



Nuclear, Missile & Space Digest

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China

China urges U.S. to lift all illegal sanctions against Iran as nuclear talks res

Xinhua, April 07, 2021

A Chinese envoy on Tuesday urged the United States to lift all illegal sanctions against Iran and its "long-arm jurisdiction" against third-party entities and individuals, including those from China, as the Iran nuclear deal talks resumed in Vienna. Senior diplomats from China, France, Germany, Russia, Britain and Iran met behind closed doors in the Grand Hotel Wien. On top of the agenda are lifting sanctions on Iran and nuclear implementation measures. The meeting of the Joint Commission of the Joint Comprehensive Plan of Action (JCPOA), known as the Iran nuclear deal, has drawn public attention as representatives from the United States are in Vienna to save the deal. The U.S. should lift all illegal sanctions against Tehran, and the Iranian side should resume full compliance with the 2015 nuclear deal on that basis, said Wang Qun, Chinese envoy to the United Nations and other international organizations in Vienna, after the meeting.

Wang said that the U.S. withdrawal from the deal and its maximum pressure against Iran is the root cause of the current situation. Therefore, the early return of the U.S. to the accord is the key to cracking the problem. "The justified request of the injured party, rather than the offending party, should be confirmed and satisfied first. This is a basic right-or-wrong question. The U.S. should lift all sanctions against Tehran and on this basis, Iran can resume full compliance to the nuclear deal," Wang said in a statement. He stressed that China firmly opposes any illegal unilateral sanctions imposed by the U.S. and will safeguard its legitimate rights and interests. Wang added that China supports the Joint Commission's efforts in setting up two expert-level groups, one on sanctions-lifting and nuclear issues, and the other on "close contact" with the U.S. He said China hopes the two groups can make progress as soon as possible.

China continues to unswervingly uphold the JCPOA, and hopes that all parties can enhance their sense of urgency, seize the current opportunities, and push the JCPOA back on track through fair and reasonable negotiations, Wang noted. He pledged that China will work with all parties to continue advancing the political settlement of the Iran nuclear issue, and strive to restore the full implementation of the 2015 accord as early as possible.

http://www.xinhuanet.com/english/2021-04/07/c_139863180.htm

China's Chang'e-4 probe resumes work for 29th lunar day

Xinhua, April 07, 2021

The lander and rover of the Chang'e-4 probe have resumed work for a 29th lunar day on the far side of the moon. The lander woke up at 9:43 p.m. Tuesday (Beijing Time), and the rover, Yutu-2 (Jade Rabbit-2), awoke at 3:54 a.m. Tuesday, according to the Lunar Exploration and Space Program Center of the China National Space Administration. The Chang'e-4 probe, switching to dormant mode during the lunar night due to the lack of solar power, has survived about 825 Earth days on the moon. A lunar day is equal to 14 days on Earth, and a lunar night is the same length.

Located in the northwest of Chang'e-4's landing site, the rover has traveled about 682.8 meters. The linear distance between the rover and the landing site is about 455 meters. During its 29th lunar day, the rover will continue to move northwest toward the basalt distribution area located about 1.2 km away from the rover. The equipment aboard the rover, including a panoramic camera, an infrared imaging spectrometer, a neutral atom

detector and a lunar radar, will continue to carry out scientific explorations.

http://www.xinhuanet.com/english/2021-04/07/c_139864638.htm

China takes global lead in rolling out nuclear power generators

Global Times, April 14, 2021

China has taken the global lead in nuclear energy construction capacity, as the installed capacity of nuclear power generating units under construction remained the world's largest in the past few years with 17 units currently under construction, according to the Blue Book of Nuclear Energy 2021 released by China Nuclear Energy Association. A total of 17 nuclear power generating units are under construction with a total capacity of 18.53 million kilowatts, CNEA Secretary General Zhang Tingke said in an interview with CCTV on Wednesday, adding that all nuclear power projects under construction are making steady progress, and China has fully mastered the core technology of manufacturing advanced nuclear power equipment. In 2020, China's nuclear power generation capacity reached 366.24 billion kWh, which ranked the second highest in the world with a year-on-year increase of 5.02 percent, Zhang added.

<https://www.globaltimes.cn/page/202104/1221064.shtml>

3rd-party supervision of radioactive water dumping urged; if only Hualong One safety measure were adopted by Fukushima: industry insiders

Liu Caiyu and Ni Hao

Global Times, April 14, 2021

Chinese nuclear power industry insiders on Wednesday urged third-party supervision to ensure every drop of radioactive water that Japan's Fukushima dumps into the ocean conforms to standards, given the previous infamous record of the Japanese nuclear power operator in handling the nuclear accident and the density of the radioactive substances in the wastewater. Chinese insiders made such an appeal at the ongoing China Nuclear Energy Sustainable Development Forum held in Beijing on Wednesday, a day after Japan's decision to dump the wastewater containing radioactive substances into the ocean.

It is normal in nuclear activities to generate wastewater and to depose them after treatment under universal standards, but dumping radioactive wastewater from the Fukushima nuclear power plant which recorded the highest-level nuclear accident is completely different from releasing wastewater from normally operated power plants, Chinese insiders said.

<https://www.globaltimes.cn/page/202104/1221097.shtml>

Pakistan

Conference on Disarmament must overcome stagnation, webinar told

Dawn, April 7, 2021

A senior Pakistani official has expressed concern over the international security environment and asked the Conference on Disarmament, the multilateral negotiating forum on disarmament, to come out of its "stagnation". Director General at the Ministry of Foreign Affairs' Arms Control and Disarmament

Division Kamran Akhtar, while speaking at a webinar hosted by Strategic Vision Institute (SVI) on 'NPT and Promise of Disarmament', said: "We are having an international security environment that has seen erosion of exiting treaty framework." Mr Akhtar said that nuclear weapon states were modernising their arsenals and adopting newer and emerging technologies that were undermining strategic stability and increasing reliance of states, which had been left behind in technology, on nuclear weapons.

"There are nuclear doctrines of nuclear weapon states, which talk about possible nuclear responses to cyber attacks," he noted, adding that all of this was adding to an uncertain international security mix. He believed that the environment at the international level was not very conducive for disarmament because of aversion of countries possessing technology to regulation for fear of losing the advantage they currently enjoy. Mr Akhtar, therefore, asked the Conference on Disarmament to "come out of its stagnation" and take a "comprehensive view of international security environment". He suggested that CoD could do this by taking up space capabilities of nuclear weapon states, considering regulation of emerging technologies and conventional arms control in the debate on disarmament.

<https://www.dawn.com/news/1616852/conference-on-disarmament-must-overcome-stagnation-webinar-told>

India, Pakistan may stumble into large-scale war, warns US intel report

Anwar Iqbal

Dawn, April 09, 2021

The report warns policymakers in Washington that "a full-scale war could inflict damage that would have economic and political consequences for years." — White Star/File

India and Pakistan may stumble into a large-scale war neither side wants, warns a US intelligence report while exploring the possibilities of miscalculations leading to a war in South Asia. The assessment is included in a Global Trends report produced every four years by the US government's National Intelligence Council, released in Washington. The report, released on Wednesday, focuses on both immediate and distant futures and is designed to help policymakers anticipate the forces likely to shape the world in the next five to 20 years. "India and Pakistan may stumble into a large-scale war neither side wants, especially following a terrorist attack that the Indian government judges to be significant," the report warns.

<https://www.dawn.com/news/1617288>

USA

US scientists introduce new fusion reactor concept

World Nuclear News, April 01, 2021

The CAT concept is described in an article published on 19 March in the journal Nuclear Fusion, and was developed from first-of-a-kind reactor simulations. The physics-based approach combines theory developed at the General Atomics (GA)-operated DIII-D facility with computing by Oak Ridge National Laboratory scientists using the Cori supercomputer at the National Energy Research Scientific Computing Center, and is based on development and testing of the underlying physics concepts on DIII-D.

"The key to our approach is to raise the pressure inside the tokamak," the project's lead, Richard Buttery, said. "This makes more fusion occur, allowing us to reduce the current, which in turn makes

the plasma easier to sustain and more stable. Our simulations show that by carefully shaping the plasma and moving the current toward its edge, we can suppress turbulent heat losses and support higher pressures at lower currents, to reach a state where the plasma sustains itself. This enables a device that can simply be turned on, generating electricity continuously in a steady state." Two US bodies - the DOE Fusion Energy Sciences Advisory Committee (FESAC) and the National Academy of Sciences, Engineering and Medicine (NASEM) - have recently released reports calling for action to develop fusion energy in the USA. FESAC's report sets out a decade-long strategic plan to accelerate the development of fusion energy and advance plasma science, while NASEM's report calls for urgent investment by the government and private sector to enable a pilot fusion plant to be operational in the 2035-2040 timeframe.

<https://www.world-nuclear-news.org/Articles/US-scientists-introduce-new-fusion-reactor-concept>

US President includes nuclear in American Jobs Plan

World Nuclear News, April 01, 2021

Speaking at a carpenters' union training centre in Pittsburgh, Pennsylvania, Biden said: "Today, I'm proposing a plan for the nation that rewards work, not just rewards wealth. It builds a fair economy that gives everybody a chance to succeed, and it's going to create the strongest, most resilient, innovative economy in the world. It's not a plan that tinkers around the edges. It's a once-in-a-generation investment in America, unlike anything we've seen or done since we built the Interstate Highway System and the Space Race decades ago." Biden's American Jobs Plan anticipates investing about 1% of GDP annually over eight years to upgrade the USA's infrastructure, revitalise manufacturing, invest in basic research and science, shore up supply chains, and solidify the country's care infrastructure. In total, the plan will invest about USD2 trillion this decade.

In his plan, Biden calls on Congress to invest USD100 billion to build a more resilient electricity transmission system and to spur jobs modernising power generation and delivering clean electricity. He proposes a 10-year extension and phase down of an expanded direct-pay investment tax credit and production tax credit for clean energy generation and storage. The plan also aims to mobilise private investment to modernise the power sector. An Energy Efficiency and Clean Electricity Standard will also be established to cut electricity bills and electricity pollution, increasing competition in the market, incentivising more efficient use of existing infrastructure, and continuing to leverage the carbon pollution-free energy provided by existing sources "like nuclear and hydropower".

The Nuclear Innovation Alliance (NIA) welcomed Biden's announcement of the American Jobs Plan. NIA's Executive Director Judi Greenwald said: "Among broader energy sector investments, the plan would support the development and demonstration of advanced nuclear energy, a clean energy technology critical not only for meeting mid-century climate goals but for ensuring a more resilient energy infrastructure in the decades to come." She added, "The technology-inclusive American Jobs Plan specifically incorporates advanced nuclear energy as eligible for funding for demonstration projects, building on ongoing activities by the Department of Energy and industry to demonstrate the commercial viability of next generation nuclear power." In a joint statement, American Nuclear Society President Mary Lou Dunzik-Gougar and CEO Craig Piercy said, "The nuclear energy industry supports high-paying jobs that last decades and a growing world market for small modular and advanced reactor designs promise job growth for communities across the US."

