New York's Nuclear Anti-Affordability Fiasco: Why the State's Deeply Flawed Energy Plan Would Explode Electricity Rates

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Executive Summary

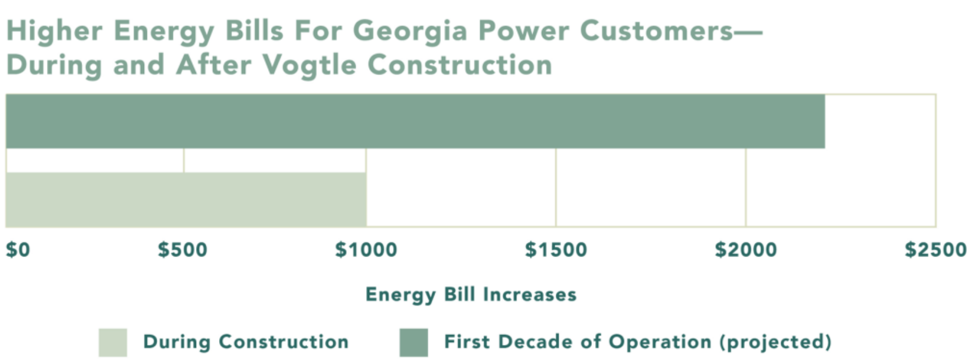
There are 3 certainties in life: death, taxes, and new U.S. nuclear plants are inflationary and lead to higher electricity rates even if they're never turned on**.** This analysis explains why:

1. **NY's plans for new reactors will be a huge burden on ratepayers, comparable to the price spikes the twin Vogtle reactors hit Georgians with.**
2. **NY State Energy Research and Development Authority (NYSERDA) noted in a 2025 report, "Nuclear plants in the U.S. have a long history of substantial cost overruns**."[1]
3. **The cost analysis underlying NY's Energy Plan is so flawed that neither the state nor the contractor who wrote it stands behind its accuracy or the consequences of using it**.
4. **As a result, NY's Plan embraces two anti-affordability strategies to achieve its goal of a zero-emissions grid by 2040—up to 3.3 GW of new reactors and 15 GW of gas plants running on green hydrogen—while ignoring much better options.**
5. **Data centers have helped triple NY's wholesale electricity prices. Bringing in more but powering them with reactors that produce electricity at a cost much higher than they are charged for means the difference is paid for by NY ratepayers and taxpayers.**

In June 2025, New York's Governor Kathy Hochul directed the state "to develop at least one new nuclear energy facility with a combined capacity of no less than one gigawatt of electricity" as part of an effort to support an "affordable electric grid."[2] Yet, the only U.S. commercial reactors built this century—the only ones the state modeled—are 1100-Megawatt AP1000 reactors.

NYSERDA noted "the Vogtle units were originally estimated to cost $13 billion ... but eventually cost $32 billion."[3] The final cost may be over $38 billion.[4] One analysis noted it was "the most expensive power plant ever built on earth," with an "astoundingly high" estimated electricity cost.[5]

So, Georgia ratepayers' bills are rising by over $220 a year, a 25% increase. In 2023, state regulators made customers pay for most of Vogtle "on top of a monthly surcharge"[6] they've had to *pre-pay* for years, totaling $1000.[7] South Carolina consumers still pay for two never-completed AP1000s.[8]



Any new NY reactors are likely to cost the same or more than Vogtle's. Small reactors (SMRs) would cost even more per MW: That's why commercialization efforts for SMRs have failed for decades. **A December 2023 Columbia University report concluded that "if the costs of new nuclear end up being much higher" than $6,200/kW "new nuclear appears unlikely to play much of a role, if any, in the US power sector."**[9] Yet, a 2024 MIT report noted, "According to GP [Georgia Power], the total project cost including financing cost was $18,500/kW."[10]

Remarkably, the 1053-page December 2025 NY Energy Plan, which opens with the Governor's letter asserting "Affordability is just as important" as "reliability" to the state**, has no discussion whatsoever of the impact of the planned nuclear plant(s) on affordability**.[11] The Plan's 35-page "Energy Affordability Impacts Analysis" does not mention the word "nuclear" once. The Plan never mentions the Vogtle plant and only briefly mentions the 1.1 GW AP1000s, although that is what the state is planning for with scenarios requiring an additional 2.2 GW and 3.3 GW.

There's also no serious discussion of data centers, although they're driving both demand and affordability concerns. The Governor states this is "a time when demand is rising fast. Advanced manufacturing, new housing, and exciting research all require more energy." But her letter ignores data centers in the list of what's driving demand, despite the fact NYISO (the state's grid operator),[12] and the Plan itself point out they are a major demand driver. Why? Most likely because the Plan makes clear that new nuclear is at best a post-2035 solution. So, it doesn't address the data center problem.

Ironically, new reactors are the only option that worsens the affordability problem but can't be built fast enough to help address the AI data center demand crisis.

The Plan also assumes the state's primary new non-nuclear carbon-free firm capacity in 2040 will be **15 GW of gas plants "converted to run on hydrogen by 2040" but run only 260 hours a year.** The "modeling assumes" that these "multi-day reliability needs are met by generators powered by green hydrogen. Under this assumption, the combustion generation fleet remains critical."

But that scenario is so implausible it's hard to see why the state embraced it other than 1) to make its embrace of nuclear seem affordable and sensible by comparison and 2) to provide an excuse for keeping so many natural gas plants running through the 2030s. But carbon-free green hydrogen won't be affordable or scalable for decades, if ever, as detailed in my 2025 book, *The Hype About Hydrogen*. "America's Clean Hydrogen Dreams Are Fading Again," as a 2025 *NY Times* headline put it, adding "Costs are rising, and Congress just put a lucrative tax credit out of reach for many companies."[13]

Remarkably, the state considered and rejected other strategies for carbon-free firm, dispatchable power,[14] and multi-day reliability needs in 2040—including long-duration energy storage, virtual power plants, and advanced geothermal energy. Yet these probably have a greater combined chance of meeting those needs more affordably than new reactors and hydrogen. **A superior strategy for NY is to let other states take the risk of building nuclear, while it focuses on better approaches**.[15]

This report explores these flaws in NY's energy plans and offers a pro-affordability strategy.

The Deeply Flawed Nuclear Cost Analysis That No One Stands Behind

The Energy Plan is not written to be easily understood by policymakers or anyone else, as evidenced by the fact that **its "Summary for Policymakers" (SPM) is 146 pages long**. That's over 100 pages longer than virtually any other serious SPM you can find.[16]

But the Plan is unusually opaque on the subject of its nuclear cost analysis, especially given that "new nuclear is included as a candidate resource in all scenarios" and "nuclear is projected to play a significant role in reaching New York's zero-emissions requirements."

Yet, the Plan has no analysis of nuclear power costs or cost overruns. Halfway through the SPM we learn that **the cost analysis is a separate report by a contractor**: "NYSERDA, in partnership with the Electric Power Research Institute, completed in October 2025 a *Zero by 40 Technoeconomic Assessment* to inform the state's approach to new clean firm resources that could help reduce the potential gap between electricity demand and supply in 2040 and beyond."

But "partnership" is misleading. "This report was prepared by EPRI" under contract to NY, it explains.[17] **It starts with an unprecedented disclaimer**: "NYSERDA, the State of New York, ***and the contractor*** make no warranties or representations, expressed or implied, as to … the usefulness, completeness, or **accuracy of any processes, methods, or other information contained**, described, disclosed, or referred to in this report. **NYSERDA, the State of New York, *and the contractor* … will assume no liability for any loss, injury, or damage resulting from, or occurring in connection with, the *use* of information contained, described, disclosed, or referred to in this report**.

Since no one associated with the report stands behind its accuracy or the consequences of using it, policymakers and New Yorkers should not use it as a basis for policy. The analysis in this paper confirms that conclusion. The findings are not defensible. Thus, the same is true of the Plan.

Yet, NY's Energy Plan itself has no such disclaimer, even though it relies on the EPRI report for its economic analyses—both of nuclear power and of how the state should meet its commitment to a zero-emissions grid in 2040. The Plan embraces EPRI's assertion that new U.S. reactors will decline in price over time because of "learning." Yet the study's own sources undercut that conclusion.

So why didn't NYSERDA do the nuclear analysis itself? They have the know-how, they wouldn't have needed that devastating disclaimer, and they had already published a 42-page "Blueprint for Consideration of Advanced Nuclear Energy Technologies" in January 2025.

A July 2025 *Rockland County Times* piece asserts, "In 2024, NYSERDA did a Financial Assessment of the proposal. The report, according to multiple governmental sources, recommended that nuclear not be pursued due to astronomical costs to ratepayers and taxpayers."[18] In September, the NY Public Service Commission (PSC) responded to a Freedom of Information Law request by agreeing that there were records of such an analysis prepared by or for NYSERDA that were shared inter-agency. But the PSC rejected the request, saying such records were "future-oriented projections related to New York State energy initiatives" and "predecisional, nonfinal discussions and recommendations by employees within the agency used to assist the decision makers in formulating a determination."[19]

The legislature should insist that all such records by NYSERDA, which is funded by taxpayer dollars, be made public. Let's take a closer look at some of the more problematic claims in the EPRI report that neither the state nor EPRI stands behind, but that still made it into the state's Plan.

The "Learning Myth" and the Anti-Affordability of New Nuclear in NY

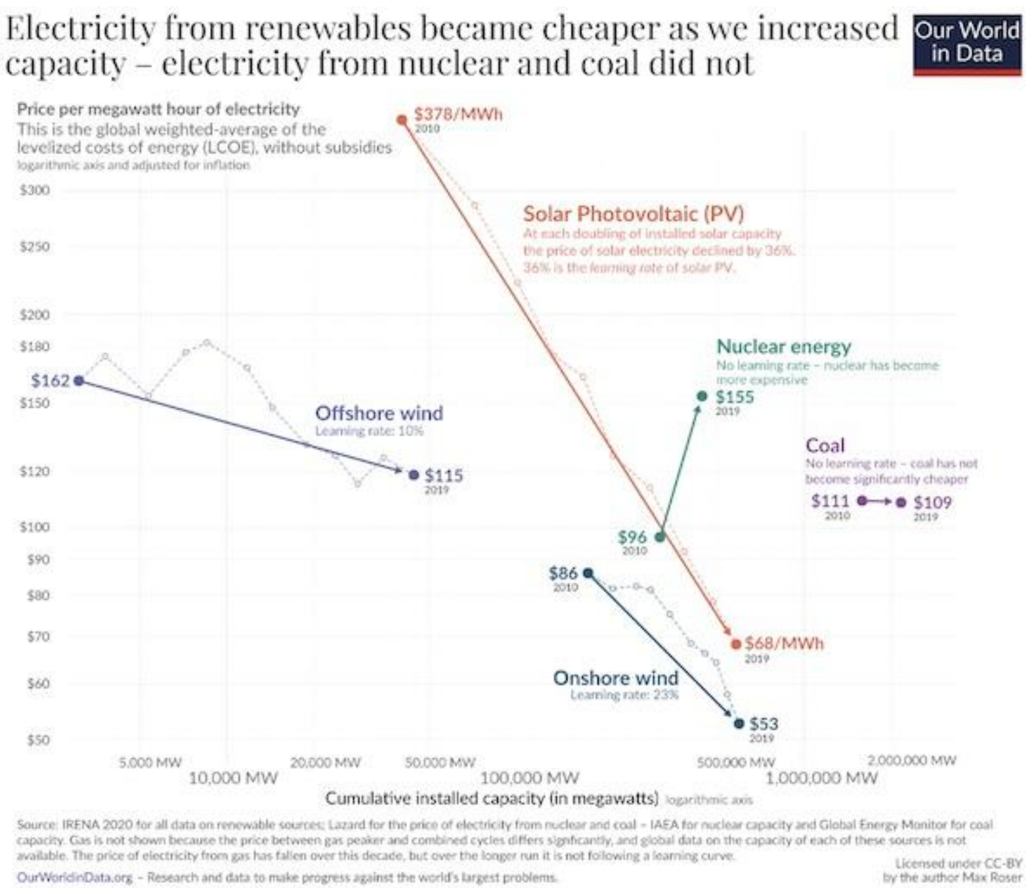
The Energy Plan assumes a new GW-size nuclear reactor will cost about $12,000 per kW, with the source being EPRI's *Zero by 40 Technoeconomic Assessment*. EPRI writes that because of "cost uncertainty" from variable actors such as site development, design, licensing, materials, workforce availability, financing, and so on, it's best to use "appropriate uncertainty ranges."

