



Why New Nuclear Reactors Are the Wrong Resources for the 2025 New York State Energy Plan: Presentation to New York State Legislators

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My Background

- **Degrees in Astronautical Engineering from the Massachusetts Institute of Technology (MIT) and Stanford University**
- **Law Degree from Stanford School of Law**
- **Studied nuclear engineering & project management courses in non-degree program at MIT**
- **Worked on energy, utility and environmental issues for over five decades**
- **Testified as an expert witness in state regulatory commissions in over 35 U.S. states, before the U.S. Nuclear Regulatory Commission (NRC) and the Federal Energy Regulatory Commission (FERC), and in state and federal court proceedings**
- **Filed expert testimony in over 130 state regulatory commission proceedings**
- **See my work at www.schlissel-technical.com and www.ieefa.org**

Key Takeaways

1. Governor Hochul's plan to add five new 1.1 gigawatt (GW) large light water nuclear reactors in New York State by 2040 is extremely unrealistic and contrary to the history of the U.S. nuclear industry. It is unknown whether even one new reactor can be added by 2040
2. The 2025 New York State Energy Plan was biased in favor of adding new nuclear reactors by a set of overly optimistic input assumptions for the costs of new reactors and how long it will take to build them

Key Takeaways

3. When more realistic assumptions that more closely reflect the actual history of the U.S. nuclear industry are used, it becomes clear that the cost of building five new reactors in New York State by 2040 would be in the range of \$108 to \$187 billion
4. Renewable and battery storage technologies exist today that can supply power to meet existing and future electricity loads in New York State significantly sooner and at a far lower cost than the 5.5 GW of new reactors sought by the Governor

Key Takeaways

5. Without providing a public and transparent financial assessment of the costs and risks of building new reactors, the Governor is asking legislators for a blank check for five new reactors that will raise electricity rates for both current and future generations of New Yorkers and potentially cause a financial disaster for the state
6. The Trump administration may be backing away from its support of Westinghouse large reactors – the very reactors that the Governor wants NYS to commit to building. New York must allow time to see what happens

The Key Nuclear Cost Assumptions In The Energy Plan Are Biased In Favor of Building New Reactors

1. Assumption In the Energy Plan – There will not be any cost or schedule overruns in the building of new reactors in New York State

Fact – the nuclear industry has experienced massive cost overruns and years-long schedule overruns in building reactors since 1970

2. Assumption in the Energy Plan – No uncertainty has been modeled for either the costs or how long it will take to build future reactors

Fact – There is great uncertainty in future reactor costs and how long it will take to construct them – which even the NYSEDA-EPRI *Zero by 2040* study in the State Energy Plan acknowledges

The Key Nuclear Cost Assumptions In The Energy Plan Are Biased In Favor of Building New Reactors

3. Assumption In the Energy Plan – There will be a positive learning curve in building new reactors which means that their overnight costs will decline as more reactors with the same design are built and the time it takes to build them also will go down

Fact – Such a positive learning curve has never been achieved in the US in either the costs of building new reactors or the time to take to build them

4. Assumption in the Energy Plan – The All-In costs of new reactors will escalate at a 2% annual rate

Fact – Nuclear costs have historically increased at an annual 4% rate have exceeded 6% in recent years

The Key Nuclear Cost Assumptions In The Energy Plan Are Biased in Favor Of Building New Reactors