<https://www.world-nuclear-news.org/Articles/Nuclear-investments-included-in-Bidens-American-Jo>

Partnership formed for advanced reactor deployment in Washington State

World Nuclear News, April 06, 2021

A Memorandum of Understanding has been signed by Energy Northwest, Grant County Public Utility District and X-energy to form a partnership to support the development and commercial demonstration of the USA's first advanced nuclear reactor. The TRi Energy Partnership aims to construct a plant based on X-energy's Xe-100 reactor design at Energy Northwest's existing Columbia site in Washington.

Through the MoU, the partners will collaborate and share resources to evaluate their mutual goal of siting, building and operating a Xe-100 advanced nuclear power plant with the potential to generate up to 320 MWe. Through the TRi Energy Partnership, the parties will evaluate each step of the project and identify the best approach to licensing, permitting, construction, operation and ownership. The Xe-100 is an 80 MWe (scalable to a 320 MWe four-pack) high-temperature gas cooled reactor which uses TRISO (tristructural isotropic) particle fuel. It can integrate into large, regional electricity systems as a base and load-following source of carbon-free power, and can optimise grid use of low-emission, intermittent renewables and other clean energy resources, X-energy says. It can also provide a source of industrial process heat. Washington has mandated 100% carbon-free electricity by 2045. According to the partners, the TRi Energy Partnership will provide invaluable carbon-free electricity to the grid, create new jobs and economic growth, establish the foundation for new renewable energy projects, and help achieve our climate goals with affordable, reliable clean energy.

<https://www.world-nuclear-news.org/Articles/Partnership-formed-for-advanced-reactor-deployment>

Framatome signs multimillion-dollar contract to support long-term operation of the Dominion Energy nuclear fleet

Press Release Framatome, April 6, 2021

Framatome recently signed a multimillion-dollar contract with Dominion Energy to support the long-term operation of the company's nuclear fleet. This contract covers nuclear plant outage and maintenance work, including fleet steam generator services, refuel services, and inspections through 2026. "Dominion is one of our long-standing and valued customers. We are proud to offer them our team's strong expertise and excellence in inspection and maintenance, to support the long-term operation of their reactor fleet," said Catherine Cornand, senior executive vice president of the Installed Base Business Unit at Framatome. "We are committed to support our customers in delivering safe, reliable, low-carbon electricity to residents and businesses in the U.S. and around the world." To support its work with Dominion, Framatome will mobilize more than 1,100 of its Virginia-based employees over the next five years and will leverage its expanded portfolio of equipment and tooling for steam generator services. Additionally, the company will provide refuel services for the V.C. Summer Power Station and extend its existing contracts for refuel services at the Millstone, North Anna, and Surry power stations through 2024. Framatome will also provide MRP-227 examinations and 10-year in-service inspections at Surry and V.C. Summer through 2023.

Framatome's expert teams provided steam generator services, refuel services, MRP-227 examinations, 10-year in-service inspections, maintenance services, component repair services, and component replacements at 39 U.S. nuclear plants in 2020. In 2021, Framatome's U.S. teams will deploy to 40 nuclear plant outages. Headquartered in Virginia, the Dominion Energy operating fleet includes two units at North Anna and two units at Surry in Virginia, two units at Millstone in Connecticut, and one unit at V.C. Summer in South Carolina. Collectively, these four power stations provide enough carbon-free electricity to power more than 3 million homes.

<https://www.framatome.com/medias/framatome-signs-multimillion-dollar-contract-to-support-long-term-operation-of-the-dominion-energy-nuclear-fleet/?lang=en>

DARPA awards nuclear spacecraft contracts to Lockheed Martin, Bezos' Blue Origin and General Atomics

CNBC, April 12, 2021

The Pentagon's DARPA awarded contracts to General Atomics, Lockheed Martin and Jeff Bezos' space venture Blue Origin under the agency's DRACO (Demonstration Rocket for Agile Cislunar Operations) program. DARPA says a nuclear-powered spacecraft has the potential to achieve both the high power of a chemical-based propulsion system and the high efficiency of an electrical-powered system. "This combination would give a DRACO spacecraft greater agility to implement the Department of Defense's core tenet of rapid maneuver in cislunar space (between the Earth and moon)," DARPA said. The Pentagon's research and development arm on Monday awarded a trio of companies with contracts to build and demonstrate a nuclear-based propulsion system on a spacecraft in orbit by 2025. The contracts awarded to the companies are for the first 18-month phase of the program, with two tracks.

<https://www.cnbc.com/2021/04/12/darpa-nuclear-spacecraft-lockheed-bezos-blue-origin-general-atomics.html>

USA preparing to lead advanced nuclear fuel supply, says Korsnick

World Nuclear News, April 13, 2021

There is bipartisan support in the USA for the country to be the world's leading supplier of fuel for advanced reactors, Maria Korsnick, president and CEO of the Nuclear Energy Institute (NEI), said today during the World Nuclear Fuel Cycle forum, which the NEI is co-hosting this week with World Nuclear Association. Noting that, last year, nuclear became the USA's second biggest source of electricity, surpassing coal for the first time ever, and that the US nuclear fleet produced more carbon-free electricity than all of the forms of renewable energy combined, Korsnick said nuclear is increasingly being recognised by lawmakers as a carbon-free and scalable source of electricity. The future of nuclear includes advanced reactor technologies, which "also causes us to have a look at US leadership more broadly", she said. "With advanced reactors you have to say, what fuel are they going to run on? Many of these advanced reactors are going to require high assay and low-enriched uranium (HALEU). The US government has recognised the timing challenge for commercial entities to build out HALEU capacity without yet a clear market signal and so it's taking concrete steps for the US to lead in this area," she said.

Last year Congress passed legislation that instructed the US Department of Energy (DOE) to establish a HALEU programme, and by this time next year, Centrus will be producing HALEU in their pilot facility, she said. "So, we really see the DOE providing a function as a market pool to try to get things started here in the United States to drive commercial entities here, whether that's Centrus or Urenco or Global Laser Enrichment, to give those signals to build out that HALEU capacity." Those actions, along with Congress passing support for the US uranium reserve, are "really reinvigorating" the entire US fuel supply chain and could allow the country to be a leading global supplier of advanced fuels, she said.

<https://www.world-nuclear-news.org/Articles/USA-preparing-to-lead-advanced-nuclear-fuel-supply>

US conversion plant gears up for next 40 years

World Nuclear News, April 14, 2021

The business case behind the decision to restart the USA's only domestic uranium conversion facility announced earlier this year rested on suitable answers to several "puzzle piece" questions falling into place, ConverDyn's Malcolm Critchley told the World Nuclear Fuel Cycle forum yesterday. Price had not been the only reason behind Honeywell's November 2017 decision to place its Metropolis Works (MTW) plant, which is in Illinois, on "idle standby", Critchley said. An "alarming" picture of the nature of conversion supply was at that time beginning to emerge, with a significant overhang of secondary supplies making a temporary shutdown the best option.

The outcome of the NFWG - given large US government inventories of uranium tails and high-enriched uranium - could have been a significant barrier to restarting the plant, he said. Indications over the last year or so from Congress have changed significantly, with "genuine" cross-party support for the nuclear supply chain which seems to have survived the change in the US administration and the recognition of uranium as a critical mineral. The decision to set up a US domestic uranium reserve and support for high-assay low-enriched uranium programmes to support small modular reactor and defence needs demonstrates the start of "joined-up thinking" in this area, he said, but just as importantly, he said, sales of US government inventory are not seen as being likely, in the current political environment, for the "foreseeable future".

<https://www.world-nuclear-news.org/Articles/US-conversion-plant-gears-up-for-next-40-years>

Europe

NGOs call for nuclear's inclusion in EU taxonomy

World Nuclear News, April 07, 2021

A group of 46 non-governmental organisations (NGOs) from 18 countries has written to Ursula von der Leyen, president of the European Commission, calling for the inclusion of nuclear energy in the EU taxonomy for sustainable investments. The exclusion of nuclear, they say, would promote a strategy that is "clearly inadequate" to decarbonise the region's economy. The letter, dated 27 March, notes that despite scientific assessments showing that nuclear is needed to address climate change, it has received "limited recognition" from the European Commission. This, it says, "is at best paradoxical, and certainly counterproductive".

"The irrationality of some decisions being taken by several Member States - and increasingly also the Commission - targeting the normal development of nuclear energy can be traced back to the media and political treatment of nuclear," the letter states. It says this was recently demonstrated during the Fukushima Daiichi accident commemorations and the repeated false claims about its effects on health. "Its continuous multi-faceted misrepresentation has hindered the deployment of nuclear power, the European Union's first source of low-carbon energy, and forced us to keep fossil fuel plants online, hampering our efforts to fight climate change, preserve Europe's energy sovereignty and reduce air pollution. "The public has been misled by rigged information about nuclear, with opinion driven by fear, leading to a situation where policies and politicians seek to, and succeed, in shutting down clean and safe long-term nuclear energy sources, and cancel planned ones. Populations have accepted the systematic obstruction of nuclear energy development because the scientific evidence continues to be overshadowed by the myths built around it." If nuclear power is not included in the EU's taxonomy, they say, "we will have to bear responsibility for promoting a strategy that is clearly inadequate to decarbonise our economies and hence preserve climate and populations". It was signed by 46 NGOs from 18 countries - Australia, Belgium, Canada, Denmark, Finland, France, Germany, Italy, the

Netherlands, Norway, the Philippines, Poland, South Korea, Switzerland, Sweden, Taiwan, the UK and the USA.

<https://www.world-nuclear-news.org/Articles/NGOs-call-for-nuclears-inclusion-in-EU-taxonomy>

Fennovoima maintains 2021 goal for Hanhikivi construction licence

Nuclear Townhall, April 09, 2021

Significant progress was made last year with work to obtain a construction licence for the Hanhikivi 1 nuclear power plant in Finland, Fennovoima said in its 2020 Annual Report, released yesterday. It still expects to receive the licence by the end of 2021 despite a "challenging" schedule. "We have a good year behind us," said Fennovoima CEO Joachim Specht. "It is significant for both Fennovoima and the entire project, as we mostly achieved our goals and proceeded according to plan."

During 2020, Fennovoima reviewed the plant's layout and with Russian plant supplier RAOS Project it resolved several open issues with the plant's design. These issues included the plant's primary circuit, containment and defence-in-depth. Fennovoima also reviewed all of the plant's 150 buildings.

