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Glass Half Full: Building a Decarbonized U.S. Power Sector

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1. Executive Summary

The Inflation Reduction Act of 2022 (IRA) was built, sold, and attacked as the largest climate investment in U.S. history. It enacted an extensive suite of clean energy tax credits and included hundreds of billions of dollars in grant and loan programs, reestablishing the United States as a climate leader. The One Big Beautiful Bill Act of 2025 (OBBBA) rescinded the vast majority of the IRA's grant and loan programs and restructured the clean energy tax credit framework by phasing out the wind and solar tax credits and adding restrictions to the others. The second Trump administration has attempted to repeal Biden-era regulations, impound obligated IRA funds, and undo the Endangerment Finding, the legal foundation for federal greenhouse gas regulation.

Many clean energy advocates saw these changes as the death of the IRA and warned of dire consequences for the American energy transition. Indeed, removing and restricting energy tax credits will contribute to higher energy prices, project cancellations, job losses, and less energy added to the grid at a time when power demand is surging. These effects are already apparent.[1] But despite Republicans' effort to reshape the IRA, the majority[2] of the tax credits — the largest driver of emissions reductions in the landmark law — remain in place.

Policymakers designing the next wave of decarbonization policy need to start with a clear-eyed understanding of how the current environment shapes the energy transition. This report provides one for the power sector, the backbone of that transition. It assesses how much the current policy environment preserves the benefits of the prior policy environment, situates those modeled results within the real-world forces shaping delivery, and draws out what the findings imply for future policy priorities and public spending. The report uses Energy Innovation's Energy Policy Simulator (EPS) to compare two modeled scenarios of the U.S. power sector: a current scenario defined by the OBBBA without the Biden-era Environmental Protection Agency regulations ("OBBBA scenario") and a prior trajectory defined by the IRA with those regulations intact ("IRA trajectory"). The analysis focuses on the 2025–2035 window, when the gap between the scenarios grows fastest and today's policy decisions can most directly shape the outcome.

The answer, in short, is that the Glass is more than Half Full: across the three dimensions of power-sector decarbonization — clean electricity, fossil electricity, and emissions reductions — the substantial majority of the IRA trajectory's benefits remain under the OBBBA scenario (Table 1). The OBBBA scenario preserves 74% of new clean energy capacity, 71% of new clean generation, and 67% of emissions reductions that the IRA trajectory would have delivered relative to 2021 over 2025–2035. Fossil capacity barely diverges between scenarios (OBBBA scenario 4% above IRA trajectory), while fossil generation is 19% higher.

The clean shortfall concentrates in a few mature technologies, with onshore wind comprising the majority of it and being the sole metric that fails the Glass Half Full test. In both scenarios, wind, solar, and storage account for all of the new clean capacity — and therefore all of the shortfall — because the model registers essentially zero new nuclear, geothermal, or hydropower under its cost and performance assumptions.

The OBBBA scenario's larger emissions come from higher fossil utilization and a dirtier fleet composition, not new fossil buildout: the clean gap is filled by running the existing fossil fleet more. Coal retires more slowly than it would have under the IRA trajectory's regulations, while gas capacity is actually 3% higher under the IRA trajectory.

These modeled results sit adjacent to real-world context that falls outside the model's scope. Even if the IRA trajectory had continued unaltered, transmission and other supply-side barriers made its projections unlikely to be fully realized. In the near term, a coordinated set of executive-branch actions — permitting freezes, stop-work orders, investigations, tariffs, and impoundments — pushes real deployment below the OBBBA scenario. The model does not fully capture the structural forces shaping the transition — demand growth, clean energy's cost competitiveness, a resilient industry, and hyperscalers' accelerating clean firm commercialization — which are tailwinds that reinforce the Glass Half Full reading over the medium-to-long term.

The Glass Half Full result matters because it suggests that the next era of policy should seek to be additive to existing policy, not rebuild what was lost. It shows the policy shift slows the clean energy transition without reversing it. The energy transition's direction is set by technology costs and demand growth, while policy shapes its pace and scale.

The analysis directs policymakers' attention to two goals. The first is to unleash clean energy supply. The OBBBA–IRA gap is inherently limited: both scenarios have the same ceiling on how fast clean energy can be permitted, sited, built, and interconnected. Alleviating supply-side barriers — primarily through permitting reform and transmission buildout — would lift that ceiling, rapidly increasing deployment speed and lowering costs. Restoring the wind and solar tax credits would only recover about 2.5 years of lost solar and storage deployment each year, moving deployment toward its existing ceiling rather than raising it.

The second goal is to close the emissions gap. Deploying clean energy is not the same as displacing fossil capacity or emissions. Variable wind and solar cannot replace the on-demand — or "firm" or "dispatchable" — capacity the grid relies on to operate reliably, such as gas. Closing the emissions gap occurs on two tracks: managing the near-term gas bridge while commercializing and deploying the clean firm energy that ultimately displaces it.

Both goals share a single answer: build. The clean gap closes by building more renewables and storage, which compose the entire modeled shortfall. The emissions gap closes by building the clean firm capacity that the fossil fleet's eventual retirement requires. Because the fossil fleet's size is sticky and its output highly flexible, the only path to decarbonization is to build the clean generation that runs it less and the clean firm that lets it retire.

Table 1. OBBBA Scenario as a Share of the IRA Trajectory

Summary of Averages (2025–2035)

Glass Half Empty — Glass Half Full

For clean energy and emissions, greener = more of the IRA trajectory preserved.
For fossil fuels the scale is inverted: greener = a smaller increase over the IRA trajectory.

Metric	Capacity	Generation
Power Sector Emissions (preserved)		
IRA Trajectory's Power Sector Emission Reductions Preserved in OBBBA Scenario	—	67%
Clean Energy (preserved)		
Total Clean	74%	71%
Solar PV	80%	82%
Distributed Solar	95%	95%
Onshore Wind	47%	52%
Offshore Wind	100%	100%
Battery Storage	83%	—
Fossil Fuels (OBBBA scenario as a % increase over IRA trajectory)		
Total Fossil	+4%	+19%
Coal (aggregate)	+108%*	+91%*
Gas (aggregate)	−3%	+10%

** Coal averages exclude 2035, when the IRA trajectory's coal generation and capacity reach near-zero.*

Technologies omitted from this table add negligible new capacity or generation in both scenarios – and therefore have no divergence between scenarios.

Source: Energy Innovation modeling; Lily Bermel calculation

2. Methodology

This analysis compares two policy scenarios modeled by Energy Innovation's Energy Policy Simulator[3] (EPS): the current policy environment is defined by the One Big Beautiful Bill Act and the repeal of Biden-era Environmental Protection Agency regulations ("the OBBBA scenario") and the prior policy trajectory is determined by the Inflation Reduction Act with those regulations intact ("the IRA trajectory"). These shorthands should not be misunderstood as narrow analysis of two laws. The analysis measures policy effect, but not exclusively so. The relevant regulations repealed under the OBBBA scenario include the Mercury and Air Toxics Standards, Effluent Limitations Guidelines, and the Section 111 power plant rules.

The report centers on the power system — the backbone of electrification and the energy transition across sectors — and covers clean electricity capacity and generation, fossil electricity capacity and generation, and emissions reductions. The findings are presented as an average over the 2025–2035 window, the near-term window that current policy decisions directly shape.

The analysis represents the OBBBA scenario by what it preserves rather than what it loses: clean electricity and emissions reduction calculations ask how much of the new gain survives, while fossil electricity calculations ask how much worse the outcome is. **The Glass is Half Full when the OBBBA scenario stays within 50% of the IRA trajectory: preserving at least 50% of the IRA trajectory's clean electricity gains and emissions reductions, and yielding no more than 50% worse fossil outcomes.**

For clean electricity and emissions reduction, the scenarios are compared as the OBBBA scenario's share of IRA trajectory levels (%), indexed to a 2021 baseline. A higher percentage means more of the IRA trajectory-driven gain is preserved under the OBBBA scenario. Fossil comparisons instead measure the percentage by which the OBBBA scenario's outcome exceeds the IRA trajectory's each year (% growth). A lower percentage reflects a "less worse" outcome. This alternative formula avoids the double negatives of comparing two declining fossil trajectories.

A 2021 baseline is used for clean electricity and emissions reductions to remove the pre-existing clean energy fleet and emissions level that both scenarios identically inherit, focusing the analysis on new deployment and emissions reductions since then. 2021 is the EPS model's start year and the beginning of the Biden policy era. While some post-2021 clean buildout and emissions reductions will occur independent of federal policy — under state policies, corporate procurement, and falling technology costs — the ratio between the two scenarios better isolates what the shift from the IRA trajectory to the OBBBA scenario gives up. Indexing to a 2025 baseline instead would lower the preserved shares, but exclude the full window of the prior policy environment.

This report does not estimate what either policy scenario delivered relative to a “pre-IRA” scenario, for several reasons. There is no “pre-IRA” scenario where the full set of power plant regulations were issued before the full set of IRA tax credits, as that was never a real moment in time.

Isolated-policy modeling cannot provide point estimates given how the two levers interact, only directional findings. The pre-2021 scenario for the December 2020 / January 2021 policy environment was modeled on different demand assumptions, so it can at best serve as a directional counterfactual rather than a basis for direct comparison.

Limitations

As with any modeling, several limitations shape what this work can and cannot reveal, and uncertainty is baked in. Principally, the analysis projects outcomes from EPS' assumptions, without real-world dynamics such as recent executive branch actions to preserve fossil generation or limit clean energy deployment. Its technology cost and performance assumptions determine whether innovative technologies like geothermal and small modular reactors appear in the output, regardless of whether they mature faster than the model assumes.

Second, modeled demand in both scenarios does not reflect the current surge in U.S. electricity demand from data center buildout, electrification, and manufacturing. The analysis therefore focuses on ratios between the two scenarios rather than raw output. Section 4 discusses the implications of real-world energy demand on the findings.

Third, the EPS is a single-node model and does not explicitly represent transmission or interconnection constraints; it proxies these limits with a buildout cap on annual additions and discounted capacity factors for regionally clustered resources.

Fourth, the model's input databases do not reflect two fast-moving developments. It does not yet capture the behind-the-meter assets such as gas and diesel contracted directly by large loads like data centers, per the Annual Energy Outlook's commercial and industrial fuel-use projections. Second, it does not capture the announced restarts of retired nuclear reactors now underway, because the Environmental Protection Agency capacity inventories it draws on as inputs to the model do not yet reflect them. Neither omission is driven by the policy difference between the scenarios nor do they affect the ratio comparison at the center of this analysis.

Fifth, this national-level model does not decompose state findings (EPS has separate 48-state models) — though it does include state clean energy procurement, renewable portfolio standards, corporate purchasing, and other subnational policies.

This focus also bounds the report's claim. The analysis measures power-sector outcomes, not the broader economy-wide strategy a durable transition also requires: building clean energy manufacturing capacity, easing household energy burdens, and strengthening the resilience of fossil fuel–reliant communities. Much of that strategy has since been rolled back, making the U.S. economy less resilient to the decline of fossil fuels and the broader strategy harder to recommit to later.[4] That dismantling also reduces the effectiveness and efficiency of the policy that remains, particularly the clean energy tax credits.

