



Written by [Jeffrey Mahn](#) on August 9, 2022

Published in the August 29, 2022 issue of [the New American](#) magazine. Vol. 38, No. 16

## Over-regulating Nuclear Energy

Fossil fuels have allowed humans to end the poverty that necessarily accompanies the use of low-energy-density resources such as sun, wind, and flowing water.

The energy density of available resources is key to understanding the evolution of civilization, as Oxford University fellow Dr. Wade Allison points out in *The Energy Revolution Must Be Nuclear*.

“A measure of the utility of a fuel is its energy density,” he explains. The greater energy density of fossil fuels powered the Industrial Revolution that provided humans with more abundant energy, allowing progress beyond a survival mode of living for the majority of the population.

“Access to these powerful energy sources has shaped most economic and political developments over the last 250 years,” Allison writes. “In that time, the world population has increased eightfold, life expectancy has doubled, and people’s standards of living have improved dramatically.”

Energy density of resources is also key to minimizing environmental impact while meeting ever-increasing demand. For example, wind and solar require vast swaths of clear-cut land, and both are subject to the vagaries of weather and conditions. Fossil fuels significantly outpace these in energy density — literally “a thousand times more than renewables,” explains Allison. Furthermore, fossil fuels can be harnessed anywhere at any time, regardless of the weather or time of day.

## The Atomic Age

Although fossil fuels have been the primary driver of human progress and development for the last three centuries, they have now become politically incorrect. Fossil-fueled electricity-generating facilities are being shuttered in favor of intermittent, low-energy-density solar and wind facilities.

Yet the post-industrial revolution saw the advent of nuclear fuel, with an energy density 1.5 million times greater than that of fossil fuels and 20 billion times greater than that of solar and wind.

Though nuclear has the highest energy density, public fears and excessive regulation have restrained progress toward abundant, affordable, and reliable electricity from this energy resource. Some areas now face energy shortages that force electricity blackouts, with associated hardships during periods of excessive cold and heat.



NARA



Written by [Jeffrey Mahn](#) on August 9, 2022

Published in the August 29, 2022 issue of [the New American](#) magazine. Vol. 38, No. 16

---

Germans pay some of the highest energy prices in the world since their leaders phased out fossil fuels and nuclear in favor of renewables, and they are now plagued by debilitating blackouts and shutdowns. Likewise, Californians are facing a third summer of blackouts amid a supply crisis, as electricity demand continues to rise. In Texas, where wind makes up more than 20 percent of the energy portfolio, dozens of people died in the devastating winter storm of 2021 when wind turbines froze. Texans face supply deficits and blackouts this summer, too.

Ironically, nuclear could erase all these problems and even pacify eco-radicals since it is carbon-free. However, it remains shackled by regulations that perpetuate irrational public fear.

## Risk Communication

Some attribute the misguided phobia surrounding nuclear energy to unsatisfactory risk communication, though experts in both nuclear power and nuclear medicine have been trying to dispel anxieties for decades. In *Risk Communication: Evolution and Revolution*, consultants Dr. Peter M. Sandman and Dr. Vincent Covello discuss irrational fear, reporting that, in general, “there is virtually no correlation between the ranking of hazards according to statistics on expected annual mortality and the ranking of the same hazards by how upsetting they are.” Nuclear is the poster child of this phenomenon: a complex topic victimized by opportunistic media who exploit misconceptions to make headlines.

How did nuclear get such a bad name? In July’s *Progress in Nuclear Energy*, researchers John Lindberg and Denali Archer highlight two cases of radiation-induced injuries that provided “early imagery of radiation as an insidious, unseeable risk that would cause significant suffering.”

The first involved the Radium Girls of the 1920s, women who worked for two American watch vendors. While painting the hands and faces of watches, they ingested the radium that made the paint self-luminous. “Whilst it is unknown how many women suffered injury or died ... the ensuing litigation and extensive media coverage” implanted nuclear as a stealth killer in the minds of Americans.



