the exercise a success. It is the second country to develop the technology after the US. "The test was defensive in nature and not targeted at any particular country," it said. No technical details were released about the exercise, which occurred a day after the Biden administration approved the extension of a key nuclear arms control deal with Russia and vowed to engage Beijing on nuclear risk reduction and arms control. The authorities issued a no-fly warning near the Taiyuan Satellite Launch Centre in north China before the test. Photos and videos of a bright and colourful westward parabolic trail were circulating on social media, claimed to be taken by witnesses from Beijing to Xinjiang. While the defence ministry said the test did not target any particular country, a source close to the PLA said the midcourse anti-ballistic missile test – which could intercept an incoming nuclear warhead – may be intended as a warning to India.

India is planning to deploy its longest range, most potent nuclear-capable ballistic missile Agni-V this year, The New Indian Express reported in January, citing defence sources. The report said the conflicts along the China-India border had fast-tracked the process.

The Agni-V range is estimated to be over 5,000km. "This is a technology that China has been developing for a long while. The Thursday test could be aimed at warning India, which used to adopt nuclear blackmail strategy when dealing with China," said the Chinese military source, who requested anonymity due to the sensitivity of the issue. "But to be honest, China's midcourse anti-ballistic technology still can't knock down nuclear missiles from the United States and Russia, as there is still a gap between the PLA and the two nuclear giants."

<https://www.scmp.com/news/china/military/article/3120636/china-declares-success-latest-anti-missile-intercept-test>

China's latest weapon against Taiwan: the sand dredger

Yimou Lee

Reuters, February 05, 2021

Taiwanese coast guard commander Lin Chie-ming is on the frontline of a new type of warfare that China is waging against Taiwan. China's weapon? Sand. On a chilly morning in late January, Lin, clad in an orange uniform, stood on the rolling deck of his boat as it patrolled in choppy waters off the Taiwan-run Matsu Islands. A few kilometers away, the Chinese coast was faintly visible from Lin's boat. He was on the lookout for Chinese sand-dredging ships encroaching on waters controlled by Taiwan. The Chinese goal, Taiwanese officials say: pressure Taiwan by tying down the island democracy's naval defenses and undermining the livelihoods of Matsu residents.

The sand-dredging is one weapon China is using against Taiwan in a campaign of so-called gray-zone warfare, which entails using irregular tactics to exhaust a foe without actually resorting to open combat. Since June last year, Chinese dredgers have been swarming around the Matsu Islands, dropping anchor and scooping up vast amounts of sand from the ocean bed for construction projects in China. The ploy is taxing for Taiwan's civilian-run Coast Guard Administration, which is now conducting round-the-clock patrols in an

effort to repel the Chinese vessels. Taiwanese officials and Matsu residents say the dredging forays have had other corrosive impacts - disrupting the local economy, damaging undersea communication cables and intimidating residents and tourists to the islands. Local officials also fear that the dredging is destroying marine life nearby. Besides Matsu, where 13,300 people live, the coast guard says China has also been dredging in the shallow waters near the median line of the Taiwan Strait, which has long served as an unofficial buffer separating China and Taiwan.

<https://www.reuters.com/article/us-taiwan-china-security/chinas-latest-weapon-against-taiwan-the-sand-dredger-idUSKBN2A51EJ>

Mars ready for its close-up: China releases space probe's first image

Reuters, February 05, 2021

China's maiden space exploration mission to Mars has captured its first image of the red planet, the space agency said on Friday, some six months after the probe left Earth. The uncrewed Tianwen-1 took the picture at a distance of around 2.2 million km (1.4 million miles) from Mars, according to the China National Space Administration (CNSA), which supplied a black-and-white image. The probe is now only half that distance away from Mars and around 184 million km from Earth after 197 days of the mission, the CNSA said in a statement, adding that its systems were in good condition.

The Tianwen-1 was launched in July from China's southern Hainan island and expected to reach the orbit of Mars this month. In May, it will try to land in Utopia Planitia, a plain in the northern hemisphere, and deploy a rover to explore for 90 days. If successful, the Tianwen-1 will make China the first country to orbit, land and deploy a rover in its inaugural mission to Mars, further boosting China's space credentials after it last year became the first nation to bring back samples from the moon since the 1970s. China previously made a Mars bid in 2011 with Russia, but the Russian spacecraft carrying the probe failed to exit

Earth's orbit and disintegrated over the Pacific Ocean.

<https://www.reuters.com/article/us-space-exploration-china-mars/mars-ready-for-its-close-up-china-releases-space-probes-first-image-idUSKBN2A51Z9>

China's Chang'e-4 probe resumes work for 27th lunar day

Xinhua, February 07, 2021

The lander and rover of the Chang'e-4 probe have resumed work for their 27th lunar day on the far side of the moon. The lander activated at 4:48 p.m. on Saturday (Beijing time), and the rover Yutu-2, or Jade Rabbit-2, activated at 4:26 a.m. also on Saturday, according to the Lunar Exploration and Space Program Center of the China National Space Administration. Yutu-2 has traveled about 628.5 meters on the far side of the moon. It is currently located about 430 meters northwest of the landing site. A lunar day is equal to about 14 days on Earth, and a lunar night is of the same length. The solar-powered probe switches to dormant mode during the lunar night.

During the 27th lunar day, the panorama camera on the rover will take colored pictures of moon rocks and impact craters. The rover will move southwest toward a rock with a diameter of about 18 cm, which is about 17.8 meters away. The infrared imaging spectrometer will be used to detect the rock and surrounding lunar soil. The neutral atom detector and lunar radar will continue to carry out scientific explorations.

http://www.xinhuanet.com/english/2021-02/07/c_139727894.htm

China's Tianwen-1 Mars probe goes into red planet orbit

Stephen Chen

South China Morning Post, February 10, 2021

China's unmanned spacecraft Tianwen-1 went into orbit around Mars on Wednesday night, state media reported, as international efforts to explore the red

planet heat up. After a 15-minute deceleration, the unmanned spacecraft was captured by the Martian gravity and began to circle the red planet in a large elliptical orbit, according to state news agency Xinhua. It comes just hours after the Hope satellite launched by the United Arab Emirates did so. Nasa's Perseverance rover will join them next week.

<https://www.scmp.com/news/china/science/article/3121316/countdown-chinas-tianwen-1mars-probe-gets-ready-red-planet>

C. Pakistan

Pakistan today conducted a successful training launch of surface to surface ballistic missile Ghaznavi, capable of delivering nuclear and conventional warheads upto a range of 290 kilometers.

No PR-19/2021-ISPR, February 3, 2021

Pakistan today conducted a successful training launch of surface to surface ballistic missile Ghaznavi, capable of delivering nuclear and conventional warheads upto a range of 290 kilometers. This training launch was the culminating point of the Annual Field Training Exercise of Army Strategic Forces Command.

The training launch was witnessed by Lieutenant General Muhammad Ali, Commander Army Strategic Forces Command, senior officers from Strategic Plans Division, Army Strategic Forces Command, Scientists and Engineers of the strategic organizations.

<https://ispr.gov.pk/press-release-detail.php?id=6035>

Pakistan today conducted a successful Training Launch of Babur Cruise Missile IA, with a range of 450 kilometers.

No PR-24/2021-ISPR, February 11, 2021

Pakistan today conducted a successful Training Launch of Babur Cruise Missile IA, with a range of 450 kilometers. Babur Cruise Missile is capable of engaging targets at Land and Sea with high precision. The missile was

launched from a state of the art Multi Tube Missile Launch Vehicle.

The Training Launch was witnessed by Dr Raza Samar, Chairman NESCOM, Lieutenant General Muhammad Ali, Commander Army Strategic Forces Command, senior officers of Strategic Plans Division, Army Strategic Forces Command, Scientists and Engineers of the strategic organizations.

<https://ispr.gov.pk/press-release-detail.php?id=6043>

D. USA

Blinken criticizes Russia, weighs possible sanctions against North Korea: NBC News

Reuters, February 1, 2021

U.S. Secretary of State Antony Blinken sharply criticized Russia over its crackdown on protesters supporting jailed opposition leader Alexei Navalny and said the United States was reviewing possible responses to Moscow's actions.

Blinken told NBC News he was "deeply disturbed by the violent crackdown" on Russian protesters on Sunday and arrests across the country of people demanding the release of Navalny, a prominent critic of Russian President Vladimir Putin. More than 5,300 people were detained in a massive show of force. Kremlin spokesman Dmitry Peskov said on Monday that Moscow would ignore Blinken's comments and warned Washington against imposing any new sanctions.

<https://www.reuters.com/article/us-usa-diplomacy-blinken-idUSKBN2A12GE>

Moonshot approach needed for deep decarbonisation

World Nuclear News, February 2, 2021

Carbon emissions may be falling but the clean energy transition journey is far from over, Edison Electric Institute (EEI) President Tom Kuhn said. EEI's members - US investor-owned electric companies - have committed to emissions reductions of up to 50% by 2030 and 80% by 2050, and

those reductions need to be achieved while ensuring electricity supply is both reliable and affordable, he said. "It really is going to take a combination of all those technologies out there to make that happen," he said. "Zero-carbon technologies - like solar, and nuclear, and wind. Storage and energy efficiency. The combination of all those things is going to help us to get there."

Nuclear accounts for one-fifth of all electricity generated in the USA and half of its carbon-free production, as well as being the largest source of carbon-free power "anywhere on Earth", said Maria Korsnick, president and CEO of the Nuclear Energy Institute (NEI). Nuclear innovation is happening around the country, she said, citing the Vogtle construction project in Georgia which are expected to come online later this year, and demonstration projects that are now under way. "These will make nuclear even more efficient, versatile and affordable," she said.

<https://www.world-nuclear-news.org/Articles/Moonshot-approach-needed-for-deep-decarbonisation>

Ohio AG, FirstEnergy agree to end \$102 mln surcharge in nuclear bailout scandal

Sebastien Malo

Reuters, February 3, 2021

FirstEnergy Corp and the Ohio attorney general on Monday agreed to an out-of-court settlement under which the power company will no longer collect \$102 million in 2021 in customer surcharges that were approved under a controversial law at the center of a bribery scandal to bail out two of its nuclear power plants.

Ohio Attorney General Dave Yost said he will withdraw a motion he filed last month in the Court of Common Pleas for Franklin County that sought to block the multi-year surcharge once the Public Utilities Commission of Ohio (PUCO) approves the an emergency application from FirstEnergy that confirms the rates will no longer be charged.

<https://www.reuters.com/article/usa-energy-lawsuit-idUSL1N2K71X6>

Framatome EATF completes first fuel cycle

World Nuclear News, February 3, 2021

The four lead fuel assemblies were removed during a refuelling outage in August, and "demonstrated expected results and excellent performance", Framatome said. Two further 18-month cycles of operation are planned for the assemblies, with detailed inspections and measurements following the remaining two fuel cycles. "This significant milestone confirms that our EATF technology performs to the industry's highest standards," Lionel Gaiffe, senior executive vice president of Framatome's Fuel Business Unit, said.