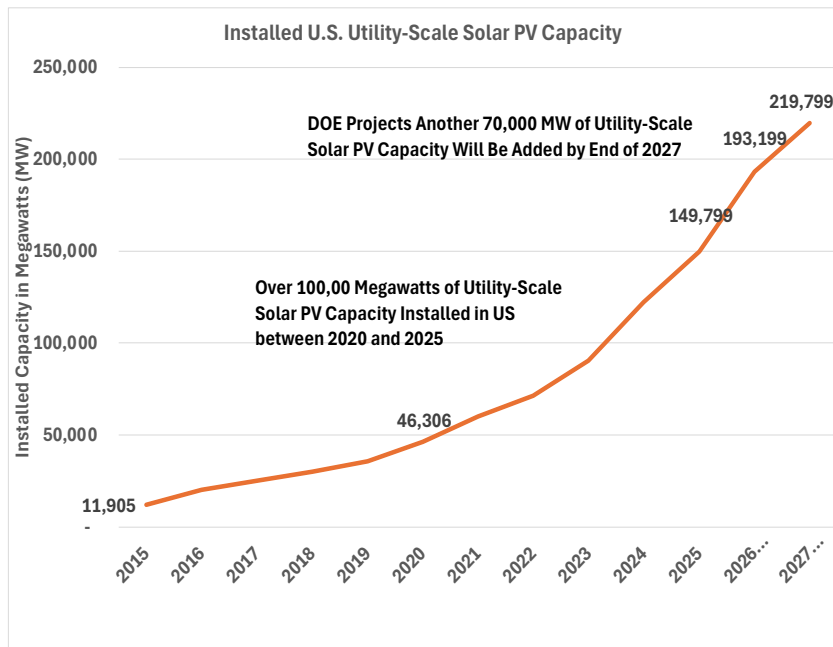
5. Assumption In the Energy Plan – It is implicitly assumed that there is currently a supply infrastructure for building new reactors in place or one will be available in very near future in the near future so that five new reactors can be built in New York State by 2040

Fact – As the U.S. Department of Energy and even some pro-nuclear reports have acknowledged, there is no robust nuclear supply infrastructure in place in the US at this time and it is unclear how soon one can be created

Renewable Resources, Battery Storage & Energy Efficiency Are Cheaper, Faster Way To Reduce NYS's Carbon Footprint

- Solar & battery storage technologies exist today
- Can be added in 2-3 years, much sooner than the at-least 10 years it will take to add one new reactor
- Provide needed grid flexibility – can be cancelled without huge stranded costs if forecasted demands do not materialize or additional capacity can be added if future demands are higher than currently projected
- Electricity costs less than from a new reactor
- Better solution for powering proposed data centers

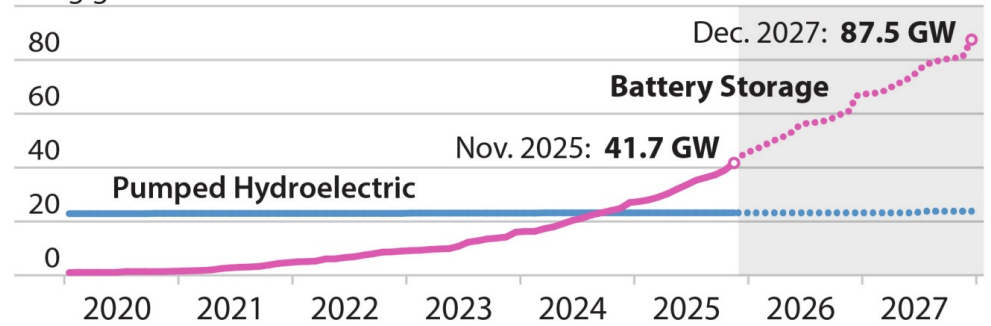
Solar & Battery Storage Technologies Exist Today And Their Use In The U.S. Is Skyrocketing