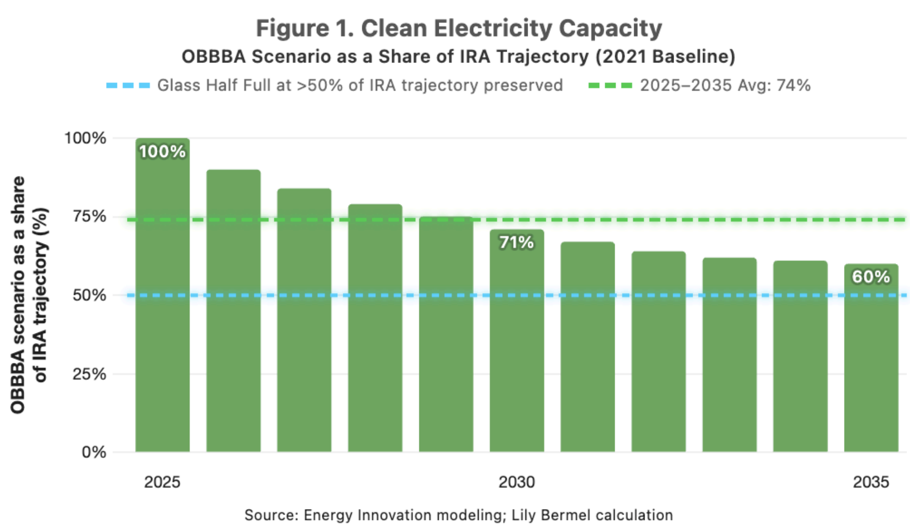
3. Analytical Findings: The Glass is More than Half Full

This section compares the OBBBA and IRA scenarios across three metrics of power-sector decarbonization — clean electricity, fossil electricity, and emissions reductions. The analysis is framed around a Glass Half Full threshold: the OBBBA scenario when it retains at least half of the IRA trajectory's clean electricity gains and emissions reductions, and when its growth in fossil electricity is no more than 50% worse. Across all three metrics, on average over 2025–2035 and relative to 2021, the Glass is Half Full:

- **Clean electricity: The OBBBA scenario preserves 74% of the clean capacity and 71% of the clean generation of the IRA trajectory.** The shortfall is approximately half due to onshore wind and the other half from utility-scale solar and battery storage. The rest of the clean fleet sees negligible change between scenarios, as the model essentially adds no new nuclear, geothermal, or hydropower in either.
- **Fossil electricity: The OBBBA scenario's fossil capacity grows 4% above the IRA trajectory, and fossil generation 19% above,** as a slower-to-retire fossil fleet runs more often rather than growing in size.
- **Emissions reductions: The OBBBA scenario preserves 67% of the power sector emissions reductions the IRA trajectory would have delivered.** The gap traces to higher fossil utilization and a more coal-intensive fossil fleet filling the clean energy gap.

Clean Electricity

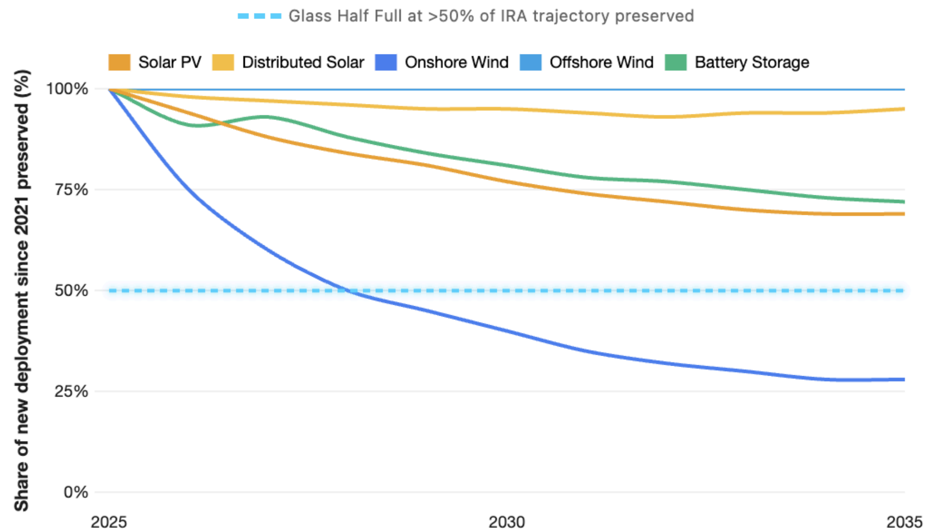
Across 2025–2035, the OBBBA scenario preserves a substantial majority of the clean electricity gains of the IRA trajectory: 74% of clean capacity and 71% of clean generation (Figure 1). Both metrics remain above the 50% Glass Half Full threshold through 2050. In absolute terms, the U.S. clean fleet grows roughly 2.4× by 2035 under OBBBA versus 3.3× under IRA.



At the technology level, the picture is bimodal: a few technologies carry the entire shortfall while the rest barely move. In both scenarios, wind, solar, and storage account for all of the new clean capacity — and therefore all of the shortfall, which concentrates in onshore wind, utility-scale solar, and battery storage. The remaining clean technologies show negligible or no divergence, because the model does not register new deployment from them at all.

Figure 2. Clean Electricity Capacity by Technology

OBBBA Scenario as a Share of IRA Trajectory (2021 Baseline)



Technologies omitted from this figure add negligible new capacity in both scenarios, leaving no divergence to compare.

Source: Energy Innovation modeling; Lily Bermel calculation

Onshore wind sees the largest gap between scenarios, and its capacity preservation is the only data point that falls below the Glass Half Full measure in this entire analysis (Figure 2). The OBBBA scenario preserves 52% of the generation and 47% of the capacity that the IRA trajectory would have added over 2025–2035. This shortfall accounts for 52% of the clean capacity gap and 68% of the generation gap. Onshore wind is the most credit-sensitive of the affected technologies, as it generally struggles with higher upfront capital costs, longer development timelines, higher project-finance hurdle rates, other availability constraints, and no expected rapid future cost declines. Onshore wind's travails are mostly not credit-related and thus not solved by the credit.

Utility-scale solar and battery storage have a more modest setback, with at least 80% preserved in the OBBBA scenario over 2025–2035 (Figure 2). The former maintains 82% of its generation and 80% of its capacity. Falling module costs and strong underlying cost competitiveness absorb most of the policy change shock, suggesting that solar is credit-sensitive but not credit-dependent. It is the second largest driver of the OBBBA–IRA gap: about 38% of capacity and 32% of generation. Battery storage retains tax credit access in the OBBBA scenario and maintains 83% of the IRA trajectory's capacity buildout as reduced solar deployment shrinks the market opportunity. Batteries are 8% of the capacity shortfall.

The five technologies with negligible or no divergence between scenarios split into two groups based on economic viability and tax credit access:

- **Offshore wind and distributed solar lose tax credit access but have limited sensitivity to the credit change, as deployment is driven by other forces** such as state procurement mandates for offshore wind and retail rates, net metering, and rising utility-scale costs for distributed solar. Offshore wind adds an even but small capacity across scenarios (6 GW). Distributed solar capacity is 96% preserved in the OBBBA scenario (Figure 2); it accounts for 2% of the clean capacity shortfall and less than that for generation.
- **Nuclear, geothermal, and hydropower retain tax credit eligibility, but do not diverge between scenarios: the model's cost and performance assumptions see these and other innovative technologies as uncompetitive through 2035.** According to the model, geothermal adds 0.3 GW through 2035, hydropower stays flat, and nuclear retires 1 GW.

The OBBBA tax credits barely move clean capacity in the model. Given that deployment of clean firm (i.e. "always on") energy does not appear in any scenario, the OBBBA scenario is quite similar to an outdated pre-2021 trajectory that's without regulations and with legacy wind and solar tax credits, despite a more expansive tax credit set in the OBBBA scenario. This reveals a genuine floor: a meaningful share of clean deployment is driven by the market and subnational policy and arrives largely regardless of federal policy changes.

A lag analysis frames the gap as *how many years later* the OBBBA scenario reaches a given year's IRA trajectory: an average of 4 years on clean capacity and 5 years on clean generation each year over 2025–2035 (Table 2). The lag is about 2.5 years for solar and batteries, and the aggregate average is notably pushed up by onshore wind at 11.5 years. Lags widen and compound with time. The total years the OBBBA scenario lags behind the IRA trajectory reach roughly 44 deployment-years of clean capacity and 56 of clean generation by 2035.

Table 2. Clean Capacity and Generation Years of Lag

In a given year, if IRA trajectory would have deployed/generated X GW/TWh of clean electricity, how many years later would that same deployment/generation level occur under OBBBA scenario?

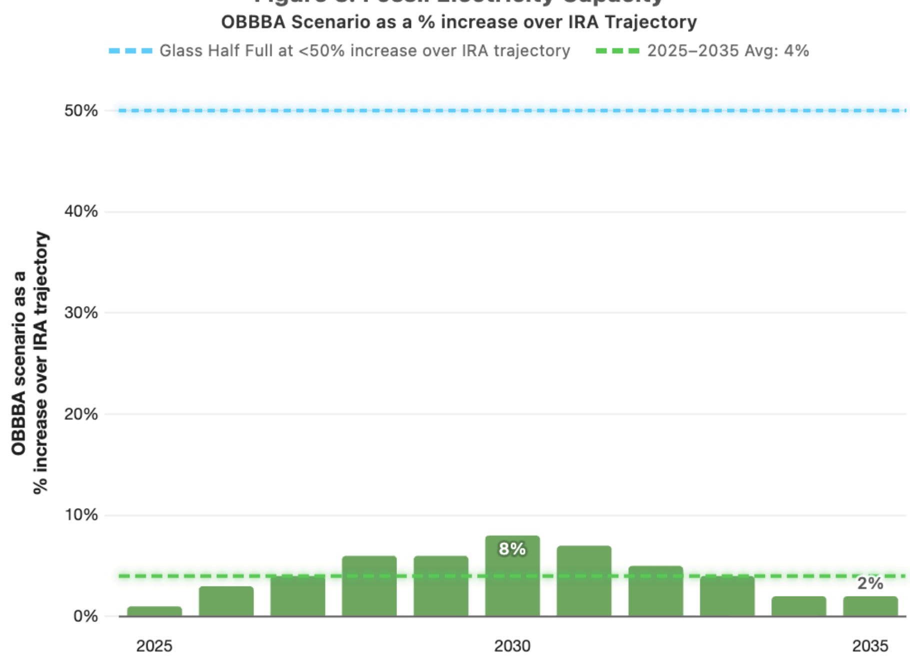
Metric (years)	Capacity	Generation
Average single-year lag (2025–2035)		
Aggregate Clean	4.0	5.1
Distributed Solar	1.0	1.0
Solar PV	2.6	2.3
Battery Storage	2.5	N/A
Onshore Wind	11.5	10.9
Cumulative lag by 2035		
Aggregate Clean	44	56
Distributed Solar	11	11
Solar PV	29	25
Battery Storage	27	N/A
Onshore Wind	127	120