**Radium Girls:** Extensive media coverage of radiation-related symptoms afflicting workers in the 1920s sparked a public phobia that persists to the current day.

The second incident was the radiation-induced illness and death of American socialite and sportsman Eben Myers. After an arm injury, doctors prescribed him medicine that contained radium, which he consumed consistently over three years. The extensive press coverage of his illness and death further



Written by [Jeffrey Mahn](#) on August 9, 2022

Published in the August 29, 2022 issue of [the New American](#) magazine. Vol. 38, No. 16

---

reinforced radiation's gruesome public image.

These misfortunes primed a radiophobic public for the atomic bombings of Hiroshima and Nagasaki in 1945. Lindberg notes that the devastation in those cities produced "vivid imagery that would come to be used in nuclear discourse," stoking fears and placing emotion rather than rational thought in the driver's seat. Since nuclear power and nuclear medicine are inextricably coupled with radiation, radiophobia has become the guiding force behind nuclear energy regulation.

The result is a positive feedback loop: "Trusted" regulatory organizations provide support for public perception by continuing to over-regulate all things nuclear. Now, should bureaucrats decide to eliminate unwarranted nuclear regulations, anti-nuclear voices would allege them irresponsible, reckless, and dangerous.

"Indeed, this was very clearly seen when the U.S. Nuclear Regulatory Commission (NRC) attempted to implement its Below Regulatory Concern policy in the 1980s and early 1990s," relates Lindberg for World Nuclear News. It didn't last. "The idea of classifying certain radioactive materials as 'Below Regulatory Concern' caused public outrage, and the NRC was forced to retract this first step towards a more holistic regulatory regime."

Instead of drawing attention to the lack of any scientific evidence showing adverse health effects from low-dose radiation, the NRC folded, thereby sending a message to the public that low-dose radiation must indeed be harmful.

## **Regulatory Reform**

The nuclear industry's consequent inability to calm the public's emotion-driven fears makes change unlikely, especially in the face of negative campaigns constantly waged by anti-nuclear groups. As long as nuclear energy continues to be over-regulated, it may be that no risk communication will succeed.

Therefore, regulatory reform is the most promising way to dispel irrational fears of radiation and nuclear power. The first step is clear: abandoning the decades-old, flawed "linear, no-threshold" (LNT) radiation dose-response model. LNT is the erroneous belief that all radiation, no matter the dose, is dangerous.

Next on the chopping block should be the "As Low As Reasonably Achievable" (ALARA) radiological protection program. LNT and ALARA dictate radiation limits for nuclear power and nuclear medicine far below natural background radiation in many areas such as Ramsar, Iran, and Guarapari, Brazil. Residents in neither of those places experience increased rates of cancer, birth defects, or other radiation-related concerns. In fact, both sites are resort towns. Ramsar attracts visitors with its radium-rich hot springs, and the beaches of Guarapari are famous for the reputed healing qualities of their thorium-rich sand.

Writing for RealClearEnergy.org, nuclear engineer Robert Hargraves contrasts the absurdity of U.S. public exposure limits. Those at nuclear power plants are set at "under half natural background radiation" levels, while limits at storage facilities are even more tightly restricted. "Yet there are no observed harmful health effects at 40 times a year's natural background radiation, even if absorbed all at once."

Nuclear accidents reveal how deadly over-regulation can be. "Not even radiation from the triple



Written by [Jeffrey Mahn](#) on August 9, 2022

Published in the August 29, 2022 issue of [the New American](#) magazine. Vol. 38, No. 16

---

meltdown at Fukushima harmed people,” Hargraves notes, “but unfounded radiation fear caused deadly evacuations that killed over a thousand.”

Unfortunately, few in government, media, or academia bother to broadcast these facts, apparently satisfied with leaving the public ignorant, frightened, and endangered. Hargraves laments, “Having thus instilled deep fears in people and politicians, regulators freely make burdensome rules to limit trivial radiation exposures that supposedly increase unobservable harms.” He recommends “overthrowing nonscience, nonsense regulations” and “replacing them with ones based on directly observed health effects rather than extrapolated speculation.”