GAIA EATF was developed by Framatome as part of its PROtect programme and has received support from the US Department of Energy's Accident Tolerant Fuel programme. The assemblies consist of Framatome's advanced chromium coating added to M5 zirconium alloy cladding, and chromia-enhanced fuel pellets. The chromium-coated cladding improves high-temperature oxidation resistance and reduces hydrogen generation in the event of a loss of cooling. The innovative coating also offers increased resistance to debris fretting, reducing the likelihood of a fuel failure during normal operations.

<https://www.world-nuclear-news.org/Articles/Framatome-EATF-completes-first-fuel-cycle>

US energy sector will take years to reach its 'new normal': EIA

World Nuclear News, February 4, 2021

The outlook, launched yesterday at an event hosted by Washington, DC think-tank the Bipartisan Policy Center, uses modelled projections to explore long-term energy trends to 2050. In it, EIA projects that total US energy consumption will return to 2019 levels by 2029, although that this is "highly dependent on the pace of US economic recovery": an assumption of lower economic growth does not see energy consumption projected to return to 2019 levels until 2050. Electricity demand is largely projected to return to 2019 levels by 2025, with renewables accounting for

almost 60% of the capacity additions from 2020 to 2050. The generation shares of coal and nuclear are projected to fall to about half of their current levels, according to the baseline projections.

In most cases, US energy-related CO2 emissions are projected to decrease until 2035, after which they begin to level off or to increase. This reflects an overall rise in energy use as a result of increasing population, the report notes. However, even in the highest economic growth case, energy-related CO2 emissions are projected to remain lower than their 2007 peak of 6 billion tonnes. EIA Acting Administrator Stephen Nalley said: "The pandemic triggered a historic energy demand shock that led to lower greenhouse gas emissions, decreases in energy production, and sometimes volatile commodity prices in 2020. The pace of economic recovery, advances in technology, changes in trade flows, and energy incentives will determine how the United States produces and consumes energy in the future."

<https://www.world-nuclear-news.org/Articles/US-energy-sector-will-take-years-to-reach-its-new>

Brookfield 'at a crossroads' on whether to sell Westinghouse

World Nuclear News, February 8, 2021

Brookfield Business Partners is considering whether to sell Westinghouse Electric Company, the investment company's CEO, Cyrus Madon, said in a conference call with analysts on 5 February to discuss its fourth-quarter financial results. Bermuda-headquartered Brookfield completed its purchase of Westinghouse from Japan's Toshiba Corporation in August 2018. This marked Westinghouse's exit from US Chapter 11 bankruptcy protection as a restructured company.

"We are sort of at a little bit of crossroads, because we could sell part of the company or all of the company, I suppose, if we wanted to," Madon said. "We could hang onto it and continue milking these incredible cash flows, but it will all come down to what's the value we can get versus what we can create by keeping it ... But at some point in time, we certainly will test the market a little bit and see if we can get a read on

market value for the business." Madon stressed the "incredible" value of the US reactor vendor. Brookfield's "initial equity check" was USD920 million for 100% of the business, which is generating a 30% free cash dividend yield. There is "still room to grow", he added. "It's possible we will consider some form of monetisation, but we would only do it at an extraordinary value."

<https://www.world-nuclear-news.org/Articles/Brookfield-at-a-crossroads-on-whether-to-sell-West>

U.S. may weigh baby steps to revive Iran nuclear deal

Arshad Mohammed, John Irish

Reuters, February 9, 2021

The United States is weighing a wide array of ideas on how to revive the Iranian nuclear deal, including an option where both sides would take small steps short of full compliance to buy time, said three sources familiar with the matter. Such a modest approach could slow the deterioration in relations since former U.S. President Donald Trump abandoned the deal in 2018 and freeze Iran's subsequent violations, which have brought it closer to enriching weapons-grade uranium.

This option could entail Washington allowing Tehran to get economic benefits less valuable than the sanctions relief it received under the 2015 deal in return for Iran stopping, or perhaps reversing, its own breaches of the agreement. The sources stressed U.S. President Joe Biden has yet to decide his policy. His stated position remains that Iran resume full compliance with the pact before the United States will.

<https://www.reuters.com/article/us-usa-iran-nuclear-idUSKBN2A82AO>

Idled US conversion plant preparing for 2023 restart

World Nuclear News, February 9, 2021

Honeywell in November 2017 announced the temporary suspension of UF6 production at Metropolis pending an improvement in business conditions. The

decision was a result of “significant challenges” faced by the nuclear industry at that time, including a worldwide oversupply of UF₆. “As the only domestic uranium conversion facility, Honeywell’s Metropolis Works facility has been an important national strategic asset, well-positioned to satisfy UF₆ demand both in the US and abroad,” the company has said. “Honeywell is planning to restart production at Metropolis Works in early 2023, with preparations beginning this year. Honeywell will hire 160 full-time employees as well as contractors by the end of next year. We’re proud to bring these jobs back to the Metropolis community to meet the needs of our customers.”

According to the US Nuclear Regulatory Commission (NRC), the Metropolis plant is currently in a “ready-idle” status with a reduced amount of material on site. The NRC last year renewed the plant’s operating licence for an additional 40 years, to March 2060.

<https://www.world-nuclear-news.org/Articles/Idled-US-conversion-plant-preparing-for-restart>

U.S. sells illicit Iranian fuel, another seized cargo on the way

Timothy Gardner, Jonathan Saul

Reuters, February 10, 2021

The United States has sold more than a million barrels of Iranian fuel seized under its sanctions program last year, a Department of Justice official said, as another ship with intercepted Iranian crude oil sails to a U.S. port. The seizures are part of Washington’s tough economic sanctions on Tehran imposed over its nuclear program and the U.S. designation of a number of Iranian groups as terrorists, continuing decades of rancor between the two nations. Iran rejects U.S. accusations of wrongdoing.

In a new approach last year, the administration of former U.S. President Donald Trump used civil forfeiture procedures to seize some 1.2 million barrels of gasoline it said were being sent from Iran to Venezuela aboard four tankers.

<https://www.reuters.com/article/iran-usa-tanker-int-idUSKBN2AA2HF>

Nuclear-powered rocket could get astronauts to Mars faster

Nell Lewis

CNN, February 10, 2021

By 2035, NASA wants to land humans on Mars. But reaching the red planet, on average around 140 million miles away, will be a mammoth feat. Colder than Antarctica and with little to no oxygen, Mars is a hostile environment. The longer it takes astronauts to get there and the longer they stay, the more they are at risk.

That’s why scientists are looking at ways to reduce trip time. Seattle-based company Ultra Safe Nuclear Technologies (USNC-Tech) has proposed a solution: a nuclear thermal propulsion (NTP) engine that could get humans from Earth to Mars in just three months. Currently, the shortest possible trip for an unmanned spacecraft is seven months, but a crewed mission is expected to take at least nine months.

<https://edition.cnn.com/2021/02/03/world/nuclear-powered-rocket-scn-spc-intl/index.html>

Orano completes ageing inspections at US dry storage facilities

World Nuclear News, February 11, 2021

Orano NPS has found no corrosion concerns or precursor indications of stress corrosion cracking (SCC) in 20-year-old stainless steel canisters in use at three US dry storage facilities for used nuclear fuel. Regulatory inspections of the canisters, all of which were loaded into their horizontal, above-ground NUHOMS storage modules more than 20 years ago, were carried out as part of an ageing management programme to verify the NUHOMS system is performing as designed.

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<https://www.world-nuclear-news.org/Articles/Orano-completes-ageing-inspections-at-US-dry-storage>

Watchdog sues feds over 'interim' storage of radioactive waste

Sebastien Malo

Reuters, February 12, 2021

Nuclear watchdog Beyond Nuclear in Washington D.C. federal appeals court has sued the Nuclear Regulatory Commission (NRC) to halt the licensing process of a planned above-ground storage facility for highly radioactive nuclear waste in west Texas that the plaintiffs say would be unsafe.

The Maryland-based group on Wednesday asked the court to throw out Interim Storage Partners' (ISP) licensing application at the NRC for a "surface" interim storage facility, alleging that in denying two challenges to ISP's application the group filed with the regulator, NRC violated a Nuclear Waste Policy Act's (NWPA) prohibition on the United States owning highly-radioactive spent fuel at a facility other than a deep geological repository.

<https://www.reuters.com/article/usa-energy-lawsuit-idUSL1N2KH2IU>

US climate task force begins work

World Nuclear News, February 12, 2021

The National Climate Task Force, which met for the first time yesterday, was established in an executive order on tackling the climate crisis signed by President Joe Biden during his first week in office. The Task Force is chaired by the National Climate Advisor Gina McCarthy and includes Cabinet-level leaders from 21 federal agencies and senior White House officials. The inaugural meeting was also attended by Vice President Kamala Harris. "We are tapping into the imagination, talent, and grit of America's innovators, scientists, and workers to spearhead a national effort that empowers

the United States to lead the world in tackling the climate crisis," McCarthy said. "At the same time, we are positioning America to create good-paying, union jobs in a just and equitable way in communities across the nation that will be at the forefront of new manufacturing for clean energy and new technology, tools, and infrastructure that will help us adapt to a changing climate."

The US Department of Energy (DOE) will be one of the participants in the Climate Innovation Working Group, which it said will coordinate federal government-wide efforts to foster game-changing technologies to help the USA achieve the presidential goal of net zero economy-wide emissions by 2050, as well as emphasising research to bolster and build domestic clean energy supply chains and strengthen US manufacturing. The working group's remit will include amongst other things: zero net carbon buildings, including carbon-neutral construction materials; energy storage; advanced energy system management tools; zero carbon vehicles and transit systems; new, sustainable fuels for aircraft and ships; affordable refrigeration, carbon-free heat and industrial processes; and the pursuit of carbon-free hydrogen at a lower cost than hydrogen made from polluting alternatives.

<https://www.world-nuclear-news.org/Articles/US-climate-task-force-begins-work>

Experts urge Biden to restore U.S. leadership in global nuclear security

Timothy Gardner

Reuters, February 12, 2021

Nearly 30 experts on global nuclear security urged President Joe Biden's administration on Thursday to restore U.S. leadership on fissile materials to reduce the threat that militants will use them to create weapons. Global security of materials like plutonium and highly enriched uranium received "limited high-level attention" by former President

Donald Trump's administration, the experts said in a letter to about six officials at the State Department, the Department of Energy and the National Security Council.

"U.S. leadership on this issue has weakened and international progress has slowed," wrote the experts, including Sharon Squassoni of George Washington University and William Tobey of Harvard University, according to a copy of the letter seen by Reuters. It recommended launching a comprehensive plan to achieve security of global stocks of nuclear weapons, fissile materials and nuclear facilities where sabotage could cause a catastrophe.

<https://www.reuters.com/article/us-usa-nuclear-proliferation-idUSKBN2AB2UV>

US DOE gets go-ahead to build and test railcar

World Nuclear News February 12, 2021

Fortis is an eight-axle, flat-deck railcar that will be able to transport large containers of used nuclear fuel and high-level radioactive waste, with high-tech sensors and monitoring systems that will report 11 different performance features back to the operators in real-time. The railcar design was completed earlier this year, with technical support from Pacific Northwest National Laboratory. DOE may now begin fabricating and testing the prototype in compliance with rail industry standards for railcars transporting used nuclear fuel and high-level radioactive waste.