Source: Energy Innovation modeling; Lily Bermel calculation

Fossil Electricity

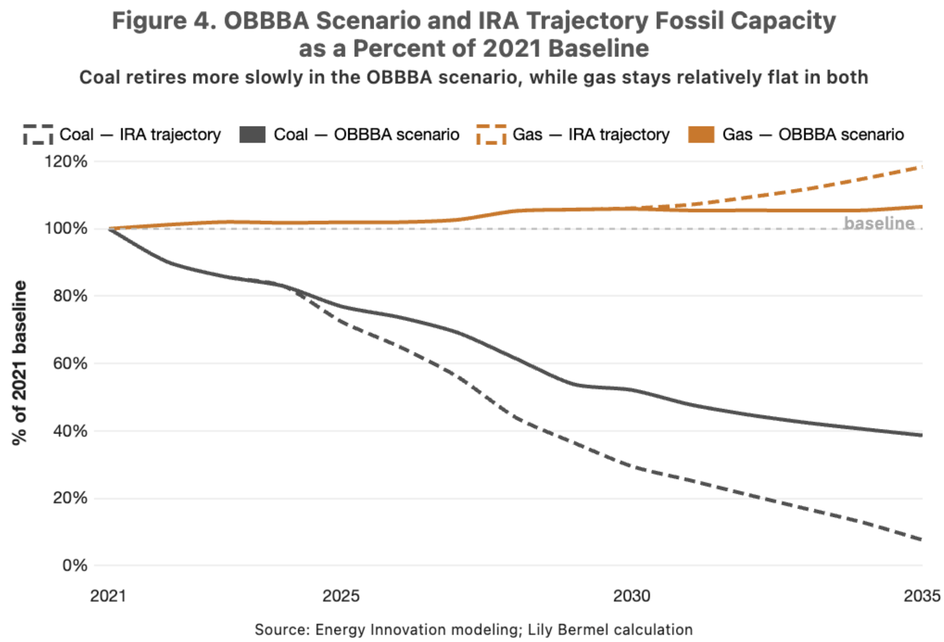
Under OBBBA, fossil capacity barely changes relative to IRA, but the fleet runs much more and its composition shifts meaningfully toward coal — making it older, dirtier, and slower to retire. Fossil capacity under OBBBA averages 4% above IRA over 2025–2035 (Figure 3) and fossil generation averages 19% above IRA over the same window — both within the Glass Half Full threshold's limit of no more than 50% worse on both counts. The generation gap is meaningfully larger than the capacity gap for two reasons: fossil makes up a larger share of the energy mix under the OBBBA scenario, since clean sources occupy less of it, and the fossil capacity that remains is able to run at a higher capacity factor (i.e. more often) to fill clean capacity shortfall.

Figure 3. Fossil Electricity Capacity

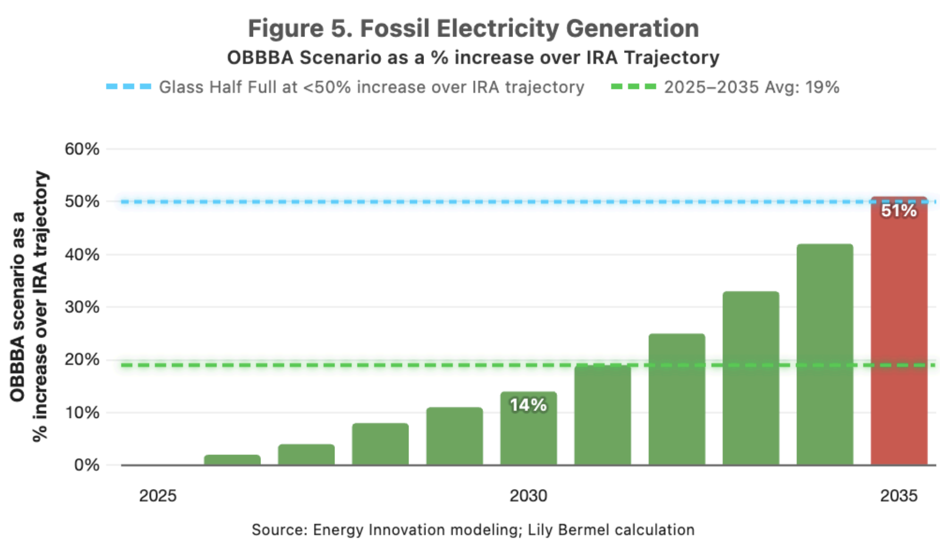


Source: Energy Innovation modeling; Lily Bermel calculation

The coal fleet retires in both scenarios, but more slowly under the current policy environment without power plant regulations (Figure 4). Under the IRA trajectory, these regulations drive nearly the entire coal fleet into retirement by 2035, from over 200 GW in 2021 to roughly 60 GW by 2030. Under the OBBBA scenario, regulatory rollback keeps coal in service: its capacity remains at over 100 GW in 2030 and about 80 GW in 2035.



Gas capacity in the OBBBA scenario, by contrast, does not grow and, in fact, averages 3% below the IRA trajectory over 2025–2035 (Figure 4). This is partly because the OBBBA scenario assumes that no additional unplanned gas can be built through 2029 due to ongoing natural gas turbine shortages. In the OBBBA scenario, rather than there being new gas capacity to meet the clean energy shortfall, retained coal capacity fills the gap. In the IRA trajectory, new gas capacity is built to backfill the firm power provided by the rapidly retiring coal.



The fossil generation gap is derived from the higher utilization of existing assets rather than new capacity. Coal generation averages 91% higher in the OBBBA scenario during this time period, while gas generation averages 10% higher. The fossil fleet is dirtier and more emissions intensive in the current policy environment. Over 2025–2035, coal averages about 19% of fossil capacity and

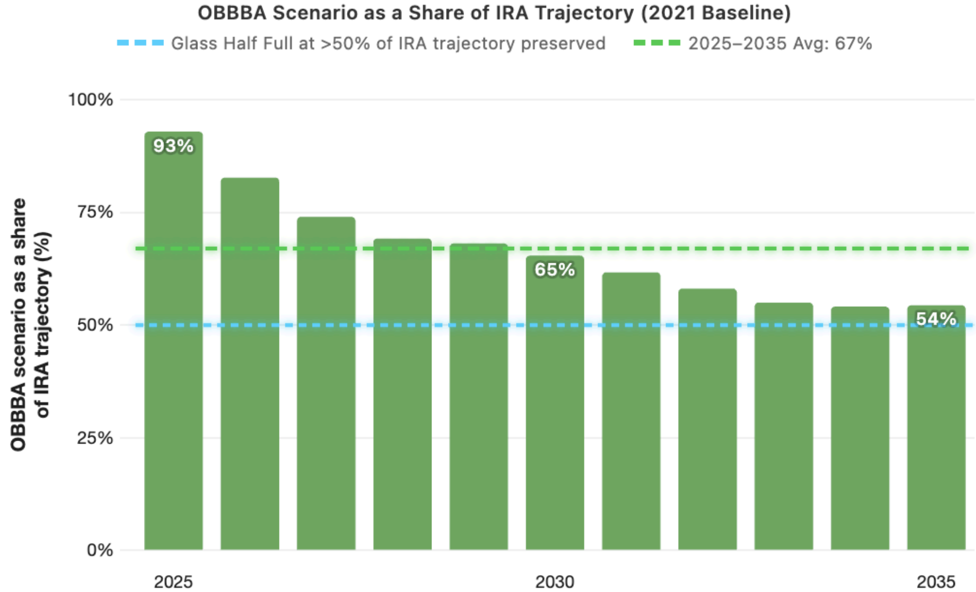
23% of fossil generation under the OBBBA scenario, versus about 12% and 16% under the IRA trajectory.

Emissions Reductions

The Glass remains more than Half Full on emissions reductions: the OBBBA scenario preserves 67% of the power sector emissions reductions from 2021 levels that the IRA trajectory would have delivered, on average over 2025–2035 (Figure 6). The cumulative emissions gap impact is 2.8 gigatons of excess CO_2e relative to the IRA trajectory through 2035. Emissions can alternatively be compared as the percentage by which the OBBBA scenario exceeds the IRA trajectory: over 2025–2035, the OBBBA scenario's emissions average 41% above the IRA trajectory's, also within the Glass Half Full measure — but each year sees a sharper increase, from 28% in 2030 to 119% in 2035.

Figure 6. IRA Trajectory's Power Sector Emission Reductions Preserved in OBBBA Scenario

OBBBA Scenario as a Share of IRA Trajectory (2021 Baseline)



Source: Energy Innovation modeling; Lily Bermel calculation

Two mechanisms explain the OBBBA–IRA divergence on emissions:

1. ***Tax credits versus regulatory rollback.*** Two policy levers changed at once: clean tax credits and regulations. Because they interact, isolated-policy modeling (varying one lever while holding the other constant) can only be used to inform directional rather than point-estimate attribution. The pattern is clear and holds across the modeled window: tax credits shape the clean energy outcome, while regulations shape the fossil fleet's composition. Weaker credits reduce clean buildout, so the existing fossil fleet runs harder to cover the forgone clean generation (a utilization effect); little new fossil capacity is built on-grid to compensate. Regulatory rollback keeps online coal that regulation would have retired (a composition effect), raising emissions intensity. **The IRA trajectory's deepest**

emissions cuts stemmed from the regulations; therefore, the emissions reductions the OBBBA scenario relatively forgoes are due to their rollback and the retention of coal and thus a more emissions-intensive fossil fleet. This dynamic is corroborated by multimodel analyses of the power-plant standards (Bistline et al,[5] Luo and Jenkins,[6] and Resources for the Future[7]), in which regulation-driven coal retirements deliver most of the power-sector reductions. Together, the two levers compound the emissions effect.

2. ***Shallow versus deep decarbonization.*** This lever asymmetry is why the clean buildout and emissions reductions are preserved to different degrees: deploying clean energy and displacing fossil generation are distinct outcomes. Clean buildout is necessary but not sufficient for decarbonization: clean capacity can be added to meet new demand while emissions levels are maintained. Whether new clean megawatt-hours push fossil megawatt-hours off the grid depends not only on the quantity added but on the fossil fleet's composition, demand growth, and firm power availability. **Clean buildout that adds capacity that meets new demand or dispatches down the fossil fleet is shallow decarbonization; clean buildout that supplants the reliability benefits of fossil power, or enables its retirement, is deep decarbonization.** Closing the emissions gap is therefore a distinct policy problem from closing the clean electricity gap.