Battery Storage Rises Above 40GW; Set to Double by 2027

Total in-service capacity, monthly

100 gigawatts



Source: EIA Short-Term Energy Outlook

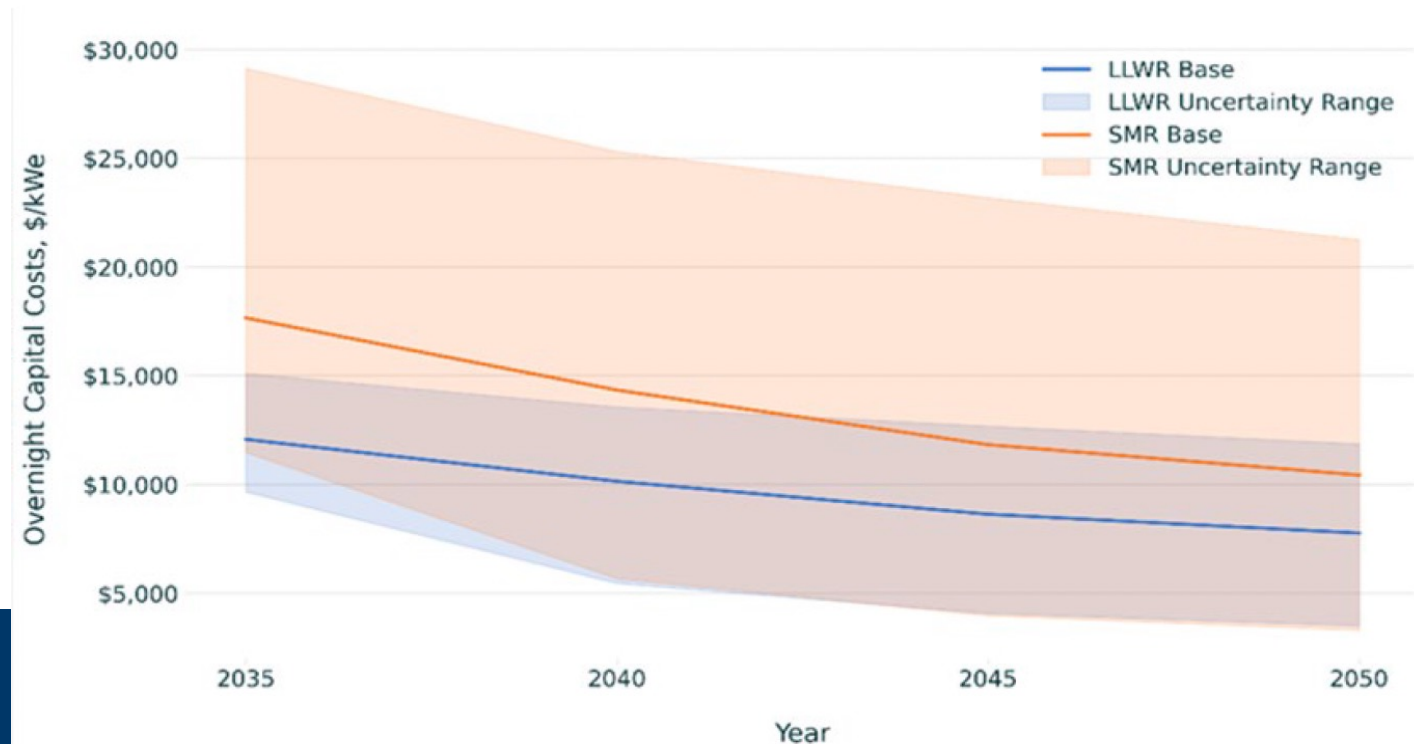
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The *Zero by 2040* Report Acknowledges There Is Great Uncertainty As to What Future Reactors Actually Will Cost

But this wide range of uncertainty was not modeled!

Note that these are “Overnight” capital costs in 2024\$ without escalation or financing costs

Source: *Zero by 2040*
Technoeconomic Assessment



Alternative Cost Comparisons

- Unlike the modeling for the State Energy Plan, I have examined the levelized costs of energy (LCOE) and the totals of building five new reactors by 2040 under a range of uncertainty in future nuclear costs
 - **Scenario 1 – Very Optimistic Nuclear Costs** uses the same nuclear costs that were assumed in the *Zero by 2040 Technoeconomic Assessment* and the State Energy Plan
 - **Scenario 2 – Less Optimistic Nuclear Costs** uses the same costs as Scenario 1 except replaces the 2% annual nuclear cost escalation with a 4% annual escalation rate
 - **Scenario 3 – More Reasonable Nuclear Costs** assumes (1) no nuclear learning curve is achieved, (2) the initial reactor cost in 2024\$ is only 10% below the overnight cost of the two reactors at the Vogtle Nuclear Project not the 18% in the State Energy Plan and Scenarios 1 and 2