The DOE's 12-axle railcar to transport larger containers of high-level radioactive material, Atlas, is currently undergoing single-car prototype testing in Pueblo, Colorado. Together, Atlas and Fortis will provide more flexibility when transporting used fuel and high-level radioactive waste to disposal and storage facilities, DOE said.

<https://www.world-nuclear-news.org/Articles/US-DOE-gets-go-ahead-to-build-and-test-railcar>

U.S. says North Korea an urgent priority for the United States

David Brunnstrom

Reuters, February 13, 2021

North Korea's nuclear weapon and ballistic missile programs are an urgent priority for the United States and Washington remains committed to denuclearization of the country, the U.S. State Department said on Friday. The Biden administration's lack of direct engagement with North Korea should not be seen as an indication that the challenge posed by its weapons programs was not a priority, department spokesman Ned Price said.

"It in fact very much is," he told a regular briefing. North Korea continued to make progress in its nuclear and missile programs in recent years "which makes this an urgent priority for the United States and one that we are committed to addressing together with our allies and partners," Price said.

<https://www.reuters.com/article/us-northkorea-usa-idUSKBN2AC2EK>

U.S. Power Crisis Leaves Millions Cold, Dark as Blackouts Expand

Brian K Sullivan and Naureen S Malik

Bloomberg Quint, February 15, 2021

The energy crisis crippling power grids across the U.S. showed no sign of abating on Tuesday morning as blackouts left almost 5 million customers without electricity during unprecedented cold weather.

To prevent the collapse of their networks, suppliers from North Dakota to Texas are having to institute rolling power cuts for the second consecutive day to limit demand. The severe shortages are likely to continue throughout Tuesday, and the deep freeze is forecast to remain until Wednesday at least.

<https://www.bloombergquint.com/global-economics/winter-s-fury-unleashes-brutal-cold-over-u-s-with-more-to-come>

E. Europe

France says held in-depth talks with U.S., Britain, Germany on Iran

Reuters, February 06, 2021

France's foreign minister said on Friday he held in-depth talks with his American, British and German counterparts on Iran and how to handle nuclear and regional security challenges. "We just had a in-depth and important conversation on Iran with @SecBlinken, @HeikoMaas and @DominicRaab to handle together nuclear and regional security challenges," Jean-Yves Le Drian said on Twitter, adding that they had also addressed other pressing issues.

<https://www.reuters.com/article/idUSKBN2A52L5>

Estonian firm aims to launch modular nuclear reactor in 2035

Tarmo Virki

Reuters, February 08, 2021

Small Estonian firm Fermi Energia said on Monday it was raising capital to start the official planning process for a new generation small modular reactor (SMR) which would be one of the first in Europe and the first nuclear plant in Estonia. The small EU member state of 1.3 million people has for decades generated most of its energy from burning oil shale. "Estonia has set an ambitious goal to end electricity production from oil shale by 2035," Fermi Chief Executive Kalev Kallemeets told Reuters. "The reactor would solve this challenge for Estonia and is relevant for the wider region."

Fermi aims to apply to the government to start the planning process in late 2021, with the process — which includes environmental, societal, economic and national security reviews — expected to take up to five years. "This matches the timeframe of technology development as small modular reactor technology is expected to become available for deployment by 2028," Kallemeets said. Fermi could then start construction in 2030 and the plant

would be producing electricity in 2035, he said.

<https://www.reuters.com/article/idUSKBN2A80AM>

Restructuring EDF proving difficult, state utility head tells French Senate

Reuters, February 10, 2021

Restructuring EDF was proving difficult, the head of the French state-controlled power group said, in response to questions in the Senate regarding talks between France and the European Union on the plans. The French government wants to separate EDF's nuclear power arm from other parts of its business and needs EU clearance to ensure a proposed new structure does not amount to state aid or crimp competition in a power market still dominated by the former monopoly operator. The EU has pushed for an even stricter split of the business, sparking disagreements with the French government.

<https://www.reuters.com/article/idUSFWN2KG0NV>

Finnish research reactor fuel sent to USA for further use

World Nuclear News, February 11, 2021

Partially used irradiated fuel from the Finnish Reactor 1 (FiR1) in Espoo, Finland, has been transported to the USA for use in a TRIGA Mark I research reactor operated by the US Geological Survey in Denver, Colorado. Dismantling of the Finnish reactor, which was shut down in 2015, is scheduled to begin at the end of 2022. The fuel, purchased by Finland in the 1960s and 1970s, still has "a remarkable remaining utility value", VTT Technical Research Centre of Finland said. The USGS required additional fuel to continue operating its reactor, but the production of suitable fuel has been suspended for several years.

VTT announced the dispatch of the used fuel in a letter to the Finnish Ministry of

Economic Affairs and Employment today, and excluded used fuel from its decommissioning licence application. In April 2020, Finnish utility Fortum was awarded a contract by VTT to decommission FiR1. The contract followed the signing in December 2018 of a letter of intent by Fortum and VTT to cooperate in the decommissioning of the reactor. It will be the first nuclear reactor to be decommissioned in Finland.

<https://www.world-nuclear-news.org/Articles/Finnish-research-reactor-fuel-sent-to-USA-for-furt>

F. Russia

Russia, Egypt adjusted plans for construction of El-Dabaa NPP due to pandemic

TASS News Agency, February 3, 2021

Russia and Egypt have agreed on an updated work schedule for the construction of a nuclear power plant in El-Dabaa on the Mediterranean Sea, Russia's Ambassador to Cairo Georgy Borisenko told Russian reporters on Tuesday. "The pandemic has slowed down the preparations at the site. The preparations are still ongoing, which largely depends on Egypt as they need to fully complete the technical documentation," the diplomat explained.

According to him, the visit of the head of the state nuclear corporation Rosatom Alexei Likhachev to Cairo on December 28, 2020 made it possible to agree on an updated schedule as well as to agree with Russian and Egyptian institutions on the implementation of the construction.

<https://tass.com/economy/1251959>

Lavrov, Borrell to hold talks in Moscow

TASS News Agency, February 5, 2021

Russian Foreign Minister Sergey Lavrov will meet on Friday with the EU High Representative for Foreign Affairs and Security Policy Josep Borrell, who is in Moscow on February 4-6. This is the first visit of Chief of EU diplomacy since 2017, when

Borrell's predecessor Federica Mogherini visited Russia.

For the first time, Borrell spoke of his intention to visit the Russian capital back in early 2020. At the time he was going to first make a visit to Ukraine, and immediately after - to Russia. However, his plans were thwarted by the coronavirus pandemic, due to which the borders were closed. Official representative of the Russian Foreign Ministry Maria Zakharova stressed that the visit was planned.

<https://tass.com/politics/1252919>

Rosatom's work overseas unaffected by pandemic, says DG

World Nuclear News, February 5, 2021

Rosatom's portfolio of foreign orders remains at the level of over USD250 billion and, in the 10-year perspective, "hovers around" USD140 billion, Director General Alexey Likhachov said yesterday during his meeting with Russian Prime Minister Mikhail Mishustin. The two men discussed the results of the state corporation's work in 2020, implementation of current projects, as well as the direction of strategic development, including green regulation and digitalisation of the economy.

Rosatom invested about RUB250 billion from its own funds and RUB130 billion from the state budget. "That's a lot of money, and I want to report to you that we have almost 100% cash execution of the budget, that we are working very carefully and responsibly with money from the state budget," Likhachov said. Mishustin noted that Rosatom is active in 12 countries, including Belarus where a VVER-1200 unit is being commissioned. "It seems to me that Rosatom has gone far beyond only nuclear energy and that you are now engaged in a number of technologies more broadly," he said. "It's digital technology, it's quantum computing, laser technology, and more."

<https://www.world-nuclear-news.org/Articles/Rosatom-s-overseas-work-unaffected-by-pandemic,-sa>

Putin orders launch of world's most powerful source of neutrons in Leningrad Region

TASS News Agency, February 8, 2021

Russian President Vladimir Putin has ordered the energy launch of the world's most powerful source of neutrons at St. Petersburg's B.P. Konstantinov Institute of Nuclear Physics, affiliated with the Kurchatov Institute research center. "I am asking you to put the reactor into energy operation," Putin told the participants in the launch ceremony in a video conference mode.

The research reactor PIK is one of the six projects the Russian government included in the program for creating mega-science class facilities in Russia. In contrast to most foreign projects the reactor PIK has greater neutron fluxes in the reflector, a high flux neutron trap and the possibility of irradiating materials in the reactor core.

<https://tass.com/science/1253791>

Largest telescope in Northern hemisphere to begin operations at Baikal in March

TASS News Agency, February 8, 2021

The largest in the Northern hemisphere Baikal neutrino telescope which Russian scientists plan to use in order to better understand the processes of emergence and evolution of the universe will be completed at Lake Baikal in March 2021, Director of the Joint Institute for Nuclear Research (JINR) Grigory Trubnikov said in an interview with TASS.

"Not far from Irkutsk, on Lake Baikal, at the 106th kilometer of the Circum-Baikal railway, we are building a giant neutrino telescope of a cubic-kilometer size which this year we want to expand to the largest volume in the Northern hemisphere. Practically, our country will soon have yet another megascience research installation which will become an important contribution of the JINR to Russia's program of scientific megaprojects. The large-scale Baikal neutrino telescope should begin

operations as early as March and this will be one of the milestones of the Year of Science and Technologies - 2021 program," he said.

<https://tass.com/science/1253699>

Su-35 fighters escort Tu-95MS strategic bombers in skies over western Russia in drills

TASS News Agency, February 9, 2021

Tupolev Tu-95MS strategic missile-carrying bombers and Sukhoi Su-35S fighters held joint drills in the skies over the Tver Region, the press office of Russia's Western Military District reported on Tuesday.

"A formation of Su-35S fighters of operational-tactical aviation from the Western Military District's Air Force and Air Defense Army took off from the Khotilovo aerodrome on command to escort Tu-95MS turboprop strategic missile-carrying bombers that took off from an airbase of the Aerospace Force in the Saratov Region," the press office said in a statement.

<https://tass.com/defense/1254269>

Hypersonic weapons to comprise backbone of Russia's conventional deterrence forces

TASS News Agency, February 9, 2021

Hypersonic weapons of various types of basing will comprise the backbone of Russia's non-nuclear deterrence forces, Russian Defense Minister Army General Sergei Shoigu said at an annual operational and mobilization gathering of commanders on Tuesday. "The potential of non-nuclear deterrence forces, primarily, precision weapons, is being strengthened. Hypersonic systems of various basing will comprise their backbone," the defense chief stressed.

As the Russian defense minister said, "the Army and the Navy are constantly fulfilling tasks that require commanders to have a profound command of the

situation, knowledge of the capabilities of their forces and resources, a creative approach and a reasonable initiative.”

<https://tass.com/defense/1254191>

Construction licence issued for Russia's BREST reactor

World Nuclear News, February 11, 2021

The construction licence was signed yesterday by Rostekhnadzor Chairman Alexey Aleshin. During the safety review for the pilot demonstration power unit, new federal regulations and rules were developed, taking into account the specifics of the project. These include regulations for the design and safe operation of reactors using lead as a coolant, as well as requirements for justifying the strength of the reactor vessel, equipment and pipelines of such reactors. A total of 16 Rosatom standards were approved and put into effect, detailing the requirements and ensuring that all the features of the BREST-OD-300 power unit are taken into account.