The divergence over time

Across the modeled horizon, the annual gap between the scenarios builds through the 2030s, peaks, and then narrows. The emissions gap peaks in 2035 and the clean capacity gap in 2041. The metrics inflect in sequence because each turns on a different driver: emissions turn first, as coal retires on its own deteriorating economics; clean capacity turns next, as falling technology costs and rising demand pull the OBBBA scenario's buildout back toward the IRA trajectory's pace. The OBBBA–IRA divergence is thus a bounded interval that inflects and narrows rather than compounding indefinitely — though the gaps narrow only partially and remain substantial through 2050. **The window in which the gaps are widening fastest is the same window in which near-term policy action can change the trajectory.**

4. Implications of real-world context on the findings

The quantitative analysis in this report rests on a model of two scenarios that do not capture real-world events, but reflect projected outcomes under specific policy and macroeconomic assumptions. This section relates the modeled outputs to real-world context in three steps. First, it asks whether the IRA benchmark itself was realistic, suggesting that even a continued IRA trajectory would have fallen short of its original expectations because of supply-side barriers. Second, it turns to recent events, reasoning that the current policy environment pushes real-world outcomes below the modeled OBBBA scenario. Third, it weighs the broader dynamics shaping delivery through the coming decade — demand growth, clean energy's cost competitiveness, a resilient industry, and accelerating clean firm commercialization — several of which the model does not capture and which, on net, are tailwinds for the energy transition. **Together, this assessment supports a Glass Half Full reading over the full coming decade.**

Would the IRA trajectory have come to pass?

Unlikely. In the first two years post-enactment, IRA deployment underperformed expectations even as it set records, according[8] to Rhodium-MIT CEEPR, the REPEAT Project, and Energy Innovation. REPEAT estimated[9] that 80% of IRA's projected 2030 emissions reductions would be lost if transmission expansion continued at the business-as-usual rate of 1% per year, and 25% lost at a 1.5% annual rate; yet the last few years of transmission buildout has been the lowest[10] since 2010. The EPS model reflects this by imposing a structural limit on the renewables that can be added, reflecting transmission and siting constraints. Across the modeling literature, later IRA modeling vintages projected weaker outcomes than[11] the initial ones, reflecting surging electricity demand, persistently high interest rates, and differences in assumed technology costs.

Two implications follow. First, the preservation ratios here compare the OBBBA scenario against a modeled trajectory that the real world was not on track to reach, so OBBBA's share of real-world IRA outcomes is presumably higher than the ratios suggest. Second, the permitting constraints that held back real-world IRA results still exist — and are[12] intensifying[13] locally[14] — preserving likely the strongest headwind on clean energy in the OBBBA scenario.

Near-term (2025–2028): Will current events push real-world outcomes above or below the modeled OBBBA scenario?

In 2025–2028, headwinds dominate the headlines. A coordinated executive-branch campaign[15] — permitting freezes, slow-walking[16] projects,[17] Section 232 National Security Investigation wind turbine investigation, Department of Government Efficiency- and Office of Management and Budget-led[18] project[19] cancellations,[20] and more[21] — is depressing wind and solar deployment. Tariffs on imported solar cells, batteries, and other equipment have raised costs. This real-world policy layer is neither captured by the OBBBA model nor easy to quantify. Some estimates exist, though they employ different metrics: the American Clean Power Association counts[22] about 29 GW of wind capacity held up in federal permitting by the Pentagon as of June 2026, while Columbia Law School[23] estimated 13 GW of *fully* permitted projects had been halted or threatened as of November 2025. The chilling effect also shows in manufacturing data: clean energy investment fell for a sixth consecutive quarter in Q1-2026 to $8B, the lowest in three years, with cancellations exceeding new announcements every quarter since Q2-2025.[24]

Countervailing forces are also at work. Federal courts blocked the broadest actions, vacating[25] the July 2025 Interior memo that subjected wind and solar projects on federal land to intense Secretary-level review, and overturning[26] the stop-work orders on all five targeted wind projects. The oil and gas industry is pressuring[27] the administration to keep permitting technology-neutral in hopes of a bipartisan deal. And affordability and competitiveness pressure is generating internal Republican support for solar, with prominent MAGA voices now publicly backing[28] it, in addition to 75% of Trump voters.[29] State-level action[30, 31, 32, 33] remains a substantial and often overlooked[34] offset.

The pre-existing supply-side morass continues to bind, now compounded by a growing transformer[35] shortage and proliferating[36] local renewable restrictions (roughly one in five U.S. localities now imposes[37] some siting restriction). Even so, storage deployment is breaking records[38] and pulling[39] solar with it.

Underpinning these offsets, the near-term deployment pipeline is robust and, in many ways, locked in: Rhodium Group projects[40] the same clean capacity additions through 2030 across its low, middle, and high emissions scenarios. This is in part due to the tax credit eligibility of safe-harbored[41] wind and solar projects through 2030 and for other technologies through 2037. At a macro level, the grid operates like light years:[42] what is deployed today reflects permitting and construction decisions set years ago. Though executive actions halting already-permitted projects prove a permit does not insulate a project without new certainty legislation.

On balance, the near-term headwinds outweigh the tailwinds, so real-world deployment through 2028 will likely materialize below the modeled OBBBA scenario. Most importantly, today's chilling environment will bleed into the medium-term. Frozen permits, cancelled investments, and new tax credit restrictions barely register in this year's deployment figures — but their impact surfaces three to five years out, when those projects would have come online.

Medium-term (2029 onward): *How will broader dynamics move real-world outcomes relative to the modeled scenario?*

From 2029 onward, how closely reality will hew to the modeled OBBBA scenario is more ambiguous. OBBBA's legislative constraints — the tax credit rollback and related restrictions — will broadly continue, though tweaks are likely, including[43] tax[44] parity[45] for clean firm (e.g. aligning with the tax treatment of oil and gas, advanced manufacturing, and storage). Administrative pressure against renewables is at or near its zenith but could linger or vacillate. Against this backdrop, four broader trends the model does not capture — not always favorable, but on balance tailwinds — will shape how far real-world outcomes diverge from the modeled OBBBA scenario.

First, realized demand growth pushes real-world emissions above the modeled OBBBA scenario. The added load is met both by clean energy and existing fossil capacity flexibly generating more. Neither scenario fully captures the current surge,[46] the fastest since World War II.

Second, new-build economics favor[47] clean energy *in the narrow context*[48] *when* a system already has sufficient dispatchable capacity to meet reliability needs, has low renewables penetration, and does not suffer from significant transmission congestion. In these moments, unsubsidized utility-scale solar and onshore wind have been the cheapest new generation for a decade, below combined-cycle gas and peakers. Yet the oft-cited "clean is always cheapest" claim ignores total system costs like grid infrastructure and resource adequacy, and new clean additions typically lose against marginal dispatch from existing gas. Still, clean technology costs will continue to fall.[49] To the extent real-world cost declines outrun the model's assumptions, deployment will edge above the modeled scenario.

On speed-to-power, the picture is mixed. The binding constraint is permitting and the interconnection queue more than fuel type: Lawrence Berkeley National Laboratory found[50] a median queue-to-operation time of 41 months for gas against 48–54 for solar and wind, rising across the board, and varying by region. Once interconnection is secured,[51] storage, solar, and gas (projects that secured a turbine amid the shortage) can match a two-year data center build cycle; wind, coal, geothermal, gas without procured turbines, and nuclear face one-to-four-year delays. The sharpest gap is between configurations[52] — projects that bypass the bulk grid versus those that depend on it — rather than between fuels. By industry estimates,[53] behind-the-meter gas can reach power in roughly 18 months, against the multi-year on-grid queue. As a result, the current AI buildout operates overwhelmingly on gas, increasingly via behind-the-meter projects that sidestep the turbine backlog with off-the-shelf and refurbished equipment or diesel generators. With AI revenue at stake, hyperscalers are insensitive to fuel and capital costs but acutely sensitive to speed and scale: the gas tilt reflects what can deploy at the pace and gigawatt scale the largest loads demand, and within land-use constraints and engineering simplicity, rather than confidence in gas economics. Because the model selects on cost rather than speed-to-power and willingness to pay, it does not capture this tilt: in the real-world, more load is met by gas than the modeled scenario reflects.

Additionally, behind-the-meter projects are not captured in the EPS model. Cleanview[54] counts roughly 90 GW of announced behind-the-meter capacity — about 30% of planned U.S. data center capacity — but only about 2 GW operates today. Because this gas responds to load growth, speed-to-power, and permitting rather than to tax credits or power-plant regulations, it falls outside what the model represents — adding real-world emissions that the modeled OBBBA scenario never registers.

Third, cleantech is a capital-intensive and cyclical sector, and emerges from busts with stronger, more cost-competitive incumbents. Its recent downturn began well before the 2024 election, driven by a confluence of forces largely outside U.S. federal policy: rising capital costs, outflows from ESG funds holding clean equities, and global solar oversupply. As the Solar Energy Industries Association's then-CEO Abigail Ross Hopper put it:[55] "A lot of our CEOs are pretty comfortable with the idea that after a period of transition it will be okay. We have certainly lived in a boom-or-bust cycle for a long time."

Fourth, the EPS model assumes no advanced clean firm power at commercial scale before 2035, yet its commercialization is underway: the data center-driven demand surge is sharpening[56] hyperscalers' willingness to pay a premium for always-available clean generation. This set of technologies includes geothermal, nuclear fission and fusion, hydrogen, and carbon capture. Together, they are pulling that timeline forward, most visibly in next-generation geothermal and small modular reactor orders. The model's cost-optimization logic did not expect the deals[57] from Microsoft, Google, Amazon, and Meta, supporting more than 20 GW of contracted nuclear — or the success behind geothermal developer Fervo Energy's IPO,[58] including their non-brinding framework agreement with Google to support the development of up to 3 GW of geothermal capacity through 2033.[59] Additionally, the model doesn't track upcoming restarts[60] of retired nuclear reactors – Palisades, Crane, and Duane Arnold – which add roughly 2 GW of proven clean firm capacity, nor other plans[61] to add 5 GW of nuclear uprates by 2030. And relevant state policies supporting these new technologies have generally held as the federal landscape shifted.

Mass deployment of clean firm energy will not arrive in the near-term. The REPEAT Project projects[62] upwards of 30 GW over the coming decade. The prior paragraph outlined 10 GW of expected clean firm coming online, with potentially a few more gigawatts to be expected, with the rest of the contracted pipeline arriving later. Because the EPS model builds essentially no clean firm before 2035, any deployment is real-world progress the modeled OBBBA scenario does not register: it lifts the real OBBBA decarbonization path above the modeled one. But 10-30 GW is a small fraction of the fossil fleet it may one day replace — evidence that commercialization is being pulled forward, but that scaled deployment remains a task for the 2030s.

Net takeaway: The three steps discussed above act on different horizons and, on balance, reinforce the Glass Half Full finding over the full decade. The modeled gap and its near-term losses are real. The real IRA results suggest the gap between scenarios likely overstates what was truly lost. In the near term, executive-branch headwinds depress real-world deployment — while medium-term structural forces net act as a tailwind. Read over the full decade rather than its first years, the Glass is Half Full.

5. Recommendations

The 2025–2035 window is when the gap between OBBBA and IRA policy scenarios is the largest and when today's policy choices can most directly shape the outcome. This section translates the analysis — which shows that the OBBBA scenario preserves 67–74% of the IRA trajectory's benefits — into recommendations, with a focus on federal action; state and local levers (e.g. siting, local ordinances, clean firm procurement) are impactful in their own right but lie beyond what a national model can inform. The question at hand is how to close the gaps, and eventually do better. The analysis points to two goals: unleash clean energy supply and close the emissions gap.

