**Nuclear craze**

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Tuesday, May 30, 2023

Small Modular Reactors (SMR) are the new nuclear craze, especially with the U.S. Congress, as America’s representatives see SMRs as a big answer to energy needs and reduction of greenhouse gases, advertised as a green deal for clean energy that skirts the heavy costs of paying the Middle East billions upon billions. However, the devil in the details is dangerously overlooked.

Notable nuclear accidents: NRX (1952) Kyshtym (1957) Windscale (1957) SL-1 (1961) Wood River Junction (1964) K-27 (1968) Three Mile Island (1979) Constituyentes (1983) Mohammedia (1984) K-431 (1985) Chernobyl (1986) Tokai (1997, 1999) Fukushima (2011) … but wait, hundreds, possibly thousands, of Small Modular Reactors (nuclear SMRs) are about to pop up around the world. What could possibly go wrong?

“Multiple and unexpected failures are built into society’s complex and tightly coupled nuclear reactor systems. Such accidents are unavoidable and cannot be designed around.” (Charles Perrow, Normal Accidents (Princeton University Press, 1999)

“On dozens of occasions because of human error or technical miscue or active threat, the world has come dangerously close to the brink of nuclear conflagration… it is a terrifying history of which most people remain ignorant.” (Julian Cribb, How to Fix a Broken Planet, Cambridge University Press, 2023.)

Should nuclear power really circumnavigate the planet with mini-power plants?

For Germany, which closed its last three nuclear plants in April 2023, the country’s Federal Office for the Safety of Nuclear Waste Management conducted a study: “SMRs have been the subject of repeated discussion in recent times. They promise cheap energy, safety, and little waste. BASE commissioned an expert report (in German) to evaluate these concepts and the risks associated with them. The report provides a scientific assessment of possible areas of application and the associated safety issues. It concludes that the construction of SMRs is only economically viable for a very large number of units and poses significant risks if widely deployed.”

Yet, “resistance to nuclear power is starting to ebb around the world with support from a surprising group: environmentalists… This change of heart spans the globe, and is being prompted by climate change, unreliable electrical grids and fears about national security in the wake of Russia’s invasion of Ukraine.” (Source: Why Even Environmentalists are Supporting Nuclear Power Today, NPR, August 30, 2022

U.S. senators recently introduced a nuclear energy bill called the Advance Act with bipartisan support, hopefully enhancing and advancing America’s world leadership role in nuclear energy by deploying SMRs by the bucketful, idealized as a “cleaner smarter safer solution” to today’s bulky nuclear power plants. Advance Act will cut red tape and make it easier and much faster for SMRs to gain a foothold in the marketplace.

Meanwhile, like the U.S., China has the same red hot nuclear fever. It has set aside $440B for its nuclear program, planning to build 150 new reactors by 2037, which equates to 10 per year, which, by almost all standards, seems unachievable. It tops cumulative world production over the past three decades.

Fearful of being left in China’s nuclear dust, on May 18th, a proposed House bill by Wittman (R-VA) speeds-up the building process for SMRs. And Joe Manchin (D-WV) has proposed the Nuclear Fuel Security Act to set up a nuclear fuel security program promoting domestic production of uranium.

The excitement over nuclear is palpable, as politicians’ hands tremble with excitement, introducing what’s billed as the perfect green clean way to solve energy needs. There are cheerleaders galore. The U.S. Congress for one is a very influential cheerleading group, but it’s more pervasive than that. Big players like Japan and China are going all-in for nuclear. Japan Adopts Plan to Maximize Nuclear Energy, in Major Shift, AP News, December 22, 2022.

Wait a moment… isn’t Japan currently being criticized in several quarters of the world for dumping Fukushima toxic radioactive water into the ocean? After all, the U.S. National Association of Marine Laboratories, with over 100 member laboratories, issued a position paper strongly opposing the toxic dumping because of a lack of adequate and accurate scientific data in support of Japan’s assertions of safety.

Regardless, last week the G7 nations gave its blessing for Japan to dump Fukushima’s toxic water into the Pacific Ocean. Hmm.

Interestingly, PM Shinzo Abe (1954-2022) shortly after Fukushima’s meltdown 10 years ago, assured the International Olympic Committee in consideration of holding the games in Tokyo, that “everything was under control.” Notwithstanding numerous assurances by Japanese authorities of no harm, no foul, over the years, several independent journalists in Japan have reported numerous deaths because of the Fukushima meltdown and its aftermath but never acknowledged by the government. Assurances are not always assurances!

Therefore, it’s only fair that the darker side of nuclear cheerleading – yea yea yea no nuclear no nuclear – deserves some notoriety. For starters, the results of a recent study by Stanford University’s Center for International Security and Cooperation published in the prestigious Proceedings of the National Academy of Sciences, May 31, 2022, entitled Nuclear Waste from Small Modular Reactors.

Stanford News also published the study: Sandford-led Research Finds Small Modular Reactors Will Exacerbate Challenges of Highly Radioactive Nuclear Waste. The study concludes that SMRs will generate more radioactive waste than conventional nuclear power plants. Stanford and the University of British Columbia jointly conducted the study, e.g., SMRs will be manufactured in factories and industry analysts claim SMRs will be cheaper and produce fewer radioactive byproducts than the big bulky conventional reactors; however, the study discovered the upsetting fact that, pound-for-pound when compared to the big bulky conventional nuclear plants, SMRs will increase nuclear waste… considerably!

“Our results show that most small modular reactor designs will actually increase the volume of nuclear waste in need of management and disposal, by factors of 2 to 30 for the reactors in our case study,” said study lead author Lindsay Krall, a former MacArthur Postdoctoral Fellow at Stanford University’s Center for International Security and Cooperation: “These findings stand in sharp contrast to the cost and waste reduction benefits that advocates have claimed for advanced nuclear technologies.” (Stanford study)

U.S. nuclear plants have already produced over 88,000 metric tons of “spent nuclear fuel” with nowhere to put it other than risky open pools of water at plant locations and some dry casks setups. Throughout America nuclear facilities contain open pools of spent fuel rods. According to Paul Blanch: “Continual storage in spent fuel pools is the most unsafe thing you could do.” (Paul Blanch, registered professional engineer, US Navy Reactor Operator & Instructor with 55 years of experience with nuclear engineering and regulatory agencies, widely recognized as one of America’s leading experts on nuclear power)

Excerpted: ‘Nuclear Turns Fashionable’. Courtesy: Counterpunch.org