<https://nucleartownhall.com/finlands-fennovoima-maintains-2021-goal-for-hanhikivi-construction-licence/>

Estonia to assess adoption of nuclear energy

World Nuclear News, April 09, 2021

The Estonian government yesterday formally approved the formation of a nuclear energy working group (NEPIO) tasked with analysing the possibility of introducing nuclear energy in Estonia. Headed by Environment Minister Tõnis Mölder, the NEPIO will present its conclusions and proposals to the government by September 2022 at the latest. "In order to increase Estonia's energy security, sustainability and competitiveness and achieve the 2050 climate targets, the introduction of nuclear energy would be one of the possible solutions," Mölder said. "Nuclear energy would be able to provide 24/7 electricity, independently of weather conditions, while the process of deploying it would be very long lasting and would require huge investment from the state. The difficult question of what to do with spent nuclear fuel should also be resolved," he added.

The NEPIO will need to analyse technologies and actual projects under development in other countries, and assess whether the development of a nuclear power plant should be carried out by the state or the private sector and what the possibilities for private-public cooperation could be. In addition, the know-how and labour needs for the development of nuclear energy need to be worked out, Mölder said. Estonia could consider, in particular, the deployment of Generation IV small modular reactors that are expected to be easier to build than a large nuclear power plant, which would not in any case be operational until 2035, he said, adding that "nothing has been decided yet". The country's introduction of nuclear energy requires public support and must provide "clear answers to people's legitimate questions and fears", he said. "A science-based approach alone is not enough, and the general preparedness of people and society is also needed," he added.

<https://www.world-nuclear-news.org/Articles/Estonia-appoints-working-group-to-assess-adoption>

Hunterston B cleared for six months of operation

World Nuclear News, April 13, 2021

The UK's Office for Nuclear Regulation (ONR) has today provided EDF with permission for Reactors 3 and 4 at the Hunterston nuclear power plant in North Ayrshire, Scotland to return to service for a limited period of operation. This will be the power station's final period of operation before moving into the defueling phase. Permission for the restart, which ONR says follows extensive scrutiny of EDF's safety case, is for up to a total of 16.7 terawatt days for Reactor 3 and 16.52 terawatt days for Reactor 4 - about six months of operation for each reactor. The ONR's assessment focused on whether cracking observed in the graphite bricks that form the reactor core could compromise the key nuclear safety requirements.

Donald Urquhart, ONR's executive director of operations and deputy chief inspector, said: "Our specialist inspectors scrutinise each safety case in great detail to ensure the safety of workers, local residents and the wider public. As the UK's independent nuclear regulator, we will only allow nuclear facilities to operate if we are satisfied that it is safe to do so. I am satisfied that the evidence provided by EDF, which has been assessed by our team of specialist inspectors, demonstrates that Hunterston B's Reactors 3 and 4 are able to operate and shut down safely during this period of operation."

<https://www.world-nuclear-news.org/Articles/Hunterston-B-cleared-for-six-months-of-operation>

Russia

Russia transports first RPV for Kursk VVER-TOI plant

World Nuclear News, April 07, 2021

The Volgodonsk branch of Russia's AEM-Technology JSC has dispatched the first-ever reactor pressure vessel for the VVER-TOI (typical optimised, with enhanced information) reactor design. The RPV is being transported to the construction site of the Kursk II nuclear power plant, which will be the first to use the new design. Hydraulic testing of the RPV for the first Kursk II unit was completed in December last year. The 1255 MWe VVER-TOI is a Generation III+ power unit developed using technical results from the VVER-1200 project. The design offers improved safety measures, including an increased margin of safety from extreme impacts and ability to withstand earthquakes, and is equipped with modern control systems and diagnostics. Construction work on the first of two units at Kursk II began in April 2018, and on unit 2 in April 2019. The Kursk region is in western Russia, located at the confluence of the Kur, Tuskar, and Seym rivers.

AEM Technology is part of Rosatom's engineering division, Atomenergomash. Andrey Nikipelov, the head of Atomenergomash, took part in the ceremony dedicated to the shipment of the RPV. "The main difference between VVER-TOI and previous projects with VVER-1200 reactors is its 'typing' through the use of information technology," Nikipelov said. "Regardless of where the nuclear power plant will be built, developers and equipment manufacturers will be able to use a single information base with existing proven solutions and adapt them to each specific project."

<https://world-nuclear-news.org/Articles/Russia-transports-first-RPV-for-Kursk-VVER-TOI-pla>

'They Want the West to Be Frightened.' Ukraine's President on Why Russia Sent Troops to the Border

Time, April 12, 2021

"They want us to be afraid," Volodymyr Zelensky, the President of Ukraine, says as his plane starts to descend, bringing him home from a trip to the war zone near his country's border with Russia. He's referring to the Russian troops that have massed along that border during the past two weeks, forcing

the world to guess at the intentions of Russian President Vladimir Putin. From Kyiv to Washington, diplomats, intelligence officials and military experts are straining to discern the meaning of Russia's troop movements and escalating rhetoric. Is it a show of force? A sign of an imminent invasion? Or a test of resolve for Ukraine and its allies?

Zelensky has his own read on the Russian message. "They want the West to be frightened of Russia's strength, of her power," he says in a wide-ranging interview with TIME on April 9. "There's no big secret here." That motive might help explain some of Moscow's behavior. Had the Kremlin really set out to invade its neighbor, its troops might have tried a little harder (as they did during their last invasion of Ukraine, in 2014) to maintain some element of surprise. Instead, the Russians have done the opposite. They have spread footage of their military build-up on social media. They have sent warships to menace Ukraine from the sea and gathered tens of thousands of troops at the border—the most since Russia's annexation of Crimea seven years ago. Russia has warned the U.S. that support for Ukraine could spiral into a wider war. On state television, a Kremlin propagandist even suggested launching a pre-emptive nuclear strike that would, as he put it, scare the Americans off.

<https://time.com/5954068/zelensky-ukraine-russia-standoff/>

Russia's tallest cooling tower enters next construction phase

World Nuclear News, April 13, 2021

Concreting of the cooling tower at the first unit of the Kursk II nuclear power plant in western Russia has started. At a height of 179 metres, the structure will be the tallest cooling tower in Russia. It is expected to be fully completed by 2024. Alexey Buldygin, head of construction for the project, said concreting of 65 of the tower's 115 tiers will be completed by the end of this year. This will raise the structure to a height of 105m. Concreting the entire shell of the cooling tower will require about 14,000 cubic meters of concrete. Up to the fifth tier, the concrete mix will be supplied using pumps, and for subsequent tiers a crane mounted in the centre of the cooling tower will be used.

Work on the construction of the cooling tower began at the end of 2019. This involved the installation of 100 columns and the concreting of the supporting base. Kursk II will be the first to use the VVER-TOI (typical optimised, with enhanced information) reactor design.

<https://www.world-nuclear-news.org/Articles/Russias-tallest-cooling-tower-enters-next-construc>

West Asia

Iran

No talks whatsoever with Americans in Vienna, Araghchi says

Tehran Times, April 5, 2021

Deputy Foreign Minister of Iran Seyed Abbas Araghchi has ruled out any kind of talks with the United States in the upcoming meeting of the 2015 Iran nuclear deal's signatories in Vienna. The parties to the Iran deal, officially known as the Joint Comprehensive Plan of Action (JCPOA), are expected to hold an important meeting in Vienna on Tuesday. The meeting was arranged during the Friday meeting of the JCPOA Joint Commission, which was held virtually. "We will have no direct or indirect talks with the Americans in Vienna. We will negotiate with the Joint Commission and the P4+1 and will announce our demand and condition for returning to compliance with the JCPOA. We demand that the United States first fulfill all of its obligations and lift all the sanctions it has imposed, and then we will

verify and return,” Araghchi said in remarks to Iran state TV. He said the Vienna talks will be purely technical, implicitly rejecting political talks with the U.S.

<https://www.tehrantimes.com/news/459460/No-talks-whatsoever-with-Americans-in-Vienna-Araghchi-says>

Iran and China make history with strategic deal

Tehran Times, April 5, 2021

By signing a strategic, long-term cooperation plan with China in the midst of a renewed nuclear diplomacy with the West, Iran is setting the stage for charting a new foreign policy course that would strengthen the country’s positions in the international arena. While the world was holding its breath to see how Iran and the U.S. would break the nuclear deadlock, Tehran surprised the world by signing a comprehensive cooperation plan with Beijing and striking a dour note on the United States’ stated plan to “lengthen and strengthen” the 2015 Iran nuclear deal, officially known as the Joint Comprehensive Plan of Action (JCPOA).

Iranian Foreign Minister Mohammad Javad Zarif and Chinese State Councillor and Foreign Minister Wang Yi signed the plan on March 27, raising Tehran-Beijing relations in various fields to a new, strategic level. The plan, officially known as the “Comprehensive Cooperation between the Islamic Republic of Iran and the People's Republic of China,” was extensively hailed by almost all Iranian officials as a “strategic” decision, though they somehow differed on the underlying reasons behind cementing ties with China.

<https://www.tehrantimes.com/news/459507/Iran-and-China-make-history-with-strategic-deal>

Top Iranian, British diplomats discuss JCPOA developments

Tehran Times, April 5, 2021

Iranian Foreign Minister Mohammad Javad Zarif held a telephone conversation with his British counterpart Dominic Raab two days before an important meeting on the 2015 Iran nuclear deal in Vienna. The conversation took place upon Raab’s request. “In this phone call, the two sides conferred on the latest developments related to the JCPOA, especially the upcoming meeting of the Joint Commission in Vienna,” the Iranian Foreign Ministry said in a statement. Zarif once again underlined the necessity of the full and final removal of the U.S.’s “unlawful and unfair” sanctions in a way that Iran can verify.

“This is how we will return to our commitments,” Zarif said. He also called on the European parties to the JCPOA to respect their commitments under the deal and play a constructive role in the Tuesday talks in Vienna. The UK foreign secretary, in turn, said his country will try to help negotiations bear fruit. The two sides also exchanged views on certain political and consular issues.

<https://www.tehrantimes.com/news/459501/Top-Iranian-British-diplomats-discuss-JCPOA-developments>

Iran begins mechanical test of new advanced centrifuge

Tehran Times, April 6, 2021

Iran announced on Tuesday that it will unveil a new, advanced kind of centrifuge on April 10 in the latest move to ratchet up nuclear activities as diplomats from Iran and 5+1 nations gather in Vienna to

discuss ways to revive a 2015 nuclear deal. Behrouz Kamalvandi, spokesman for the Atomic Energy Organization of Iran (AEOI), said, "This year, on the anniversary of Iran achieving peaceful nuclear energy on April 10, 133 achievements and breakthroughs in the nuclear industry will be unveiled in the Saadabad complex."

One of the advances in the field of nuclear enrichment is the beginning of the mechanical test of IR-9 centrifuge, which has the capacity of 50 SWUs (separative work units), he continued. He pointed out that this machine is one of the most important completely indigenous centrifuges in Iran, which manufactures and operates with new standard methods. According to an anonymous official from the AEOI, the advanced IR-9 centrifuges have a capacity of 40-50 SWUs, which are "practically twice the capacity of IR-8 centrifuges."