These goals share the same imperative: build an abundance of clean energy. Closing the clean gap means building more of the renewables and storage that define it. Closing the emissions gap means building the clean firm capacity that eventually enables fossil capacity to retire. The binding constraint on mitigation is the pace and scale of clean buildout, not how much fossil supply is generated, restricted, or blocked. Given that the fossil fleet's size is sticky and only its utilization moves, out-building the need for its utilization is the only way to fully decarbonize.

The recommendations build on three observations about the current landscape. First, the remaining clean energy tax credits survived two party-line votes, representing a policy floor that can be built on. This suggests that further adjustments to the suite of tax credits would require a party-line vote — one the opposing party would move to reverse at its next opportunity. Second, the OBBBA–IRA clean electricity gap derives entirely from the three mature technologies — onshore wind, utility-scale solar, and battery storage — while the clean firm resources the 2030s require remain uncommercialized in both scenarios. Third, the clean shortfall primarily accrues to existing fossil capacity running at a higher capacity factor, rather than new fossil construction. More clean capacity would let the fossil plants operate less often, but would not retire them. Thus, mitigating the emissions from that fossil generation requires separate levers aimed at retiring the capacity, rather than only adding clean alongside it.

The American energy transition now operates in a different macroeconomic and political environment than the one that shaped climate policy debates in the late 2010s and early 2020s. The fastest decarbonization is the one that is politically viable and durable. Effective policy should be designed with a clear-eyed read of the current policy environment rather than modeling alone. As the preceding section showed, the real-world gap differs from the model's.

The IRA was not pressure-tested for today's political and economic conditions. It was built, sold, and attacked as a climate bill. It was the product of a Democratic trifecta and a world of cheap money, low deficit anxiety, jobs prioritized over costs, and little room for climate bipartisanship. That context has given way to cost-of-living politics, structural demand growth from data centers and electrification, intensified competition over clean energy supply chains, and an exhausted federal fiscal envelope.

This context sheds light on other policy priorities — affordability, reliability, security, and fiscal realism — that can be understood as preconditions climate policy needs to meet in order to be durable, rather than as priorities traded off against decarbonization. Climate policy that fails on those fronts presumably will be politically and economically rejected, whatever its climate merit. Underneath both goals lies a single fiscal logic: redirect public capital away from deploying generation the market will build on its own toward what private capital currently underbuilds. Restoring the prior policy environment would not accomplish many of these priorities in the new macro environment, as discussed below.

Goal 1: Unleash clean energy supply with permitting reform

The clean electricity gap between OBBBA and IRA scenarios is inherently limited: supply-side constraints — how fast projects can get permits, secure transmission, and clear the interconnection queue — limit how fast clean energy can be deployed under both policy regimes. The model makes this explicit in both models, capping renewable additions identically regardless of tax credit policy in the absence of federal permitting reform. Within this bounded system, two federal levers do different work. Permitting reform raises the ceiling: it improves speed-to-power and builds the infrastructure that increases how much clean energy can connect to the grid at all. Transmission, in particular, determines not just how much clean energy connects but where — whether renewable energy is confined to sites where strong resources and existing load already coincide. Because permitting delays accrue carrying costs[63] that kill projects or pass through to ratepayers, shortening timelines lowers costs as a byproduct.[64] Tax credits may somewhat offset those carrying costs, but in no way alleviate any of the building timelines associated with permitting burdens. The surviving clean energy tax credits hold the floor: defending them preserves the deployment already in motion and drives it toward the ceiling. Action on either lever requires sustained Congressional focus. The interconnection and transmission-planning reforms this implies sit largely with the Federal Energy Regulatory Commission, distinct from the fiscal and permitting levers recommended here; they are decisive enough to merit a standalone report.

Permitting reform is perhaps the single best policy action that can be taken to accelerate the energy transition and power economic growth and opportunity. Rather than re-argue why permitting reform is needed, this report takes that literature as given[65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75] and builds on an established finding: supply-side barriers are the biggest obstacle to deploying already-commercialized clean energy, and permitting reform — including subnational action[76, 77] — is the solution. Permitting will require strong bipartisan compromise with reform across the National Environmental Policy Act, Clean Water Act Section 401, Federal Power Act and related processes, National Historic Preservation Act, judicial review,[78] and permit certainty.[79] Permitting reform is technology-neutral, an "all of the above" lever that speeds gas alongside transmission and clean energy. Its effect is nonetheless net clean, because clean energy is more permitting-exposed — more land per unit of energy, more dependent on new transmission, and built largely from scratch while fossil extends existing infrastructure — and makes up about 95%[80]

of the interconnection queue. Permitting reform stands apart for having near-zero fiscal cost *and* lowering energy project costs — .

By contrast, restoring the wind and solar tax credits would not address these supply-side constraints. The lag analysis in Section 3 reveals how little deployment the full clean energy tax credits actually buy: under the OBBBA scenario, solar and battery deployment reaches IRA-equivalent levels with an average lag of roughly 2.5 years each year over 2025–2035 (Table 2). The most that restoring those credits could do for solar and storage is eliminate that lag, while leaving the ceiling untouched. As onshore wind is heavily credit sensitive, restoring its credit(s) would recover a meaningful share of the wind shortfall. But wind's other constraints — interconnection, transmission, and local siting restrictions — are structural and vast, and would be left unaddressed by tax credit restoration alone.

Beyond that, tax credits come at notable fiscal cost and consume scarce political capital. It is definitively not the largest "bang for buck" — fiscally or politically — for generating climate benefits. If a future administration seeks to reverse just *some* of the Trump administration policies, it will bear a fiscal cost on par with[81] Biden's initial Build Back Better proposal — and that's before any additional spending priorities. The political cost of enacting the IRA tax credits was higher than expected: many[82] Republican elites were counter-polarized not only against clean[83] energy[84] but transmission[85] as well, making the atmospherics[86] of 2024 permitting reform negotiations even more challenging. Since the OBBBA's phase down of the wind and solar tax credits, these same[87] Republicans are coming back around to transmission and permitting reform.

Restoring the credits in full may not meet a prioritization threshold, or be worth the scarce fiscal space allocated to climate and energy. The wind and solar tax credits have been extended on a bipartisan basis for their entire history. But their current end date was set by a party-line vote; thus, any future extension would presumably require the other party's vote in a political atmosphere that no longer affords these credits bipartisan support. Extending them under an administration that has prided itself on ideological attacks on those very energy sources may paint a target on their backs.

Since OBBBA, several developers have argued that extending the wind and solar tax credits "would not be good for the industry," as the CEO of Cypress Creek Renewables put it[88] at the American Council on Renewable Energy's 2026 finance conference. These industry representatives explained that renewables can compete head-to-head with conventional generation, and that the credits' roll-off — painful as it will be over several years — is ultimately the right answer and a simpler structure. Developer motivations are notably mixed: frustration with OBBBA's compliance costs might make extension less attractive than full credits in earlier years would have been, and public statements signal market confidence in a hostile political climate. While there is no industry consensus, these public statements carry weight as their position runs against their own commercial interest. Middle-ground options are also available, such as extending only the onshore wind tax credit(s) subject to the restrictions that other credits face, for a limited period of time; though this should be weighed against the fiscal and political economy trade-offs. But subsidizing energy to account for permitting burdens carrying costs — or to solve for local opposition and restrictions — is not an efficient or effective strategy.

Goal 2: Close the emissions gap by managing the near-term gas bridge and deploying clean firm energy as soon as possible

Eliminating the OBBBA–IRA emissions gap ultimately requires displacing the fossil fleet with clean firm technologies — and must be done while meeting growing demand, maintaining reliability, and driving economic growth. Four conditions shape the means. First, deploying clean energy is not the same as displacing fossil capacity or generation: clean additions usually meet new demand before supplanting existing fossil supply. Second, the grid needs firm, dispatchable power to operate reliably; removing fossil supply without a dispatchable replacement erodes reliability. Therefore, intermittent wind and solar, even with four-hour batteries, are inadequate to provide reliability. Third, the only new firm power that is cost-competitive at commercial scale today is gas, not its clean substitute. Fourth, litigation over the federal government's authority to regulate greenhouse gases leaves it uncertain whether coal retirement can be accelerated through regulation rather than left to slower market forces. The resulting strategy is two-fold: manage the near-term gas bridge and commercialize and build clean firm as fast as possible.

That begins with an honest view of why gas remains necessary in the near term, including even in 90% renewable energy scenarios. It underpins grid reliability and is cheap enough to lower the cost of electrification; and as variable renewables scale, flexible gas is what firms them (outside of four-hour battery storage), covering the hours when sun and wind fall short so renewables can still maintain a growing share. Renewables and four-hour battery storage are not a silver bullet: on their own they cannot provide every reliability service, balance massive seasonal swings, cover every region, or decarbonize heavy industry.

Where that new gas is built matters most for emissions. On-grid gas is exposed to competition: cheap renewables erode its utilization over time, and it can be retired as dispatchable clean energy comes online. Off-grid, behind-the-meter gas contracted to a single load is the opposite — running at high capacity factor for its full life, insulated from clean competition, and often with a high emissions profile like diesel. That worse outcome is proliferating now precisely because on-grid interconnection is so slow. Permitting reform (Goal 1) can help bring grid connection within the timeline hyperscalers need, but it is not sufficient on its own.

This reframes a tempting response to data center demand. Blocking new large loads to forestall the gas built to serve them would forgo the demand growth that powers the economy and invests in the grid and innovation. The key is to connect large loads on-grid to capture their full benefit, not prevent them wholesale.

Similarly, the aim should not be to block gas, but rather reduce its generation even as its capacity rises. Building solar, wind, and batteries reduces gas generation while building clean firm deployment reduces its capacity. Four further measures that Congress could pass, generally backed by the oil and gas industry, would lower the carbon footprint of the rest: restoring the methane rule, expanding the 45Q tax credit, reinstating the Greenhouse Gas Reporting Program, and establishing product-level carbon-intensity standards.

The energy that can ultimately displace firm fossil generation are the set of "clean firm" technologies. Clean firm describes the always-available, low-emissions energy generation that can deliver power whenever it is needed, independent of weather. This category spans geothermal, nuclear, fossil or biomass generation paired with carbon capture, and, prospectively, clean hydrogen and fusion.

Clean firm's value is not limited to the clean energy it supplies. Its operating costs are far less volatile — or not at all — than those of fossil alternatives like gas, which are exposed to fuel-price swings and global market events. As a domestic, dispatchable resource, it improves energy security. Even a modest share of firm capacity sharply reduces the renewables, storage, and transmission a reliable decarbonized grid would otherwise need — shrinking its land footprint, project count, and total cost. Clean firm is not a substitute for renewables but rather a necessary complement that makes a decarbonized, renewables-led grid cheaper, easier to build, and more resilient.

Clean firm faces steep barriers to large-scale deployment: no advanced clean firm technologies are deployable at commercial scale today, while new and restarted nuclear are commercially available but constrained by cost and financing. The EPS model expects no commercialization in either scenario through 2035. Even once commercialized, clean firm must continue to come down the cost curve to out-compete cheap, plentiful gas. Consequently, building these industries requires sustained, targeted support across every stage of development. But recent policy — from OBBBA rescissions and executive branch actions — has removed funding from the innovation and commercialization ecosystem that the prior administration worked to build.