The Siberian Chemical Combine is a subsidiary of TVEL, the nuclear fuel manufacturing subsidiary of Russian state nuclear corporation Rosatom. “First of all, I would like to congratulate the entire industry on this important event, towards which we have proceeded progressively and systematically,” said Vyacheslav Pershukov, Rosatom’s special representative for international and scientific projects. “Obtaining a licence means that all the questions asked by Rostekhnadzor have been answered for the BREST power unit construction project. Which, in turn, suggests that all the key project results planned for 2021 will be implemented in accordance with the comprehensive Russian Technology Transfer Network programme.”

<https://www.world-nuclear-news.org/Articles/Construction-licence-issued-for-Russias-BREST-reactor>

Russia starts making major components for Xudabao units

World Nuclear News, February 12, 2021

The general contract for the construction of Xudabao 3 and 4 was signed in June 2019

by Russian state nuclear corporation Rosatom’s engineering subsidiary ASE and China National Nuclear Corporation. Rosatom will supply the nuclear islands for the two units, with the turbine generators and balance of plant being Chinese. The contract followed the signing a year earlier of an agreement between China and Russia to build the units. According to its contract, Atomenergoproekt - part of the Volgodonsk branch of Russia’s AEM Technology - will manufacture and deliver two VVER-1200 reactors, two sets of steam generators, the reactor cooling pumps, the main circulation piping and two pressurisers. The total weight of these components is about 6000 tonnes.

Atomenergoproekt said the blanks of the steam generator and reactor vessel shells have passed the incoming inspection, and the production of those parts has now started. Machining of each 92-tonne shell of the nozzle area of the reactor vessel will be carried out over 15 days. At the same time, preparation for anti-corrosive overlaying of the shell of the reactor core will be performed. Machining of the steam generator shells, each weighing 37 tonnes, will take six days. Upon completion of the machining of 16 blanks, workers will start manufacturing the steam generator vessels.

<https://www.world-nuclear-news.org/Articles/Russia-starts-making-major-components-for-Xudabao>

Brussels deliberately destroyed framework of Russia-EU ties, says Lavrov

TASS News Agency, February 15, 2021

Russia is ready to discuss all existing problems with the EU, but the framework of the relations was intentionally dismantled by Brussels, Russian Foreign Minister Sergey Lavrov said Monday following talks with his Finnish counterpart Pekka Haavisto.

“We are ready to discuss the problems. When it is in Russia’s interests, we cooperate on the issues of climate change, on environmental issues,” the Russian

minister said. "However, the carcass of these relations was deliberately destroyed on Brussels' initiative."

<https://tass.com/politics/1256651>

Russia to boost missile attack warning system's capabilities after upgrade

TASS News Agency, February 15, 2021

The modernization of Russia's missile attack early warning system will boost its potential and detection capabilities, Chief Designer of the Research Institute for Long-Range Radio Communications (part of RTI Group) Sergei Saprykin told TASS on Monday. The radar stations of the Russian missile attack early warning system went into service quite recently and have a service life of over 30 years. Despite this, the system will be upgraded, the chief designer said.

"The upgrade is planned and concerns boosting the potential and measuring capabilities," Saprykin said. As a result, the radar stations will get artificial intelligence elements but won't start "thinking" on their own, he added.

<https://tass.com/defense/1256603>

Russia open to China's initiative to bring US back to Iran nuclear deal - senior diplomat

TASS News Agency, February 15, 2021

Moscow has discussed China's initiative to hold a multilateral meeting aimed at convincing the United States to rejoin the Iranian nuclear deal with Washington and Beijing and can take part in it, Russia's Deputy Foreign Minister Sergei Ryabkov told reporters Monday.

"We discussed it with both Chinese and American colleagues. We are open to taking part in this even, even though it is clear that it is crucial to at least set out indicative understanding of what this meeting can result in for it to have meaningful substance," he said.

<https://tass.com/politics/1256495>

West Asia

G. Iran

Top general praises Iran's self sufficiency

Tehran Times, February 1, 2021

Major General Hossein Salami, commander of the Islamic Revolution Guards Corps (IRGC), says that Iran has grown so self-sufficient and self-reliant in different fields that it can continue its path of progress without agreement with world powers, according to the Fars news agency. Addressing a gathering of Basij forces in Tehran on Sunday, Salami noted, "Today, we have come to a point that we have really grown needless of the nuclear deal and we have understood that we have to make efforts to become needless of sanctions removal rather than staying in need of the removal of embargos."

Emphasizing that the Iranian nation has always resolved problems, the top general said, "Our enemies had big dreams (against Iran) and they have forgotten all of them altogether." In response to the U.S. unilateral measures, Iran has so far rowed back on its nuclear commitments four times in compliance with Articles 26 and 36 of the JCPOA, but stressed that its retaliatory measures will be reversible as soon as Europe finds practical ways to enter financial, oil and trade transactions with Iran.

<https://www.tehrantimes.com/news/457655/Top-general-praises-Iran-s-self-sufficiency>

Iran installs advanced centrifuges in Natanz and Fordow facilities

Tehran Times, February 2, 2021

Kazem Gharibabadi, Iran's Ambassador and Permanent Representative to international organizations in Vienna, has declared Iran will accelerate its nuclear program by operating more advanced centrifuges. In a post on his Twitter account on Tuesday, he wrote, "Thanks to our diligent nuclear scientists, two cascades of 348 IR2m centrifuges with almost 4 times the capacity of IR1 are now

running with UF6 successfully in Natanz. Installation of 2 cascades of IR6 centrifuges has also been started in Fordow. There's more to come soon." Nevertheless, he has highlighted that the cooperation between Iran and the IAEA is very crucial, tweeting, "The IAEA is yet able to verify and is informed of the progress as planned."

Since Trump, the former U.S. president, quitted the nuclear accord in 2018 and imposed severe sanctions on Iran's economic sectors, Iran has decided to resume its nuclear activities in stages. Iran's parliament has approved legislation that would suspend the implementation of unannounced visits to nuclear facilities and require the government to boost its uranium enrichment if European countries do not provide relief from oil and banking sanctions.

The ratification also obliged the government to resume enriching uranium to 20%, and to install new centrifuges at nuclear facilities at the Natanz and the Fordo sites. The government has already resumed enriching uranium to the level of 20 percent and starting installing new centrifuges.

<https://www.tehrantimes.com/news/457702/Iran-installs-advanced-centrifuges-in-Natanz-and-Fordow-facilities>

Iran's Zarif hints at way to bridge nuclear deal impasse

Arshad Mohammed, Jonathan Landay

Reuters, February 02, 2021

Iranian Foreign Minister Mohammad Javad Zarif suggested a way on Monday to overcome the U.S.-Iranian impasse over who goes first in returning to the 2015 Iran nuclear deal, saying a top EU official could "synchronize" or "choreograph" the moves. Zarif's stance was a shift from his position, expressed in a Jan. 22 article in which he said the United States should remove U.S. sanctions before Iran returned to the deal. "There can be a mechanism to basically either synchronize it or coordinate what can be done," Zarif told CNN when asked how to bridge the gap.

Each government wants the other to resume compliance first with the agreement, which

former U.S. President Donald Trump abandoned in 2018 but which President Joe Biden as said he will rejoin if Iran resumed "strict" compliance. Under the accord, Iran agreed to limit its nuclear program to make it harder for it to develop nuclear weapons in return for relief from U.S. and other economic sanctions. Zarif noted the pact created a Joint Commission coordinated by the European Union foreign policy chief, now Josep Borrell. Borrell "can ... sort of choreograph the actions" needed from both sides, Zarif told CNN.

<https://www.reuters.com/article/idUSKBN2A13HI>

Rouhani: No change to JCPOA content and no new member

Tehran Times, February 3, 2021

Hassan Rouhani, Iran's president, says there will be no changes to the content of the JCPOA and that no other country will be added to it. Rouhani was in fact responding to Saudi Arabia which has said if the new Biden administration plans to rejoin the JCPOA its country should also be included. French President Emmanuel Macron has also called for inclusion of Saudi Arabia in the agreement. The JCPOA was struck between Iran and 5+1 nations (the five permanent members of the UN Security Council - Britain, France, the U.S., Russia and China - plus Germany in May 2015. The deal committed Iran to restrict its nuclear program in return for termination of economic and financial sanctions.

However, the U.S. under Donald Trump quit the deal in May 2018 and slapped sweeping sanctions against Iran. "If the group is 4+1, it remains the same, if the group is 5+1, it remains the same," Rouhani noted during a meeting with his cabinet members. He emphasized "the undue words should not be said. We did a job resulted from hard work. It took more than ten years to gain the achievements. In the beginning of the eleventh government, we made efforts during the first two years" to reach the multilateral agreement. Iran has been insisting that it

will not renegotiate the terms of the nuclear deal.

<https://www.tehrantimes.com/news/457731/Rouhani-No-change-to-JCPOA-content-and-no-new-member>

Zarif: compensation not pre-condition for reviving nuclear deal

Reuters, February 07, 2021

Iranian Foreign Minister Mohammad Javad Zarif said on Sunday that Iran receiving compensation from the United States for the U.S. withdrawal from the 2015 Iranian nuclear deal was not a “pre-condition” for reviving the agreement.

<https://www.reuters.com/article/idUSL1N2KD0A0>

Ayatollah Khamenei crafts Iran’s JCPOA strategy

Tehran Times, February 7, 2021

In a carefully worded address on Sunday, Leader of the Islamic Revolution Ayatollah Seyed Ali Khamenei outlined how Iran would accept a U.S. return to the 2015 nuclear deal between Iran and major world powers. He said the United States must lift all the sanctions it imposed on Iran and then rejoin the nuclear deal, something that the new U.S. administration assiduously tries to avoid, though U.S. President Joe Biden had vowed to rejoin the deal during his election campaign.

Before and after the U.S. presidential election, Biden ambiguously said he is willing to rejoin the nuclear deal –officially known as the Joint Comprehensive Plan of Action (JCPOA) - but he refrained from laying out any plan to do so. The new U.S. president has been tight-lipped about the JCPOA ever since he won the presidential election in November. He has seemingly tasked his national security and foreign policy team to make calibrated remarks on Iran and the JCPOA. This was pretty much obvious in the past few weeks since Biden moved into the White House. Biden strikingly refrained from alluding to the JCPOA in the recent speech he delivered at the State Department.

<https://www.tehrantimes.com/news/457904/>

Ayatollah-Khamenei-crafts-Iran-s-JCPOA-strategy

Who needs to rejoin JCPOA?

Tehran Times, February 8, 2021

U.S. President Joe Biden appeared to be following in the footsteps of his predecessor after he said that the United States will not be lifting its sanctions before Iran resuming full implementation of its commitments under the 2015 nuclear deal, officially known as the Joint Comprehensive Plan of Action (JCPOA). In a Friday interview with CBS that was aired on Sunday, Biden said the U.S. will not lift sanctions first in order to get Iran back to the negotiating table. He also said that the Iranians should first have to stop enriching uranium.