EPRI explains, "This report bases these ranges on the Vogtle experience and estimates that the next AP1000 could have a capital cost of $9,700–$15,100/kW, with a base case estimate of $12,100/kW." **Yet, the full cost of the twin Vogtle reactors was about $18,500/kW according to the 2024 MIT report, which was a major source for the EPRI report**.

These estimates assume "learning gains" and a significant drop in the cost of the NY plant compared to Vogtle. The report explains, "For power generation technologies, learning rates reflect the percentage reduction in unit costs for every doubling of capacity or units deployed.

But there's no reason to believe there will be any learning gains. EPRI's top source on learning, a 2024 analysis from Idaho National Laboratory explains, "**It is important to note, however, that learning rates are not a guarantee on their own. Several countries have experienced little to no learning as more nuclear was deployed (e.g., the US).**"[20]

Many sources note that the price of new U.S. reactors has often risen over time. Consider a 2020 analysis from Our World in Data, "Why did renewables become so cheap so fast?"[21] In the chart below, the horizontal axis is cumulative installed capacity in MW. The vertical is the *average* power price per MW-hour for new reactors *globally*. The analysis notes, "**Prices and construction times have increased significantly in the US and the UK**," while they remained flat in other countries.



Why the huge difference between solar and nuclear learning/experience rates? A 2020 study of energy systems could "explain systematic differences in technologies' experience rates by distinguishing between technologies on the basis of (1) their design complexity and (2) the extent to which they need to be customized."[22] The more complicated the system design and the more it needed to be adapted and customized to specific use environments, the slower the rate costs declined as sales volume increased.

Solar cells are both technologically simple and easy to standardize. That's a key reason prices have dropped so sharply for so long. But very few potentially game–changing clean energy technologies possess both of those characteristics. And a great many don't possess either.

Nuclear reactors are both complicated and hard to standardize. And the U.S. is not even trying to standardize new nuclear plants right now, as we'll see. Quite the opposite.

Indeed, **nuclear power is not the only complicated, hard-to-standardize technology that has seen rising prices in recent years**. So have the electrolyzers needed to convert renewable energy like solar and wind into green hydrogen that the NY Energy Plan includes as a major component of its post-2035 firm energy plan. Just a few years ago, many analyses, including a 2022 one by BloombergNEF (BNEF), had projected large and steady annual drops in electrolyzers.

But prices jumped 40% to 50% in the early 2020s, according to S&P Global Commodities, because "electrolyzer projects tend to be highly complex, bespoke, and are proving far harder to construct than initially anticipated."[23] A 2023 Boston Consulting Group analysis noted **electrolyzers used to produce green hydrogen "have a cost-overrun potential exceeding 500%."[24]** A 2024 BNEF study forecast electrolysis system costs falling by only "about one half from today to 2050 in China, Europe and US assuming continued government support and free trade."[25] **The market research firm explains this forecast "is about three times as high as what we anticipated in our 2022 analysis."**

This is a key reason why the State's plan to use green hydrogen as the state's primary new non-nuclear carbon-free firm capacity in 2040 is so implausible. "Only 5% of projects scheduled for completion by 2030 have reached the final investment decision stage, explained JP Morgan in its March 2025 *15th Annual Energy Paper*. [26] The paper added, "It gets worse … **just 1% of all projected green hydrogen production has a binding offtake agreement**."

Returning to nuclear, the cost per MW of the next new reactors in NY is especially unlikely to be lower than Plant Vogtle's new reactors. **The state hasn't built a nuclear plant in decades, and when it did build plants, like Shoreham, they invariably had huge cost overruns, delays, and other problems. As did virtually every U.S. plant built at the time.** The Columbia University report notes that "Of the 75 nuclear plants built between 1966 and 1977, cost overruns averaged 207 percent." After 1979, "cost overruns grew, averaging 250 percent for the next 40 plants constructed."

Indeed, as the *New York Times* reported in 1984 about the last plant completed in the state, "The Nine Mile Point 2 nuclear reactor under construction here is a decade behind schedule, is almost three years from operation, and **has a price tag 12 times the original estimate**."[27]

The EPRI report itself acknowledges, "**Observed nuclear learning rates vary widely, from cost increases (-49%)** for national nuclear programs, to cost declines (+11%) for projects constructed in series by the same firm." (A negative learning rate means that prices increase over time). Yet EPRI also notes, "**The largest cost declines have occurred outside the U.S.**, for projects constructed in series by the same firm."

So, again, it's entirely possible that the first AP1000s built in NY would be **much more expensive** than the Vogtle reactors. This "negative learning," as one article called it, occurred repeatedly in both the U.S. and France.[28] Because the nuclear learning myth underlies much of the hype around new nuclear plants, this paper takes a deeper dive into the history of nuclear costs in a later section.

It's true that the cost of such a new AP1000 could benefit from a larger tax credit than was available to the twin Vogtle units. On the other hand, those reactors began being built in 2009,[29] which means the overwhelming majority of their construction occurred when inflation was at a sustained low level, as were interest rates. So, any plant built over the next 10 to 15 years is likely to see considerably higher input costs than the Vogtle plants did.

It's also true that the White House is gutting the independent oversight of the Nuclear Regulatory Commission (NRC) in an effort to speed up the licensing and building process. But those policies, **"severely increase the risk of expensive, unexpected nuclear accidents,"** *Scientific American* warned in March 2025.[30] So the very real safety concerns posed by those policies may well spur lawsuits and other efforts to fight new plants at the state and local level—especially if those plants are being built to power new AI data centers. After all, those are already seeing grassroots opposition efforts because, as Bloomberg and others have shown, soaring wholesale electricity prices in New York and elsewhere, and big jumps in retail prices in 2025, are directly linked to new data centers, as discussed below.

Also, it's unlikely that construction of a new reactor would start before a new Administration in 2029. But they might choose to restore the NRC's independence—the gold standard for regulatory oversight and safety worldwide. So, any license that was issued in haste might well be subject to review.

So, if affordability is as important a goal as reliability, as the Governor says, then a prudent course of action would be to make the base case of its energy plan that any AP1000s (or SMRs, see below) the state might actually be able to complete by 2040 will not be at least as expensive as the Vogtle plants. The chances the next AP1000s are going to break decades of historical precedent and actually be significantly cheaper than Vogtle would appear low. Thus, **New York should let other states make their citizens the guinea pigs for this high-risk, low-likelihood-of-success experiment.**

As former PSC Commissioner John Howard testified to the Assembly Standing Committee on Energy in December 2024, "Before we make any forays into nuclear power, just recall the lessons of the past—including massive construction cost overruns, poor siting decisions, poor performance in the New York Power Authority-owned units."[31] Howard added, "**This is one area where being first in the nation isn't the best idea**."

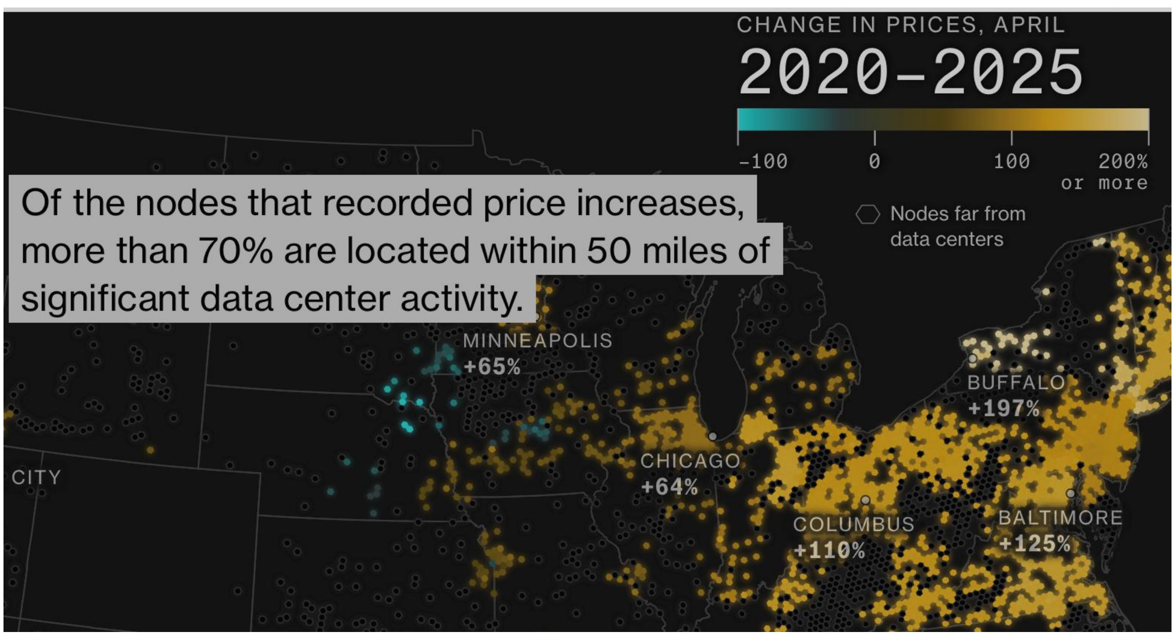
While nuclear power is seen by many as "the solution" to climate change, the reality, as we've seen, is that for decades, prices for new nuclear plants kept rising until they're now the most expensive form of power. But solar, wind, and battery prices kept dropping, becoming the cheapest. New reactors grew so costly that every country in the world other than China has all but stopped building them. That's why **nuclear's share of global power peaked at 17% in the mid-1990s but was down to 9.2% by 2022 and 9.1% in 2024**.[32]

Data Centers and the Risks They Pose to NY Ratepayers

Although the governor neglected to mention data centers in her list of things causing an increase in demand, NY's Energy Plan points out the reality and the risk: "Over the past few years—and especially in the last 12 months—New York State has seen a surge in large load interconnection requests. Most of this activity is concentrated in northern and western New York and **driven primarily by data center development**…. States across the country are experiencing similar surges…. However, what makes planning challenging is that **these forecasts can change rapidly**."

The boom and possible bubble in data centers create two huge risks for NY ratepayers: That NY keeps embracing the boom and/or that the bubble bursts after NY starts building one or more reactors. The consequences of the recent data center build-out for ratepayers are staggering, as *Bloomberg News* explained in a late September "analysis of wholesale electricity prices for tens of thousands of locations across the country."[33] The headline and sub-head tell the story, "**AI Data Centers Are Sending Power Bills Soaring: Wholesale electricity costs as much as 267% more than it did five years ago in areas near data centers. That's being passed on to customers**."

The Bloomberg chart below shows the staggering increases that have hit large parts of the country in recent years. And it reveals that **New York saw some of the largest wholesale price increases, with Buffalo seeing a tripling of prices from 2020 to 2025**.



