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Monitored this issue:

Jan Willem Storm van Leeuwen, independent researcher from the Netherlands, outlines in this article some developments in the nuclear world over the past 2023.

An important criticism of the World Energy Outlook has been that the IEA systematically underestimates the development of renewable energy sources such as solar and wind energy. On the other hand, it systematically overestimates the role and development of nuclear energy. In this article Jan Haverkamp, campaigner for Greenpeace and WISE zooms in on this overestimation of nuclear power.

An earthquake in South Korea could result in cracks in the containment building due to the use of non-seismic-certified anchor bolts and result in radioactivity leaks or even a nuclear power plant accident , according to a new Greenpeace Asia report.

- Update World Nuclear Industry Status Report
- Investing in nuclear energy is bad for the climate
- Flagship project NuScale terminated

Nuclear energy in 2023, some facts

Jan Willem Storm van Leeuwen, member of the Nuclear Consulting Group

A nuclear power plant is not a stand-alone system. To function properly it needs a complex of technical and industrial processes. Nuclear energy is generated by fissioning uranium-235 nuclei in a nuclear reactor. From where comes that uranium?

Often people are inclined to talk solely about the nuclear reactor when discussing nuclear power; the other processes are not visible at the site of an operating nuclear power plant. The chain of activities needed to enjoy nuclear power is comparable to a common, daily chain of activities. Getting a nice meal implicates a chain of activities: gathering the ingredients, cooking the meal, setting the table, enjoying the meal, clearing the table, washing the dishes and cleaning the kitchen.

Application of nuclear energy has many aspects: technical, social, financial, political, military and aspects concerning safety and health of millions of people. This complexity may be a factor why policymakers are often not well informed about nuclear power.

Construction of new nuclear power plants

Experience in France, UK and Finland indicates that the costs of a new nuclear power plant may be as high as 10 bn euro/GW and that the construction time may become 15-20 years. Remarkably, the construction costs of nuclear power plants kept rising since the construction of the first nuclear power plants in the 1960s: the absence of a learning effect.

CO2-free?

Many policymakers are considering nuclear power as the best solution to decrease the emission of CO2 into the atmosphere and halting the global warming. The contribution of nuclear power to the world energy consumption is about 2%. Assuming that the generation of nuclear power does not emit CO2, which is not true, the nuclear contribution to the reduction of the world CO2 emission and the reduction of the global warming would be no more than 2%.

Fission of uranium-235 nuclei in the reactor is the only process in the chain of processes vital to the generation of usable energy from uranium that does not produce CO2, all other processes do, directly or indirectly.

The construction of one nuclear power plant consumes more than 1 million tons of concrete and 0,2 million tons of steel. No CO2?

Green?

The only green energy source humankind has at his disposal is the sun. Look at the biosphere: a green layer of highly ordered materials around the globe. These green ordered materials came into being from dispersed materials: CO2 in the air and water with dissolved minerals. Ordered materials have a low entropy, dispersed materials have a high entropy; entropy is a measure of dispersion, of chaos. Lowering the entropy of an amount of material, that means increasing the order in that material, is only possible by a unidirectional flow of energy. Energy from the sun reaching the surface of the Earth is a unidirectional flow.

Conversion of the potential energy from mineral energy sources (fossil fuels and uranium) into a unidirectional energy flow is thermodynamically coupled to the generation of entropy: dispersion of heat and materials, some of which are radioactive. One of the dispersed materials is CO2. Because the conversion of potential energy from mineral energy sources occurs within the biosphere all its unavoidable entropy effects remain in the biosphere: the consequences are deterioration of the biosphere and global warming. The entropy coupled to the energy generation in the sun remains in the sun and its surrounding space. Thanks to the unidirectional energy from the sun the Earth has a green biosphere, with a low entropy. That is green energy.