Deploying clean firm generation should be the central decarbonization investment of the coming decade, requiring a multi-layered[89] policy[90] stack[91] spanning[92] research, demonstration, early deployment, and beyond. Across[93] roughly five decades of federal support, geothermal has received less than a tenth of the deployment-stage public funding directed to solar. Regulatory and siting reforms tailored to clean firm would shorten timelines and reduce cost burdens.

Tax credits, however, are poorly suited to lead this effort: they are blunt instruments that incentivize technologies whose barrier is financial *and* the market is mature enough to respond to a price signal — not those in earlier commercialization phases such as demonstration. Clean firm's long lead times require revenue certainty that first-of-a-kind projects rarely raise from conventional finance — and that low-cost debt and loans, known as patient capital, are well-positioned to deliver. The more fiscally efficient federal lever is direct procurement, as California and New York are doing. Procurement signals like these — whether from public or private buyers — pull demand for clean firm forward, compress commercialization timelines by years, and generate near-term returns. Hyperscalers' willingness to pay above-market prices for 24/7 clean power is already accelerating geothermal and nuclear development, just as voluntary corporate procurement of wind and solar did a decade ago. Policy can sustain and broaden that signal through technology-neutral clean energy standards, hourly clean energy standards, "bring your own clean energy" interconnection approaches, and clean transition tariffs that let large customers procure clean firm and associated transmission directly.

Managing the gas bridge means understanding the valuable role it plays in energy systems and in supporting decarbonization, while investing in and deploying clean energy to enable deep decarbonization. Policymakers will need to consider how to support the retirement of fossil fuels — once its substitute comes online and energy demand is reliably met — but that will not occur at scale or pace until the grid is in its last decile of decarbonization.[94] A policy toolkit needs to be built to handle stranded assets — such as through accelerated depreciation, shortened asset lives, or lower allowed utilization — in a way that shields ratepayers from the cost. Having that plan in place removes the long-term emissions harm of any new fossil infrastructure that needs to and should be built to meet energy demand, support higher variable renewable energy penetration, and power economic growth. As discussed, behind-the-meter gas additions can be avoided through improving speed-to-power and enacting permitting reform. Coal will continue retiring on economics alone, as cheaper replacement capacity arrives and the Trump administration's "must run" coal orders are repealed or vacated. While greenhouse gas regulations may not be a viable policy lever in the future, other standards around pollution and carbon-intensity may serve a similar purpose.

The realistic system that emerges by the mid-2030s has a healthy mix of resources that is increasingly decarbonized. Solar and storage deploy at maximum pace — driven by economics, accelerated by permitting reform — and supply the bulk of new energy generation. Gas serves as the dispatchable bridge: not a permanent fixture, but a managed backstop until clean firm technologies reach commercial scale. And those technologies receive substantial public and private investment now, so it can begin displacing gas in the mid-to-late 2030s.

Cross-cutting: A future public investment agenda for the power sector

The public capital agenda this report's findings support is grounded in one premise and two pillars: stop subsidizing the deployment of mature generation and redirect that fiscal space to (a) the delivery system that brings cheap power to load and (b) the commercialization of new clean energy technologies. Taken together, several priorities stand out:

1. **Building the grid** by extending the 45X manufacturing credit to transformers, advanced conductors, high-voltage direct current equipment, and other power electronics would help relieve a binding bottleneck. Transmission may also benefit from an investment tax credit.
2. **Commercializing the technologies needed to deploy in the 2030s,** including long-duration storage, geothermal, advanced nuclear, carbon capture, fusion. Direct procurement, grants, and federal loan authority are more direct and efficient than tax credit support alone. The Department of Energy's Office of Energy Dominance Financing plays a critical role here.
3. **Maintaining the existing tax credits worth keeping**, expanding where impactful (e.g. carbon capture), and making marginal improvements[95] as needed. Tax credit availability could be based on market maturity[96] thresholds rather than arbitrary years.

Box 1. With respect to the grid

Doubling[97] the size of the grid is table stakes to build the renewables and electrified infrastructure that decarbonization requires — and, more importantly, to fuel economic growth, competitiveness, and national security. Electricity demand is set to grow faster than it has in decades, in the near-term by data centers and over the medium-to-long term, notably by a *larger* wave of electrification across transport, buildings, and industry.[98] Underbuilding risks blackouts, price volatility, and forgone economic growth, innovation, and productivity.[99] Today's accelerated growth pulls forward challenges that broader electrification would bring within a decade; but it also brings the means to respond: technology to better utilize the grid we have, and the capital and urgency to build the rest.

Near-term measures can wring more capacity and reliability from the existing grid. These include demand response and demand flexibility, virtual power plants, and grid-enhancing technologies like dynamic line rating and reconductoring. They are among the highest value-for-cost actions that can be implemented quickly, and could be pursued[100] immediately.

But they buy time and do not substitute for building a materially bigger grid. Two limits define them. On scale, the capacity they unlock is modest against the magnitude of demand growth, so they do not supplant necessary future build. On geography, these tools raise the capacity of lines that already exist, but they do not assist in bringing new clean energy online where transmission access lacks.

These measures stay chronically underused — not because they fail technically, but due to improper incentives. The utility business model generates revenue from capital expenditures rather than operational efficiency, while regulators and transmission providers often lack the information and planning practices to recognize where these tools pay off. Addressing these barriers is a distinct issue out of scope for this report.

6. Conclusion

This report set out to answer a single question: how much of the prior policy trajectory does the current policy environment preserve — and what does that imply for future decarbonization policy? Using Energy Innovation's modeling to compare the OBBBA scenario against the IRA trajectory across clean electricity, fossil electricity, and emissions reductions, the report finds that the Glass is more than Half Full. On average over 2025–2035 and relative to 2021, OBBBA preserves 67–74% of the clean energy and emissions reductions benefits the IRA trajectory would have delivered (Table 1).

The policy shift preserves most of the transition rather than reversing it. The fossil gap is a matter of utilization and fleet composition rather than new construction, and the divergence is a bounded interval that inflects and narrows rather than compounding indefinitely. What remains is not whether the transition continues but how fast. The analysis points to two places where policy can still move the trajectory: unleashing clean energy supply and closing the emissions gap. These goals require a single action: building. While it's much easier said than done, the only path to decarbonization is to build an abundance of clean energy that can eventually retire fossil capacity, meet new demand, and continually power economic growth.

These are modeled outcomes, but this report assesses that over the full decade, the Glass Half Full reading holds. As Section 4 details, the benchmark overstates what was lost, near-term headwinds run real deployment below the model, and structural tailwinds run it above. Future research can use real-world data — Energy Information Administration for deployment and Clean Investment Monitor for investment numbers — to test how the power sector evolves against the modeled projection and whether this report's arguments hold.

The Glass Half Full reading is limited to what the report measures: the power sector, not the broader economic-transformation strategy a successful energy transition requires. Without a broader economy-wide decarbonization strategy, the relevant policy that survives the second Trump administration is less effective and efficient.

The 2025–2035 window is both the cost of the policy shift and the opportunity to shape what comes after. It is the period over which the OBBBA–IRA gap is widest and over which policy decisions made today still bear on the trajectory. Clean energy not built, the fossil generation that fills the gap, and the associated emissions in the intervening years are not recoverable. But the scale isn't permanently fixed: the same years over which the gap is widest are also those over which policy retains the most influence.

Notes

1. Rhodium Group and MIT CEEPR, “Clean Investment Monitor: US,” Clean Investment Monitor, accessed June 27, 2026, https://www.cleaninvestmentmonitor.org/us.

2. Robinson Meyer, “How the One Big Beautiful Bill Act Changed America's Clean Energy Policy,” Heatmap News, July 18, 2025, https://heatmap.news/politics/obbba-ira-differences.

3. Energy Innovation, “Energy Policy Simulator,” Energy Innovation: Policy and Technology LLC, accessed June 27, 2026, https://energypolicy.solutions/.

4. Noah Kaufman, “The Energy Transition Won’t Work Without Coal Towns,” Heatmap News, February 19, 2026, https://heatmap.news/ideas/trump-biden-coal-towns.

5. John E. T. Bistline et al., “Impacts of the Inflation Reduction Act and One Big Beautiful Bill Act on the US energy system,” Nature Reviews Clean Technology, April 29, 2026, https://www.nature.com/articles/s44359-026-00168-z.epdf?sharing_token=tjHV4qQitxFjF8QwOizeE9RgN0jAjWel9jnR3ZoTv0MzgPAFVdHmtBsjmd8l1hUdJ2SmNSefISq-0fgt6unNgPL60eceBtK1S70kyU2QZl4fXkTm6acxWvun6eAQoHoMuAiD8LKKgBZIwBYPNNFxQbsWsgqOHnNgQ_YT70M_lh0%3D.

6. Qian Luo and Jesse D. Jenkins, “US EPA’s power plant rules reduce CO2 emissions but can achieve more cost-efficient and deeper reduction by regulating existing gas-fired plants,” One Earth, March 12, 2025, https://zero.lab.princeton.edu/wp-content/uploads/2025/03/Luo-et-al.-2025-EPA-regulations-One-Earth.pdf.

7. Resources for the Future, “EPA Power Plant Rules Could Reduce Emissions, Speed Up Coal Plant Retirements,” Resources for the Future, January 9, 2025, https://www.rff.org/news/press-releases/epa-power-plant-rules-could-reduce-emissions-speed-up-coal-plant-retirements/.

8. Rhodium Group and MIT CEEPR, “Clean Investment in 2023: Assessing US Progress in Electricity and Transport,” Clean Investment Monitor, February 21, 2024, https://www.cleaninvestmentmonitor.org/reports/clean-electricity-and-transport-2023.

9. Jesse D. Jenkins, Jamil Farbes, Ryan Jones, Neha Patankar, and Greg Schivley, “Electricity Transmission is Key to Unlock the Full Potential of the Inflation Reduction Act,” REPEAT Project, Princeton University, September 2022, https://repeatproject.org/uploads/reports/REPEAT_IRA_Transmission_2022-09-22.pdf.

10. Nathan Shreve, Zach Zimmerman, Gretchen Kershaw, and Rob Gramlich, “Fewer New Miles: Strategic Industries Held Back by Slow Pace of Transmission,” Grid Strategies LLC, July 2025, https://cleanenergygrid.org/wp-content/uploads/2025/07/ACEG_Grid-Strategies_Fewer-New-Miles-2025_Rev-1.pdf.

11. Bistline et al., “Impacts of the Inflation Reduction Act.”

12. Elizabeth Weise, “Clean energy bans skyrocket under Trump, USA TODAY analysis finds,” USA Today, February 21, 2026,

https://www.usatoday.com/story/news/nation/2026/02/21/restrictions-wind-solar-energy-bans-setbacks-government/85952104007/.

13. Andrew Light and Devashree Saha, "Clean Energy's Growing Problem: Restrictive Siting Laws," World Resources Institute, March 27, 2026, https://www.wri.org/insights/clean-energy-restrictive-siting-laws.

14. Elizabeth Weise and Suhail Bhat, "Across America, clean energy plants are being banned faster than they're being built," USA Today, February 4, 2024, https://www.usatoday.com/story/news/investigations/2024/02/04/us-counties-ban-renewable-energy-plants/71841063007/.