<https://www.tehrantimes.com/news/459516/Iran-begins-mechanical-test-of-new-advanced-centrifuge>

Iran calls for verifiable lifting of sanctions: report

Tehran Times, April 6, 2021

Iran will accept nothing but a "verifiable" removal of U.S. sanctions, a source familiar with the matter told Press TV. The report came as Iranian and U.S. delegations arrived in Vienna for resuming talks over the 2015 Iran nuclear deal. "The United States has no other choice but to remove all anti-Iran sanctions in a verifiable way," the informed source was quoted by Press TV as saying. The source said Washington's response to Iran's unilateral commitment to the Joint Comprehensive Plan of Action is nothing but a unilateral move to remove all the sanctions.

"Tehran will not accept any outcome of the Vienna meeting other than the removal of all sanctions," the source said on Monday night. The source said the Iranian team's agenda in the Vienna talks is clear. "Iran will start its measures to return to JCPOA commitments only after the removal of all U.S. sanctions and verifying it."

<https://www.tehrantimes.com/news/459526/Iran-calls-for-verifiable-lifting-of-sanctions-report>

Vienna talks 'can be win-win situation for all,' Iran's Takht Ravanchi says

Tehran Times, April 6, 2021

Majid Takht Ravanchi, Iran's ambassador to the New-York based United Nations said on that the Vienna talks "can be win-win situation for all". The remarks by Iran's top diplomat to the UN, who was involved in crafting the 2015 nuclear deal, came as senior diplomats from Iran and the P4+1 nations met in Vienna on how to revitalize the agreement. The U.S. also sent its diplomatic team, led by President Biden's special envoy for Iran Robert Malley, to Vienna for backchannel talks with diplomats from P4+1 group. The talks took place within the JCPOA Joint Commission which the European Union is responsible for.

<https://www.tehrantimes.com/news/459538/Vienna-talks-can-be-win-win-situation-for-all-Iran-s-Takht>

Israeli spy arrested in Iran's East Azarbaijan

Tehran Times, April 7, 2021

A local Intelligence Ministry official has announced that several spies, including an Israeli spy, have been arrested in East Azarbaijan province. "Israeli spy and several spies in connection with the security

services of different countries in the province have been arrested," the director general of East Azarbaijan intelligence office said on Monday. He did not give further details about the Israeli spy. Iran has blamed Israel for last year's assassination of Mohsen Fakhrizadeh, a noted nuclear expert.

<https://www.tehrantimes.com/news/459558/Israeli-spy-arrested-in-Iran-s-East-Azarbaijan>

Iran calls on U.S. to lift sanctions all at once

Tehran Times, April 7, 2021

Top Iranian nuclear negotiator has called on the U.S. to lift its sanctions on Iran all at once, warning that Tehran could halt nuclear negotiations if they turn into a waste of time. Iran's Deputy Foreign Minister Seyed Abbas Araghchi, who led Iran's negotiating team in Vienna talks on Tuesday, once again reiterated call on the U.S. to remove its sanction in one step, saying that Iran will not accept a step-by-step process for reviving the 2015 Iran nuclear deal, officially known as the Joint Comprehensive Plan of Action (JCPOA).

"The United States must lift its anti-Iran sanctions altogether and in one step if it truly seeks to rejoin the 2015 nuclear agreement," Araghchi was quoted by Press TV as saying on the sidelines of the Vienna nuclear talks, which took place on Tuesday. He reaffirmed that the gathering did not feature any American representatives, and that it just involved Iran's discussions with the remaining JCPOA participants or the P4+1 — Russia, China, France, Britain and Germany. The remaining signatories "would then later talk with Americans. And that's their business. We're not engaged in that business. We only negotiate with the P4+1."

<https://www.tehrantimes.com/news/459585/Iran-calls-on-U-S-to-lift-sanctions-all-at-once>

Salehi says Iran has produced 57 kilograms of 20% enriched uranium

Tehran Times, April 7, 2021

The capacity of the Atomic Energy Organization of Iran (AEOI) for uranium enrichment has reached 16,500 SWUs, AEOI chief Ali Akbar Salehi announced on Wednesday. SWU stands for separative work unit. Salehi, a nuclear physicist, also said Iran's reserves of nuclear fuel enriched to 20 percent has reached 57 kilograms. "Today the capacity of Iran's enrichment has reached 16,500 SWUs and we have 57 kilograms of 20-percent uranium," Salehi told reporters after a cabinet meeting. "Nuclear industry will not stop with JCPOA"

The AEOI head went on to say that he was sure that the nuclear industry would not be stopped or slowed down by the JCPOA, the common name for the 2015 nuclear deal. "Compare for yourself what we had in 1392 in different fields and what we have now." For example, he said, Robert Malley, the U.S. special envoy for Iran, recently said, "Go and see how far Iran's nuclear industry has come with Trump's actions." Salehi a nuclear physicist said, "We have 15 new types of centrifuges that are enriching uranium, such as IR6, IR4, IR2M."

<https://www.tehrantimes.com/news/459596/Salehi-says-Iran-has-produced-57-kilograms-of-20-enriched-uranium>

12 Iranian MPs visit four nuclear sites to monitor nuclear law implementation

Tehran Times, April 9, 2021

A spokesman for the parliament's National Security and Foreign Policy Committee has explained about the details of a visit by a number of MPs to the country's four nuclear sites. Abolfazl Amouei said, "In order to monitor the implementation of the law on lifting sanctions, 12 members of the Majlis, mainly from the National Security and Energy Committees, visited four nuclear sites in Isfahan, Natanz, Khondab and Fordow." The visits to the nuclear sites took place in line with inspecting the implementation of a parliamentary ratification late last year. The ratification, called Strategic Action Plan for Lifting Sanctions and Protect the rights of the Iranian Nation, obliges the Atomic Energy Organization of Iran (AEOI) to take number of steps, including installing and increasing more advanced centrifuges, increasing the purity of nuclear fuel to 20 percent, etc.

Amouei said the representatives visited the production units of rods and fuel plates at the Isfahan site. "Also, at the Isfahan site, the procedure of completing the metal uranium factory was observed." He said, "Article 4 of the law on Strategic Action for Lifting Sanctions gives five months to complete this factory." Amouei, a representative from Tehran, added, "During a visit to the Shahid Ahmadi Roshan complex in Natanz, it was observed that in implementation of Article 3 of the Law on Strategic Action for Lifting Sanctions, 1000 IR2m centrifuges have recently been installed. Also, a chain of 164 sixth generation centrifuges has been installed in the Natanz site within the legal three-month period." The spokesman went on to say, "The hard-working experts of our Atomic Energy Organization in the Natanz site, in order to increase the enriched uranium reserves required by the country, have used 2 chains of IR4 centrifuges in the Natanz site to produce uranium."

"During our visit to the Fordow site, we observed that the process of producing 20 percent enriched uranium, according to Article 1 of the law, is carefully followed in 6 chains of the first generation of IR1 centrifuges," he explained. Announcing that the representatives sitting on the National Security and Energy Committees also visited the process of optimizing the Arak reactor, Amouei said, "Completing the optimization of this reactor, which was requested by the representatives in Article 5 of the law, is a strategic action and is progressing well."

<https://www.tehrantimes.com/news/459632/12-Iranian-MPs-visit-four-nuclear-sites-to-monitor-nuclear-law>

West, IAEA failed to provide nuclear technology to Iran, Rouhani bemoans

Tehran Times, April 10, 2021

President Hassan Rouhani said on Saturday that the Joint Comprehensive Plan of Action (JCPOA), the common name for the 2015 nuclear deal, completely legalized nuclear technology in Iran and this was a great achievement that happened during his early years as president. Rouhani made the remarks as Iran marked National Nuclear Technology Day on Saturday. "One of the honorable results of the JCPOA was that it fully legalized nuclear industry in Iran," the president remarked. Rouhani said, "This was great thing that was done in this time."

The JCPOA was concluded on July 14, 2015 between Iran and the 5+1 nations, and the European Union. It was endorsed by United Nations Security Council Resolution 2231. However, former U.S. president Donald Trump abandoned the deal in violation of international law and this led to many consequences. Rouhani said nuclear technology is among superior technologies but since the other sides have used this technology for building atomic weapons have been pressing Iran and "put us parallel with themselves".

<https://www.tehrantimes.com/news/459670/West-IAEA-failed-to-provide-nuclear-technology-to-Iran-Rouhani>

Incident happens in part of the Natanz electricity network: nuclear spokesman

Tehran Times, April 11, 2021

The spokesman for the Atomic Energy Organization of Iran (AEOI) announced on Sunday that an accident has happened in part of the electricity network of the Natanz nuclear facility in Isfahan province. Behrooz Kamalvandi said the incident happened in part of the Ahmadi Roshan nuclear enrichment site on Sunday morning. He said the incident has resulted in no casualties or contamination, adding investigations are underway to find out the cause of the incident.

<https://www.tehrantimes.com/news/459679/Incident-happens-in-part-of-the-Natanz-electricity-network-nuclear>

Top Iranian negotiator reveals 'biggest' obstacle to progress in nuclear talks

Tehran Times, April 11, 2021

A senior Iranian diplomat leading Iran's negotiating team in Vienna talks has called on the United States to lift all of its sanctions, describing the sanctions as a major obstacle to moving forward. "The biggest obstacle is Washington's desire to maintain sanctions," Iran's Deputy Foreign Minister Seyed Abbas Araghchi was quoted as saying by Japanese broadcaster NHK. He also said the U.S. must lift all sanctions imposed under Donald Trump, not just those related to the 2015 nuclear deal, officially known as the Joint Comprehensive Plan of Action (JCPOA).

"Our position is actually that if the U.S. is interested to come back to the JCPOA, they should not only lift all JCPOA-related sanctions but also sanctions imposed or reimposed or relabeled during the Trump administration," the Iranian nuclear negotiator said. According to NHK, Araghchi said the best outcome would be a conclusion within five or six weeks, citing Iran's willingness to allow the International Atomic Energy Agency to inspect nuclear facilities to some extent until late May. The diplomat's remarks came amid ongoing negotiations between Iran and the P4+1 over how to bring Tehran and Washington back to full compliance with the JCPOA.

<https://www.tehrantimes.com/news/459714/Top-Iranian-negotiator-reveals-biggest-obstacle-to-progress>

Nuclear chief: Centrifuge is one of tools needed to make COVID-19 vaccine

Tehran Times, April 11, 2021

In an interview with national TV late on Saturday, Iranian nuclear chief Ali Akbar Salehi discussed the progresses made by the Iranian nuclear scientists in various fields. Iran marked National Nuclear Technology Day on Saturday during which the Atomic Energy Organization of Iran (AEOI) unveiled a number of new progresses in nuclear industry. President Hassan Rouhani inspected a number of new machineries and equipment used in nuclear industry.

