

Counterpoint : It's Time to Close the Chapter on U.S. Nuclear Power

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While the events unraveling at the damaged Fukushima nuclear reactors have sparked the debate on the merits of nuclear power, the history of the nuclear industry demonstrates that economic, environmental, and humanitarian risks are unavoidable with a technology that creates plutonium and other highly radioactive materials just to boil water.

Is it practical ? Nuclear power is too expensive and too risky. Nuclear power is a “bet the company” risk that has a track record of cost-overruns, rate hikes, and bond defaults which led Forbes in the 80s to call nuclear power “the largest managerial disaster in history.”

Three characteristics of nuclear power exacerbate these risks. First, the capital costs are high — current estimates are around \$8 to 10 billion per reactor. Second, nuclear reactors often cost more than the entire company is worth. And lastly, it takes years, if not decades, to build a nuclear reactor, even in a best-case scenario. This “nuclear power triple threat” requires significant financial outlay, with assurances for and commitment to a large, central power source — all before the facility even produces one electron.

Wall Street refuses to risk investor money in nuclear power projects, so the only reactors that are currently moving forward rely on federal loan guarantees, or advance payments from ratepayers (as is already happening in places like Georgia [1] and Florida [2]), or both. And even then it's not always enough. Last year in Maryland, Constellation Energy pulled out of a proposed nuclear reactor project even after having been offered a \$7.5 billion loan guarantee by the federal government. The reason ? They felt the \$880 million price tag of the guarantee was too onerous [3].

Is it reliable ? Nuclear power is not a flexible source of electricity. With fears of climate change, nuclear power is often touted as a necessary “base load” facility, which is just a fancy way of saying it is most efficient when operating at full capacity, 24 hours a day. Building these types of facilities require knowing, with certainty, what the need for electricity will be in 8-10 years — very difficult in today's unstable economy — and, in effect, another gamble on top of a big bet. This is not the case for rapidly deployable wind or solar power. Plus the growth rate of electricity per unit of economic growth is only about one fourth the level of 1973 — the same year that the last nuclear reactor completed in the U.S. was ordered.

What's the environmental cost ? Nuclear power is not a “clean” source of electricity. Mining uranium for reactor fuel has hugely harmful effects on the environment. In addition, the lifecycle of a nuclear reactor requires huge amounts of water, a resource that is more uncertain with larger weather fluctuations in many regions. About 10 to 20 million gallons are evaporated daily to operate a typical nuclear reactor.

It is possible to have a carbon-free nuclear-free [4] electricity system that will reliably, efficiently, and cost-effectively keep our lights on. Studies show that if the wind isn't blowing here, it's probably blowing somewhere over there. Similarly, the sun often complements wind and is present during much of the peak period, such as hot summer afternoons. Wind energy is already an

economically competitive source of electricity and is typically cheaper than nuclear, even with storage costs. The U.S. Dept. of Energy expects solar power to be cost-competitive by 2015. It will take time to make the change, but there is no need to build any more coal or nuclear plants to meet U.S. electricity needs.

What about the social and humanitarian costs ? Accidents are rare but the risks are huge. The events in Japan show that accidents, while mercifully rare, can cost hundreds of billions of dollars. An upper limit of about \$700 billion in today's dollars was estimated as the cost of a worst case U.S. spent fuel accident in a 1997 study by the Brookhaven National Laboratory. But the industry is only required to insure up to about \$11 billion, leaving taxpayers on the hook for the rest of the possible damages. It is unclear when the federal government will meet their 1998 obligation to provide a repository for nuclear spent fuel, leaving over 70,000 tons of radioactive nuclear waste scattered across the country with no clear plan to dispose of it [5]. The amount is projected to increase to well over 100,000 tons in the next 20 years. It will likely remain on site for decades, meaning continued risks of severe accidents or terrorist attacks.

Is it safe ? In addition to susceptibility to severe accidents and terrorist attacks, nuclear power is a proliferation risk. Plutonium is a byproduct of all nuclear reactors and remains in the spent fuel. Reprocessing (sometimes mislabeled "recycling") this waste actually creates weapons-usable plutonium, if it is separated, as France is doing. The technology and skills overlap between nuclear weapons and nuclear power, while not complete, is very large. Nuclear weapons proliferation risks are inherent in nuclear power.

Given the checkered past, the potential for significant harm, and the availability of clean, renewable energy technologies, it is time to close the chapter on nuclear power by phasing out existing ones instead of building new ones. We don't need the financial and environmental risks that nuclear power imposes on ourselves and generations to come. The future is in our hands — and it's full of solar panels.

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To learn more, visit Institute for Energy and Environmental Research (IEER) : <http://www.ieer.org/>.

Point : Nuclear Power is Our Best Energy Solution for a Better Tomorrow : <http://splashlife.com/article/point-nuclear-energy-will-bring-better-tomorrow>

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<http://splashlife.com/article/counter-point-its-time-close-chapter-us-nuclear-power>

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Notes

[1] <http://www.gpb.org/news/2010/11/22/more-hearings-for-plant-vogtle-expansion>

[2] http://articles.orlandosentinel.com/2009-09-08/news/0909070139_1_utility-customers-progress

-energy-nuclear-costs

[3] http://www.gazette.net/stories/01032011/businew173310_32548.php

[4] <http://www.ieer.org/carbonfree/index.html>

[5] http://www.nytimes.com/2011/03/24/us/24yucca.html?_r=3