Source: Bloomberg News analysis of data provided by Grid Status and DC Byte Note: Prices shown are the average wholesale electricity prices, based on the median prices of all the nodes within a given 100 square-mile area.

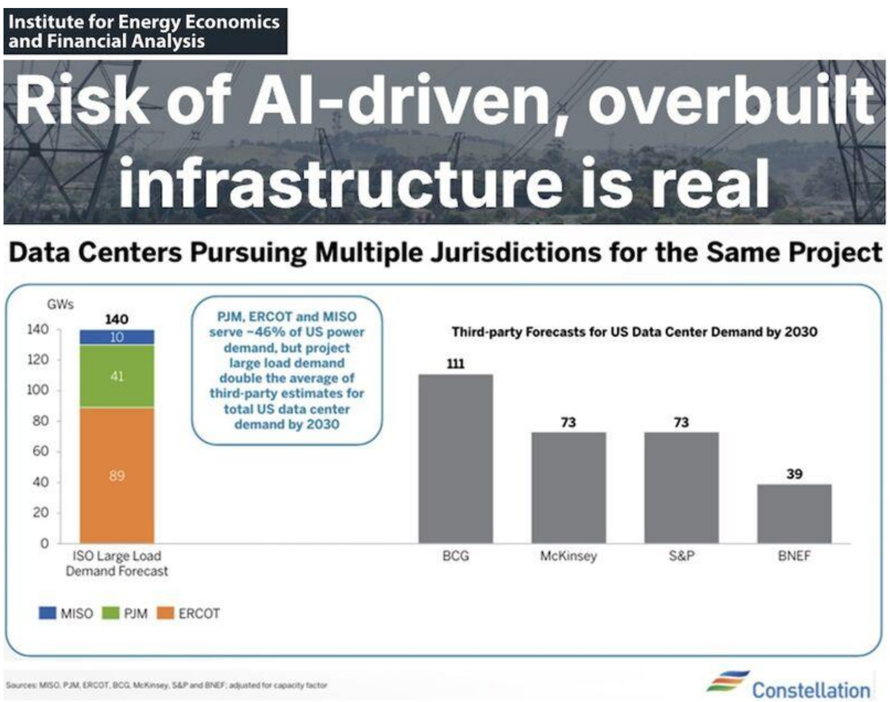
Thus, **new data centers, like new reactors, undermine affordability**. And the public has noticed. "Angry town halls nationwide find a new villain: the data center driving up your electricity bill while fueling job-killing AI," as a January 3, 2026, *Fortune* magazine headline read.[34]

Because "forecasts can change rapidly," as the Plan warns, the best strategy for the state is to avoid committing to power plants with both high-capital costs and a long construction time, which is to say, new reactors. After all, if the forecast for enormous demand growth doesn't pan out, but a number of states have already started building nuclear reactors, it's even more likely that some of those don't get finished but still increase rates for ratepayers.

Many energy CEOs warned in mid-2025 that the demand for new data centers had been greatly oversold. During a May earnings call, the CEO of Vistra Energy, a largest independent power producer, said, "We think these interconnect queues, and I think all of our peers have described this at some level, they **may be overstated anywhere from three to five times what might actually materialize**…."[35]

The CEO of Constellation Energy, another one of the biggest U.S. independent power producers, said in the May 2025 quarterly earnings call, "It's hard not to conclude that the headlines are inflated."[36] He added the company had "done the math," and "if Nvidia were able to double its output and every single chip went to ERCOT, it still wouldn't be enough chips to support some of the load forecasts."

Below is a Constellation chart reprinted in a June 2025 analysis from the Institute for Energy Economics and Financial Analysis (IEEFA), "Risk of AI-driven, overbuilt infrastructure is real."[37] The chart notes, "**Data centers [are] pursuing multiple jurisdictions for the same project**. PJM (mid-Atlantic), MISO (Midwest) and ERCOT (Texas) serve ~46% of US power demand, but project large load demand double the average of third-party estimates for the entire country."



It's possible AI itself is in a bubble. That complex question is beyond the scope of this paper, but leaders in the field from Sam Altman, head of OpenAI, to former Google CEO Eric Schmidt have warned in recent months of a bubble and inflated expectations. So, the issue for New York State is how much it wants to gamble on starting such a high-risk, high-cost project like a new AP1000 with so much uncertainty over future demand—especially when NY ratepayers will likely be stuck with the final bill.

Nothing is more anti-affordability than bringing in a data center but then building a power plant that produces electricity at a cost much higher than the data center is charged for. Because that means the difference is invariably paid for by New York ratepayers and taxpayers.

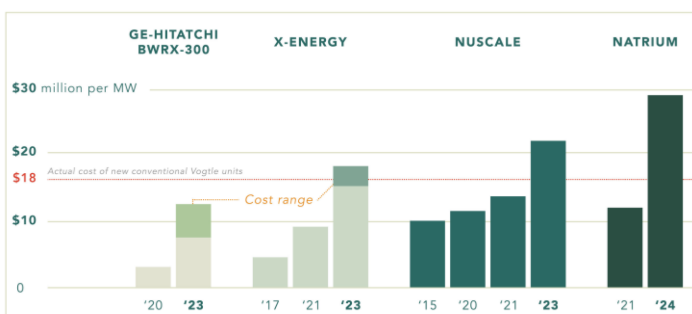
SMRs Are "Rhetorical Visions Imbued with Elements of Fantasy"

More than eight decades—and trillions of dollars—after the woald's first artificial nuclear reactor was built in 1942 at the University of Chicago, new large nuclear reactors are clearly not an affordable, scalable, or timely solution to climate change or near-term large load requests, like data centers. Indeed, it's precisely because the 1100-megawatt AP1000s reactors are so costly and slow to build, that "small modular reactors" under 300 MW have been hyped, especially for AI data centers.

But **SMRs are ill-suited for that use or any use—with high risks of cost overruns, delays, and reliability/safety problems.** That's why no one has successfully commercialized them for decades, and the only two countries in the world that even have experimental units running are Russia and China. And just as we're seeing shrinkflation in the retail world—shrinking a product but keeping the price the same, thereby inflating the unit price—SMRs face significant shrinkage diseconomies, and a higher cost per MW than large reactors like Vogtle.

"Some Western SMR projects may cost between $15 and $20 million per MW by the time they're completed," as JP Morgan explained in its 2025 *15th Annual Energy Paper*.[38] And they may cost more than that since **we're already seeing cost escalation is endemic to SMRs even in the pre-construction phase** (see figure).

SMR Construction Costs Are Already High—And Rising



Source: IEEFA data, Penn Center for Science, Sustainability and the Media (PCSSM).

So, SMRs would mean even *higher* rates for consumers than big reactors. How high? A January 2026 study in the journal *Progress in Nuclear Energy*, co-authored by Alison McFarlane, former chair of the US Nuclear Regulatory Commission, offers some initial estimates.[39] They looked at four types of SMRs, and the cheapest one had a mid-range power cost of over $0.20 a kilowatt-hour. For two others, the mid-range cost was $0.30/kWh. For the fourth, it was over $0.40/kWh. By comparison, the average residential rate of electricity is about $0.17/kWh for the country[40] or $0.26/kWh for NY[41]. The average commercial rate is about $0.13/kWh ($0.21 for NY).

But most of the discussion around SMRs is for data centers or industrial uses, like a semiconductor manufacturing plant. That makes the problem much harder, since the average industrial rate for the country is about $0.085 ($0.10 for NY). Building new nuclear for such users would require subsidizing their rate at the expense of NY ratepayers or taxpayers or both.

So SMRs make no sense for loads that are getting industrial rates or other relatively low rates, even if they could be built relatively quickly. But that is unlikely, given that "none yet exist," as one local media outlet noted in an article on the U.S. Army considering NY's Fort Drum as a possible SMR location.[42] A 2014 journal article concluded, "We argue that scientists and technologists associated with the nuclear industry are building support for small modular reactors" by putting forward "rhetorical visions imbued with elements of fantasy."[43]

Significantly, NY's Energy Plan does not consider or model SMRs in the 86-page section exploring how "the State is evaluating multiple scenarios that show future energy pathways for New York—called the 'Pathways Analysis'." The term SMR never even appears in that section.

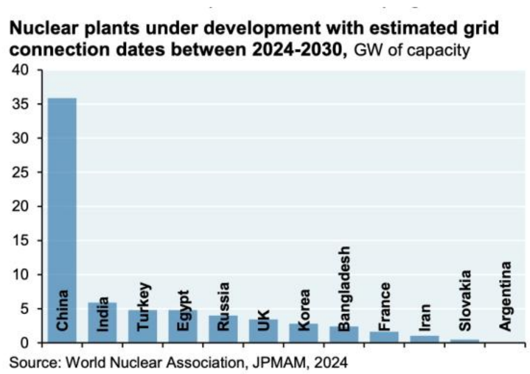
But on December 19, the Governor announced an MOU between the NY Power Authority and Ontario Power that "establishes a framework for collaboration on the development of advanced nuclear energy technologies, including large-scale nuclear and small modular reactors (SMRs), to strengthen energy reliability, affordability, and decarbonization efforts in New York and Ontario."[44]

Since new large nuclear plants are anti-affordability, as we've seen—and as Ontario has seen[45]—it's worth diving into why SMRs are inevitably going to have a higher cost per MW than larger plants, and thus be even worse for ratepayers.

The Hype About SMRs and the Diseconomies of Shrinkage

In 2025, solar, wind, and batteries represented 93% of U.S. utility-scale electric-generating capacity additions.[46] Also, recent studies find that advanced geothermal energy is on track to provide baseload and potentially dispatchable power three times cheaper to build than Vogtle by 2030.[47] As a March 2025 *Financial Times* article comparing various generation technologies noted, SMRs are the "most expensive energy source."[48] Or they would be, if someone ever finishes building one here. "There are three operating SMRs in the world (two in Russia and one in China)," which saw cost overruns of 300% to 400%, as JP Morgan explained in its 2025 *15th Annual Energy Paper*. [49]

Indeed, China is often held up as a country that doesn't have the same challenges as the US in building nuclear plants. In fact, China is the only country actually planning to build many new nuclear plants by 2030, about 35 GW between 2024–2030 (see chart below), which is under 6 GW a year. But **compare that to the 350 gigawatts of solar and wind China built—*just in 2024***.