Energy cliff and CO2-trap

Extraction of uranium from the Earth's crust consumes energy and is accompanied by the emission of CO2. The content of uranium in the still available uranium ores is lowering in the course of time. Mining companies always use the richest available ores first, because these deliver the highest return on investments. So the remaining ores are poorer, have a lower grade. Consequently in the course of time the extraction of one kilogram uranium consumes more energy and emits more CO2. This phenomenon occurs also with the extraction of other metals, but uranium is the only metal used as energy source.

If the world nuclear power production remains at the present level, the extraction of 1 kg uranium from the Earth's crust in the 2070s is expected to consume as much energy as can be generated from that kilogram. This is called the *energy cliff*. When this extraction is fuelled by fossil fuels, the emission of CO2 per kilowatt-hour of the contemporary nuclear process chain will be as high as the specific CO2 emission of fossil fuelled power plants. This is called the *CO2-trap*.

Radioactivity

A unique aspect of a nuclear reactor is its generation of human-made radioactivity. One nuclear power plant produces each year an amount of human-made radioactivity equivalent to the amount generated by the explosion of more than 1000 Hiroshima atomic bombs. Radioactivity is not visible nor can be smelled, its presence can be demonstrated only by special equipment.

A nominally operating nuclear power plant discharges into the air and/or into the cooling water several radionuclides, important ones are: tritium (H-3, radioactive hydrogen), carbon-14 (radioactive carbon) and krypton-85 (radioactive noble gas krypton). Both tritium and carbon-14 accumulate in the food chain.

Tritium is biologically dangerous. Tritium atoms can be incorporated in DNA molecules. By radioactive decay of the tritium atoms the DNA molecules get damaged; damaged DNA molecules may cause serious disorders. Krypton-85 can be uptaken via inhalation, it has a high lipid solubility. Its radioactivity is damaging in living tissue. In addition krypton-85 causes disturbing effects in the atmosphere.

Health risks, millions of people are involved

The consequences of contamination by radiation and/or radioactive materials become not immediately noticeable, but after weeks, months or years. A direct causal connection between a radioactive contamination and a specific disorder is rarely provable. With epidemiological studies in large population groups correlation can be demonstrated between exposure to radioactivity and health. No epidemiological studies on the initiative of the nuclear industry or governments have been performed after the disasters of Chernobyl and Fukushima.

Epidemiological studies in Germany and France, by medical institutes, proved that the occurrence of cancer among children younger than 5 years increases as they live nearer a nominally operating nuclear power plant.

Storage of radioactive materials

Radioactive waste produced during more than seven decades of nuclear power is still waiting for definitive storage in geological repositories. The radioactive materials, remaining radioactive for tens of thousands of years, are stored in vulnerable above-ground facilities. Safe storage in deep geological repositories is still not the practice anywhere in the world. As far as known Sweden and Finland made the most progress in constructing such repositories, 500 meter deep in granite. Constructing a geological repository plus storing the waste in it may cost more than the construction of a new nuclear power plant.

Safety

Globally the chance of occurring severe nuclear disasters increases with time. Three Miles Island, Chernobyl and Fukushima will unlikely be the last nuclear disasters. During the Chernobyl disaster, the amount of human-made radioactivity dispersed into the environment was less than the production of one year. Vulnerable for severe failures are not only nuclear reactors, but also the transport of highly radioactive materials, the temporary storage of spent nuclear fuel elements and reprocessing plants. A nuclear disaster can proceed silently, contaminating large areas and hundreds of thousands of people without notice.

One factor that certainly enhances the chance of a nuclear disaster is the inevitable ageing of the construction materials by spontaneous processes (Second Law of thermodynamics). A second certain factor is the increase of the quantities of temporarily stored radioactive materials. Unpredictable factors are terrorism, military actions, natural disasters, accidents caused by human failure.