15. Maya Gibbs, "Trump's War on Solar & Wind: A Timeline of Recent Federal Actions," Third Way, October 16, 2025, https://www.thirdway.org/memo/trumps-war-on-solar-wind-a-timeline-of-recent-federal-actions.

16. Michael B. Gerrard, "Trump's Multi-Pronged Attack on Renewable Energy," New York Law Journal, November 14, 2025, https://scholarship.law.columbia.edu/faculty_scholarship/4735/.

17. Brad Plumer, "More Than 150 Wind Projects Stall as Pentagon Delays Reviews," The New York Times, May 4, 2026, https://www.nytimes.com/2026/05/04/climate/wind-power-delays-trump-pentagon.html.

18. U.S. Senate Committee on Appropriations, "Government Watchdog Finds Trump Has Illegally Impounded Funding for 4th Time in Recent Weeks," U.S. Senate Committee on Appropriations, July 31, 2025, https://www.appropriations.senate.gov/news/minority/government-watchdog-finds-trump-has-illegally-impounded-funding-for-4th-time-in-recent-weeks.

19. Alice Wu and Addy Smith, "One Year into the Trump Administration: DOE Awards Cancelled and Programs Stalled," Federation of American Scientists, January 21, 2026, https://fas.org/publication/doe-awards-cancelled-programs-stalled/.

20. Brad Plumer, "Energy Dept. Says It Is Canceling $30 Billion in Clean Energy Loans," The New York Times, January 22, 2026, https://www.nytimes.com/2026/01/22/climate/energy-dept-says-it-is-canceling-30-billion-in-clean-energy-loans.html.

21. Maxine Joselow and Brad Plumer, "Trump Administration Will Pay More Energy Firms to Cancel Wind Farms," The New York Times, April 27, 2026, https://www.nytimes.com/2026/04/27/climate/trump-administration-wind-farms.html.

22. Brad Plumer, "Renewable Groups Sue to End Pentagon's 'Total Halt' of Wind Power," The New York Times, June 12, 2026, https://www.nytimes.com/2026/06/12/climate/wind-power-lawsuit-pentagon-trump.html.

23. Gerrard, "Trump's Multi-Pronged Attack."

24. Rhodium Group and MIT CEEPR, "US Clean Technology Manufacturing Investment in Q1 2026," Clean Investment Monitor, April 23, 2026, https://www.cleaninvestmentmonitor.org/reports/us-clean-manufacturing-investment-q1-2026.

25. Kelsey Tamborrino, "Judge Blocks Trump Admin's Actions Targeting Wind and Solar," E&E News by POLITICO, April 21, 2026, https://www.eenews.net/articles/judge-blocks-trump-admins-actions-targeting-wind-and-solar/.

26. Maxine Joselow, "Judge Hands Trump a Fifth Loss in His Effort to Halt Offshore Wind Projects," The New York Times, February 2, 2026, https://www.nytimes.com/2026/02/02/climate/judge-offshore-wind-sunrise.html.

27. Benoît Morenne, "Big Oil Is Urging Trump to Stop Battle on Offshore Wind," The Wall Street Journal, February 26, 2026, https://www.wsj.com/politics/policy/big-oil-is-urging-trump-to-stop-battle-on-offshore-wind-40c3e06c.

28. Evan Halper, "Why MAGA Suddenly Loves Solar Power," The Washington Post, March 2, 2026, https://www.washingtonpost.com/business/2026/03/02/katie-miller-solar-power-trump/.

29. Kelsey Brugger, Zack Colman, and Pavan Acharya, "Solar Power's Newest Friends: MAGA Influencers," Politico, February 27, 2026, https://www.politico.com/news/2026/02/27/solar-powers-newest-friends-maga-influencers-00802954.

30. Jeremy Tarr, "States Lead, Impact Follows: Why Investing in State-Level Climate Action Will Secure America's Climate Future," Clean Air Task Force, April 15, 2026, https://www.catf.us/2026/04/states-lead-impact-follows-why-investing-state-level-climate-action-secure-americas-climate-future/.

31. Frederick Bell, "State Climate Action in 2026: How States Are Delivering Real Benefits Through Climate and Clean Energy Policy," Center for American Progress, April 24, 2026, https://www.americanprogress.org/article/state-climate-action-in-2026-how-states-are-delivering-real-benefits-through-climate-and-clean-energy-policy/.

32. Center for Climate and Energy Solutions, "State Climate Policy Maps," Center for Climate and Energy Solutions, accessed June 27, 2026, https://www.c2es.org/content/state-climate-policy/.

33. Climate XChange, "State Climate Policy Dashboard," State Climate Policy Dashboard, accessed June 27, 2026, https://www.climatepolicydashboard.org/.

34. North Carolina Office of the Governor, "North Carolina Energy Policy Task Force," Office of the Governor of North Carolina, accessed June 27, 2026, https://governor.nc.gov/NCEPTF.

35. Neil Ford, "US Power Transformer Buyers Scramble for Imports, Factory Slots," Reuters, May 11, 2026, https://www.reuters.com/business/energy/us-power-transformer-buyers-scramble-imports-factory-slots--reeii-2026-05-11/.

36. Sabin Center for Climate Change Law, "New Sabin Center Report Finds that Local Laws and Lawsuits Targeting Renewables Becoming More Prevalent in the US," Sabin Center for Climate Change Law, Columbia Law School, July 1, 2025, https://climate.law.columbia.edu/news/new-sabin-center-report-finds-local-laws-and-lawsuits-targeting-renewables-becoming-more.

37. Robinson Meyer and Charlie Clynes, "The Permitting Crisis for Renewables," Heatmap News, July 7, 2025, https://heatmap.news/politics/laws-restricting-renewable-energy.

38. Christa Marshall, "US Grid Battery Installations Surged to All-Time Record in 2025," E&E News by POLITICO, February 23, 2026, https://www.eenews.net/articles/us-grid-battery-installations-surged-to-all-time-record-in-2025/.

39. U.S. Energy Information Administration, "New U.S. Electric Generating Capacity Expected to Reach a Record High in 2026," U.S. Energy Information Administration, Today in Energy, February 20, 2026, https://www.eia.gov/todayinenergy/detail.php?id=67205.

40. Ben King, Hannah Kolus, Michael Gaffney, Anna van Brummen, Nathan Pastorek, and John Larsen, "Taking Stock 2025: US Energy and Emissions Outlook," Rhodium Group, September 10, 2025, https://rhg.com/research/taking-stock-2025/.

41. Crux, "2025 Market Intelligence Report," Crux, February 24, 2026, https://www.cruxclimate.com/reports/2025-market-intelligence-report; Emily Pontecorvo, "The Wind and Solar Tax Credits Are About to Expire. Will They Come Back?," Heatmap News, July 2, 2026, https://heatmap.news/energy/solar-wind-tax-credits.

42. Lisa Martine Jenkins, "How Is the Transferable Tax Credit Market Evolving Under Trump?," Latitude Media, September 10, 2025, https://www.latitudemedia.com/news/how-is-the-transferable-tax-credit-market-evolving-under-trump/.

43. U.S. Congress, "H.R. 5441, Fusion Advanced Manufacturing Parity Act, 119th Congress," Congress.gov, September 17, 2025, https://www.congress.gov/bill/119th-congress/house-bill/5441/text.

44. U.S. Congress, "H.R. 6873, Geothermal Tax Parity Act, 119th Congress," Congress.gov, December 18, 2025, https://www.congress.gov/bill/119th-congress/house-bill/6873.

45. Office of Congressman Pat Harrigan, "Congressman Pat Harrigan Introduces the Nuclear Rate Stabilization Act to Lower Energy Bills and Expand Nuclear Energy," Congressman Pat Harrigan, April 23, 2026, https://harrigan.house.gov/media/press-releases/congressman-pat-harrigan-introduces-nuclear-rate-stabilization-act-lower.

46. King et al., "Taking Stock 2025."

47. Lazard, "Levelized Cost of Energy+ (LCOE+)," Lazard, June 2025, https://www.lazard.com/media/eijnqja3/lazards-lcoeplus-june-2025.pdf.

48. Clean Air Task Force, "Policymakers and Industry Need to Move Beyond LCOE to Build Reliable, Affordable, and Clean Energy Systems, Finds New CATF Report," Clean Air Task Force, June 10, 2025, https://www.catf.us/2025/06/policymakers-industry-need-move-beyond-lcoe/.

49. Dan McCarthy, "Chart: Surprise — Batteries Got Cheaper Again Last Year," Canary Media, February 6, 2026, https://www.canarymedia.com/articles/batteries/chart-surprise-batteries-got-cheaper-again.

50. Joseph Rand, Nick Manderlink, Steven Zhang, Chris Talley, Will Gorman, Ryan H. Wiser, Joachim Seel, Julie Mulvaney Kemp, Seongeun Jeong, and Fredrich Kahrl, "Queued Up: 2025 Edition, Characteristics of Power Plants Seeking Transmission Interconnection As of the End of 2024," Lawrence Berkeley National Laboratory, December 2025, https://eta-publications.lbl.gov/sites/default/files/2025-12/queued_up_2025_edition_12.15.2025.pdf.

51. Martin Stansbury, Kelly Marchese, Kate Hardin, and Carolyn Amon, "Can US Infrastructure Keep Up with the AI Economy?," Deloitte Insights, June 24, 2025, https://www.deloitte.com/us/en/insights/industry/power-and-utilities/data-center-infrastructure-artificial-intelligence.html.

52. Electric Power Research Institute, "Speed to Power: Strategies for Powering Data Centers in the AI Era, Executive Summary," Electric Power Research Institute, 2025, https://speed2power.epri.com/executive-summary.html.

53. Matthew Zeitlin, "Data Centers Have Solved Their Speed-to-Power Problem — With Natural Gas," Heatmap News, October 9, 2025, https://heatmap.news/energy/natural-gas-data-centers-speed.

54. Michael Thomas, "Bypassing the Grid: How Data Centers Are Building Their Own Power Plants," Distilled, February 3, 2026, https://www.distilled.earth/p/bypassing-the-grid-how-data-centers.

55. Kelsey Tamborrino, "SEIA's CEO on Trump 2.0 and What's Ahead for Solar," Politico Energy, September 15, 2025, https://podcasts.apple.com/us/podcast/seias-ceo-on-trump-2-0-and-whats-ahead-for-solar/id1480605295?i=1000726874508.

56. Greg Bertelsen, "The Optimist's Case on AI and Climate," Climate Leadership Council, June 16, 2026, https://clcouncil.org/blog/optimists-case-ai-climate/.

57. Shaun Walsh, "Hyperscalers Didn't Set Out to Be Power Companies. The Grid Left Them No Choice," Utility Dive, May 28, 2026, https://www.utilitydive.com/news/hyperscaler-data-center-power-companies-grid-utilities/820568/.