But even China can't build SMRs quickly or cheaply compared to renewables. China's first SMR (105 MW) was supposed to take 4 years. It took 12. The *World Nuclear Industry Status Report (WNISR)* 2022 noted, "**Delays and cost escalation in this project offer an excellent illustration of why SMRs are likely to be no different from reactors with higher power ratings**."[50]

In 2021, the Chinese started building a second SMR design: the 125-megawatt ACP100 reactor. A Chinese National Nuclear Corporation official said construction would take nearly six years. As the *WNISR 2022* explained, "by the time construction started in 2021, this SMR was at least six years late," and "the reactor will also not be economical." The Chinese National Nuclear Corporation admitted in 2021 that **the cost per MW of the proposed ACP100 demonstration project "is 2 times higher than that of a large" nuclear power plant, and the cost per kilowatt-hour is likely to be 50% higher.**

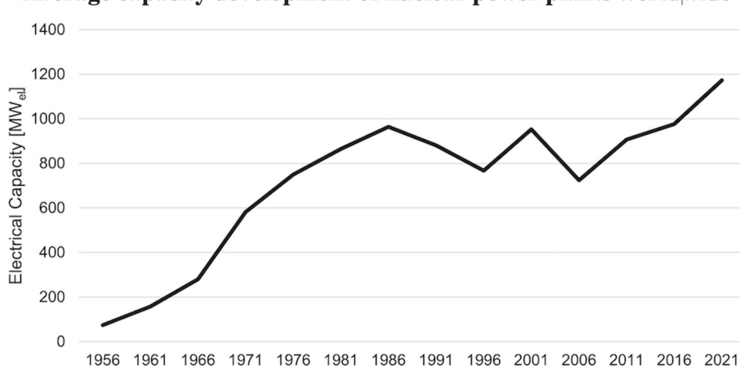
That's why under 1% of the total capacity of the Chinese reactors under construction is from small reactors—and over 95% of the total capacity will be from reactors of 1150 MW or larger.[51]

The delays and rising costs of SMRs worldwide should not have been a surprise. The history of nuclear power reveals the repeated failure of commercial SMRs to prove practical or affordable and an endless push to capture economies of scale, as the *IEEE Spectrum*, the leading publication of the Institute of Electrical and Electronics Engineers, made clear in a 2015 article.[52]

Most of the expenses of building and running a nuclear plant do not increase directly in proportion to the power it generates. Building a 300-MW reactor doesn't require half as much steel and concrete as a 600-megawatt reactor. It requires *more* than half. And it requires more than half as many people to run. According to the standard "power rule" used in industries such as nuclear for the capital cost of production facilities, a 300-megawatt plant would have nearly twice the cost per megawatt of capacity as a 1,000-megawatt plant. **The reverse of economies of scale is diseconomies of shrinkage**.

It is no surprise, then, that "the pursuit of economic competitiveness drove the attempt to reap economies of scale, resulting in larger unit sizes," as a 2024 "techno-historical" analysis documented (see figure below).[53] The average electric capacity of nuclear reactors worldwide, which was below 300 megawatts from the mid-1950s to the mid-1960s, rose to nearly 1,000 megawatts by the mid-1980s. Over the next two decades, the capacity fluctuated downward to under 800 megawatts but then started climbing again to nearly 1,200 megawatts in the early 2020s. This recent rise occurred as new reactor builds all but stopped in the United States and Europe, while the big new nuclear plant builders, like China, all saw the benefit of economies of scale.

Average capacity development of nuclear power plants worldwide



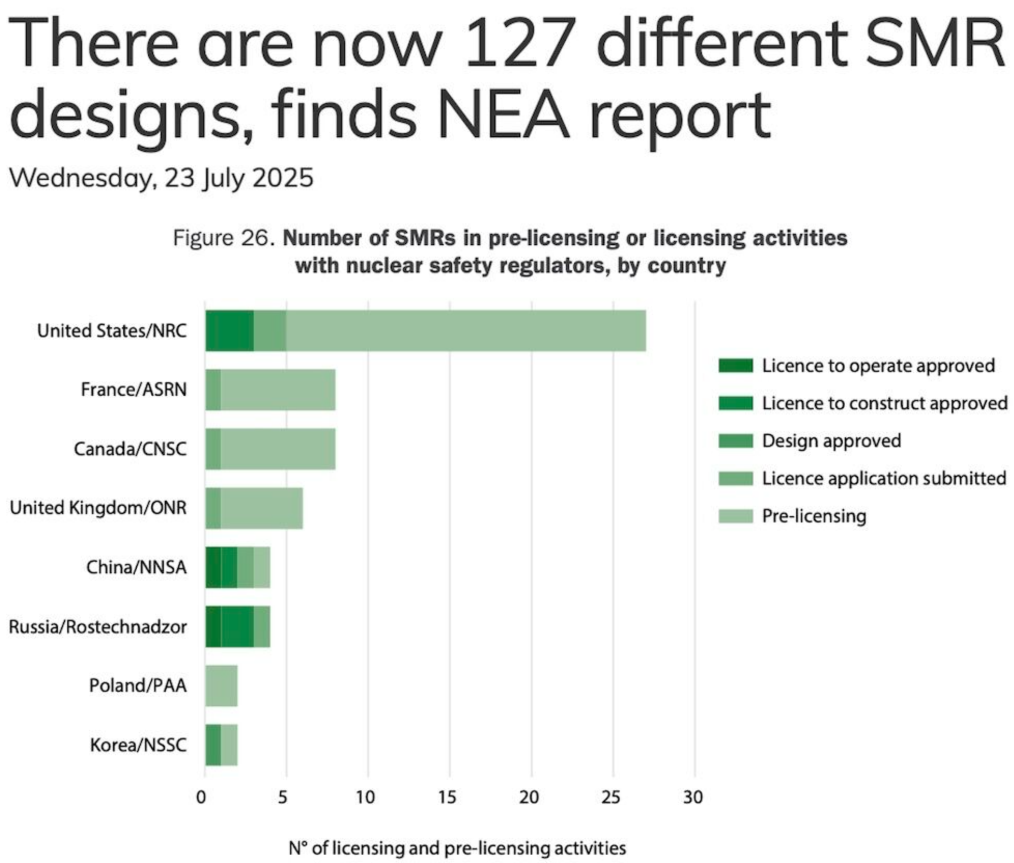
Source: Böse et al., Energy Research & Social Science, April 2024

Significantly, not only were the plants getting bigger, but even the bigger plants were sited together. As a 2018 Nuclear Energy Institute report noted, "**approximately 80% of the electricity generated from nuclear power in the U.S. comes from plants with multiple reactors**."[54]

A major reason for this is that one of the most significant costs and delays with any proposed nuclear plant is getting every necessary approval from the various constituencies in a state or the local community that can delay or block siting and construction. After all, a great many people do not want to live or work near a major nuclear power plant. So, as the power plant manufacturer and utility go through this lengthy process, they naturally want to cram as much power into the site as possible. This is another economy of scale that drives power plants to be so big.

The possibility that siting smaller nuclear plants is somehow going to be much faster and smoother has not been seen historically. And that's why we already see multiple SMRs typically sited together, as was the case with NuScale. But that raises a question: If most of the applications for an SMR are going to involve multiple units in the same place, the manufacturer is going to be driven toward simply building bigger plants, which is exactly what has happened over the past seventy years.

One of the strangest aspects of the SMR discussion is that, as *World Nuclear News* reported in July, "There are now 127 different SMR designs, finds NEA report."[55] The latest edition of the OECD Nuclear Energy Agency's SMR Dashboard reports that of those, 51 SMR designs globally are involved in pre-licensing or licensing—of which 27 are in the U.S.[56]



But the only rationale for SMRs is the possibility that they will overcome the inherent diseconomies of shrinkage by achieving some sort of "economies of standardization"—the gains you might achieve if everyone could settle on one or at most two designs. After all, one of the big failures of the U.S. nuclear industry was the inability to agree on a single design that could make licensing, siting, and construction simpler and potentially less expensive. But if the United States were to have, say, four or five competing SMR designs, then it seems improbable that any of those would achieve economies of standardization because the market in this country (and Europe) for new nuclear plants of any size is not huge. **So, the overwhelming majority of startups built around SMR designs seem destined to fail.**

Remember, there is no reason to believe that the economies of standardization if they actually do manifest, would be large enough to overcome both the diseconomies of shrinkage and the inherently high cost of nuclear plants. But that is exactly what would be needed to create a successful commercial SMR to compete in the market of the 2030s and beyond. That's especially true with all the advances we see in emerging competitors to nuclear power, such as enhanced geothermal systems.

Indeed, the first SMR the U.S. tried to build—by NuScale—was canceled in 2023 after its cost soared past $20 million per MW, higher than Vogtle. In 2024, Bill Gates told CBS the full cost of his 375 MW Natrium reactor would be "close to $10 billion,"[57] making **its cost nearly $30 million per MW—almost twice that of Vogtle**—even without the cost escalation during construction that every other U.S. nuclear plant has had.

Such pricey outcomes were predicted by a 2015 *IEEE Spectrum* article subtitled, "Economics Killed Small Nuclear Power Plants in the Past—And Probably Will Keep Doing So."[58] A 2024 analysis of proposed small modular reactors (SMRs) that are 300 MW or less found none "are fit for necessary rapid decarbonization due to availability constraints and economic challenges."[59]

The claim that abandoning the economies of scale that have driven reactors for decades to 1000+ MW would lead to *lower* cost per MW is magical thinking, defying technical plausibility and historical reality.

The Department of Energy, which promotes SMRs, modeled a median cost per MW over 50% higher for SMRs than for large reactors in its 2024 "Liftoff Report" on advanced nuclear power.[60] So, if they ever become commercial, **SMRs might lead to the highest electricity price rises ever seen**. The report makes clear we wouldn't pursue countless SMR designs if we were serious about nuclear. Savings from modularity require mass-producing one or, at most, two designs. The current strategy means virtually all SMR companies will fail, and costs will remain very high for a long time.

"Small modular reactor" is just rebranding. **They aren't small, they aren't modular—and few, if any, will become commercial reactors**. JP Morgan's March paper, in a section titled, "A nuclear renaissance in the OECD? Wake me when we get there," says "SMRs are still lottery tickets," and is "very skeptical of the ability to modularize and shrink the world's most capital-intensive projects."

SMRs have high cost-overrun and timing risks, as we've seen**.** A 2023 analysis of energy projects by BCG found "new nuclear power projects might witness up to a staggering 400% in overruns." JP Morgan's March analysis noted that large "nuclear power/storage projects are associated with the largest cost overruns of all megaprojects," and "the cost overrun on the China SMR was 300%, on Russian SMRs 400%" and so far there's a 700% overrun on an SMR under construction in Argentina.

We've already seen tremendous cost escalation of U.S. SMRs in the design phase. But in reality, no one knows their upper bound price or construction time since they keep getting canceled or delayed. Reuters noted in March, "the only countries that have built SMRs also have centralized governments, which has helped projects secure financing and decide which SMR fuel types and coolants to use."[61]

In December 2024, HSBC Global Research noted, "Construction timelines for nuclear are typically 10-12 years" in the U.S. and Europe.[62] But "time is of the essence for data center customers," the Wall Street Journal reported in March, so "they may prefer to ink contracts that involve less regulatory uncertainty" than nuclear.[63]

SMRs also have a huge reliability risk since they are largely experimental technologies with decades of failure being built by companies with no experience constructing SMRs. "Data centers need power 24/7 for energy and cooling purposes," Reuters noted in 2025.[64] But SMRs have no long-term data on reliability or availability—creating a **huge risk of economic (and brand) damage from extended outages**. Even big companies constructing large traditional nuclear plants routinely have extended outages. As JP Morgan noted in March, "Vogtle 3, completed in Georgia in 2023 after extensive delays and cost overruns, was offline for 9.5 out of its first 48 weeks in 2024 due to feedwater pump blockages or failed heat exchangers."

Given that their reliability is unknown, these new experimental SMRs will have to be fully backed up by the electric grid and insured at a high cost for failure—making their overall exorbitant cost even higher. In Russia, for example, two SMRs began commercial operation in May 2020 after significant delays and cost overruns.[65] In 2021, the reactors' load factors were only 45% and 18%, respectively. Load factor is how much power a reactor actually delivers compared with what it would deliver running at maximum power.

SMRs have many long-term risks. Since the vast majority of SMRs are startups, a data center owner is taking the risk—if something goes wrong—that the SMR company may not be around years later or if it is, that it simply declares bankruptcy.

The owner is also taking all the risks and costs associated with nuclear waste. For instance, the lead author of a 2022 Stanford-led study explained, "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 reactors they analyzed.[66] The study warns that SMRs are "incompatible with current technologies and concepts for nuclear waste disposal."[67] As a result, SMR waste will need special treatment, conditioning, and packaging: "These processes will introduce significant costs—and likely, radiation exposure and fissile material proliferation pathways—to the back end of the nuclear fuel cycle and entail no apparent benefit for long-term safety."