Biden’s remarks dampened hopes that the new U.S. administrations would correct the failed policies of former President Donald Trump toward Iran, which Biden had vowed to change during his election campaign.

Although a senior U.S. official sought to downplay Biden’s controversial remarks on Iran’s right to enrich uranium, the damage was already done. The official told Reuters that Biden meant Iran must stop enriching uranium beyond the limits under the JCPOA, not the entire enrichment process. But the official did not correct what Biden said about the sanctions, which are now the major stumbling block to reaching a settlement. While Iran said the U.S. return to the JCPOA is contingent on lifting all the sanctions that were imposed after Trump pulled the White House out of the JCPOA, the Biden administration called on Iran to return to the nuclear deal without first getting a sanctions relief, something that Iran roundly rejected. Leader of the Islamic Revolution of Iran Ayatollah Seyed Ali Khamenei has made it clear that Iran wants the U.S. to make the first move and lift all sanctions before any Iranian move to revive the JCPOA.

<https://www.tehrantimes.com/news/457950/Who-needs-to-rejoin-JCPOA>

Iran produces uranium metal, IAEA says, in latest breach of deal

Francois Murphy

Reuters, February 11, 2021

Iran has carried out its plan to produce uranium metal, the U.N. atomic watchdog confirmed on Wednesday, despite Western powers having warned Iran that would breach their 2015 nuclear deal as uranium metal can be used to make the core of an atom bomb. Iran began breaching its nuclear deal with major powers step by step in 2019 in response to U.S. President Donald Trump's withdrawal from the deal the previous year and Washington's reimposition of sanctions on Tehran.

Iran has in recent months accelerated those breaches of the deal's restrictions on its atomic activities, potentially complicating efforts to bring the United States back into the deal under President Joe Biden. A law passed in response to the killing of its top nuclear scientist in November, which Tehran blames on its foe Israel, called for steps including opening a uranium metal plant. Iran told the International Atomic Energy Agency in December it planned to produce uranium metal fuel for a research reactor. "Director General Rafael Mariano Grossi today informed IAEA Member States about recent developments regarding Iran's R&D activities on uranium metal production as part of its stated aim to produce fuel for the Tehran Research Reactor," the IAEA said in a statement.

<https://www.reuters.com/article/idUSKBN2AA2LW>

France, Germany, UK condemn Iran's production of uranium metal

Reuters, February 12, 2021

France, Germany and Britain on Friday condemned Iran's decision to produce uranium metal, which they said was in breach of commitments made by Tehran to the international community. The U.N. nuclear watchdog said this week that Iran had followed through on its stated plan to make uranium metal, which Tehran said would be used to make fuel for a research

reactor but which can also be used in nuclear weapons. The move is the latest breach by Iran of a 2015 nuclear deal with world powers. Tehran began incremental violations of the pact, also known by the acronym JCPOA, after the United States withdrew from the deal in 2018 and re-imposed sanctions on Iran.

"We strongly urge Iran to halt these activities without delay and not to take any new non-compliant steps on its nuclear programme. In escalating its non-compliance, Iran is undermining the opportunity for renewed diplomacy to fully realise the objectives of the JCPOA," said the three European states, which are also referred to as the E3. Iranian Foreign Minister Mohammad Javad Zarif dismissed the E3 statement, saying Iran's position on breaching the pact was in line with paragraph 36 of the deal governing actions one side could take if it believe the other was not meeting obligations. "Have our E3 partners ever read para 36 of JCPOA & Iran's many letters on that basis?," Zarif said on Twitter. "By what logic is the onus on IRAN to stop its remedial measures undertaken a full year after the US withdrew from—and continues to violate—the JCPOA? What have E3 done to fulfill their duties?," he said.

<https://www.reuters.com/article/idUSKBN2AC1CZ>

Minister says Oman ready to salvage JCPOA

February 13, 2021

Oman's Foreign Minister Badr al-Busaidi has expressed his country's readiness to save the 2015 nuclear deal between Iran and major world powers. He said Oman was ready to help with rescuing the nuclear deal, fraying since 2018 when Trump withdrew the United States from the pact, but felt that existing U.S. communication lines with Tehran could suffice, according to a Reuters report. Responding to a question on the chance of Oman mediating in new efforts to restore the nuclear deal, the chief Omani diplomat said Muscat has a very good

relationship with both Tehran and Washington and was ready to assist if needed.

"I believe the channels are open directly between the foreign policy teams in Washington and Iran. I see no reason why those channels can't be reactivated," Busaidi told the Atlantic Council event. Oman played a pivotal role in facilitating the nuclear talks leading up to the 2015 nuclear deal, officially known as the Joint Comprehensive Plan of Action (JCPOA). Busaidi said always encourages dialogue. "Omani foreign policy has always sought to maintain and encourage dialogue between as wide a number of parties as possible," he pointed out.

<https://www.tehrantimes.com/news/458061/Minister-says-Oman-ready-to-salvage-JCPOA>

Defense chief says Iran's missile capability acts as deterrent

Tehran Times, February 14, 2021

Brigadier General Amir Hatami, the defense minister of Iran, has highlighted the Islamic Republic's deterrent power based on domestically manufactured missiles with great accuracy and maneuverability. Speaking to Tasnim news agency on Sunday, Hatami emphasized, "Iran is currently in the best state of defense and missile power." "Today, all of the Islamic Republic of Iran's missiles are precise and have great maneuverability and the necessary explosive power to maintain the country's defensive deterrence," the minister remarked. Army tests new smart missile with 300-km range

Regarding Hatami's emphasis on Iran's defensive missile capabilities, the Iranian Army Ground Force also tested a new smart missile with a range of 300 kilometers on Sunday. Speaking at the event, Brigadier General Kiomars Heidari, the Army Ground Force commander, said, "The missile units have tested a new mid-range missile to evaluate its accuracy and power." Pointing to the range of the new missile, General Heidari noted, "With a range of 300 kilometer, the smart missile can hit targets with pinpoint accuracy." The commander added, "Launched with automated systems,

the missile can be fired in various weather conditions."

<https://www.tehrantimes.com/news/458105/Defense-chief-says-Iran-s-missile-capability-acts-as-deterrent>

Iran says it will end snap IAEA inspections if nuclear deal terms not met

Parisa Hafezi

Reuters, February 15, 2021

Iran said on Monday it will block snap inspections by the U.N. nuclear watchdog from next week if other parties to the 2015 nuclear deal do not uphold their obligations, a challenge to U.S. President Joe Biden's hope of reviving the accord. "It does not mean ending all inspections by the U.N. nuclear watchdog...All these steps are reversible if the other party changes its path and honours its obligations," he said, alluding to the United States. Iran's envoy to the International Atomic Energy Agency wrote on Twitter on Monday that Tehran has informed U.N. watchdog about its plan next week to end sweeping inspection powers given to the agency under the nuclear pact.

Under legislation enacted by hardline Iranian lawmakers last year, the government is obliged on Feb. 21 to limit IAEA inspections to declared nuclear sites only, revoking its short-notice access to any location seen as relevant for information-gathering, if other parties did not fully comply with the deal.

<https://www.reuters.com/article/idUSKBN2AF0HW>

Iran will further scale back its nuclear commitments if 2015 nuclear obligations not revived

Reuters, February 15, 2021

Iran will further scale back its commitments under the 2015 nuclear deal if other parties to the pact fail to fulfill their obligations, Iranian foreign ministry spokesman said. "We have no option but to respect the law. It does not mean ending

all inspections by the U.N. nuclear watchdog," Saeed Khatibzadeh said, referring to an Iranian law that obliges the government to harden its nuclear stance. On Feb. 21, the law obliges the government to end the sweeping inspection powers given to the U.N. nuclear watchdog by the 2015 deal and limiting inspections to declared nuclear sites only.

<https://www.reuters.com/article/idUSD5N2HK02G>

H. Saudi Arabia

Saudi Arabia will continue to treat Houthis as terrorists, says Saudi U.N. representative

Reuters, February 14, 2021

Saudi Arabia will continue to treat Yemen's Houthis as a terrorist organisation despite a U.S. decision to lift the designation on the group, according to the kingdom's permanent representative to the United Nations. There has been no other official response from Riyadh to the announcement on Friday by U.S. Secretary of State Antony Blinken on Friday that Washington would, effective Feb. 16, lift the terrorist group designation.

"Despite this, we will still deal with the Houthi militia as a terrorist organisation and address its threats with military action," Abdullah Al-Muallami, told Saudi-owned Asharq News in remarks retweeted by the kingdom's U.N. mission. The Saudi government media office CIC did not immediately respond to a Reuters' request for comment on the decision. Riyadh accuses Iran of supplying arms and training to the Houthis, a charge denied by the group and Tehran. Describing lifting the designation as a "terrible mistake", Saudi columnist Mohammed Al Al-Sheikh wrote in Al Jazirah newspaper, that Biden should build on his predecessor's "maximum pressure" campaign on Tehran, which saw Washington re-impose sanctions on Iran after quitting a 2015 international nuclear pact. Riyadh backed that policy.

<https://www.reuters.com/article/idUSKBN2AE0C4>

I. Turkey

Akkuyu construction to be completed by 2026, says project CEO

World Nuclear News, February 10, 2021

Russia and Turkey signed an intergovernmental agreement in May 2010 for the construction of the Akkuyu nuclear power plant on the southern coast of Turkey in Mersin province, which will comprise four VVER-1200 reactors with a total capacity of 4800 MW. Under the terms of the agreement, Rosatom established a project company in Turkey, Akkuyu Nükleer. The project is the first to use Rosatom's build-own-operate (BOO) model. Under a long-term contract, Akkuyu Nükleer is responsible for plant's design, construction, maintenance, operation and decommissioning.

Rosatom has a 99.2% stake in the project, the cost of which it estimates will be USD20 billion. Zoteeva said the aim is to complete the first unit on 29 October 2023 - the 100th anniversary of the founding of the Republic of Turkey - with the other three units to follow by 2026, adding that she hopes the construction licence for the fourth unit will be granted this summer. Within 10-12 years, Turkish personnel will have replaced Russian personnel at the plant, she said.

<https://www.world-nuclear-news.org/Articles/Akkuyu-fully-operational-by-2026,-says-project>

J. Israel

Minister: US will never attack Iran's nuclear facilities, Israel may act alone

Times of Israel, February 2, 2021

Tzachi Hanegbi says Israeli leaders will be forced to choose between accepting a nuclear-armed Tehran and independently taking action.

<https://www.timesofisrael.com/liveblog-february-2-2021/>

East Asia

K. North Korea

Ex-NK diplomat says Pyongyang cannot seek denuclearization

Yonhap

Korea Herald, February 1, 2021

A former acting North Korean ambassador to Kuwait has said that Pyongyang won't give up its nuclear weapons because the arsenal is the key to the survival of leader Kim Jong-un's regime, a CNN report showed. Ryu Hyun-woo, who defected to South Korea in September 2019 while serving as acting chief of mission at the North's embassy in Kuwait, made the remark in an interview with CNN. His defection was made public only last week. "North Korea's nuclear power is directly linked to the stability of the regime – and Kim likely believes nuclear weapons are key to his survival," Ryu was quoted as saying.