58. Fervo Energy Co., "Form DRS/A: Draft Registration Statement (Amendment No. 1)," U.S. Securities and Exchange Commission, EDGAR, March 31, 2026, https://www.sec.gov/Archives/edgar/data/1853868/000162827926000385/filename1.htm. [VERIFY: exact document title]

59. Fervo Energy Co., "Form 8-K, Exhibit 99.1: Earnings Release," U.S. Securities and Exchange Commission, EDGAR, June 22, 2026, https://www.sec.gov/Archives/edgar/data/1853868/000162828026044474/exhibit991-earningsrelease.htm. [VERIFY: exact release title]

60. Nikki Hsu, "AI Boom May Drive Over 60% Surge in US Nuclear Capacity by 2050," Bloomberg Professional Services, August 22, 2025, https://www.bloomberg.com/professional/insights/artificial-intelligence/ai-boom-may-drive-over-60-surge-in-us-nuclear-capacity-by-2050/. [VERIFY: author, date]

61. U.S. Department of Energy, Office of Nuclear Energy, "Utility Power Reactor Incremental Scaling Effort (UPRISE)," U.S. Department of Energy, accessed June 27, 2026, https://www.energy.gov/ne/utility-power-reactor-incremental-scaling-effort-uprise.

62. REPEAT Project, "Results," REPEAT Project, Princeton University ZERO Lab, accessed June 27, 2026, https://repeatproject.org/results.

63. Crux, "New Survey: Federal Permitting Is Obstructing Clean Energy Projects," Crux, April 8, 2026, https://www.cruxclimate.com/insights/federal-permitting-clean-energy-projects.

64. Aidan Mackenzie, "How NEPA Will Tax Clean Energy," Institute for Progress, July 25, 2024, https://ifp.org/how-nepa-will-tax-clean-energy/.

65. J. B. Ruhl and James Salzman, "The Greens' Dilemma: Building Tomorrow's Climate Infrastructure Today," Emory Law Journal, 2023, https://scholarlycommons.law.emory.edu/cgi/viewcontent.cgi?article=1510&context=elj.

66. Daniel Palken, "Why We Need to Rethink Transmission: The 3 P's," Arnold Ventures, September 22, 2025, https://www.arnoldventures.org/stories/why-we-need-to-rethink-transmission-the-3-ps.

67. Nicholas Bagley, "The Procedure Fetish," Niskanen Center, December 7, 2021, https://www.niskanencenter.org/the-procedure-fetish/.

68. Crux, "2026 Market Analysis: The Impact of Federal Permitting on Clean Energy Development," Crux, April 7, 2026, https://www.cruxclimate.com/reports/impact-of-federal-permitting.

69. Marcel Akhame and Xan Fishman, "Permitting Certainty Roundtable Takeaways," Bipartisan Policy Center, March 25, 2026, https://bipartisanpolicy.org/issue-brief/permitting-certainty-roundtable-takeaways/.

70. Maya Gibbs, "A Bipartisan Darling: The Case for Permitting Reform in the 119th Congress," Third Way, May 14, 2026, https://www.thirdway.org/blog/a-bipartisan-darling-the-case-for-permitting-reform-in-the-119th-congress.

71. Heather Zichal, "Cutting Through the Queue: Financing and Policy Perspectives on Permitting Reform," JPMorganChase, May 20, 2026, https://www.jpmorganchase.com/newsroom/stories/cutting-through-the-queue.

72. Bipartisan Policy Center, "The Environmental Case for Permitting Reform," Bipartisan Policy Center, January 30, 2026, https://bipartisanpolicy.org/fact-sheet/the-environmental-case-for-permitting-reform/.

73. Lawrence Berkeley National Laboratory, "Large-Scale Wind and Solar Developers Concerned About Social Factors Affecting Deployment," Berkeley Lab, Energy Markets & Policy, January 24, 2024, https://emp.lbl.gov/news/larg-e-scale-wind-and-solar.

74. Ryan Nilson, Ben Hoen, and Joseph Rand, "Survey of Utility-Scale Wind and Solar Developers Report," Lawrence Berkeley National Laboratory, January 2024, https://eta-publications.lbl.gov/sites/default/files/w3s_developer_survey_report_-011824_version.pdf.

75. Maya Gibbs and Ryan Fitzpatrick, "Picking Up the PACE: A Comprehensive Analysis of Available Pathways to Accelerating Clean Energy," Third Way, November 6, 2025, https://www.thirdway.org/memo/picking-up-the-pace-a-comprehensive-analysis-of-available-pathways-to-accelerating-clean-energy-pace.

76. Siting Solutions Project, "New White Paper Outlines Recommendations to Strengthen Community Buy-In and Neutralize Regulatory Uncertainty for Clean Energy Projects," Siting Solutions Project, May 11, 2026,

https://sitingsolutions.com/news/new-white-paper-outlines-recommendations-to-strengthen-community-buy-in-and-neutralize-regulatory-uncertainty-for-clean-energy-projects/.

77. Thomas Hochman, "The State Permitting Playbook," Foundation for American Innovation, November 12, 2024, https://www.thefai.org/posts/the-state-permitting-playbook.

78. U.S. House Committee on Natural Resources, "House Passes Historic Bipartisan Permitting Reform Legislation," U.S. House Committee on Natural Resources, December 18, 2025, https://naturalresources.house.gov/news/documentsingle.aspx?DocumentID=418526.

79. Office of U.S. Senator Catherine Cortez Masto, "Cortez Masto, Cotton Introduce Bill to Accelerate Energy Projects Stalled by Red Tape," U.S. Senator Catherine Cortez Masto, June 16, 2026, https://www.cortezmasto.senate.gov/news/press-releases/cortez-masto-cotton-introduce-bill-to-accelerate-energy-projects-stalled-by-red-tape/.

80. Joseph Rand, Nick Manderlink, Steven Zhang, Chris Talley, Will Gorman, Ryan H. Wiser, Joachim Seel, Julie Mulvaney Kemp, Seongeun Jeong, and Fredrich Kahrl, "Queued Up: 2025 Edition, Characteristics of Power Plants Seeking Transmission Interconnection As of the End of 2024," Lawrence Berkeley National Laboratory, December 2025, https://emp.lbl.gov/publications/queued-2025-edition-characteristics.

81. Brendan Duke, "A Framework to Evaluate Affordability Proposals," Center on Budget and Policy Priorities, June 15, 2026, https://www.cbpp.org/research/federal-budget/a-framework-to-evaluate-affordability-proposals.

82. Competitive Enterprise Institute, "CEI Coalition Letter on Permitting Reform in the 119th Congress," Competitive Enterprise Institute, December 13, 2024, https://cei.org/wp-content/uploads/2024/12/CEI-Lame-Duck-Letter-Final-3.0.pdf.

83. Office of U.S. Senator John Hoeven, "Hoeven, Cramer Help Introduce Legislation to Eliminate Wind Tax Credit," U.S. Senator John Hoeven, April 29, 2021, https://www.hoeven.senate.gov/newsroom/press-releases/hoeven-cramer-help-introduce-legislation-to-eliminate-wind-tax-credit.

84. Mahoning Commissioners, "October 30, 2023 Mahoning County Commissioners' Public Hearing for Solar and Wind Power Facilities," YouTube, October 30, 2023, https://youtu.be/zAHPEViPABA?si=iuPVcu87ORzVh_zK&t=7006.

85. Travis Fisher, "How Subsidies in the Inflation Reduction Act Undermine Transmission Reform," Cato Institute, September 22, 2023, https://www.cato.org/blog/how-subsidies-inflation-reduction-act-undermine-transmission-reform.

86. Nick Sobczyk, "What We're Hearing: Permitting Notes," Axios Pro, August 1, 2024, https://www.axios.com/pro/energy-policy/2024/08/01/what-were-hearing-permitting-notes.

87. The Union Herald, "Senate Hearing on the State of the Bulk Power System," YouTube, March 25, 2026, https://youtu.be/Tz0YcPVSFW4?si=erts3WCbyf5AS5pc&t=1733.

88. Allison Good, "Renewables Developers, Producers Argue Against Clean Energy Tax Credits," S&P Global Market Intelligence, May 14, 2026,

https://www.spglobal.com/market-intelligence/en/news-insights/articles/2026/5/renewables-developers-producers-argue-against-clean-energy-tax-credits-101715835.

89. Kasparas Spokas and Wilson Ricks, "Clean Firm Generation Technologies: What, Why, How," Clean Air Task Force, February 17, 2026, https://www.catf.us/resource/clean-firm-electricity-technologies-why-what-how/.

90. U.S. Department of Energy, "Pathways to Commercial Liftoff: Next-Generation Geothermal Power," U.S. Department of Energy, March 2024, https://negpa.org/wp-content/uploads/2024/08/LIFTOFF_DOE_NextGen_Geothermal_v14.pdf.

91. Ryan Norman and Shane Londagin, "Clean Firm: Decarbonizing Our Economy with 24/7 Clean Energy," Third Way, October 22, 2024, https://www.thirdway.org/blog/clean-firm-decarbonizing-our-economy-with-24-7-clean-energy.

92. David M. Hart, Claire C. Cody, Marcela Mulholland, Alex Breckel, and Evan Chapman, "Re-Energizing America: Reclaiming American Leadership in Energy Innovation," Clean Tomorrow, November 15, 2025, https://cleantomorrow.org/wp-content/uploads/2025/11/Re-Energizing-America-Report-Clean-Tomorrow.pdf.

93. Carbon Middle Management, "U.S. Energy Public Funding: 50-Year Comparison," Carbon Middle Management, April 2026, https://carbonmiddlemanagementinc.github.io/publicfunding_energy/.

94. Joshua Lappen and Emily Grubert, "Fossil Energy Minimum Viable Scale," Science 391, no. 6784 (January 29, 2026): 449–52, https://emilygrubert.org/wp-content/uploads/2026/02/science.aea0972.pdf.

95. Emily Barkdoll, Ted Lee, and Dorothy Lutz, "Clean Energy Tax Blueprint," April 15, 2026, https://www.cleanenergytaxblueprint.org/.

96. U.S. Senate Committee on Finance, "Crapo, Whitehouse Release Energy Innovation Tax Credit Proposal," U.S. Senate Committee on Finance, April 26, 2021, https://www.finance.senate.gov/ranking-members-news/crapo-whitehouse-release-energy-innovation-tax-credit-proposal.

97. U.S. Department of Energy, "National Transmission Planning Study," U.S. Department of Energy, October 3, 2024, https://www.energy.gov/oe/national-transmission-planning-study-0.

98. Tess Carter, Ben King, John Larsen, Anna van Brummen, and Hannah Kolus, "The Impacts of Rising Electricity Demand from Data Centers on US Energy and Emissions," Rhodium Group, April 7, 2026, https://rhg.com/research/data-centers-electricity-demand/.

99. Pavan Venkatakrishnan, "Addition over Obstruction: A New Governing Principle for Energy Development," American Affairs, May 20, 2026, https://americanaffairsjournal.org/2026/05/addition-over-obstruction-a-new-governing-principle-for-energy-development/.

100. Brian Deese, Rob Gramlich, and Anna Pasnau, "A Roadmap for Advanced Transmission Technology Adoption," MIT Center for Energy and Environmental Policy Research, September 2024, https://ceepr.mit.edu/workingpaper/a-roadmap-for-advanced-transmission-technology-adoption/.

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