The Dangers of Nuclear Skimpflation

In a 2024 article on how "companies are downsizing products without downsizing prices," the *New York Times* explains that "while 'shrinkflation' gets measured [by inflation statistics] 'skimpflation' does not."[68] Skimpflation is when "companies sometimes use cheaper materials to save on costs." That appears to be a strategy used by many SMRs.

Consider NuScale. Physicist and nuclear safety expert Dr. Edwin Lyman noted that while developing the reactor, "NuScale made several ill-advised design choices in an attempt to control the cost of its reactor, but which raised numerous safety concerns."[69] For instance, "the design lacked leak-tight containment structures and highly reliable backup safety systems." Some of the money-saving choices were justified on the basis that the reactor was "passively safe," but one of the NRC's own experts raised serious questions about the passive emergency core cooling system late in the design certification process.[70] Similarly, two other leading experts cast doubt on the reactor's safety and the NRC's certification process.[71]

Yet even with all this apparent skimping on safety and backup systems, the reactor design still turned out to be unaffordable. And NuScale had been hyped as "the Future of Small Modular Reactors" in a 2014 Harvard Business School case study[72] that claimed it was "the leading modular nuclear reactor in the United States. This Reactor will be the safest and simplest ever built." In September 2020, *Popular Mechanics* asserted, "This Tiny Nuclear Reactor Will Change Energy."[73]

But just three years later, NuScale and the local utility canceled the contract after seeing the projected cost jump 75% in just eighteen months—making it more expensive per MW than the new Vogtle reactors.[74] That in turn led to a 50% surge in the projected price of electricity—"more expensive than most other sources of electricity today, including solar and wind power and most natural-gas plants," *Technology Review* explained in 2024.[75] Moreover, there's every reason to believe NuScale's cost overruns would have continued to escalate through construction since that's the overwhelming historical trend. On a conference call explaining the decision, NuScale CEO John Hopkins said, "Once you're on a dead horse, you dismount quickly. That's where we are here."[76]

Trump's Actions "Severely Increase the Risk of Expensive Nuclear Accidents"

Finally, no tech company should take the **unprecedented brand risk of a possible nuclear accident** from experimental products made by start-ups. **The accident risk for SMRs is of special concern because of Trump's efforts to gut regulatory oversight and because of "skimpflation,"** which is when "companies sometimes use cheaper materials to save on costs."[77]

Trump issued an executive order in February that stripped the independent oversight authority of the U.S. Nuclear Regulatory Commission (NRC), so the NRC's strong safety protocols for new reactors may be eviscerated. Currently, the NRC is the world's "Gold Standard" for "nuclear regulation," as Dr. Allison Macfarlane, former NRC chair, notes in the February *Bulletin of the Atomic Scientists*.[78]

But she issued a dire warning, explaining that Trump's order gives the Office of Management and Budget (OMB) "power over the regulatory process of until-now independent agencies," including the NRC. It "implies there are no longer independent regulators" in this country, ones that are "free from industry and political influence."

Dr. Macfarlane explains that the new order kills independence by requiring OMB to "review" these previously independent regulatory agencies' obligations "for consistency with the President's policies and priorities." This means "subordinating regulators to the president." She offers a cautionary tale of the Fukushima nuclear disaster in Japan, which had direct economic costs of some $200 billion, where "Overnight, the agricultural and fishing industries near Fukushima were devastated":

> An independent investigation by the Diet (Japan's house of parliament) into the cause of the Fukushima accident concluded unequivocally that: "**The TEPCO Fukushima Nuclear Power Plant accident was the result of collusion between the government, the regulators and TEPCO, and the lack of governance by said parties. They effectively betrayed the nation's right to be safe from nuclear accidents**."

She warns that because of Trump's order, SMRs could—as promoters have been demanding—become "exempted from the requirements that all other designs before them have had to meet: detailed evidence that the reactors will operate safely under accident conditions." That would "essentially give them a free pass to deploy their untested technology across the country."

A March *Scientific American* makes a similar point.[79] The three authors are a former DOE assistant secretary for nuclear energy, the chair of the University of Wisconsin–Madison's department of nuclear engineering and engineering physics, and a former president of the American Nuclear Society. They write, "we foresee that this proposed regulatory capture by the Executive Office of the President—where decisions are made for political reasons and not for the benefit of people served—will severely increase the risk of expensive, unexpected nuclear accidents in the U.S."

The authors point out how **a lack of regulatory independence led to the Chernobyl disaster**: "When Soviet leadership and its captured regulator prioritized national pride over safety, a known flaw in nuclear reactor control rods (which slow the rate of atomic fission in a reactor) went unchecked, safety protocols at the Chernobyl Nuclear Power Plant went unheeded, and in 1986 the worst nuclear power accident in history resulted."

This Trump order increases the risk of a nuclear accident from a future SMR in particular since the vast majority are entirely new designs from startups that have no experience building anything as complex as a new nuclear reactor. **Such companies need *more* oversight—not *less*—through every step of the process from design and construction to operation.** An increased accident risk undermines the business case for any company considering a deal to power their data center with an SMR.

As an important aside, it isn't just SMRs that are at greater risk of accidents. In October, the White House made an unprecedented agreement with Canada-based Cameco and Brookfield Asset Management, which own Westinghouse Electric—maker of the AP1000—which went bankrupt in 2017 due to cost overruns. "The plan offers the U.S. government a 20% share of future profits after Westinghouse has paid out profits of $17.5 billion to Brookfield and Cameco," as Reuters explained.[80] "The U.S. government could turn that profit into an equity stake of up to 20% and require an initial public offering of Westinghouse by 2029 if its value surpasses $30 billion."

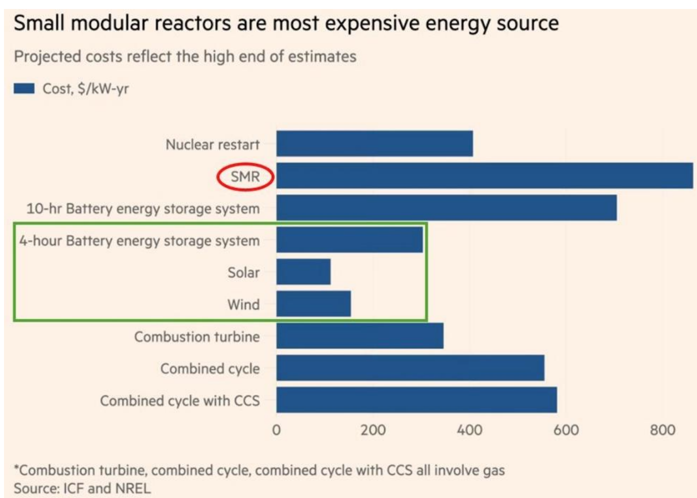
This creates the unprecedented situation where the White House, through the NRC, is effectively regulating itself, creating a massive conflict of interest. An analysis by one major global law firm that works in "highly regulated sectors" warned, "**This arrangement could create challenges around transparency, regulatory impartiality, and the need for strong conflict-of-interest safeguards—particularly where decisions affecting Westinghouse's commercial success overlap with government oversight responsibilities**."[81] Since this administration eschews conflict-of-interest safeguards, there is a real risk that oversight of new AP1000s will be gutted.

Ultimately, AP1000s are too expensive and too slow to build. So are SMRs, which "still look to be too expensive, too slow to build, and too risky to play a significant role in transitioning from fossil fuels in the coming 10-15 years," as one 2024 report concluded.[82] But what are the alternatives in the face of rising electricity demand and the need to slash carbon dioxide emissions in the next 15 years?

Real Low-Carbon Alternatives to Nuclear Are Here—And Better Ones Are Coming

SMRs have many unsolved risks of unknown size, as we've seen. "I don't believe that anyone has figured out exactly who's going to carry the cost overrun risk," explained top cleantech commercialization expert Jigar Shah in a 2025 podcast interview with Michael Liebreich, the former chair and founder of Bloomberg New Energy Finance.[83] From 2021 to January 2025, Shah headed the DOE loan office, which put out the "Liftoff" reports, and he oversaw $100 billion in loans to the next generation of clean technology. "Until we've solved that problem," added Shah, "then we're unlikely to have liftoff" of successful commercialization of new advanced nuclear reactors.

A 2025 *Financial Times* article, "Why the nuclear renaissance is 'far from certain'," compared various generation technologies and concluded SMRs are the "most expensive energy source" (see chart below of projected 2035 costs).[84] Significantly, the only technologies on the chart that continue to come down a cost curve are solar, wind, and battery storage.



The astonishing game-changer in delivering low-cost clean, dispatchable power is the ongoing learning curve in solar energy **combined** with an underreported collapse in advanced battery prices, which dropped 40% in 2024 alone and witnessed another huge drop in 2025, as a December report by the global energy think tank Ember noted.[85] The lead author explained, "**The economics for batteries are unrecognisable, and the industry is only just getting to grips with this new paradigm. Solar is no longer just cheap daytime electricity, solar is now anytime dispatchable electricity**."

A June report by Ember, "Solar electricity every hour of every day is here and it changes everything," analyzed the data for 12 cities found that even Washington DC could get 81% of the way to constant 24/365 solar generation for just $0.124 per kWh.[86]

As HSBC's December 2024 report on SMRs concluded, "SMRs are also 10 years away (if they prove to be economically viable)." Their chart below compares large and small reactors with new gas plants and clean energy portfolios (CEPs) of wind, solar, storage, and flexible demand. "Compared to CEPs, new nuclear is poor value for money," HSBC says—even with their overly optimistic projection that electricity costs will be *lower* for SMRs than large plants, when the reverse is far likelier.[87]

New nuclear's high cost and drawbacks far outweigh the benefit of being zero carbon

Value…	CEPs*	Gas	Nuclear - large	Nuclear SMR
Zero Carbon	Yes	Possible at additional cost (that are still below nuclear)	Yes	Yes
Flexible	Near -firm (much better than many believe)	Flexible to complement renewables	Not flexible	Not flexible enough or economical at low factors
Time & Complexity	Low complexity and fast timelines	Low/Medium comlexity and construction speed	High risk and very slow to deploy	High risk and very slow to deploy
Risks	Low	Low/Medium	Very High	Very High
Waste management	Recycling	OK	End-solution undefined / storing waste for thousands of years	End-solution undefined / storing waste for thousands of years
… for Money	30-60 USD/MWh	40-60 USD/MWh gas only (115-125 USD/MWh with CCUS)	>150 USD/MWh	115-140 USD/MWh

* Clean energy portfolio of wind/solar/storage/flexible demand

Source: Cost from NextEra elaboration on WoodMack LCOEs; HSBC analysis

As for gas plants, the Energy Information Administration projected in January[88] that domestic gas prices will double from 2024 to 2026, largely because of increasing liquefied natural gas (LNG) exports—something Trump is accelerating. In 2025 alone, U.S. gas prices rose 50%.[89]

Shah noted that "natural gas is not fast or cheap." For many people building gas plants today, the "cost, according to NextEra, is close to $100 a megawatt hour." He added, **"most of the big players with combined cycle gas turbines are sold out through 2031, so it's not even fast."**

Even Texas is canceling big gas plants "for failing to meet due diligence requirements," and grid expert Doug Lewin told Latitude Media in February.[90] "The reality of the situation is that it takes a long time to build gas." Lewin, who writes the *Texas Energy and Power Newsletter*, added, "And the costs are spiraling upwards…not just like in line with even high inflation."