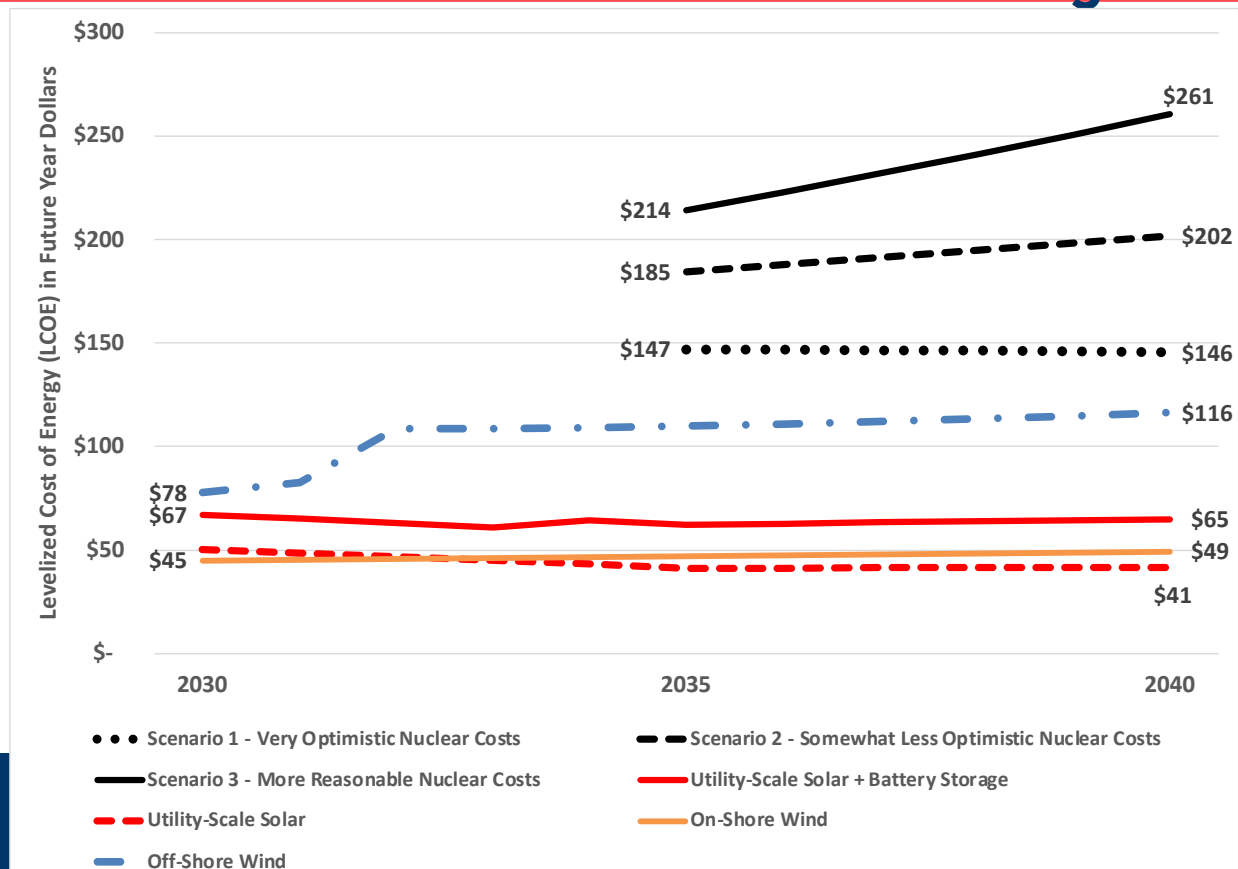
The Cost of Energy From New Reactors Will Be Much More Expensive Than From Renewables And Storage

All costs are in
Dollars per
Megawatt-Hour
(\$/MWh)