Ryu also said that North Korea may be willing to negotiate a reduction in its nuclear weapons but that it is unlikely to ever give them up entirely, according to CNN. Nuclear talks have been stalled since a no-deal summit between North Korean leader Kim Jong-un and then-US President Donald Trump in early 2019 as they failed to find common ground over how to match Pyongyang's denuclearization steps with Washington's sanctions relief. CNN quoted Ryu as saying that previous US administrations had boxed themselves into a corner by demanding denuclearization up front in negotiations with the totalitarian state. "The US can't back down from denuclearization and Kim Jong-un cannot denuclearize," he added, according to CNN.

http://www.koreaherald.com/view.php?ud=20210201000869&ACE_SEARCH=1

Arrest warrant denied for ex-energy minister on nuclear reactor closure

Ko Jun-tae

Korea Herald, February 9, 2021

A local court on Tuesday rejected an arrest warrant for former Minister of Trade,

Industry and Energy Paik Un-gyu for his role in the controversial closure of South Korea's second-oldest nuclear reactor. The Daejeon District Court on Tuesday denied the prosecution's request for an arrest warrant made Thursday against Paik on charges of abuse of power and obstruction of business. The court said the prosecution's arguments are insufficient to prove Paik's criminal involvement, adding that the former minister should be provided a chance to defend himself in upcoming proceedings without being detained, as he would not have much chance to destroy evidence.

Paik has been under investigation for allegedly abusing his authority to negatively influence the viability assessment of Wolsong-1 in Gyeongju, North Gyeongsang Province. The government decided in December 2019 to permanently close the 679-megawatt reactor. The Board of Audit and Inspection found in October last year that the nuclear reactor's economic viability was grossly undervalued to support the early closure. The watchdog said it believed Paik had played a major role in causing the assessment to be mishandled.

http://www.koreaherald.com/view.php?ud=20210209000375&ACE_SEARCH=1

North Korea developed nuclear, missile programs in 2020: U.N. report

Michelle Nichols

Reuters, February 09, 2021

North Korea maintained and developed its nuclear and ballistic missile programs throughout 2020 in violation of international sanctions, helping fund them with some \$300 million stolen through cyber hacks, according to a confidential United Nations report seen by Reuters. The report by independent sanctions monitors said Pyongyang "produced fissile material, maintained nuclear facilities and upgraded its ballistic missile infrastructure" while continuing to seek material and technology for those programs from abroad. The annual report

to the Security Council's North Korea sanctions committee comes just weeks after U.S. President Joe Biden took office. North Korean leader Kim Jong Un and former U.S. President Donald Trump met three times in 2018 and 2019, but failed to make progress on U.S. calls for Pyongyang to give up its nuclear weapons and North Korea's demands for an end to sanctions. In the past year, North Korea displayed new short-range, medium-range, submarine-launched and intercontinental ballistic missile systems at military parades, the U.N. report said.

The U.N. report said an unnamed member state had assessed that, judging by the size of North Korea's missiles, "it is highly likely that a nuclear device" could be mounted on to long-range, medium-range and short-range ballistic missiles. "The Member State, however, stated it is uncertain whether the DPRK had developed ballistic missiles resistant to the heat generated during re-entry," into the atmosphere, the report said. North Korea's formal name is Democratic People's Republic of Korea (DPRK). While there were no nuclear or ballistic missile tests in 2020, Pyongyang "announced preparation for testing and production of new ballistic missile war heads and development of tactical nuclear weapons." North Korea's U.N. mission in New York did not immediately respond to a request for comment on the report.

<https://www.reuters.com/article/idUSKBN2A82G2>

UN experts: North Korea using cyber attacks to update nukes

Edith M. Lederer

AP News, February 10, 2021

North Korea has modernized its nuclear weapons and ballistic missiles by flaunting United Nations sanctions, using cyberattacks to help finance its programs and continuing to seek material and technology overseas for its arsenal including in Iran, U.N. experts said. The panel of experts monitoring sanctions on the Northeast Asian nation said in a report sent to Security Council members Monday that North Korea's "total theft of virtual assets from 2019 to November 2020 is valued at

approximately \$316.4 million," according to one unidentified country.

The panel said its investigations found that North Korean-linked cyber actors continued to conduct operations in 2020 against financial institutions and virtual currency exchange houses to generate money to support its weapons of mass destruction and ballistic missile programs. The experts previously reported on the continuous involvement in Iran of the Korea Mining Development Trading Corporation, North Korea's primary arms dealer and main exporter of goods and equipment related to ballistic missiles and conventional weapons that are under U.N. sanctions. In the new report, the experts quoted an unidentified country as saying North Korea and Iran "have resumed cooperation on long-range missile development projects ... said to have included the transfer of critical parts, with the most recent shipment associated with this relationship taking place in 2020."

<https://apnews.com/article/technology-global-trade-nuclear-weapons-north-korea-coronavirus-pandemic-19f536cac4a84780f54a3279ef707b33>

L. South Korea

S. Korea welcomes extension of New START treaty between US, Russia

Yonhap

Korea Herald, February 4, 2021

South Korea welcomes the extension of a key nuclear arms control treaty between the United States and Russia, the foreign ministry said Thursday, expressing expectations that it would contribute to global peace and stability. Washington and Moscow extended the New Strategic Arms Reduction Treaty, or New START, which was set to expire Friday, for five years, US Secretary of State Antony Blinken announced Wednesday. He said the extension makes "the US, allies and partners, and the world safer."

"Our government's assessment is that this agreement will contribute to the

strengthening of the international nonproliferation regime based on the Nuclear Non-Proliferation Treaty, and global peace and stability," the ministry said in a press release. "We also expect that based on this agreement, the countries will make progress in their discussions on crafting an arms control regime that befits the new international security environment," it added.

http://www.koreaherald.com/view.php?ud=20210204000434&ACE_SEARCH=1

S. Korean top nuke envoy holds phone talks with senior US diplomat on NK policy

Yonhap

Korea Herald, February 10, 2021

South Korea's top nuclear envoy, Noh Kyu-duk, and a senior US diplomat agreed to have close consultations on Washington's review of North Korea policy during their phone talks, the foreign ministry said. The talks between Noh and Sung Kim, acting assistant secretary of state for East Asian and Pacific affairs, came as Seoul seeks to ensure policy coordination with the administration of US President Joe Biden to reengage with Pyongyang. "In the phone call, the two sides exchanged views on how the two countries can cooperate to make progress in the efforts for the complete denuclearization and the establishment of a lasting peace on the Korean Peninsula," the ministry said in a press release. "They agreed to continue deep consultations at each level on matters, including the US' process of reviewing its policy toward North Korea," it added.

http://www.koreaherald.com/view.php?ud=20210210000828&ACE_SEARCH=1

Top nuke envoys of S. Korea, Japan hold phone talks on peninsula peace, denuclearization

Yonhap

Korea Herald, February 15, 2021

South Korea's chief nuclear envoy, Noh Kyu-duk, spoke by phone with his Japanese counterpart on Monday to discuss

cooperation for complete denuclearization and lasting peace on the Korean Peninsula, the foreign ministry said. The talks between Noh and Takehiro Funakoshi, director-general for Asian and Oceanian affairs at Tokyo's foreign ministry, came as Washington stresses the importance of trilateral cooperation with Seoul and Tokyo in addressing regional challenges, including the North Korean nuclear issue.

"The two sides exchanged views on ways for cooperation between South Korea and Japan, and among the South, the US and Japan, to achieve progress in efforts for complete denuclearization and the establishment of enduring peace on the peninsula," the ministry said in a press release. "The two sides agreed to continue close communication and cooperation regarding North Korea's nuclear and other issues going forward," it added. Seoul has recently been seen as trying to mend relations with Tokyo strained over wartime history and trade, amid expectations that the Tokyo Olympics, slated for this year, could create room for diplomatic reengagement with Pyongyang.

http://www.koreaherald.com/view.php?ud=20210215001104&ACE_SEARCH=1

M. Japan

Mayor OKs 2 aged reactors at Takahama nuke plant for restart

Tsunetaka Sato

The Asahi Shimbun, February 1, 2021

Mayor Yutaka Nose here on Feb. 1 became Japan's first local leader of an area hosting nuclear facilities more than 40 years old to back their reactivation, approving the restart of two Takahama nuclear plant reactors. Following the mayor's green light, the attention now shifts to whether Fukui Governor Tatsuji Sugimoto will embrace the restart of the reactors, which have exceeded their lifespans. The Takahama plant is operated by Kansai Electric Power Co., which is seeking to bring the two reactors back online in March or later.

After the 2011 Fukushima nuclear disaster, Japan introduced a new rule to limit the lifespan of reactors to 40 years after they went into service. But the rule also states that reactors can resume operations for up to 20 more years as an exceptional step if it is deemed that they are needed to prepare for a possible shortfall in power supply.

<http://www.asahi.com/ajw/articles/14153432>

Brother of hibakusha works for world free of nuclear weapons

Sonoko Miyazaki

The Asahi Shimbun, February 9, 2021

Yoshio Nagaoka never forgot the question his older brother once casually asked him: "What do you think it would be like if I had not been affected by the atomic bombing?" His elder brother had microcephaly since birth. Their mother, Chizuno, was pregnant and near ground zero when the blast occurred on Aug. 6, 1945. Today, Nagaoka, 71, touches on this story as he campaigns for the abolition of nuclear weapons. "If they had not been exposed to the radiation in their mother's wombs, they would have led completely different lives," said Nagaoka in his statement at a news conference here on Jan. 22 about those living with microcephaly caused by the atomic bombings.

Nagaoka, a resident of Hiroshima's Asa-Minami Ward, read out the statement as the head of the Kinoko Kai group of microcephaly patients and their families, demanding the Japanese government ratify the Treaty on the Prohibition of Nuclear Weapons (TPNW). Hibakusha have been condemning nuclear weapons for their inhumanity, such as damaging even tiny lives that have yet to be born to the world, causing more victims who will develop serious disabilities. As the TPNW went into effect to officially render nuclear weaponry illegal for the first time in history, hibakusha welcomed the move and renewed their determination to pressure Tokyo to support the pact.

<http://www.asahi.com/ajw/articles/14146022>

Mayor says OK to restart of No. 3 reactor at nuke plant in Mihama

The Asahi Shimbun, February 15, 2021

Mayor Hideki Toshima here on Feb. 15 approved the restart of a nuclear reactor that has passed its initial 40-year life span, passing the baton on to the prefectural assembly. The go-ahead is a key step to bring the No. 3 reactor at the Mihama nuclear plant, operated by Kansai Electric Power Co. (KEPCO), back online. Toshima met the chairman of the town assembly that day, which approved the restart on Dec. 18. The mayor told Chairman Yoshihiro Takenaka that he agrees with the assembly's decision.

Toshima urged KEPCO to consider contracting with local companies when construction work and operations of the plant are needed. He also urged the central government to implement local revitalization measures for the town. The restart will be discussed by the prefectural assembly, which is scheduled to convene from Feb. 16. All eyes will be on whether Fukui Governor Tatsuji Sugimoto will grant approval for the reactor, which went into service in 1976. Sugimoto has urged KEPCO to propose a site to house a temporary storage facility for spent nuclear fuel outside the prefecture as a condition for granting approval to bring the reactor back on stream.