So, what is a faster and cleaner choice? Nothing can compare with the combination of speed, low cost, and zero emissions of renewables coupled with batteries, as noted above.

"Renewables are here today," NextEra Energy CEO John Ketchum told investors in January 2025—and the world's largest renewable power company, is itself partnering with GE Vernova to expand gas generation. Yet on the company's fourth quarter earnings call, Ketchum explained the big advantage of clean energy: "**You can build a wind project in 12 months, a storage facility in 15, and, you know, a solar project in 18 months**."

That's why those three technologies represent 93% of planned US utility-scale electric-generating capacity additions in 2025, as noted earlier. "Today, Google is entering a strategic partnership with Intersect Power and TPG Rise Climate to synchronize new clean power generation with data center growth in a novel way," the tech giant wrote in a December 2024 blog post[91].[92] This $20 billion partnership will put data centers near new solar, wind, and battery storage, with the goal of "reducing both the timeline to operation and the amount of new transmission required."

A December 2024 analysis found that by running a data center *off the grid* with solar, wind, battery storage, and some gas, you can get a microgrid that is 82% to 90% renewable for just over $100/MWh, which could be further optimized to under $100/MWh.[93]

A 2025 RMI analysis found building a data center along with wind, solar, and batteries near an existing grid-connected gas plant "can fast-track electricity needed for AI." Their model identifies 20 GW of new load that is 80% to 95% carbon free for under $100/MWh.

A September 2025 report by Rewiring America explains, "How household upgrades can meet 100 percent of data center demand growth," some 93 GW, over the next five years.[94] The report details how "By paying for heat pumps in select homes that currently rely on inefficient electric heating, cooling, and water heating, hyperscalers could meet one-third of their projected additional capacity needs." In addition, "equipping households with suitable rooftops with solar and storage could generate more than enough clean electricity to meet all projected additional data center capacity needs."

Enhanced Geothermal Energy (EGS)

Firm, dispatchable low-carbon power that is more flexible and cost-effective than new nuclear may be near. A 2025 *Nature* article found that by 2027, "in the USA, enhanced geothermal is expected to achieve plant capital costs (US$4,500/kW) and a levelized cost of electricity (US$80/MWh)."[95] It would be firm and potentially even dispatchable power 3 times cheaper to build than the Vogtle reactors.

"The EGS approach is distinct from traditional geothermal systems due to its use of horizontal drilling and hydraulic fracturing," explains a *2024 Journal of Petroleum Technology* article, which reported on some breakthrough test results from DOE and the geothermal company Fervo.[96] "With optimal well spacing, this combination creates extensive flow paths between injection and production wells. Energy is extracted from the hot water using generators equipped with closed-loop turbines."

A Princeton news release "Flexible geothermal power approach combines clean energy with a built-in 'battery'" for a 2024 study explained: "By leveraging the inherent energy storage properties of an emerging technology known as enhanced geothermal, the research team found that flexible geothermal power combined with cost declines in drilling technology could lead to over 100 gigawatts' worth of geothermal projects in the western U.S."[97] And that is "a capacity greater than that of the existing U.S. nuclear fleet."

Since EGS companies are making use of technology proven in the oil and gas industry, advances are coming very fast, leading to faster drilling and lower overall cost. Enhanced geothermal is not a sure thing, but right now, it's far closer to commercialization liftoff than SMRs. A March study finds advanced geothermal could "meet 100% of data center demand growth in 13 of the 15 largest markets" by early 2030s at low cost.[98]

A July 2025 journal article from Princeton researchers concluded, "we find under baseline assumptions that EGS could plausibly contribute up to a fifth of total US electricity generation by 2050 and **drastically reduce the cost of electricity decarbonization even in lower-quality resource areas east of the Mississippi**—a much larger role for the technology than has been previously assumed."[99]

Liebreich asked Shah to rank his level of "optimism" about the chances EGS would achieve commercialization liftoff" on a "one to five scale — this is nailed, and it's gonna just absolutely fly or, you know, after all that we've done, I don't really see it." **Significantly, when he was asked about "next generation geothermal power," Shah said, "We're firmly at a five on that**."

A (Brief) History of Nuclear Power Plants

Let's step back and see how everything that is happening now with nuclear reactor price escalation is simply a continuation of trends that have been going on for many decades. As a 2019 analysis, "The Historical Development of the Costs of Nuclear Power," concluded, "**from the first wave of nuclear reactors deployed, construction costs have been on an escalation course**."[100]

Nuclear power may be the original overhyped energy technology, as an article on the Nuclear Regulatory Commission website makes clear.[101] In a 1954 address, Atomic Energy Commission chair Lewis Strauss said, "Transmutation of the elements, *unlimited power*, ability to investigate the working of living cells by tracer atoms, the secret of photosynthesis about to be uncovered—*these and a host of other results all in 15 short years. It is not too much to expect that our children will enjoy in their homes electrical energy too cheap to meter*." Strauss repeated the idea days later on *Meet the Press* radio, saying that he expected his children and grandchildren to have power "too cheap to be metered." That time, he said, may be "close at hand. I hope to live to see it."

The United States did develop a nuclear industry and ultimately built over 100 reactors, more than any other country. But the industry did not see reactor prices going down an experience curve, where increased sales over time lead to economies of scale, improvements in technology, and overall gains in experience that translate into steady cost reductions—as they have in recent decades with solar energy, wind power, batteries, and LED bulbs. Instead, new nuclear power plants have steadily risen in price. This "negative learning" as one article called it, happened in both the United States and France.[102]

As a result, nuclear power has largely priced itself out of the market in the industrialized world. "Western nuclear completions since 1990 took many years and resulted in massive cost overruns," as JP Morgan explained in a 2024 analysis.[103] "We estimate that levelized nuclear costs were 2x–4x higher than a baseload power system derived from wind, solar and sufficient backup thermal (natural gas) capacity."

I have been involved with nuclear energy policy and analysis for over thirty years. When I first came to the DOE in mid-1993, I spent two years as special assistant for policy and planning for the deputy secretary, who oversaw all DOE energy programs. My focus was helping him oversee the billion-dollar Office of Energy Efficiency and Renewable Energy, which was—and still is—working to develop and commercialize the key technologies that have now won in the cleantech marketplace. These include solar, wind, advanced storage, alternative fuel vehicles, various energy efficiency technologies, including LED lighting and heat pumps, and industrial efficiency. In 1995, I became principal deputy assistant secretary of that office, and in 1997 was named acting assistant secretary.

One of my duties for the Deputy Secretary was to review policy and analysis coming from the Office of Nuclear Energy. In the 2004 edition of my book on hydrogen, I noted that a major 2003 interdisciplinary study by the Massachusetts Institute of Technology, *The Future of Nuclear Power*, highlighted many of the "unresolved problems" that have created "limited prospects for nuclear power today."[104] The study found that "in deregulated markets, nuclear power is not now cost competitive with coal and natural gas"—and that the challenge of siting new nuclear power plants is exacerbated by public concern about the safety, environmental, health, and terrorism risks associated with nuclear power. It found that "nuclear power has unresolved challenges in long-term management of radioactive wastes." The authors described possible technological and other strategies for addressing these issues but noted, for instance, that "the cost improvements we project are plausible but unproven."

Such improvements never happened. In 2008, I was invited to testify on the economics of nuclear power by the Senate Committee on Environment and Public Works Subcommittee on Clean Air and Nuclear Safety.[105] As I testified, the cost of new nuclear power had more than doubled from what the Massachusetts Institute of Technology report assumed in its base case just five years earlier. From 2000 through 2007, nuclear plant construction costs—mainly materials, labor, and engineering—rose by 185%.[106]

That meant a nuclear power plant costing $4 billion to build in 2000 cost over $11 billion to build seven years later. An industry trade magazine, *Nuclear Engineering International*, titled a 2007 article "How Much? For Some Utilities, the Capital Costs of a New Nuclear Power Plant Are Prohibitive."[107]

The only new nuclear reactors. the United States successfully built and started in recent decades are Units 3 and 4 of the Vogtle plant, operated by the Southern Company and its subsidiary, Georgia Power. A 2006 *New York Times* article posing the question "A Nuclear Renaissance?" reported that Westinghouse told the paper, "The cost will ultimately be somewhere between $1.4 billion and $1.9 billion" for each AP1000 reactor.[108] Yet the *Wall Street Journal* reported two years later that "the existing Vogtle plant [Units 1 and 2], put into service in the late 1980s, cost more than 10 times its original estimate, roughly $4.5 billion for each of two reactors."[109] The same article suggested the two planned units would cost $14 billion total.

Ironically, that *Journal* article hyped the supposed nuclear Renaissance, asserting, "Nuclear power is regaining favor as an alternative to other sources of power generation, such as coal-fired plants." But that part of the story was inaccurate, as the few nuclear plants then under consideration were canceled one by one until only the two Georgia reactors were left. By the time they were turned on, seven years late, one in 2023 and one in 2024, their total cost had hit $35 billion,[110] making it "the most expensive power plant ever built on earth," with an "astoundingly high" estimated electricity cost, as *Power Magazine* wrote in 2023.[111]

Back in March 2016, Georgia Power had put out a news release declaring, "the expected completion dates of June 2019 for Unit 3 and June 2020 for Unit 4. **Once the new units come online, they are expected to put downward pressure on rates and deliver long-term savings**

for Georgia customers."[112] In reality, Georgia ratepayers' bills are rising by over $220 a year. In 2023, state regulators made customers pay for most of the cost of the reactors —"on top of a monthly surcharge"[113] they've had to *pre-pay* for years due to state legislation passed before the project started, totaling $1000.[114] South Carolina consumers still pay for two never-completed reactors.[115]

And that isn't just the US experience. France's government-owned electric company, EDF, has had the same outcome with the 1,600-megawatt European pressurized-water reactor (EPR) Generation III+ reactor design developed with Germany's Siemens. As of 2024, the only reactor project currently being constructed in France was a single EPR plant at Flamanville. The original cost estimate was €3.3 billion. The current cost estimate is nearly six times as high, €19.1 billion ($19 billion).[116] Similarly, the Olkiluoto nuclear plant in Finland "was scheduled to be completed in 2009; it was completed in 2023 and cost $12 billion, three times its original estimate," as JP Morgan noted in 2024.[117]

In a 2008 "White Paper on Nuclear Power," the British government's Department for Business, Enterprise & Regulatory Reform estimated a "total cost of £2.8 bn to build a first of a kind plant with a capacity of 1.6 GW" for a single reactor.[118] That analysis asserted, "Even on cautious assumptions, the cost of nuclear energy compares favourably with other low-carbon electricity sources."

Again, this was more empty hype. The country pursued two EPRs, 3,200 megawatts total, at the Hinkley site in southwest England. This plant would have been the country's first two new reactors since the 1990s. In January 2024, the BBC reported, "EDF now estimates that the cost could hit £46bn" ($59 billion).[119] That is a price per reactor eight times higher than the 2008 report had projected. The start date was pushed back to at least 2029. China General Nuclear Power Corp, which owns about a third of the project, with EDF owning the rest, halted funding in December 2023, and EDF has warned the halt could become permanent.[120]

"It seems the golden rule of nuclear economics is to add a zero to industry estimates, and your estimate will be far closer to the mark than theirs," notes nonprofit news service Climate & Capital Media in a January 2024 report.[121]

Conclusion: Anti-Affordability vs. Affordability

New York's Energy Plan advances an anti-affordability agenda, with plans for new reactors that will be a massive burden on ratepayers, comparable to the huge rate increases the twin Vogtle reactors hit Georgians with. The Governor's push for at least a GW of new nuclear is wholly inconsistent with her opening letter in the 1053-page December NY Energy Plan, which asserts that "affordability is just as important" as "reliability."