"A large part of 133 achievements that the president talked about today is about nuclear fuel. More than 50% of nuclear achievements relates to agriculture, among other fields," Salehi said. He clarified with an example about nuclear radiation in agriculture, saying, "It can be referred to the rice that has recently been provided to farmers. This rice has high yield and acceptable resistance to drought. Or we can name the radiation systems as other types of nuclear achievements related to agriculture. Radiation systems that can be used to sterilize and extend the life of agricultural products. Radiation can prevent dates from rotting for several months."

<https://www.tehrantimes.com/news/459719/Nuclear-chief-Centrifuge-is-one-of-tools-needed-to-make-COVID-19>

Nuclear chief says the world, IAEA must address ‘nuclear terrorism’ against Iran

Tehran Times, April 12, 2021

Nuclear chief Ali Akbar Salehi on Sunday slammed the act of sabotage against Iran’s nuclear site in Natanz earlier in the day, noting that the international community and the International Atomic Energy Agency (IAEA) must deal with such “nuclear terrorism” that targets Iran’s facilities. Salehi’s remarks came hours after a nuclear spokesman said that an incident took place at the electricity distribution network of the Shahid Mostafa Ahmadi Roshan nuclear facility in Natanz in Iran’s central province of Isfahan.

“The Islamic Republic of Iran, while condemning this despicable act, underlines the need for the international community and the International Atomic Energy Agency (IAEA) to address this nuclear terrorism and reserves the right to take action against masterminds, perpetrators and conspirators of this [terrorist] act,” Salehi said. He added Iran will seriously pursue the development of its nuclear technology, on the one hand, and make efforts to remove the oppressive U.S. sanctions, on the other hand, so that those who ordered the terrorist act would not reach their goals, Press TV reported.

The action that took place at the Natanz enrichment facility shows the failure of those, who oppose the country’s industrial and political advances, in preventing Iran’s remarkable progress in its nuclear program and obstructing successful talks aimed at removing the oppressive sanctions, Salehi, a nuclear physicist remarked. Israel’s public radio quoted unidentified intelligence sources on Sunday as saying that Israel’s Mossad spy agency carried out a cyberattack against Iran’s Natanz nuclear facility, Reuters reported. The Natanz facility is among the sites being monitored by the IAEA under a 2015 landmark nuclear deal, officially known as the Joint Comprehensive Plan of Action (JCPOA), between Iran and a group of world powers.

<https://www.tehrantimes.com/news/459727/Nuclear-chief-says-the-world-IAEA-must-address-nuclear-terrorism>

Iran opens National Center for Quantum Technology

Tehran Times, April 13, 2021

Ali Akbar Salehi, head of the Atomic Energy Organization of Iran, was present at a ceremony opening the National Center for Quantum Technology. He talked about progresses made by the Iranian scientists in this field. Calling quantum technology “a very important field”, he said, “Today we experience quantum in the fields of computers, biology, sensitive sensor construction, and simulation.” Salehi, a nuclear physicist, also said, “Today, advanced countries are investing billions in this field, and Iran is the only leading country in this field in West Asia.”

<https://www.tehrantimes.com/news/459776/Iran-opens-National-Center-for-Quantum-Technology>

Iran’s Araghchi heads for Vienna for nuclear deal talks

Tehran Times, April 13, 2021

Iranian Deputy Foreign Minister Abbas Araghchi traveled to Vienna on Tuesday to continue talks with the P4 + 1 group for a possible revival of the 2015 nuclear deal. Iran and the P4 + 1 group held nuclear

deal talks in Vienna on April 6 and 9. The next round of talks will be resumed on Wednesday, April 14. The P4+1 and Iran are negotiating to examine a possible U.S. return to the JCPOA under the Biden administration.

As top Iran's negotiator, Araghchi has repeatedly stated that there is no "step by step" agreement to restore the JCPOA. He has said Iran will return to full compliance with the JCPOA only after the U.S. has lifted all the sanctions verifiably. The talks are being done within the framework of the JCPO Joint Commission which is led by the European Union.

<https://www.tehrantimes.com/news/459787/Iran-s-Araghchi-heads-for-Vienna-for-nuclear-deal-talks>

Iran starts enriching uranium to 60% purity

Tehran Times, April 13, 2021

Abbas Araghchi, Iran's deputy foreign minister, announced in Vienna on Tuesday that Iran has sent a letter to the IAEA informing the body that the Islamic Republic intends to start enriching uranium to up to 60% purity. Araghchi broke the story as he visited Vienna on Tuesday for nuclear deal talks with P4 + 1 group, which is set to start on Thursday. Addition of centrifuges at Natanz nuclear site.

Abbas Araghchi emphasized that another 1,000 centrifuges with 50% more capacity will be added to the existing machines in Natanz, in addition to replacing the damaged machines. In a speech to the Assembly of Experts last year, Ayatollah Seyed Ali Khamenei, the Leader of the Islamic Revolution, stressed, "The Islamic Republic will not back down from its rational position on the nuclear issue, and according to the interests and needs of the country, it will go as far as 60% enrichment as needed." IAEA was informed of Iran's decision to enrich 60% uranium, says AEOI spokesman

Behrouz Kamalvandi spoke with the state news agency IRNA on Tuesday afternoon, revealing details about Iran's decision to enrich uranium up to 60%, stating that the process will start on Tuesday night. "By the order of the president, the Atomic Energy Organization (of Iran) it was instructed to launch a 60% uranium production line in the amount required within the framework of Article 1 of the law on Strategic Action for Lifting Sanctions, approved by the parliament," Kamalvandi said.

<https://www.tehrantimes.com/news/459801/Iran-starts-enriching-uranium-to-60-purity>

Zarif writes to UN chief on Natanz, accuses Israel of derailing nuclear deal talks

Tehran Times, April 13, 2021

Iranian Foreign Minister Mohammad Javad Zarif wrote a letter to UN Secretary-General Antonio Guterres on the sabotage at the Natanz Fuel Enrichment Plant, accusing Israel of pursuing policies aimed at disrupting nuclear deal talks between Iran and the West. "I am writing to inform you that in the early morning hours of 11 April 2021, dangerous, reckless sabotage at the electricity distribution network of the Natanz Fuel Enrichment Plant caused a blackout and the disruption of the operations of this sensitive nuclear facility which has been under IAEA safeguards and extensive monitoring. The timely and professional containment measures adopted by the highly dedicated management and staff of the NFEP and Iranian Atomic Energy Organization averted what could have become a human and environmental catastrophe," Zarif wrote.

Behrouz Kamalvandi, a spokesman for the Atomic Energy Organization of Iran (AEOI), told Iranian news outlets on Sunday that the electricity distribution grid of Natanz has been damaged due to an

incident that later turned out to be an act of sabotage. Iran pointed the finger at Israel. Saeed Khatibzadeh, the spokesman for Iran's Foreign Ministry, described the sabotage as a "trap" set by Israel to disrupt the process of lifting U.S. sanctions on Iran, saying that Iran will not fall into this "deceitful trap." Israel, Khatibzadeh vowed, should know that Iran will retaliate at the proper time and place.

Zarif also placed the blame on Israel in his first response to the sabotage. Commenting on the sabotage at the Natanz plant, he said the Israelis want to disrupt the ongoing nuclear talks in Vienna. The chief Iranian diplomat said, "The Zionists want to take revenge on the Iranian people for their success in lifting the cruel sanctions, but we will not allow this and we will take revenge for these actions from the Zionists themselves." Underlining the need for Iranian people and officials to avoid falling into the "deceitful trap set by the Zionist regime," Zarif reiterated that the political and military officials of the Zionist regime had explicitly stated that they would not allow progress in lifting the cruel sanctions and now they think that they will achieve their goal, but the Zionists will get their answer in further nuclear progress, according to state news agency IRNA.

<https://www.tehrantimes.com/news/459802/Zarif-writes-to-UN-chief-on-Natanz-accuses-Israel-of-derailing>

60% enrichment is response to mischiefs against Iran, Rouhani says

Tehran Times, April 14, 2021

President Rouhani said on Wednesday that Iran's decision to enrich uranium to a purity of 60 percent and install IR6 centrifuges at the Natanz nuclear plant were a response to mischiefs against Iran, declaring that all Iran's activities are peaceful and under the supervision of the UN nuclear watchdog. "If the Zionists conspire against our nation, we will respond. This (60% uranium enrichment) is the first step," Rouhani told during a cabinet meeting. On Sunday morning a sabotage attack took place at the Natanz nuclear facility, a move which is considered a "war crime" in terms of international law.

Iran considers the Zionist regime of Israel as the prime suspect for the sabotage. Rouhani added, "The fact that we have stated that we will operate IR-6 centrifuges in Natanz or we will increase enrichment to 60 percent, this is the answer to your malice. You cannot conspire against the Iranian nation and commit crimes in Natanz. When you commit a crime, we cut your hand." Rouhani went on to describe sabotage in Natanz as "nuclear terrorism."

<https://www.tehrantimes.com/news/459815/60-enrichment-is-response-to-mischiefs-against-Iran-Rouhani>

E3 express 'grave concerns' over Iran's nuclear decisions

Tehran Times, April 14, 2021

The United Kingdom, France and Germany, known as E3, on Wednesday expressed concern over Iran's latest moves to enrich uranium up to 60% purity. The E3 described the decision as "a serious development." "In light of recent developments, we reject all escalatory measures by any actor, and we call upon Iran not to further complicate the diplomatic process," the E3 said.

The European trio also expressed their concerns over Iran's decision to install a further 1,000 centrifuges at its Natanz site, calling it "contrary to efforts to revive the 2015 nuclear deal." In an interview with ISNA on Wednesday, Ali Akbar Salehi explained that the 60% enrichment is to produce

various radiopharmaceuticals. President Rouhani also said on Wednesday that all Iran's nuclear activities are legal and under the supervision of the IAEA.

<https://www.tehrantimes.com/news/459844/E3-express-grave-concerns-over-Iran-s-nuclear-decisions>

UAE

UAE's first nuclear unit starts commercial operation

World Nuclear News, April 06, 2021

Barakah unit 1 entered commercial operation today, the Emirates Nuclear Energy Corporation (ENEC) has announced. The unit, which is operated by Nawah Energy Company, has been the single largest electricity generator in the UAE since reaching 100% power in early December. ENEC said the 1400-megawatt unit, which is in the Al Dhafra region of Abu Dhabi, is now providing "constant, reliable and sustainable electricity around the clock". As a result, ENEC says it is "now leading the largest decarbonisation effort of any industry in the UAE to date".

The start of commercial operation followed a period of extensive testing, overseen by the Federal Authority for Nuclear Regulation, which has conducted 312 independent inspections of the plant to date. These reviews were conducted alongside more than 42 assessments and peer reviews by the International Atomic Energy Agency and World Association of Nuclear Operators, ENEC said.