However, abandoning LNT and ALARA will likely be tough until those responsible for the current regulatory system are long gone. There are too many reputations, too many jobs, and too much research funding that depend on maintaining the status quo.

## Wrong Message

A current example of regulators sending the wrong message is the recent NRC revocation of previously granted Subsequent License Renewals (SLR) for four nuclear power plants. In March, the agency imposed supplemental environmental impact analysis requirements on these and other facilities requesting SLRs in the future.

Such a regulatory reversal creates additional fears regarding the safety of older nuclear power plants, when the reversal is merely the result of legal maneuvering intended to block the issuance of SLRs. An SLR differs from an initial license renewal, and therein lies a contentious issue.



**Nuclear non-disaster:** In his book *The Health Hazards of Not Going Nuclear*, Dr. Petr Beckmann called the 1979 Three Mile Island accident “history’s only major disaster with a toll of zero dead, zero injured and zero diseased.” (U.S. Department of Energy)

The supplemental environmental review is required by the National Environmental Policy Act for “those applicants seeking an initial renewed license.” This language seems to exclude SLRs, and it appears that the wording is being deliberately tortured in order to invalidate extended operating license applications. In his dissent from the ruling, NRC Commissioner David Wright stated that the SLR reversal was both arbitrary and inconsistent with the agency’s “Principles of Good Regulation.”



Written by [Jeffrey Mahn](#) on August 9, 2022

Published in the August 29, 2022 issue of [the New American](#) magazine. Vol. 38, No. 16

---

Once again, over-regulation strikes, damaging public trust and renewing unwarranted fears. Hargraves says agencies such as NRC “do not exercise science in setting radiation limits.” Rather, they “eschew responsibility by uncritically following recommendations of advisory bodies ... who have no responsibility to people or elected officials.”

## **The Big Picture**

It is worth noting that an environmental impact analysis for any electricity-generating facility should consider the entire energy resource conversion and utilization life-cycle, not just the actual electricity-generating operation. A proper analysis would include procurement and refining of all raw materials — including those required for the manufacture and production of construction materials and energy conversion machines and devices. It would also consider the cost of transportation of materials and equipment, and of waste material dispositioning.

Considering energy density when properly accounting for the entire life-cycle of each energy resource, the environmental impact of generating electricity using nuclear energy will be less than that for generating the same amount of electricity from any other energy resource.

Therefore, in addition to considering the environmental impact of an existing nuclear power plant, the environmental impact of denying its license renewal must be considered. In other words, what is the environmental impact of having to generate replacement electricity from an alternative energy resource, or forgoing replacement electricity altogether?

History shows no benefit to over-regulating nuclear. The Supreme Court recently restricted the U.S. Environmental Protection Agency from regulating power plants’ carbon emissions. Now it is time to unshackle nuclear from equally unjustified regulatory burdens.



Written by [Jeffrey Mahn](#) on August 9, 2022

Published in the August 29, 2022 issue of [the New American](#) magazine. Vol. 38, No. 16

## Subscribe to the New American

Get exclusive digital access to the most informative, non-partisan truthful news source for patriotic Americans!

Discover a refreshing blend of time-honored values, principles and insightful perspectives within the pages of "The New American" magazine. Delve into a world where tradition is the foundation, and exploration knows no bounds.

From politics and finance to foreign affairs, environment, culture, and technology, we bring you an unparalleled array of topics that matter most.



[Subscribe](#)

### What's Included?

- 24 Issues Per Year
- Optional Print Edition
- Digital Edition Access
- Exclusive Subscriber Content
- Audio provided for all articles
- Unlimited access to past issues
- Coming Soon! Ad FREE
- 60-Day money back guarantee!
- Cancel anytime.