Small Modular Reactor (SMR)

SMRs are defined to have a power in the range of 30 - 500 MW, instead of the present large nuclear reactor (1200 MW). The SMR is claimed to be safer, cheaper to build and would produce less waste. These claims are unproven. The SMR concept may be similar to a military reactor used in ships and submarines and operates with highly enriched uranium. At this moment the first commercial SMR exists only on paper.

Thorium

The use of thorium instead of uranium is sometimes named as the future of nuclear power. Thorium is more abundant in the Earth's crust than uranium and a thorium reactor is said to produce less dangerous radioactive waste. Thorium is a radioactive metal and is not fissionable. To use it as energy source, thorium has to be converted into fissile uranium-233 by means of neutron radiation in a nuclear reactor.

Use of thorium as a commercial energy source implicates the construction and the flawless operation of a breeding cycle. In addition to severe technical difficulties, fundamental problems prevented realisation of a functioning thorium-uranium-233 breeding cycle. Development of such a breeding cycle in the USA has been discontinued decades ago.

Uranium-plutonium fast breeder

Scarcely mentioned in these days is the uranium-plutonium fast breeder, which would produce electricity "too cheap to meter". The U-Pu breeder would fission an amount of uranium nuclei from a kilogram of natural uranium 60-100 times the amount that is fissioned in a conventional reactor, which can fission not more than 0.5% of the nuclei in natural uranium. In seven countries the development of the U-Pu breeder system has been discontinued, only three (Russia, India, China) are still pursuing this line. The total investments in breeder technology by Western countries is estimated to be about 100 billion dollars. The reason of the discontinuation may be found in the confrontation with the same kind of technical and fundamental problems as with the development of the thorium-uranium-233 breeder system.

The scientific foundations of the facts mentioned in this article and the accompanying scientific references can be found on the website https://www.stormsmith.nl/

World Energy Outlook 2023

Nuclear overestimates are structural

Jan Haverkamp – WISE International, Greenpeace

Last month, the International Energy Agency (IEA) released its World Energy Outlook 2023 (WEO-2023). The annual WEO is always much anticipated by the industry and policy makers. Based on a wealth of data, the IEA provides a glimpse of developments in the global energy industry up to 2050.

An important criticism of the study has always been that the IEA systematically underestimated the development of renewable energy sources such as solar and wind energy. On the other hand, it systematically overestimated the role and development of nuclear energy. Here we zoom in on this overestimation of nuclear power. To illustrate how systematic the overestimation is, the predictions that the IEA made in 2013 in three different scenarios. In the last column the actual realization.

	WEO-2013 Current Policies	**WEO-2013 New Policies**	**WEO-2013 450 Scenario**	**Actual situation 2020**
Installed nuclear capacity 2020 (GWe)	460	471	692	367
Generated electricity 2020 (TWh)	3.322	3.400	5.837	2.553

Even in the IEA's most cautious scenario, 23% less power was produced by nuclear power plants than predicted. The question is, of course, whether the IEA has gradually learned from its mistakes and made the forecasts more realistic.

World Energy Outlook 2023

When we look at the WEO-2023 released this month, we see that the overestimation trend has continued. WEO-2023 describes three scenarios, of which the Net Zero scenario is the most far-reaching. The STEP scenario follows today's current policies trends, Announced Pledges introduces announced policies. In the table below we have compared the forecasts of these scenarios for 2030 and 2050 with the actual situation in 2022.

	Installed nuclear capacity (GWe)		Generated electricity (TWh)	
Actual 2022	393		2.486	
	2030	**2050**	**2030**	**2050**
WEO-2023 STEP (current policies)	482	622	3.351	4.354
WEO-2023 Announced Pledges	497	769	3.496	5.301
WEO-2023 Net Zero Scenario	541	916	3.936	6.015
Net Zero Difference with situation 2022		+233%		+243%

In the Net Zero Scenario, both the installed capacity and the amount of electricity generated will have to increase almost 2.5 times.