"After more than a decade of strategic planning, programme development and construction, today we are confidently marking the start of a new chapter in for the UAE's transition to cleaner energy sources," ENEC CEO Mohamed Ibrahim Al Hammadi said. Sama Bilbao y León, director general of World Nuclear Association said: "The UAE's commitment to a clean energy future that ensures, at the same time, the sustainable socio-economic development of everyone in the country, is one that needs to be replicated by many more countries around the world. Nuclear power will need to be at the heart of this energy transformation if we are to stand a chance of achieving net-zero carbon emissions by 2050."

<https://www.world-nuclear-news.org/Articles/UAE-s-first-nuclear-unit-starts-commercial-operati>

East Asia

Japan

JGC Holdings Enters EPC Business for Small Modular Reactors (SMRs) Invests in U.S. Company NuScale Power

JGC Holdings Corporation, April 06, 2021

JGC Holdings Corporation (JGC) announces its decision to invest in NuScale Power, LLC, a U.S. developer of small modular reactors* (SMRs) with the aim of partnering in the delivery of the engineering, procurement, and construction (EPC) business for these plants. JGC is investing \$40 million in NuScale through a special-purpose company established by JGC's U.S. subsidiary. "The JGC Group embrace the goal of "Carbon Neutral in 2050" as committed by Japanese Government last

year. Our investment in NuScale technology, with its enhanced safety features, will enable JGC to expand our EPC business and deliver a zero-carbon resource to the growing demand of the global energy market, said Tadashi Ishizuka, Representative Director, President and COO of JGC Holdings Corporation."

As renewable energy becomes a primary energy source with the rapid advancement of decarbonization globally, it remains a challenge to ensure a stable supply of electricity by renewables due to their susceptibility to the natural environment. SMR plants are expected to fulfill a key role as a complement to renewables by providing reliable, dispatchable, zero-emission generation. SMRs will also serve as an energy source for hydrogen production and seawater desalination. SMR technology provides a much safer design, which is modular in nature and provides flexibility in future expandability and repeatability in project execution.

<https://www.jgc.com/en/news/2021/20210406.html>

Government OKs discharge of Fukushima nuclear plant water into sea

Osamu Tsukimori And Satoshi Sugiyama

Japan Times, Apr 13, 2021

The government formally authorized a plan on Tuesday to release treated radioactive water stored at the Fukushima No.1 nuclear plant into the sea and announced a sweeping range of steps to address mounting worries over reputational damage to local fisheries and food. "The treated water's discharge is an unavoidable issue in the process of decommissioning the Fukushima No. 1 nuclear power plant," Prime Minister Yoshihide Suga said. "Today, we've made a decision that releasing the water into the sea is realistic and put together basic policies, on the condition that the government guarantees safety in a way that significantly goes beyond (national and international) standards and does everything it can to implement countermeasures against damage caused by rumors."

The decision comes five years after the government determined that, among five options including evaporating it into the atmosphere, a discharge into the sea is the cheapest and fastest way to dispose of the water. Suga's administration wanted to put an early end to the yearslong debate over the fate of the accumulating water, given that it will take two years to prepare for the release. The plant operator, Tokyo Electric Power Company Holdings Inc., which has accumulated 1.25 million tons of treated water, expects to run out of tank storage capacity, 1.37 million tons, as early as the fall of 2022. The water will be discharged into the sea in about two years and the government will hold a Cabinet-level meeting to discuss the specifics of the countermeasures, Suga said. The government will reinforce public relations initiatives to highlight the water's safety and promised that Tepco will offer compensation if damage is caused by rumors regarding local agricultural and marine products.

<https://www.japantimes.co.jp/news/2021/04/13/national/fukushima-water-release/>

Japan bans TEPCO from restarting nuclear plant over safety flaws

Nikkei Asia, April 14, 2021

Japan's nuclear regulator decided Wednesday to effectively ban Tokyo Electric Power Company Holdings from restarting its largest nuclear plant due to serious safety flaws, dealing a blow to the utility's efforts to turn its business around following the 2011 Fukushima nuclear disaster. The Nuclear Regulation Authority formally decided to bar TEPCO from transporting nuclear fuel stored at the Kashiwazaki-Kariwa plant in Niigata Prefecture or loading it into reactors. The company has seen

restarting the seven-reactor Kashiwazaki-Kariwa complex, once one of the world's largest nuclear plants by output, as a main pillar of its business restructuring plan.

The plant was found to have been vulnerable to unauthorized entry at 15 locations since March last year because of defective intruder detection systems and backups, according to the NRA. It is the first time the regulator has issued a corrective order for a commercial nuclear reactor. The punitive measure is expected to remain for more than a year until the authority concludes additional inspections. Although the plant's Nos. 6-7 reactors cleared safety screenings by the regulator in 2017, all seven reactors remain idle. TEPCO has been facing huge compensation payments and other costs stemming from the Fukushima disaster. It is aiming to restart the Kashiwazaki-Kariwa to reduce its dependence on costly coal-fired power generation.

<https://asia.nikkei.com/Business/Energy/Japan-bans-TEPCO-from-restarting-nuclear-plant-over-safety-flaws>

North Korea

N. Korea likely to conduct more KN-23 variant missile tests to replace Scud missiles: think tank

Yonhap

Korea Herald, April 01, 2021

North Korea is expected to conduct more test launches of its Iskander-variant ballistic missiles in an effort to replace old Scud missiles with advanced solid-fuel ones, an expert of the state-run defense think tank said Thursday. Last week, the communist country fired two short-range ballistic missiles, believed to be an upgraded version of its KN-23 missile modeled after Russia's Iskander. The North's state media said they were new tactical guided missiles.

"Russia developed the solid-fuel Iskander missile to replace liquid-type Scud missiles. North Korea is also taking similar steps," Lee Sang-min of the Korea Institute for Defense Analyses (KIDA) told reporters. "North Korea claimed that the missile fired last week has a range of 600 kilometers. To be a substitute for Scud missiles, this weapon needs to have a longer flight range. So, the North is likely to continue upgrading this missile and carry out more test launches, I believe," he added. Seoul's Joint Chiefs of Staff (JCS) said that the projectiles flew around 450 km.

http://www.koreaherald.com/view.php?ud=20210401001019&ACE_SEARCH=1

North Korea-China trade may resume next week: report

Lee Ji-yoon

Korea Herald, April 09, 2021

Trade between North Korea and China that has remained at a standstill for more than a year amid the COVID-19 pandemic is expected to resume possibly next week, a South Korean broadcaster reported. According to JTBC, officials in the Chinese city of Dandong at the North Korean border have started accepting export registration ahead of a potential border reopening on April 16, the day after the birth anniversary of state founder Kim Il-sung on April 15. North Korea sealed off its borders with China on Jan. 30 last year, two days after five coronavirus infections were confirmed in the border city of Dandong. Despite the shutdown, some quarantine items were being transported to the North via freight trains. But the country declared a state of emergency in August, with trade with its largest trading partner coming to a complete halt.

http://www.koreaherald.com/view.php?ud=20210409000337&ACE_SEARCH=1

N. Korea preparing to launch ballistic missile submarine: report

Choi Si-young

Korea Herald, April 11, 2021

North Korea has built a new submarine believed to be capable of carrying at least three ballistic missiles and is gauging the right time to unveil it, a local news outlet said Sunday, citing anonymous Seoul officials familiar with the matter. "South Korea and the US believe North Koreans have finished building one that they revealed in 2019," Yonhap News Agency quoted the officials as saying. The North's state media released a photograph at the time, in which leader Kim Jong-un was shown inspecting the submarine.

"North Korea could test-fire a ballistic missile on that submarine after the rollout ceremony," the officials said. The submarine is believed to be a modified Soviet-era Romeo-class model built at the Sinpo South Shipyard along the east coast. The port city is home to the North's fleet of submarines. North Korea is also building a larger submarine that could carry advanced ballistic missiles, the report said, referring to the Pukguksong-4 and -5 missiles it revealed in 2020 and 2021 during a military parade and a key party meeting, respectively. The Pukguksong-3 was tested in October 2019. 38 North said, based on satellite images it reviewed, that North Korea could be preparing to either roll out a new ballistic missile submarine or conduct a submarine-launched ballistic missile test. It could also be just general maintenance, according to the website that monitors the isolated country.

http://www.koreaherald.com/view.php?ud=20210411000145&ACE_SEARCH=1

N. Korea may resume nuclear, ICBM testing: intelligence chief

Yonhap

Korea Herald, April 15, 2021

The top US intelligence official on Wednesday maintained that North Korea may resume its nuclear and long-range missile testing as part of efforts to drive wedges between the United States and its allies. Avril Haines, director of national intelligence (DNI), testified before the Senate Intelligence Committee. "For its part, North Korea may take aggressive and potentially destabilizing actions to reshape its security environment and will seek to drive wedges between the United States and its allies," she said at the Senate hearing.

"These efforts could include the resumption of nuclear weapons and intercontinental ballistic missile (ICBM) testing," she added. Her remarks come a day after her office released an annual assessment on global threats, which suggested North Korean leader Kim Jong-un might resume its nuclear and ICBM testing this year. "Kim may be considering whether to resume long-range missile or nuclear testing this year to try to force the United States to deal with him on Pyongyang's terms," the report said.

http://www.koreaherald.com/view.php?ud=20210415000081&ACE_SEARCH=1

N. Korea slams Japan over decision to released contaminated Fukushima water

Yonhap

Korea Herald, April 15, 2021

North Korea on Thursday denounced Japan's decision to release contaminated water from the destroyed Fukushima nuclear plant into the sea, demanding immediate withdrawal of the decision to prevent a

"new catastrophe for the humanity." On Wednesday, Tokyo approved the plan to dump more than 1 million tons of radioactive water from the wrecked nuclear power plant into the Pacific Ocean, sparking strong criticism from its local fishing industry and neighboring countries such as South Korea and China.

"Japan is to bring a new catastrophe to the humanity which has been suffering from a global malignant infectious disease," the official Korean Central News Agency (KCNA) said in commentary. "It should withdraw the decision immediately." KCNA noted that the planned release would cause a vast number of dangerous substances to spread to most parts of the Pacific within a few days. It constitutes "an unpardonable criminal decision posing grave threat to health and security of mankind and ecological environment," the news outlet said. KCNA added the decision shows Japan's "shamelessness and gangster-like nature."

http://www.koreaherald.com/view.php?ud=20210415001051&ACE_SEARCH=1

South Korea

S. Korea, Japan, US agree on need to quickly resume dialogue with N. Korea

Yonhap

Korea Herald, April 03, 2021

South Korea, Japan and the United States have agreed on the need to peacefully resolve the North Korean nuclear issue as they reaffirmed their joint efforts to quickly resume denuclearization talks with Pyongyang, South Korea's national security adviser Suh Hoon said Friday. "South Korea, the US and Japan agreed on the urgency of the North Korean nuclear issue and need for a diplomatic solution to the issue," Suh told reporters after a three-way meeting with his US and Japanese counterparts, Jake Sullivan and Shigeru Kitamura. The three also agreed that "efforts to resume North Korea-US negotiations at an early date must continue," he added.

http://www.koreaherald.com/view.php?ud=20210403000047&ACE_SEARCH=1

NK's denuclearization receives fresh attention at top security meetings

By Ahn Sung-mi

Korea Herald, April 04, 2021

As high-level talks by top security officials in the US and China ended with putting North Korea's denuclearization issue at the fore, all eyes are on what kind of changes it could bring on the Korean Peninsula under the Biden administration amid an intensifying US-China rivalry. Experts say Seoul's push for reviving the deadlocked nuclear diplomacy with Pyongyang could gain momentum following the meetings, but as to whether the reclusive regime will respond and how South Korea can manage a bickering Washington and Beijing and bring everyone together under a shared goal remains a major challenge.