<http://www.asahi.com/ajw/articles/14191609>

N. Misc

Brazil's Eletrobras says nuclear unit hit with cyberattack

Reuters, February 4, 2021

A nuclear power subsidiary of Brazil's Eletrobras suffered a cyberattack but no operations were impacted, the state-controlled power holding company said in a filing late on Wednesday.

The network that was attacked by ransomware is not related to the operational systems of nuclear energy plants Angra 1 and Angra 2, said Centrais Eletricas Brasileiras, as Eletrobras is

formally known. Subsidiary Eletronuclear has suspended use of some of its administrative software to protect its data, the company said in the filing. It said the incident is under investigation by government entities responsible for nuclear power security.

<https://www.reuters.com/article/us-eletronuclear-cyber-idUSKBN2A41JN>

A global nuclear phaseout or renaissance?

Deutsche Welle, February 4, 2021

There are currently 413 nuclear reactors in operation in 32 countries around the globe. According to the annual World Nuclear Industry Status Report (WNISR), nuclear power accounted for about 10% of global electricity demand in 2019, the highest share being 17.5% in 1996. Most reactors were built between 1968 and 1986, mainly in Europe, the United States, the former Soviet Union and Japan. The global average age of these reactors is 31 years.

<https://www.dw.com/en/germany-looking-for-final-repository-for-nuclear-waste-global-outlook/a-56449115>

Estonian firm aims to launch modular nuclear reactor in 2035

Tarmo Virki

Reuters, February 8, 2021

Small Estonian firm Fermi Energia said on Monday it was raising capital to start the official planning process for a new generation small modular reactor (SMR) which would be one of the first in Europe and the first nuclear plant in Estonia. The small EU member state of 1.3 million people has for decades generated most of its energy from burning oil shale.

“Estonia has set an ambitious goal to end electricity production from oil shale by 2035,” Fermi Chief Executive Kalev Kallems told Reuters. “The reactor would solve this challenge for Estonia and is relevant for the wider region.” Fermi aims to apply to the government to start the planning process in late 2021, with the

process – which includes environmental, societal, economic and national security reviews – expected to take up to five years.

<https://www.reuters.com/article/us-estonia-nuclearpower-idUSKBN2A80AM>

O. Op-ed

China

China’s Tianwen-1 to perform orbital maneuvers ahead of Mars landing

Xinhua, February 12, 2021

China’s Tianwen-1 probe will make several orbital maneuvers to prepare for its landing attempt on Mars, which is due to take place in the coming months, Chinese scientists said in a recent interview with Science and Technology Daily. Experts from the China Academy of Space Technology said that the craft, which entered orbit around Mars on Wednesday, will brake to adjust the orbital inclination of the flight at the apoareion, the highest point of the orbit around Mars. Tianwen-1 will then brake at the periareion, the point in the orbit that is closest to Mars, and adjust its orbital period to ensure that the spacecraft’s track passes the preset landing site.

When the Chinese probe reaches the periareion for the second time, it will brake again to perform an orbital maneuver and make sure the lander and rover of Tianwen-1 can complete the landing on Mars at the scheduled time and place. Finally, Tianwen-1 will decelerate again and take pictures of the landing area. It will select the optimal point in the orbit to make the lander-rover combination separate from the orbiter and enter the Martian atmosphere. China’s Tianwen-1 probe, including an orbiter, a lander and a rover, successfully entered the orbit around Mars on Wednesday after a nearly seven-month voyage from Earth. During the EarthMars transfer orbit, Tianwen-1’s flight was mostly unpowered. The probe was affected by the deviation of orbit entry and other factors. It had four orbital corrections to make it stay in the preset

orbit. It is expected to land on Mars in May or June. Chinese space engineers and scientists have chosen a relatively flat region in the southern part of the Utopia Planitia, a large plain, as the potential landing zone. A rover will be released after the landing to conduct scientific exploration.

http://www.xinhuanet.com/english/2021-02/12/c_139739416.htm

USA

Suspending U.S.-ROK Military Exercises Will Not Facilitate Peace Negotiations

Matthew Ha

National Interest Blog, February 4, 2021

In his new year's press conference on January 27, Suh Wook, the Republic of Korea's (ROK) defense minister, provided an ambiguous statement on plans for the combined ROK-U.S. military exercises scheduled for this spring. While he stated the exercises will continue as planned, Minister Suh also hinted that Seoul could reconsider the effort because the "joint military drills are negotiable with North Korea." His equivocal remarks warrant concern, because a suspension of the exercises would continue undermining the U.S. and ROK's combined military readiness. Moreover, suspending the exercises would feed directly into the North Korean regime's political warfare strategy of extorting political, economic, and security concessions from its adversaries while giving up nothing in return.

On the day after the press conference, 387 South Korean and foreign civic organizations collectively urged the administration of ROK President Moon Jae-in to suspend the scheduled exercises, arguing that such a move "will be a crucial step toward restarting genuine diplomacy with North Korea." South Korea's unification minister, Lee In-young, expressed similar hopes for a "flexible" approach to the military exercises that aims to move the "peace process forward through dialogue and cooperation."

<https://nationalinterest.org/blog/korea-watch/>

suspending-us-rok-military-exercises-will-not-facilitate-peace-negotiations-177611

How the United States Lost to Hackers America's biggest vulnerability in cyberwarfare is hubris.

Nicole Perlroth

The New York Times, February 6, 2021

If ever there was a sign the United States was losing control of information warfare, of its own warriors, it was the moment one of its own, a young American contractor, saw first lady Michelle Obama's emails pop up on his screen.

For months, David Evenden, a former National Security Agency analyst, questioned what he was doing in Abu Dhabi. He, like two dozen other N.S.A. analysts and contractors, had been lured to the United Arab Emirates by a boutique Beltway contractor with offers to double, even quadruple, their salaries and promises of a tax-free lifestyle in the Gulf's luxury playground. The work would be the same as it had been at the agency, they were told, just on behalf of a close ally. It was all a natural extension of America's War on Terror.

<https://www.nytimes.com/2021/02/06/technology/cyber-hackers-usa.html?login=smartlock&auth=login-smartlock>

Is Russia Going All in on Hypersonic Weapons?

Peter Suci

National Interest Blog, February 10, 2021

Even as the United States has put an increased emphasis on the development of hypersonic weapons, the Russian military has made great leaps forward and this week suggested the platform could be the backbone of Russia's conventional deterrence forces. "The potential of non-nuclear deterrence forces, primarily, precision weapons, is being strengthened. Hypersonic systems of various basing will comprise their backbone," Russian Defense

Minister Army General Sergei Shoigu said at an annual operational and mobilization gather of commanders on Tuesday as reported by Tass.

The development of hypersonic weapons is one area where Moscow has been seen to have a significant—and potentially serious—head start over the United States. Russia has been conducting tests of its new class of Tsirkon/Zircon missiles, and it highlights the potential high speeds of the missiles, which could reach upwards of Mach 8. That would give targets little time to react.

<https://nationalinterest.org/blog/buzz/russia-going-all-hypersonic-weapons-177965>

Biden's Top Challenge Abroad Is Something No One Wants to Talk About

Steven Erlanger

The New York Times, February 10, 2021

When Joseph R. Biden Jr. left office as vice president four years ago, anxiety about nuclear weapons was low, save for North Korea. But after four years of Donald J. Trump, President Biden has returned to a world filled with nuclear dangers. There is little arms control; modern technologies are unrestrained; and the players are more numerous and rapidly building up nuclear stockpiles. As important, Mr. Trump's transactional, spasmodic, "America First" policies undermined allies' confidence in American security guarantees.

Many experts are now warning that Mr. Biden must once again make arms control a priority, even if the notion seems as dated as the wide-labeled suits of the 1970s and '80s, when complex treaties about "throw weights" and "multiple re-entry vehicles" dominated Cold War diplomacy. Not to do so, they say, risks the acceleration of a nuclear arms race, with new threats to American allies in the Middle East, Europe and Asia.

<https://www.nytimes.com/2021/02/10/world/europe/biden-nuclear-weapons-arms-control.html>

To Get Tehran Right, Joe Biden and

Congress Must Reset U.S. Iran Policy

Norman T. Roule

National Interest Blog, February 11, 2021

President Joe Biden's inaugural speech offered an eloquent vision of his intent to build unity within the United States while preserving the principles that form the foundation of American leadership in a multipolar world. The Iran problem will likely be his first foreign policy opportunity to demonstrate the principles that enable us to "lead not merely by the example of our power but by the power of our example." An Iran policy that is based on bipartisanship, respect for the legitimate security concerns of regional countries, and on an open discussion of Intelligence Community assessments will provide the example of leadership our partners and adversaries will respect.

Tehran has already begun to do what it can to draw international focus. It continues to expand its nuclear enrichment program and announced that it would not reverse these efforts until the United States first lifts sanctions. Even then, Tehran insists that it will consider neither additional nuclear concessions nor concessions on other issues in order to return to the 2015 Joint Comprehensive Plan of Action (JCPOA). Iran's military also conducted a series of military exercises meant to showcase its ability to block the Strait of Hormuz. It also seized a South Korean tanker to pressure Seoul to release billions of oil revenues locked by sanctions in South Korean banks.

<https://nationalinterest.org/blog/buzz/get-tehran-right-joe-biden-and-congress-must-reset-us-iran-policy-177999>

Europe

Why France Has a Much Better India Strategy Than America

Salvatore Babones

Foreign Policy, February 1, 2021

France's official Indo-Pacific strategy document emphasizes the country's role

as a “mediating, inclusive and stabilizing power” in the region, and French President Emmanuel Macron speaks rousingly of answering the call of history to fulfill France’s Indo-Pacific “destiny.” Echoes of the colonial era aside, France has 8,000 troops in the region and a highly capable nuclear-powered aircraft carrier to back them up. That gives France a lot more skin in the game than, for example, its European partner and rival Germany, which instead of a true regional strategy makes do with a limp endorsement of Indo-Pacific multilateralism. Behind the martial rhetoric, the reality of France’s military commitment to the Indo-Pacific is, above all, commercial: sales of advanced nuclear-capable Rafale fighters to India, conventional attack submarines to India and Australia, and naval missile system upgrades to Taiwan. France is also developing an Indo-Pacific footprint focused on India in big-ticket infrastructure projects and investments where state-to-state cooperation is indispensable, such as natural gas, solar energy, nuclear power, space exploration, and high-speed rail. The key to clinching all of these deals has been joint production leading to long-term technology transfer.

India is now a rapidly developing country of nearly 1.4 billion people—and France is freely partnering with Indian companies in joint ventures, including those targeting technology transfer in such sensitive areas as defense procurement and nuclear power. Helping India climb up the development ladder is a precondition for these deals, which have received special attention as part of Indian Prime Minister Narendra Modi’s signature industrial upgrading initiative, Make in India. In exchange for foreign investment in the country’s long-term development, Modi is promising a “new mindset” in which the government will act as a facilitator, not a heavy-handed regulator as in the past. By contrast, many of the problems faced by foreign companies in China stem from their use of China as a manufacturing base for their own home markets, meaning that they often put their most advanced technologies at risk. The relatively short product development cycles

for electronic components and auto parts, for example, mean that last-generation products manufactured in China are only a few years—or months—out of date. Chinese companies that copy or steal foreign technologies might not be able to out-innovate the market leaders, but they can undercut them with cheap prices on almost-current products.