Reality check

How realistic are the IEA's predictions? There are currently 58 new nuclear reactors under construction with 60 GWe capacity. These reactors will come into operation between now and 2038. Perhaps six more new reactors will be added in the next two years and will come into operation before 2040. That is a total of up to 70 GW of new capacity in 2040.

But in the meantime, old nuclear power plants will also be retired. Many nuclear power stations are now more than 40 years old and are not built to supply electricity forever. In a very optimistic estimate, it may be possible to continue operating 100 GW (almost a quarter) of the existing fleet until 2050. This would mean that 746 GWe would have to be added between 2040 and 2050 in the Net-Zero scenario. That's more than 70 large reactors every year, year in and year out.
More strikingly, even the STEP (current policies) scenario relies on an addition of 40 GW per year between 2040 and 2050, year on year, which only will be possible with an almost war-footing-like increase in construction capacity.

To put this all into perspective, in recent years 5 (2020), 6 (2021), 6 (2022) and 4 (2023 so far) new reactors have been added to the network respectively.

Conclusion: IEA scenarios are unrealistic for nuclear

The IEA not only overestimates nuclear power systematically, in its 2050 scenarios it moves beyond that. Overestimation happened before, see the numbers predicted in 2013 (10 years ago, 2 years after Fukushima). But the numbers predicted in the more nuclear-optimistic scenarios for 2050 go far beyond any sense of reality. The production of large parts of nuclear power plants simply cannot be scaled up physically that much in the 17 years before 2040.

Of course, the introduction of new small reactor designs (SMRs) could change the issue of construction capacity to some degree, but that would also mean that the number of new reactors per year would have to grow much more due to loss of economies of scale.

It must be kept in mind that even in the most nuclear-optimistic Net Zero scenario, the reduction of greenhouse gases by nuclear energy in 2050 is no more than about 4% - in the year that we must have reduced 100%.

It is unfortunate that the IEA did not consider it necessary to include a number of realistic scenarios – one based on a small but realistic growth in nuclear energy, and one based on a phase-out of nuclear energy because of its marginal contribution at much too high costs. Particularly because if we compare scenarios assessed in the IPCC 2023 AR6 report with those in in the 2019 SR1.5 report, there is a clear trend towards specifically such scenarios.

Declaration to Triple Nuclear Energy

At the COP-summit in Dubai, starting this weekend, a few countries will push a declaration to triple nuclear energy. The problem is the same as with the World Energy Outlook 2023; an overestimation of the role and development of nuclear energy. The declaration states: 'Recognizing that analyses from the OECD Nuclear Energy Agency and World Nuclear Association show that global installed nuclear energy capacity must triple by 2050 in order to reach global net-zero emissions by the same year'. And: 'Recognizing that analysis from the International Energy Agency shows nuclear power more than doubling from 2020 to 2050 in global net-zero emissions by 2050 scenarios and shows that decreasing nuclear power would make reaching net zero more difficult and costly'. As explained in the article on the WEO-2023 this is unrealistic due to for example old nuclear power plants which are not built to supply electricity forever and will retire in the next 20/30 years.

Sources:

https://www.iea.org/reports/world-energy-outlook-2023

Nuclear energy figures worldwide:
https://pris.iaea.org/PRIs/Home.aspx

Unsuitable anchor bolts at ageing nuclear power plants in South Korea

Greenpeace Asia

Unsuitable anchor bolts at ageing nuclear power plants in South Korea violate Nuclear Safety Act and require a decommissioning plan rather than a life extension review.

The Wolseong Nuclear Power Plant is located only 10km away from the epicenter of the magnitude 4.0 earthquake that occurred in Gyeongju on 30 November 2023.

An earthquake could result in cracks in the containment building due to the use of non-seismic-certified anchor bolts and result in radioactivity leaks or even a nuclear power plant accident.