On Friday (US time), the top security advisers of South Korea, the US and Japan held their first face-to-face meeting at the US Naval Academy in Annapolis, Maryland, the first such talks since US President Joe Biden took office in January. After the talks, the three countries issued a statement, raising concerns about North Korea's nuclear and ballistic missile programs, and reaffirmed their commitment to address and resolve these issues through "concerted trilateral cooperation" towards denuclearization. They also agreed on the "imperative for full implementation" of relevant UN Security Council sanctions resolutions against Pyongyang, preventing proliferation, and cooperating

to strengthen deterrence and maintaining peace and stability on the Korean Peninsula. Suh Hoon, South Korea's national security adviser, told reporters in Washington that the three countries also agreed on efforts to resume the stalled nuclear talks between the US and North Korea at an early date.

http://www.koreaherald.com/view.php?ud=20210404000221&ACE_SEARCH=1

Moon sends letter to UAE's crown prince over nuclear power plant operation

Yonhap

Korea Herald, April 07, 2021

South Korean President Moon Jae-in sent a congratulatory letter to the de facto ruler of the United Arab Emirates (UAE) over the nation's 50th founding anniversary and the start of its first nuclear power plant, Cheong Wa Dae said Wednesday. In the letter to Abu Dhabi's Crown Prince Sheikh Mohammed bin Zayed Al Nahyan, Moon congratulated the nation on beginning the commercial operation of the Barakah plant constructed by South Korea. Three more reactors are being built there. Moon described the Barakah nuclear energy facilities as an "icon of the UAE's innovation" and a "symbol" of its friendship with South Korea, according to his office. He reaffirmed Seoul's resolve to keep partnering with the UAE for its continued prosperity.

http://www.koreaherald.com/view.php?ud=20210407000307&ACE_SEARCH=1

S. Korean, EU defense chiefs affirm cooperation on NK

Choi Si-young

Korea Herald, April 07, 2021

Defense Minister Suh Wook and Gen. Claudio Graziano, chairman of the EU Military Committee, discussed expanding ties to deal with security concerns on the Korean Peninsula and in the surrounding regions. Graziano, who represents the defense chiefs of the 27-member EU, reports to its foreign policy chief. Graziano said Korea has been a key partner and that he will seek ways to work with Seoul on an Indo-Pacific strategy the EU has yet to reveal. Suh said the bilateral exchanges have multiplied since 2010, when they agreed on a strategic partnership, adding the partnership will play a bigger role.

http://www.koreaherald.com/view.php?ud=20210407000868&ACE_SEARCH=1

S. Korea willing to help Iran advance dialogue for restoring nuclear deal: PM

Yonhap

Korea Herald, April 12, 2021

South Korea's prime minister said Monday his country is willing to provide "sideline" support for Iran to advance "productive" dialogue with partners in restoring the 2015 Iran nuclear deal. Chung Sye-kyun made the remarks during a joint press conference Sunday (local time) with Iran's First Vice President Eshaq Jahangiri in Tehran following their 90-minute talks.

Chung was visiting Iran for a three-day itinerary till Tuesday to discuss bilateral ties amid lingering tension over Tehran's call to unlock its funds of \$7 billion frozen in South Korea under US sanctions. It marks the first such trip to the Middle Eastern country by a South Korean premier in 44 years. With regard to the frozen fund, the prime minister said South Korea "needs to step up cooperation with related nations including Iran" to settle the issue.

http://www.koreaherald.com/view.php?ud=20210412000659&ACE_SEARCH=1

World/Misc

Study highlights benefits of SMRs to Canadian industries

World Nuclear News, April 01, 2021

The model used by EnviroEconomics and Navius Research, which has been leveraged by several organisations, including the Canadian Institute for Climate Choices and the International Council on Clean Transportation, explored a variety of cost and technical assumptions for deploying SMRs, which are currently in the research and development phase. Ten SMR deployment scenarios were modelled. Across all scenarios, SMRs delivered low-cost emission reductions, driving down the cost of getting to net zero as a nation.

The study - Emission and Economic Implications for Canada of Using Small Modular Reactors in Heavy Industry - concludes that between 2035-2050, SMRs could reduce greenhouse gas emissions by 216 megatonnes (Mt) in the heavy industrial sector. Canadian emissions from this sector are currently about 700 Mt per year. This means that SMRs could contribute to getting to net zero by reducing emissions by 14 Mt per year on average, the equivalent of taking over three million cars off the road each year.

<https://www.world-nuclear-news.org/Articles/Study-highlights-benefits-of-SMRs-to-Canadian-indu>

Niger uranium mine ends operations after 47 years

World Nuclear News, April 01, 2021

Orano is the majority owner of Cominak (Compagnie Minière d' Akouta). Orano CEO Philippe Knoche yesterday paid tribute to all the miners who have worked at the project. "They have passed on a tremendous heritage to us. Orano will keep this heritage alive and remains committed to Niger with investments to extend the life of the Somair mining site and the development of the Imouraren project." Uranium was discovered at Akouta, in the department of Arlit, 1200 kilometres north-west of Niamey, in 1967. Cominak, a public limited company under Nigerien law, was set up in 1974 and production began in 1978. The underground mine, located at a depth of 250 metres, is accessed via a 1300-metre decline and consists of 291km of galleries. Its ore processing plant has a capacity of around 1500 tonnes per year. According to Orano, at the end of 2020 the project provided work for 617 employees and 630 sub-contractors.

<https://www.world-nuclear-news.org/Articles/Niger-uranium-mine-ends-operations-after-47-years>

Ministers gear up for COP26

World Nuclear News, April 06, 2021

The post-COVID economic recovery and the clean energy transition present a huge opportunity from which all nations can benefit, delegates at the IEA-COP26 Net Zero Summit agreed. Over 40 countries, covering more than 80% of global GDP, population and carbon emissions, took part in the event on 31 March to identify how to work together to meet the goals of the Paris Agreement. They included the USA, which re-joined the 2015 climate accord earlier this year. The live-streamed summit was co-hosted by International Energy Agency (IEA) Executive Director Fatih Birol and COP26 President

Alok Sharma. Ministers joined the plenary session, while civil society groups, private companies and government institutions took part in the webinar's five panel discussions.

Birol described the summit as a critical milestone on the road to COP26 in Glasgow this November. In the nearer term, he said it will help inform the IEA's Net Zero by 2050: A Roadmap for the Global Energy Sector, which will be published on 18 May. "Half the energy world needs to transform itself to reach the net-zero target," Birol said. "The roadmap shows there is a lot of work to do but that it can be done." Laura Cozzi, chief energy modeller at the IEA, gave a "sneak preview" of the report. "We're currently analysing more than 100 technologies and looking at all the power plants and factories in the world. We're making use of the most powerful energy and technology models here at the IEA to design an orderly transition, and identify milestones for governments, industries and citizens. The prize at the end of the journey is really huge: A clean, prosperous and resilient global economy in 2050, which achieves our most ambitious climate goals. But to get there we need to transform our energy system at a speed and scale that we've never seen before; from how we fuel our vehicles, to how we heat our homes, cool our offices and power our factories."

<https://www.world-nuclear-news.org/Articles/Ministers-chart-the-path-to-COP26>

TAE reaches 'hot enough' plasma milestone

World Nuclear News, 09 April 2021

TAE Technologies, the California, USA-based fusion energy technology company, has announced that its proprietary beam-driven field-reversed configuration (FRC) plasma generator has produced stable plasma at over 50 million degrees Celsius. The milestone has helped the company raise USD280 million in additional funding. These experiments were optimised with the most advanced computing processes available, including machine learning from an ongoing collaboration with Google (which produced the Optometrist Algorithm) and processing power from the US Department of Energy's INCITE programme that leverages exascale-level computing.

Plasma must be hot enough to enable sufficiently forceful collisions to cause fusion and sustain itself long enough to harness the power at will. These are known as the 'hot enough' and 'long enough' milestone. TAE said it had proved the 'long enough' component in 2015, after more than 100,000 experiments. A year later, the company began building Norman, its fifth-generation device, to further test plasma temperature increases in pursuit of 'hot enough'. The company said the latest milestone "confirms a key differentiator of TAE's patented technology: a positive relationship between plasma confinement and reactor temperature, meaning that the company's compact linear configuration improves plasma confinement as temperatures rise. By generating such stable high-temperature plasmas, TAE has now validated that the company's unique approach can scale to the conditions necessary for an economically viable commercial fusion power plant by the end of the decade."

<https://www.world-nuclear-news.org/Articles/TAE-reaches-hot-enough-plasma-milestone>

IAEA's presence is expanding, says Grossi

World Nuclear News, April 14, 2021

The International Atomic Energy Agency (IAEA) has a clear mandate, but the climate crisis and the economic impact of the pandemic mean that, on behalf of its Member States, it needs to have a more visible presence than has traditionally been the case, its director general said yesterday during the World Nuclear Fuel Cycle forum, which is being held this week by the US Nuclear Energy Institute and World Nuclear Association. Speaking as part of the forum's first session - Executive Panel: From

Plans to Actions - Rafael Mariano Grossi said the IAEA is therefore collaborating even more with other organisations to offer its "unique perspective".

The Vienna-based agency was created in 1956 as the world's Atoms for Peace organisation within the United Nations family. From the beginning, it was given the mandate to work with its Member States and multiple partners worldwide to promote safe, secure and peaceful nuclear technologies. The objectives of the IAEA's dual mission - 'to promote and control the atom' - are defined in Article II of the IAEA Statute. Grossi's predecessor, the late Yukiya Amano, amended the IAEA's motto to Atoms for Peace and Development which aligned the agency more closely with other UN bodies working on the 17 goals for sustainable development. Under his leadership, the IAEA also stepped up its support to countries looking to introduce nuclear power in their energy mix.

<https://www.world-nuclear-news.org/Articles/IAEAs-presence-is-expanding-says-Grossi>

Nuclear industry must change the way it communicates, says Think Atom

World Nuclear News, April 15, 2021

The nuclear industry has for too long taken a passive role in debates that determine how its technology is perceived by the public, but the climate crisis demands active communication about its many benefits, Rauli Partanen, the CEO of Think Atom, said yesterday in his address to delegates at the World Nuclear Fuel Cycle forum. In his keynote speech, Selling the benefits instead of the fear - How to turn the discussion on the future of nuclear into an expansive and progressive one, Partanen said the positive facts about nuclear are lost to poor messaging.