The Plan itself is opaque by design and advances two anti-affordability strategies to achieve the state's goal of a zero-emissions grid by 2040. First, it embraces up to 3.3 GW of new nuclear reactors, which would likely triple the large rate increase the governor's single plant would cause. Second, it proposes that the state's primary new non-nuclear carbon-free firm capacity in 2040 will be 15 GW of gas plants running on green hydrogen, but only 260 hours a year. It requires magical thinking to believe this hydrogen strategy won't be very expensive, even more expensive than new nuclear power.

The cost analysis underlying the Energy Plan is so flawed that neither the state nor the contractor who wrote it stands behind its accuracy or the consequences of using it. It appears that a NYSERDA analysis from 2024 that was shared interagency may offer a much more realistic picture of the impact of new nuclear, but so far, it has been kept from the public.

An affordability agenda would start with the legislature insisting that the NYSERDA analysis be made public. New Yorkers should not be betting the future of their electricity rates on an indefensible cost analysis. That agenda would include letting other states use their citizens as test subjects for the exceedingly implausible proposition that new nuclear power won't cause rates to soar—or that hydrogen has a major role in a carbon-free electricity plan.

An affordability agenda would embrace three core strategies. First, it would have a near-term policy of accelerating proven strategies for reducing both peak demand and customer energy bills. This would include a very strategic use of batteries, solar power, and energy efficiency, especially advanced heat pumps to replace inefficient electric heating.

Second, it would focus on identifying, advancing, and ultimately commercializing all of the technologies that could plausibly deliver affordable firm, dispatchable carbon-free power by 2035. These include enhanced geothermal power, long-duration storage, and virtual power plants.

Third, the state should put in place a moratorium on data centers. Upstate New York, in particular, has seen a tripling of wholesale electricity prices in places near data centers. The state needs to develop a set of enforceable rules to protect its citizens from the rate increases that have led to popular uprisings against data centers around the country.

About The Author (rommj@sas.upenn.edu)

Dr. Joseph Romm is a New York native and leading expert on climate solutions. He has been involved with nuclear energy policy and analysis for over three decades. In December 2025, Romm was the primary presenter on nuclear energy costs for a webinar and public meeting of the National Academy of Sciences Nuclear and Radiation Studies Board. He gave a 30-minute presentation on "Promoting SMRs Will Slow or Stop any 'Nuclear Renaissance' and Undermine U.S. Leadership in AI."

He holds a PhD in physics from M.I.T. and is a Senior Research Fellow at the University of Pennsylvania Center for Science, Sustainability, and the Media (PCSSM). His work focuses on the sustainability and scalability—and the scientific underpinnings—of the major climate solutions, as well as the media coverage of them.

Romm was born and raised in Middletown, NY. From 1988 to 1991, he was special assistant to the President of the Rockefeller Foundation, Peter Goldmark, where he worked on nuclear non-proliferation, clean energy, and climate change. In 1990 and 1991, Romm was an adjunct assistant professor at Columbia University's School of International and Public Affairs, where he taught a class that covered those same issues.

Romm spent 5 years in the 1990s working on climate and clean energy solutions at the U.S. Department of Energy. From 1993 to 1995, he helped the Deputy Secretary oversee the Office of Energy Efficiency and Renewable Energy (EERE) as well as the Office of Nuclear Energy. From 1995 to 1998, he helped to run EERE and oversee technology and policy analysis for the office—ultimately serving as Acting Assistant Secretary, where he oversaw a $1 billion budget for R&D, demonstration, and deployment of climate solutions, including solar, wind, geothermal, and advanced batteries.

In 2008, Romm testified on the economics of nuclear power in front of the Senate Committee on Environment and Public Works Subcommittee on Clean Air and Nuclear Safety. That year, he was also elected a Fellow of the American Association for the Advancement of Science for "distinguished service toward a sustainable energy future." In 2009, Time magazine named him "Hero of the Environment" and "The Web's most influential climate-change blogger" for his work at Climate Progress. Rolling Stone named him one of "100 people who are changing America." In 2004, Romm was given the Ban Ki-Moon Award for Environmental Leadership from the former UN Secretary-General.

Romm has written 11 books on climate change, clean energy, and communications, including an Oxford University Press book that NY Magazine called "the best single-source primer on the state of climate change." Romm's 2004 book, "The Hype about Hydrogen: Fact and Fiction in the Race to Save the Climate," was named one of the best science and technology books of 2004 by Library Journal. In April, Island Press published a completely revised and updated edition, "The Hype About Hydrogen: False Promises and Real Solutions in the Race to Save the Climate," which discusses small modular reactors, biofuels, fusion, direct air capture, and hydrogen.

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Endnotes

[1]NYSERDA, *Blueprint for Consideration of Advanced Nuclear Energy Technologies*, January 2025.
[2]JUNE 23, 2025 Albany, "NY Governor Hochul Directs New York Power Authority to Develop a Zero-Emission Advanced Nuclear Energy Technology Power Plant,"
[3]NYSERDA, January 2025.
[4]Koroush Shirvan, "2024 Total Cost Projection of Next AP1000," Advanced Nuclear Power Program, MIT, July 2024.
[5]Patty Durand, "Plant Vogtle: Not a Star, but a Tragedy for the People of Georgia," *Power Magazine*, August 11, 2023.
[6]Drew Kann, "Georgia Power rates: Public to pay bulk of Plant Vogtle costs," *The Atlanta Journal-Constitution*, December 19, 2023.
[7]Drew Kann, "New Vogtle nuclear reactor now online, completing expansion," *The Atlanta Journal-Constitution*, April 29, 2024.
[8]Jessica Holdman, "Here's how much SC power customers are still paying for a failed nuclear project," *South Carolina Daily Gazette*, April 5, 2024.
[9]Matt Bowen et al., "The Uncertain Costs of New Nuclear Reactors: What Study Estimates Reveal about the Potential for Nuclear in a Decarbonizing World," Center on Global Energy Policy, Columbia University, December 2023.
[10]Koroush Shirvan, "2024 Total Cost Projection of Next AP1000," Advanced Nuclear Power Program, MIT, July 2024.
[11]New York State Energy Planning Board, "2025 New York State Energy Plan," December 2025.

[12]New York ISO, *Power Trends 2025*, 2025.
[13]Rebecca F. Elliott, "America's Clean Hydrogen Dreams Are Fading Again," *New York Times*, August 11, 2025
[14]The Energy Plan (page 43) explains, "Clean firm resources are able to reliably and flexibly provide energy and capacity to the grid (especially when intermittent sources such as wind and solar are unavailable) and provide support services like voltage regulation."
[15]This is also a superior strategy for every other state.
[16]The term "Summary For Policymakers" was popularized by the UN Intergovernmental Panel on Climate Change (IPCC), which began putting out summaries of its massive scientific assessment reports in 1990, when they were called "Policymaker Summaries." By January 2001, the IPCC was using the term "Summary For Policymakers" for the Third Assessment Report.
[17]Electric Power Research Institute, *Zero by 40 Technoeconomic Assessment*, Prepared for the New York State Energy Research and Development Authority, October 2025.
[18]Jacqui Drechsler, **"**Rebuttal to Gov. Hochul's announcement for Nuclear in NY," July 10, 2025.
[19]Michelle L. Phillips, Secretary to the Commission, "Re: Appeal of Records Access Officer Determination (FOIL No. 1251-071625)," Public Service Commission, September 2, 2025.
[20]Abdalla Abou-Jaoude et al., *Meta-Analysis of Advanced Nuclear Reactor Cost Estimations*, Idaho National Laboratory, July 2024.
[21]Max Roser, "Why did renewables become so cheap so fast?" Published online at OurWorldinData.org December 2020. (archived on November 25, 2025).
[22]Abhishek Malhotra and Tobias S. Schmidt, "Accelerating Low-Carbon Innovation," *Joule*, November 2020.
[23]S&P Global, "S&P Global Commodity Insights Releases Its Latest 2024 Energy Outlook," S&P Global, December 14, 2023.
[24]Alexander Budzier et al., "Five Strategies for Optimizing Power-to-X Projects," Boston Consulting Group, September 28, 2023.
[25]Xiaoting Wang, "Electrolysis System Cost Forecast 2050: Higher for Longer," BloombergNEF, September 12, 2024. That report is only for BNEF clients. But, for a summary, see Martin Tengler, head of hydrogen research at BNEF, LinkedIn post, "Electrolyzer costs will remain higher for longer than previously thought, thereby negatively impacting future green hydrogen costs," September 2024.
[26]Michael Cembalest, *Eye on the Market 15th Annual Energy Paper: Heliocentrism*, JP Morgan Asset and Wealth Management, March 2025
[27]Matthew L. Wald, "Utilities Strive To Finish Nine Mile 2 Undaunted By Cost And Long Delays," *New York Times*, January 2, 1984.
[28] Arnulf Grubler, "The Costs of the French Nuclear Scale-Up: A Case of Negative Learning by Doing," *Energy Policy*, September 2010.
[29]Catherine Clifford, "Clean Energy America's first new nuclear reactor in nearly seven years starts operations," CNBC, July 31 2023.
[30]Katy Huff et al., "Killing a Nuclear Watchdog's Independence Threatens Disaster," *Scientific American*, March 6, 2025.
[31]John Howard, "12-18 Assembly Public Hearing on NYSERDA Spending and Program Review," Assembly Standing Committee on Energy, December 18, 2024.
[32]International Energy Agency, Global Energy Review 2025, March 2025.
[33]Josh Saul et al, "AI Data Centers Are Sending Power Bills Soaring," *Bloomberg News*, September 29, 2025
[34]Marc Levy and the Associated Press, "Angry town halls nationwide find a new villain: the data center driving up your electricity bill while fueling job-killing AI," *Fortune*, January 3, 2026.
[35]Seeking Alpha, "Vistra Corp. (VST) Q1 2025 Earnings Call Transcript," May 7, 2025.
[36]Matthew Zeitlin, "Constellation's CEO Opts Out of Load Growth Mania," *Heatmap*, May 6, 2025
[37]Cathy Kunkel and Dennis Wamsted, "Risk of AI-driven, overbuilt infrastructure is real," Institute for Energy Economics and Financial Analysis (IEEFA), June 3, 2025.
[38]Michael Cembalest, *Eye on the Market 15th Annual Energy Paper: Heliocentrism*, JP Morgan Asset and Wealth Management, March 2025
[39]Philseo Kim and Allison Macfarlane, "Challenges of small modular reactors: A comprehensive exploration of economic and waste uncertainties associated with U.S. small modular reactor designs," *Progress in Nuclear Energy*, January, 2026.
[40]U.S. Energy Information Administration (EIA), "Table 5.3. Average Price of Electricity to Ultimate Customers," *Electric Power Monthly for October*, December 23, 2025.
[41]NYSERDA, "Electricity Prices," Downloaded January 6, 2026
[42]Brian Dwyer , "Why Fort Drum is considered 'optimal' for a small, modular nuclear reactor," *Spectrum News*, July 3, 2025.
[43]Benjamin Sovacool and M. V. Ramana, "Back to the Future: Small Modular Reactors, Nuclear Fantasies, and Symbolic Convergence," *Science, Technology, & Human Values*, July 23, 2014.