The office of Representative Kim Seong-hwan of the Democratic Party of Korea held a press conference on 30 November 2023, revealing data on the use of unsuitable anchor bolts in domestic nuclear power plants. These data were submitted by an anonymous informant. According to the published data, non-seismic-grade anchor bolts were installed in a total of 14 South Korean nuclear power plants**. Of these, 10 are ageing nuclear power plants for which the Korean government aims to extend their lifespan in the near future.

Korea is not an earthquake-safe zone. The epicentre of the magnitude 4.0 earthquake that occurred on the 30 November is only 10 km away from the Wolseong Nuclear Power Plant. An investigation by the Ministry of Public Administration and Security on active faults in the southeastern part of the Korean Peninsula published in January of this year , showed a total of seven active faults within a 32km radius of the Kori and Wolseong nuclear power plants. According to the southeastern region investigation report, three additional active faults were discovered 10-20km away from the Wolseong Nuclear Power Plant, none of which were reflected in the nuclear power plant's seismic design. Professor Son Moon of Pusan National University, determined that the maximum earthquake magnitude of these faults is estimated to be able to be as large as between 6.5 and 7.0 . It was revealed that key safety components that ensure nuclear power plant safety did not have earthquake-resistant performance, nor did they meet design standards.

Anchor bolts are mechanical devices that are embedded in the concrete floor and walls of a nuclear power plant to secure facilities. 1) They must be made of a material required by the standards specified in the design, and 2) They must be uniform and not too short or longer than the length required in the design. 3) Design and construction must be consistent. In particular, safety-related facilities in nuclear power plants must be constructed with anchor bolts in accordance with legal design standards, and if the above construction requirements are not met, this is ground for suspension of operation or cancellation of the operating permit due to non-compliance with the design standards.

Anchor bolts installed in safety-related facilities require the so-called Q grade with verified seismic performance according to the Rules on technical standards for nuclear reactor facilities, etc. (hereinafter referred to as technical standards rules) Article 2, Paragraph 5, “Structures and systems important to safety”. Grade Q is the highest grade in the nuclear power rating scheme.

The first issue addressed in the reported data is the problem of non-seismic-grade anchor bolts installed at the pressure boundary of the containment building of Wolseong Units 1, 2, 3, and 4.

The containment building is the last barrier to prevent radioactive materials from leaking into the environment in the event of a nuclear power plant accident. Therefore, devices in the containment building must be constructed in accordance with the design standards, using anchor bolts whose seismic performance has been verified in accordance with legal standards. This is to withstand the pressure during an earthquake without causing damage to the equipment in the containment building. A review of the actual measurement data of 279 of the total 353 devices in the Wolseong Unit 3 containment building, revealed that approximately 1,300 anchor bolts installed are NSQ grade, that is, non-seismic grade. Since the entire Wolseong Nuclear Power Plant was constructed with the same design, it is likely that the remaining Wolseong Units 1, 2, and 4 containment buildings will face a similar situation.

The anonymous informant pointed out that non-seismic-grade anchor bolts do not have the ability to protect sufficiently against earthquakes. They cannot withstand the load of shaking during an earthquake and that can result in damage such as cracks, protrusions, and other damage to the construction. This is of high concern, because the location where non-seismic-grade anchor bolts are currently installed is the pressure boundary of the containment building (floor, wall, dome), and in case their number exceeds 1,000, this could result large-scale cracks in the containment building. When an earthquake occurs, and equipment with non-seismic-grade anchor bolts is damaged and the reactor cannot be stopped safely, a Loss of Coolant Accident (LOCA) could occur, in which primary coolant pipes rupture, resulting in overheating and overpressure in the reactor. This could result in a nuclear power plant accident, in which a substantive amount of radioactive substances could spread through cracks in the containment building over the Korean Peninsula, including Gyeongju and Ulsan.

The installation of non-seismic-grade anchor bolts in a containment building that is a safety-grade facility according to the technical standards rules [Regulations on safety grades and specifications for nuclear reactor facilities] is in breach with nuclear power plant operation in accordance with Article 21 of the Nuclear Safety Act. Such a clear violation of the law should result in suspension of operation or cancellation of the operation license.