Referring to a special report published in October 2018 by the United Nations' Intergovernmental Panel on Climate Change (IPCC), which showed that a large increase in the use of nuclear power would help keep global warming to below 1.5 degrees, Partanen said it ought to be clear that the net-zero by 2050 target "calls for everything and everyone on board". That's especially so, given that the last 30 years of climate action has seen emissions continually increase. "We're going in the wrong direction and maybe even at an accelerated pace," he said.

According to the IPCC average of the four main scenarios, nuclear energy capacity needs to increase four to five times from its current level. "I'd even say that is too little because half of the scenarios are expecting that energy consumption globally will decrease even though we will have three billion more people and the economy is supposed to be growing to get people out of poverty," Partanen said. "There is also a lot of biomasses use that is already facing pressure from biodiversity and ecosystem fragmentation, so I think we should have even more nuclear than that. But if we stick with what the IPCC said, even then I'm not sure the nuclear industry or the policymakers or the public at large have realised the significance of what needs to happen with nuclear growth, and that's after we have grown renewable energy as much as we can."

<https://www.world-nuclear-news.org/Articles/Nuclear-industry-must-change-the-way-it-communicat>

TRISO fuel made in Canada for first time

World Nuclear News, April 15, 2021

Canadian Nuclear Laboratories (CNL) has fabricated proprietary advanced fuel pellets for Ultra Safe Nuclear Corporation's (USNC) Micro Modular Reactor (MMR). This is the first time that a TRISO-based nuclear fuel has been manufactured in Canada. CNL's project to produce fully ceramic microencapsulated (FCM) fuel pellets has been funded through the Canadian Nuclear Research

Initiative (CNRI), a programme launched in 2019 by CNL to accelerate the deployment of small modular reactors (SMRs) in Canada by enabling research and development, and to give SMR vendors access to the laboratory's expertise to help advance the development and commercialisation of their technologies.

"The successful fabrication of this innovative fuel design represents a major milestone for SMR research here in Canada, and demonstrates that CNL has the necessary expertise and capabilities to help move these advanced fuels from concept to reality," CNL President and CEO Joe McBrearty said.

<https://www.world-nuclear-news.org/Articles/TRISO-fuel-made-in-Canada-for-first-time>

Canadian provinces complete SMR study

World Nuclear News, April 15, 2021

A study into the feasibility of the development and deployment of small modular reactors (SMRs) in Canada, prepared at the request of the leaders of New Brunswick, Ontario and Saskatchewan, has concluded the development of SMRs would support domestic energy needs, curb greenhouse gas emissions and position Canada as a global leader in this emerging technology. The province of Alberta has joined the three provinces as a signatory to a Memorandum of Understanding to collaborate on SMR development.

It sets out three streams of SMR project proposals for consideration by the governments of Ontario, New Brunswick and Saskatchewan. Stream 1 proposes a first grid-scale SMR project of about 300 MW, which would be built at the Darlington nuclear site in Ontario by 2028. Subsequent units in Saskatchewan would follow, with the first SMR projected to be in service in 2032. Stream 2 would see two fourth-generation advanced SMRs that would be developed in New Brunswick, with an initial ARC Clean Energy demonstration unit at the Point Lepreau nuclear plant site operational by 2030, and a Moltex Energy Inc waste recycling facility and reactor by the early 2030s. Stream 3 proposes a new class of micro-SMRs designed primarily to replace the use of diesel in remote communities and mines. A project with a 5 MW Ultra Safe Nuclear Corporation gas-cooled reactor is under way at the Chalk River site in Ontario and is expected to be in service by 2026.

<https://www.world-nuclear-news.org/Articles/Canadian-provinces-complete-SMR-study>

Op-ed

Nuclear power can help raise climate ambitions

World Nuclear News, April 14, 2021

Policymakers who ignore nuclear energy are not serious about meeting climate goals, delegates said at an Atlantic Council webinar last week. The first in the Raising Ambitions series, the event highlighted the attributes of this clean source of electricity and heat ahead of the Leaders' Climate Summit, which the US Administration is hosting on 22-23 April. Jennifer Gordon, managing editor and senior fellow at the Atlantic Council Global Energy Center, moderated the webinar's panel discussion, which included Sama Bilbao y León, director general of World Nuclear Association; William Magwood, director general of the OECD-Nuclear Energy Agency (NEA); John Wagner, director of the Idaho National Laboratory (INL); and Arun Khuttan, the Next Gen Nuclear Industry Council's project lead for COP26.

Gordon noted that the White House describes the Leaders' Climate Summit as a key milestone on the road to the United Nations' next Conference of the Parties that will take place in Glasgow this November. She asked each of the webinar's panellists what they hoped to see from the summit. "The most important signal is a strong dose of reality," Magwood said. "In the climate discussion, there's an awful lot of rhetoric, handshaking and table pounding, but there's not always a lot of hard reality." For example, the suggestion that an effective response to the climate emergency entails making sacrifices, such as not eating meat, driving cars and travelling by aeroplane, is "a loser" of an argument, he said. "People are not going to give up civilisation to save the planet. That means we have to be able to give them a scenario where there is plentiful, reliable, inexpensive electric energy that will propel economic prosperity, growth around the world, and not just for those of us that already have it, but also for the billion people out there who want to have it," he said. "To take nuclear out of that conversation as the leaders sit around the table shows simply, in my view, a lack of seriousness about the issue."

Bilbao y León said focusing on changes to the way of life enjoyed in industrialised nations also shows a lack of respect for the ambitions of the developing world. "It's nice for us in OECD economies to say we can sacrifice our quality of life to some extent to transition to clean energy systems, but in less developed countries there are no luxuries to give up," she said. Policymakers should therefore prioritise substance over style. "I have heard a lot of metrics that tell me what kinds of technology are going to be installed here and there, what percentage of this, what percentage of that, but what we really need to do is look into the metrics of achievement." This means being technology neutral when framing climate policies. "Different countries will have different ways to reach achievements that are focused on decarbonisation, and definitely we need a reality-check. If you look at the percentage of low-carbon electricity that we have today, it's exactly the same as we had 20 years ago. So, all of these investments that we think are very effective, clearly, they are not. We need all the tools in the tool-box to meet the enormous size of the challenge and the very short time we have to address it."

<https://www.world-nuclear-news.org/Articles/Nuclear-power-can-help-raise-climate-ambitions>

Think Tanks

UK to Increase Cap on Nuclear Warhead Stockpile

Kingston Reif and Shannon Bugos
Arms Control Today, April 2021

In a significant departure from an earlier pledge, the United Kingdom announced in March that it will raise the ceiling on its nuclear warhead stockpile by more than 40 percent above its previous target and would no longer publish information about the number of warheads it maintains in an operational status. London will raise the ceiling on its overall stockpile to 260 warheads by the middle of the decade, according to an integrated review of security, defense, development, and foreign policy published March 16. The new ceiling is a 44 percent increase above the level of 180 warheads that was first announced in the UK's 2010 Strategic Defence and Security Review and reiterated again in 2015.

The UK currently has about 195 nuclear warheads, of which 120 are operational, according to an estimate by researchers at the Federation of American Scientists. The UK deploys its entire nuclear arsenal aboard four Vanguard-class submarines, each of which is armed with Trident II D5 submarine-launched ballistic missiles. At least one submarine is always at sea on deterrence patrol. London maintains that a submarine on patrol would require several days' notice to launch a missile. The integrated review attributed the change in the warhead stockpile to "the evolving security environment, including the developing range of technological and doctrinal threats" and cited "risks to the UK from

major nuclear armed states, emerging nuclear states, and state-sponsored nuclear terrorism.” But the document did not provide further detail about these threats.

UK Foreign Secretary Dominic Raab justified the plan to increase the warhead stockpile as “the ultimate insurance policy against the worst threat from hostile states” in an interview with the BBC. UK Defense Minister Ben Wallace told the BBC on March 21 that the change is a response to what “the Russians and others have been up to in the last few years,” specifically citing Russian investments in ballistic missile defense and new offensive capabilities. The integrated review also states that the UK will “no longer give public figures for our operational stockpile, deployed warhead or deployed missile numbers” as such “ambiguity complicates the calculations of potential aggressors, reduces the risk of deliberate nuclear use by those seeking a first-strike advantage, and contributes to strategic stability.” The Johnson government’s decision to increase the warhead stockpile was controversial within the UK.

<https://www.armscontrol.org/act/2021-04/news/uk-increase-cap-nuclear-warhead-stockpile>

Iran’s middle class and the nuclear deal

Djavad Salehi-Isfahani, April 8, 2021

Brookings, April 08, 2021

This week the U.S. and Iranian negotiators met for indirect talks in Vienna and agreed on procedures for the two countries to return to the 2015 Iran nuclear deal, formally known as the Joint Comprehensive Plan of Action (JCPOA). Millions of Iranians continue to suffer economically from both U.S. maximum pressure sanctions and the pandemic. Meanwhile, the Biden administration has been waiting for Iran to get back into compliance before it considers easing the sanctions. A dozen op-eds and bipartisan congressional letters have urged President Biden to keep his predecessor’s maximum pressure campaign going, using the damage done to the livelihood of millions of Iranians as leverage to extract more concessions.

<https://www.brookings.edu/blog/future-development/2021/04/08/irans-middle-class-and-the-nuclear-deal/>

Nuclear arms control in the 2020s

Steven Pifer,

Brookings, April 8, 2021

As the United States, Russia and others figure out how to maintain and enhance strategic stability in a multi-player, multi-domain world, Washington and Moscow will continue to have a central role, writes Steven Pifer. This article was first published by the Valdai Discussion Club.

The Biden administration sees arms control as a tool that can advance security and stability. It will seek to engage Russia on further nuclear arms reductions and other measures. Arms control in the 2020s will reflect continuity with earlier efforts—nuclear arms reductions will remain a bilateral matter between Washington and Moscow—but also contain new elements. That reflects the fact that strategic stability has become a more complex concept.

<https://www.brookings.edu/blog/order-from-chaos/2021/04/08/nuclear-arms-control-in-the-2020s/>

Will Natanz attack, uranium enrichment derail nuclear diplomacy with Iran?

Robert Einhorn and Adrianna Pita

Brookings, April 14, 2021

Both Iran and the U.S. have incentive to continue negotiations in Vienna toward restoring the Joint Comprehensive Plan of Action (JCPOA), says Robert Einhorn, in spite of this weekend's attack on Iran's Natanz nuclear facility and Iran's subsequent move to step up its uranium enrichment process.

<https://www.brookings.edu/podcast-episode/will-natanz-attack-uranium-enrichment-derail-nuclear-diplomacy-with-iran/>

Contribute Articles

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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