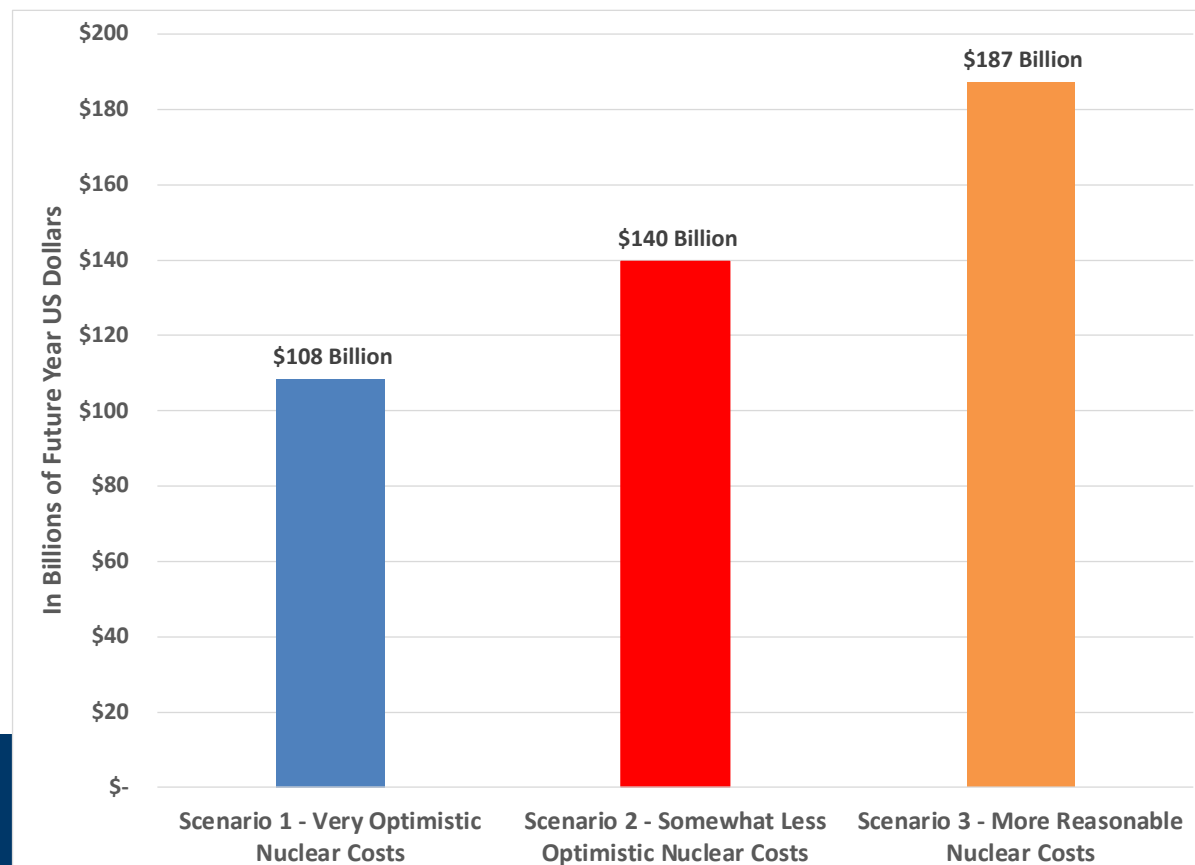
Resource/Scenario	2030 LCOE	2035 LCOE	2040 LCOE
Scenario 1 – Very Optimistic Nuclear Costs	NA	\$147	\$146
Scenario 2 – Less Optimistic Nuclear Costs	NA	\$185	\$202
Scenario 3 – More Reasonable Nuclear Costs	NA	\$214	\$261
Utility-Scale Solar PV and Battery Storage	\$67	\$62	\$65
Solar PV	\$41	\$41	\$41
On-Shore Wind	\$45	\$47	\$49
Off-Shore Wind	\$78	\$110	\$116

Sources - Analysis by David Schlissel using data, assumptions and spreadsheet from NREL's 2024 Annual Technology Baseline, *New York 2025 State Energy Plan*, *EPRI/NYSERDA ZERO By 2040 Technoeconomic Assessment*, DOE's September 2024 *Pathway to Commercial Liftoff: Advanced Nuclear*, and the *Handy-Whitman Index of Public Utility Construction Costs*,

The Cost of Energy From New Reactors Will Be Much More Expensive Than From Renewables and Storage



The Cost of Building Five New Reactors In New York State By 2040 Could Reach As High As \$180 Billion



For More Information

Contact

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Also see

[April 2025 testimony of David Schlissel in Colorado Public Utilities Commission Proceeding No. 24A-0442E](#)

And

[Small Modular Reactors, Carbon Capture: The Wrong Resources for Colorado's Energy Transition](#)