The second issue covered in the reported data is that inappropriate anchor bolts were installed in safety-related equipment of 13 domestic nuclear power plants.

According to the data revealed at the press conference at the National Assembly, there are a total of 1,830 safety-related devices in the 13 operational nuclear power plants in Korea, and the number of anchor bolts is approximately 12,000. Among these, there are about 1,000 anchor bolts that do not meet the anchor length required in the design.

In addition, since these devices all fall under safety classification, the anchor bolt material used and required by the design has to be in accordance with legal standards. However, it was alleged that there are approximately 3,300 anchors of unconfirmed material. In particular, since safety-related devices carry a large load, high-strength anchor bolts (A449, A325) should be used, while the data allege that approximately 7,074 low-strength anchor bolts (A307, A36) were installed. The plant operator, Korea Hydro & Nuclear Power, should evaluate these data, the used material and operability, and it must be investigated whether unsuitable anchor material has been used.

The Korean Nuclear Safety and Security Commission (NSSC) and Korea Hydro & Nuclear Power (KHNP) have always maintained the position that 'there is no problem with safety' in respect to various allegations such as corruption at nuclear power plant parts, counterfeit reports, and containment building voids that have been disclosed through reports over the past 10 years. However, this anchor bolt problem is on a different level. To illustrate this, Shin Hanul Unit 2, which began test operation last September, had to replace all anchor bolts that did not meet the permit standards. The problem is that in the case of an operating nuclear power plant, chances for additional construction or re-construction of anchor bolts are very limited because of interference with other facilities, and in particular, re-construction of the containment building will not be possible. The current anchor bolt problem furthermore does not meet life extension screening criteria.

KHNP's failure to discover, report, and disclose nonconformities that did not meet design standards is a violation of the Nuclear Safety Act.

Anchor bolts that do not meet the design standards installed in all the containment buildings of the Wolseong Nuclear Power

Plant and in the 13 units of other operational nuclear power plants require corrective action in accordance with Article 83 of the Technical Standards Rules. Article 15-3 of the Nuclear Safety Act stipulates KHNP's obligation to report nonconformities, and the level of punishment for failure to report, or false reporting in accordance with Article 117, Paragraph 7 is also specified.

According to the report, the Korea Institute of Nuclear Safety (KINS) and the Nuclear Safety and Security Commission became aware of the difference between anchor bolt construction and design standards as early as 2015. All reported data were created in 2017 and 2018, but the Nuclear Safety and Security Commission started a related audit only in 2021. KHNP furthermore should post nonconformities on the Open Nuclear Power Plant Operation Information website. However, the position on the two issues above is not yet public. No corrective action or improvement has been taken for nonconformities to date. The Nuclear Safety and Security Commission completed a specific audit related to radioactive material leakage and anchor bolts from the Wolseong Nuclear Power Plant's spent nuclear fuel storage tank and waste resin storage tank in January 2023, but has not yet disclosed the results.

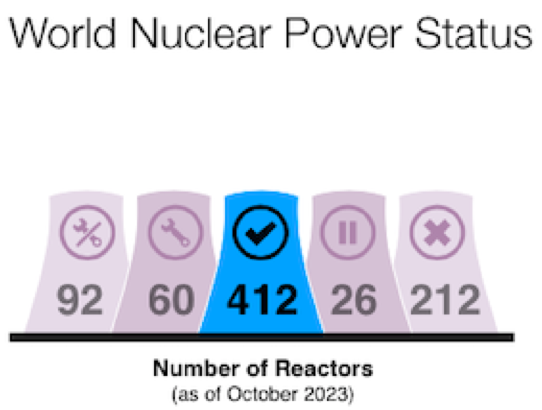
The Nuclear Safety and Security Commission can order corrective action in accordance with Article 98 of the Nuclear Safety Act, is obliged to have KHNP report and disclose nonconformities to the public and has the obligation to determine whether cancellation or suspension of the operating license is warranted in accordance with Article 24 of the Nuclear Safety Act, and take action. It is alleged that the Nuclear Safety and Security Commission has not taken any regulatory action as mentioned above even though it was aware of the problems several years ago. If this is confirmed to be intentional, it would constitute a crime of negligence of duty under the Criminal Act (Article 122). If Korea's nuclear power plant monopoly operators and regulatory agencies indeed were hiding the fact that about 4,000 anchor bolts without earthquake resistance were installed in an ageing nuclear power plant containment building in an area where large-scale earthquakes can occur, the people involved and responsible should be punished appropriately.