[44]NY Governor's Office, "NY Governor Hochul and Ontario Premier Doug Ford Announce Landmark Agreement to Support," December 19, 2025.
[45]See, Mark Winfield, "Ontario faces high cost and high-risk nuclear future, *Canadian Dimension*, November 17, 2025
[46]U.S. Energy Information Administration, "U.S. developers report half of new electric generating capacity will come from solar," August 20, 2025.
[47]Roland Horne *et al*., "Enhanced geothermal systems for clean firm energy generation," *Nature Reviews Clean Technology*, January 31, 2025.
[48]Alexandra White, "Why the nuclear renaissance is 'far from certain'," Financial Times, March 27, 2025.
[49]Michael Cembalest, *Eye on the Market 15th Annual Energy Paper: Heliocentrism*, JP Morgan Asset and Wealth Management, March 2025
[50]Mycle Schneider *et al*., "The World Nuclear Industry Status Report 2022," World Nuclear Report, November 18, 2022.
[51]Michael Barnard, "China Still Hasn't Learned Nuclear Scaling Lesson With New Approvals, *CleanTechnica*, August 22, 2024.
[52]David Greenberg, "The Forgotten History of Small Nuclear Reactors," *IEEE Spectrum*, April 27, 2015.
[53]Fanny Böse et al., "Questioning Nuclear Scale-Up Propositions: Availability and Economic Prospects of Light Water, Small Modular and Advanced Reactor Technologies," *Energy Research and Social Science*, April 2024.
[54]Nuclear Energy Institute, "Nuclear Costs in Context," October 2018.
[55]*World Nuclear News*, "There are now 127 different SMR designs, finds NEA report," July 23, 2025
[56]Nuclear Energy Agency, *The NEA Small Modular Reactor Dashboard: Third Edition*, Organisation for Economic Co-Operation and Development Publishing, July 22, 2025.
[57]Bill Gates, *Face the Nation,* June 16, 2024. Asked what the Wyoming plant will cost, Gates, replied, "Well, if you count all the first-of-a-kind costs, you know, where we've been working for many years designing this thing, you could get a number close to 10 billion."
[58]David Greenberg, "The Forgotten History of Small Nuclear Reactors," *IEEE Spectrum*, April 27, 2015.
[59]Fanny Böse et al., "Questioning Nuclear Scale-Up Propositions: Availability and Economic Prospects of Light Water, Small Modular and Advanced Reactor Technologies," *Energy Research and Social Science*, April 2024.
[60] Julie Kozeracki et al, "Pathways to Commercial Liftoff: Advanced Nuclear," U.S. Department of Energy, September 2024.
[61]Timothy Gardner, "CERAweek: Small nuclear power struggles at cusp of US electricity demand boom," Reuters, March 13, 2025.
[62]Meike Becker, et al., "Nuclear renaissance? Reality bites," HSBC Global Research, December 4, 2024.
[63]Jinjoo Lee, "AI Fever in Power Stocks Moves From Nuclear to Plain Natural Gas," *Wall Street Journal*, March 1, 2025
[64]Anna Flávia Rochas, "AI boom spurs Big Tech to build clean power on site," Reuters, February 5, 2025.
[65]Mycle Schneider *et al*., "The World Nuclear Industry Status Report 2022," World Nuclear Report, November 18, 2022.
[66]Rod Ewing, "Small Modular Reactors Produce High Levels of Nuclear Waste," *Stanford Report*, May 30, 2022.
[67]Lindsay Krall et al., "Nuclear Waste from Small Modular Reactors," *Proceedings of the National Academy of Sciences*, May 31, 2022.
[68]Jeanna Smialek, "Shrinkflation 101: The Economics of Smaller Groceries," *New York Times*, March 1, 2024.
[69]Dr. Edwin Lyman, "Small Nuclear Reactor Contract Fails, Signaling Larger Issues in Nuclear Energy Development," Union of Concerned Scientists, November 9, 2023.
[70]Shanlai Lu, "Evaluation of NuScale Post ECCS Actuation Boron Dilution Events," National Academies Press, July 6, 2020.
[71]Arjun Makhijani and M. V. Ramana, "Questions for NuScale VOYGR Reactor Certification: When Will It Be Done? And Then, Will It Be Safe?" Environmental Working Group, April 9, 2023.
[72]Richard Vietor, "NuScale Power—the Future of Small Modular Reactors," Harvard Business School Case 715-004, October 2014. (Revised June 2016.)
[73]Caroline Delbert, "This Tiny Nuclear Reactor Will Change Energy—and Now It's Officially Safe," *Popular Mechanics*, September 2, 2020.
[74]Ed Lyman, "Five Things the Nuclear Bros Don't Want You to Know About Small Modular Reactors," Union of Concerned Scientists, April 30, 2024.
[75]Casey Crownhart, "We Were Promised Smaller Nuclear Reactors. Where Are They?" *Technology Review*, February 8, 2023.
[76]Will Wade, "First U.S. Small Nuclear Project Canceled After Costs Climb 53%," *Financial Post*, November 8, 2023.
[77]Jeanna Smialek, "Shrinkflation 101: The Economics of Smaller Groceries," *New York Times*, March 1, 2024.
[78]Allison Macfarlane, "Trump just assaulted the independence of the nuclear regulator. What could go wrong?" *Bulletin of the Atomic Scientists*, February 21, 2025.
[79]Katy Huff et al., "Killing a Nuclear Watchdog's Independence Threatens Disaster," *Scientific American*, March 6, 2025.
[80]Timothy Gardner and Katha Kalia, "US strikes $80 billion deal for new nuclear power plants," Reuters, October 28, 2025.

[81]Amy C. Roma et al., "U.S. Government announces game changing nuclear partnership with Westinghouse, Brookfield, and Cameco," Hogan Lovells, October30, 2025.
[82]David Schlissel and Dennis Wamsted, "Small Modular Reactors: Still too expensive, too slow and too risky," The Institute for Energy Economics and Financial Analysis (IEEFA), May 29, 2024.
[83]Michael Liebreich (host), "The Future of Clean Tech Under Trump — Ep198: Jigar Shah," *Cleaning Up* (audio podcasat), February 26, 2025.
[84]Alexandra White, "Why the nuclear renaissance is 'far from certain'," *Financial Times*, March 27, 2025. The chart is derived from National Renewable Energy Laboratory (NREL) data and an ICF analysis that explains it is of "projected 2035 costs" which "includes capital costs, target return on capital, and fixed and variable operating costs." See Ian Bowen et al., "5 factors that will shape nuclear energy's future," ICF, March 27, 2025.
[85]Kostantsa Rangelova and Dave Jones, "How cheap is battery storage?" Ember, December 11, 2025.
[86]Kostantsa Rangelova and Dave Jones, "Solar electricity every hour of every day is here and it changes everything," Ember, June 21, 2025.
[87]Meike Becker, et al., "Nuclear renaissance? Reality bites," HSBC Global Research, December 4, 2024.
[88]U.S. Energy Information Administration, "EIA expects higher wholesale U.S. natural gas prices as demand increases," January 23, 2025. See also Nicholas Cunningham, "U.S. gas prices could double because of LNG exports," *Gas Outlook*, January 27, 2025.
[89]EIA, "U.S. natural gas prices rise unevenly across sectors," November 13, 2025
[90]Lisa Martine Jenkins , "Engie's pulled project highlights the worsening economics of gas," *Latitude Media*, February 25, 2025.
[91]Alex Engel *et al*., "How 'Power Couples' Can Help the United States Win the Global AI Race," RMI, February 20, 2025.
[92]Ruth Porat, "A new approach to data center and clean energy growth," *The Keyword* (Google's blog), December 10, 2024.
[93]Kyle Baranko *et al*, "Fast, scalable, clean, and cheap enough," OffGridAI.us, December 2024.
[94]Cora Wyent et al., "Homegrown Energy: How household upgrades can meet 100 percent of data center demand growth" Rewiring America, September 2025
[95]Roland Horne *et al*., "Enhanced geothermal systems for clean firm energy generation," *Nature Reviews Clean Technology*, January 31, 2025.
[96]Trent Jacobs, "Fervo and FORGE Report Breakthrough Test Results, Signaling More Progress for Enhanced Geothermal, *Journal of Petroleum Technology,* September 16, 2024.
[97]Colton Poore, "Flexible geothermal power approach combines clean energy with a built-in 'battery'," Princeton Engineering news release, February 16, 2024
[98]Ben King, et al., "The Potential for Geothermal Energy to Meet Growing Data Center Electricity Demand," Rhodium Group, March 11, 2025.
[99]Wilson Ricks and Jesse D. Jenkins, "Pathways to national-scale adoption of enhanced geothermal power through experience-driven cost reductions," *Joule*, 2025,
[100]Reinhard Haas *et al*., "The Technological Development of Different Generations and Reactor Concepts," Chapter 10 in Reinhard Haas et al. (eds), *The Technological and Economic Future of Nuclear Power*, Springer VS, April 2019.
[101]Thomas Wellock, "'Too Cheap to Meter': A History of the Phrase," Nuclear Regulatory Commission, updated September 24, 2021.
[102] Arnulf Grubler, "The Costs of the French Nuclear Scale-Up: A Case of Negative Learning by Doing," *Energy Policy*, September 2010.
[103] Michael Cembalest, "Eye on the Market," JP Morgan Asset and Wealth Management, April 2, 2024.
[104] Massachusetts Institute of Technology, *The Future of Nuclear Power: An Inter-disciplinary MIT Study*, 2003.
[105]Joseph Romm, Statement before the Senate Committee on Environment and Public Works Subcommittee on Clean Air and Nuclear Safety, July 16, 2008.
[106]Reuters, "U.S. Power Plant Costs Up 130% Since 2000—CERA," February 14, 2008.
[107]Nuclear Engineering International, "How Much? For Some Utilities, the Capital Costs of a New Nuclear Power Plant Are Prohibitive," November 20, 2007.
[108]*New York Times*, "Atomic Balm?" July 16, 2006.
[109]Rebecca Smith, "New Wave of Nuclear Plants Faces High Costs," *Wall Street Journal*, June 14, 2008.
[110]Jeff Amy, "US Energy Secretary Calls for More Nuclear Power While Celebrating $35 Billion Georgia Reactors," Associated Press, June 2, 2024.
[111]Patty Durand, "Plant Vogtle: Not a Star, but a Tragedy for the People of Georgia," *Power Magazine*, August 11, 2023.
[112]Georgia Power, "1,800+ cubic yards of concrete placed for Vogtle Unit 3 CA20 module," PRNewswire, March 7, 2016
[113]Drew Kann, "Georgia Power rates: Public to pay bulk of Plant Vogtle costs," *The Atlanta Journal-Constitution*, December 19, 2023.

[114]Drew Kann, "New Vogtle nuclear reactor now online, completing expansion," *The Atlanta Journal-Constitution*, April 29, 2024.
[115]Jessica Holdman, "Here's how much SC power customers are still paying for a failed nuclear project," *South Carolina Daily Gazette*, April 5, 2024.
[116]Mycle Schneider et al., "The World Nuclear Industry Status Report 2022," World Nuclear Report, November 18, 2022.
[117]Michael Cembalest, "14th Annual Energy Paper," JP Morgan Asset and Wealth Management, March 2024.
[118]UK Government, Department for Business, Enterprise & Regulatory Reform. "White Paper on Nuclear Power," January 2008.
[119]Simon Jack, "Hinkley C: UK Nuclear Plant Price Tag Could Rocket by a Third," *BBC News*, January 23, 2024.
[120]Francois De Beaupuy, "China's CGN Halts Funding for UK's Hinkley Nuclear Plant," *Bloomberg*, December 13, 2023.
[121]Jim Green, "Small Modular Nuclear Reactors: A History of Failure," Climate & Capital Media, January 17, 2024.