<https://foreignpolicy.com/2021/02/01/france-india-better-strategy-than-america/>

Russia

Russia To Conclude Tsirkon Hypersonic Missile Tests This Year

Peter Suci

National Interest Blog, February 8, 2021

In the final months of 2020, Russia tested its 3M22 Tsirkon anti-ship hypersonic cruise missile multiple times, including a mid-December test in the White Sea. Now it seems that the state trials for the missile platform—also known as the Zircon—could be concluded this year. Russia’s Deputy Minister of Defense Alexey Krivoruchko announced last Friday that the 3M22 Tsirkon, which was fired from the Northern Fleet Project 22350 frigate Admiral of the Soviet Fleet Gorshkov during the design trials, achieved a speed in excess of Mach 8. That has been seen as a significant milestone reached during the recent trials in December and a significant step up from the first batch of tests held a month earlier.

The Tsirkon reportedly is capable of reaching a speed of around Mach 9, and could have a strike range capability that exceeds 1,000 km. It was designed to have a dual-purpose capability that is able to strike both naval and ground targets. In late December, it was also reported that the Russian Navy would soon arm its attack submarines with the 3M22 missiles.

<https://nationalinterest.org/blog/buzz/russia-conclude-tsirkon-hypersonic-missile-tests-year-177761>

East Asia

Regis Savioz: Nuclear weapons are now illegal, a victory for all

Asahi Shimbun, February 2, 2021

Several visits to Hiroshima and Nagasaki and exchanges I had with hibakusha will remain as one of the most remarkable moments since I was appointed head of the International Committee of the Red Cross (ICRC) delegation in Japan in 2019. These visits also reminded me of Dr. Marcel Junod, a doctor for the ICRC, who witnessed firsthand, a little bit more than 75 years ago, the city of Hiroshima having been “swept away by a supernatural power,” as he wrote while delivering assistance alongside the Japanese Red Cross Society. The doctor quickly concluded that nuclear weapons must be banned outright. “Only a unified world policy can save the world from destruction,” he wrote. By 1950, an estimated 340,000 people had died from the effects of those two bombs.

For more than 75 years, almost half of the ICRC’s 158 years of existence, we have been advocating alongside hibakusha for the elimination of nuclear weapons for the simple reasons that we do not believe they can be used without inflicting massive death and suffering among civilians, and it would be impossible to respond to the humanitarian consequences they would cause. That is why Jan. 22, which marks the entry into force of the Treaty on the Prohibition of Nuclear Weapons (TPNW), is such a historic day for us and more importantly for hibakusha, who fought throughout these years to make sure that no human beings would have to go through this horrific experience again. “We believe that humanity and nuclear weapons cannot coexist. And the only way to have security and peace is through the total abolition of nuclear weapons,” said Setsuko Thurlow, a survivor of the atomic bombing who was 13 when her home city of Hiroshima was bombed. “You cannot imagine how overjoyed we are and what sense of accomplishment we have. We just feel so euphoric about this achievement” she added, as the TPNW has finally become a reality. We can only understand how proud

and happy all survivors of the atomic bombings are today as they did not seek revenge from what happened but only stood up to make sure that there would never be a Hiroshima and Nagasaki again.

<http://www.asahi.com/ajw/articles/14137118>

P. Interview/Reports

Including missiles in nuclear deal will stymie chances of fruitful negotiation: professor

Tehran Times, February 5, 2021

Nader Entessar, professor emeritus of political science from the University of South Alabama, is of the opinion that any efforts to include Iran’s defensive missile capabilities in the nuclear deal will hinder any “chances of a fruitful negotiation”. “Attempts to include Iran’s missile program in any future nuclear deal and in the absence of a comprehensive regional security structure and the current threat system to Iran’s national security will stymie chances of a fruitful negotiation,” Entessar tells the Tehran Times. Last week, U.S. Secretary of State Antony Blinken said the Biden administration will return to its commitments to the 2015 nuclear deal only after Tehran first returns to full compliance. Also, so far Germany and France, two members of European trio [E3], who are party to the nuclear deal, have proposed including Iran’s missile program to the nuclear deal. But Entessar argues that “the E3 is simply throwing darts in the dark or simply hoping that Iran will ultimately succumb to their threats.” The other member of the E3 is Britain. “Some Europeans have an inflated opinion of themselves when it comes to their foreign policy weight,” Entessar adds.

The following is the text of the interview:

Q: When it comes to reviving the 2015 nuclear deal, U.S. Secretary of State Antony Blinken asks Iran to take the first step to revitalize the nuclear deal (JCPOA) and emphasizes that “any U.S. return may take a while”. Is such a demand reasonable while it was the U.S. that

pulled out of the deal in 2018 and imposed sweeping sanctions on Iran?

A: On the face of it, Iran's demand that the United States must return to the JCPOA and implement its obligation under the nuclear agreement is a reasonable one. But political realities in Washington may make it very difficult for the Biden administration to return to the agreement in its original form. From the very beginning, the JCPOA at best had lukewarm support among U.S. policymakers. Even the majority of the Democrats in Congress were against the deal. This may very well be the case today too.

President Obama's political sleight of hand convinced enough Democrats, albeit grudgingly, not to completely scuttle the deal. Senator Chuck Schumer and Senator Robert Menendez, the current Senate Majority Leader and the current Chairman of the Senate Foreign Relations Committee, respectively, were among the prominent Democrats who objected to the JCPOA. I assume they still are not in favor of the deal. In addition, with few exceptions, the "think tank" cottage industry in the United States has been working hard campaigning against President Biden's unconditional return to the agreement President Obama had signed. In short, Iran's demand that the party that ditched the nuclear deal unilaterally must demonstrate its good faith and commitments first is logical and reasonable. But given the current constellation of political forces in the United States, it is politically near impossible for President Biden to return to the JCPOA without extracting more concessions from Iran. Even then, the opposition to the JCPOA in its current form will not dissipate. That is why Secretary Tony Blinken recently emphasized the fact that any U.S. return to the nuclear deal "may take a while."

Q: Some observers say that Biden's advisory team is a "fake carrot" to deceive Iran. Do you believe that Biden is going to make a serious change in America's attitude towards Iran?

A: Biden did not structure his foreign policy team as either a "fake carrot" or a "real carrot" to Iran. Members of the Biden team were selected on the basis of their ability to

implement American foreign policy goals. Furthermore, for the past four decades, American foreign policy towards Iran has developed certain principal pillars that will not change under President Biden. Therefore, realism behooves us not to have an unrealistic expectation about "serious changes" in America's attitude or policies towards the Islamic Republic.

Q: Some European parties to the JCPOA want to include Iran's missile program in the nuclear deal, while Iran has repeatedly said that it will never negotiate over its defensive capabilities. What is your comment?

A: Attempts to include Iran's missile program in any future nuclear deal and in the absence of a comprehensive regional security structure and the current threat system to Iran's national security will stymie chances of a fruitful negotiation. The E3 is simply throwing darts in the dark or simply hoping that Iran will ultimately succumb to their threats. Perhaps some Europeans have an inflated opinion of themselves when it comes to their foreign policy weight.

<https://www.tehrantimes.com/news/457756/Including-missiles-in-nuclear-deal-will-stymie-chances-of-fruitful>

Q. Think Tanks

Apocalypse Now: It's Time to Watch the Doomsday Clock

Stewart M. Patrick

Council on Foreign Relations, February 1, 2021

Last Wednesday, the Bulletin of the Atomic Scientists, which celebrated its 75th anniversary in December, unveiled the latest installment of its famous "Doomsday Clock," which purports to measure how close the world is catastrophe. When it first appeared in 1947, at the dawn of the nuclear age, its hands were set at 7 minutes to midnight. In the intervening years, it's moved both closer to and farther from that witching hour. The most comforting installment appeared in 1991, amid the sudden end

of the Cold War, when the Clock was reset to a sanguine 17 minutes to midnight.

That optimism has long since receded, replaced by pervasive foreboding. Last year, the Bulletin's scientists moved the Clock's hands to just 100 seconds to midnight, the closest ever to apocalypse. Last week, they left it unchanged, signaling their continued alarm. In making their call, the scientists cited the dangerous confluence of a fraying nuclear order, accelerating climate change and a raging pandemic.

<https://www.cfr.org/blog/apocalypse-now-its-time-watch-doomsday-clock>

The real value of the nuclear ban treaty

Carl Robichaud and Karim Kamel

Bulletin of Atomic Scientists, February 4, 2021

Last month, 75 years after nuclear weapons were first used, a treaty came into force that bans them. The Treaty on the Prohibition of Nuclear Weapons (TPNW), also known as the ban treaty, is the culmination of a decade of work by civil society leaders and diplomats who, frustrated by stagnation in traditional venues, focused the lens of international humanitarian law on nuclear weapons. This approach, dismissed at first, resonated with many states that understood nuclear weapons to be inherently indiscriminatory and inhumane.

The new treaty outlaws the use or threat of use of nuclear weapons, prohibits their development and possession, bans their transfer or receipt, and prohibits stationing, deploying, or assisting with nuclear arms. But does any of this matter? The treaty lacks verification and enforcement mechanisms. No state with nuclear weapons will join anytime soon. The nine nuclear-armed states and their allies boycotted the negotiations and pressured other states to abandon the treaty. Each has nuclear modernization programs that will stretch for decades.

<https://thebulletin.org/2021/02/the-real-value-of-the-nuclear-ban-treaty/>

Why is America getting a new \$100 billion nuclear weapon?

Elisabeth Eaves

Bulletin of Atomic Scientists, February 8, 2021

America is building a new weapon of mass destruction, a nuclear missile the length of a bowling lane. It will be able to travel some 6,000 miles, carrying a warhead more than 20 times more powerful than the atomic bomb dropped on Hiroshima. It will be able to kill hundreds of thousands of people in a single shot.

To put that price tag in perspective, \$100 billion could pay 1.24 million elementary school teacher salaries for a year, provide 2.84 million four-year university scholarships, or cover 3.3 million hospital stays for covid-19 patients. It's enough to build a massive mechanical wall to protect New York City from sea level rise. It's enough to get to Mars.

<https://thebulletin.org/2021/02/why-is-america-getting-a-new-100-billion-nuclear-weapon/>

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Indian Pugwash Society welcomes research articles from students, researchers and faculties on Space, Missile, nuclear technology, WMD proliferation, arms control, disarmament, export controls and other related issues. Articles should be crisply written and should address contemporary debates in the policy arena. Manuscripts submitted for the consideration of the Indian Pugwash Society should be original contributions and should not have been submitted for consideration anywhere else. For further assistance, please contact us at : indianpugwashsociety@gmail.com

The Indian Pugwash Society aims to promote the study, discussion, and knowledge of and to stimulate general interest in, and to diffuse knowledge in regards to problems relating on WMD proliferation, arms control, disarmament, space security, export controls, nuclear technology and other related issues. This newsletter is part of the project "Emerging Nuclear Order in Asia: Implications for India" sanctioned to us by Department of Atomic Energy-Board of Research in Nuclear Sciences (DAE-BRNS).

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