Greenpeace East Asia campaigner Mari Chang said, “The problem of inadequate anchor bolts in 14 domestic nuclear power plants as well as the leakage of radioactive materials from the Wolseong Nuclear Power Plant is conclusive evidence of disastrous failure and a moral hazard to the Korean nuclear regulatory agency and nuclear power plant operators,” adding, “It does not meet the operating permit standards.” “For ageing nuclear power plants, the goal should be safe decommissioning, not life extension,” she pointed out. She added, “We will further review these violations of the Nuclear Safety Act and the Criminal Act and report our findings to citizens, nuclear power plant regulators, and Korea Hydro & Nuclear Power.”

**A total of 14 ageing nuclear power plants where non-conforming anchor bolts were discovered.

•Installation of non-seismic-grade anchors in containment buildings: Wolseong Units 1, 2, 3, and 4

•13 operational nuclear power plants: Wolseong Units 2, 3, and 4, Kori Units 3 and 4, Hanbit Units 1, 2, 3, and 4, and Hanul Units 1, 2, 3, and 4.



Source: https://www.worldnuclearreport.org/

Compared to Nuclear Monitor 909, the number of reactors which are under construction has increased from 59 to 60. On 15 November a ceremony was held to mark the start of construction of the nuclear island for unit 1 at the Xudabao nuclear power plant in Liaoning Province, China.

Source: https://www.world-nuclear-news.org/Articles/Work-on-Xudabao-unit-1-gets-under-way

Investing in nuclear energy is bad for the climate

On the 7th of November, EU nuclear energy stakeholders were meeting at the Nuclear Energy Forum. The nuclear industry and certain EU countries called for more support and subsidies for nuclear power, particularly for Small Modular Reactors (SMRs), in the name of reaching the EU's climate goals. Environmental NGOs joined voices to contest this claim, arguing that investing in new nuclear power plants will delay decarbonisation and that SMRs fail to answer the industry's problems. They say governments should rather focus on cheap renewable energy, grids and storage.

At the Nuclear Energy Forum, NGO's called on the EU and its member states to subsidize energy sources that can reliably and cheaply achieve our climate goals, not nuclear power. Rather, investing in new nuclear power plants may prove detrimental to EU climate goals as prolonged delays, cost overruns, geostratic interests, decentralized transition and environmental impact. Small Modular Reactors (SMRs) do not answer any of the industry's fundamental problems because of an unproven technology and waste and proliferation risks.

Source: https://eeb.org/investing-in-nuclear-energy-is-bad-for-the-climate-ngos-say/

Flagship project NuScale terminated

On November 8, Utah Associated Municipal Power Systems (UAMPS) and NuScale Power Corporation have mutually agreed to terminate the Carbon Free Power Project (CFPP). The project to build NuScale small modular reactor units at a site near Idaho Falls had been penciled in for operation by 2029.

"Despite significant efforts by both parties to advance the CFPP, it appears unlikely that the project will have enough subscription to continue toward deployment. Therefore, UAMPS and NuScale have mutually determined that ending the project is the most prudent decision for both parties," the parties said.

Source: https://www.world-nuclear-news.org/Articles/Idaho-SMR-project-terminated