ENERGY INNOVATION
POLICY & TECHNOLOGY LLC®

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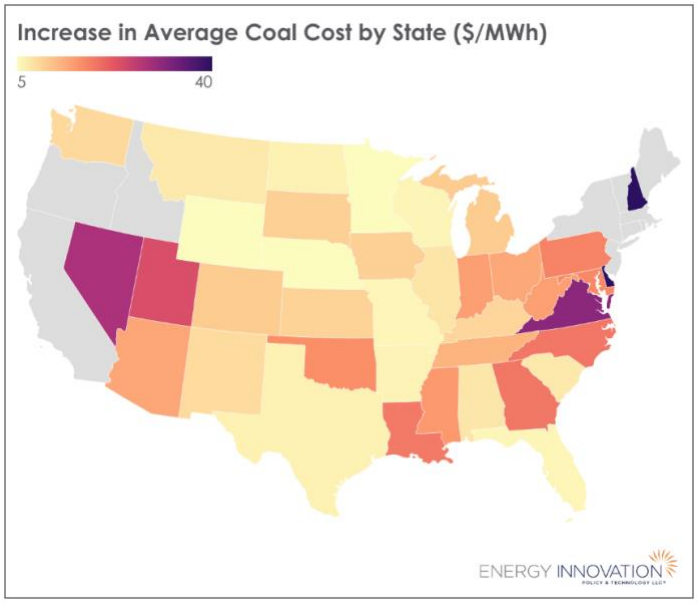
COAL POWER 28 PERCENT MORE EXPENSIVE IN 2024 THAN IN 2021

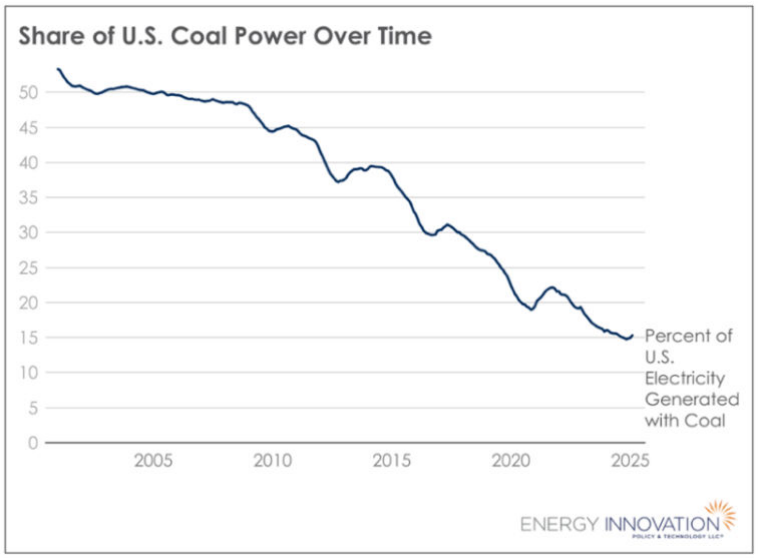
Since 2021, the cost to generate coal power in the United States has increased faster than inflation, on average, meaning that coal is putting further inflationary pressure on American electricity consumers. This updated analysis on coal costs shows that in 2024, coal power was 28 percent more expensive than in 2021, costing consumers $6.2 billion more to generate power via coal than it would have cost in 2021.

Coal power is declining across the United States, largely because of these poor economics. Total coal power use peaked in 2007 and has fallen ever since, generating barely 15 percent at the beginning of 2025. Between 2021 and the beginning of 2025, nearly 50 plants retired or are no longer burning coal, and over a third of the remaining fleet is expected to retire by 2030.[1]



This reality sits in stark contrast to U.S. federal power policy. The Trump administration issued a series of executive orders in April 2025 aiming to keep coal plants running despite their impact on electricity consumers. These include orders to reduce the number of plants subject to the U.S. Environmental Protection Agency's Mercury and Air Toxics Standards,[2] and to keep uneconomic plants running long-term using short-term emergency powers.[3] This has already resulted in a plant ordered to remain open – the J.H Campbell plant owned by Consumers Energy in Michigan which was scheduled to close May 31.[4]

[1] https://ieefa.org/resources/nowhere-go-down-us-coal-capacity-generation
[2] https://www.whitehouse.gov/presidential-actions/2025/04/rregulatory-relief-for-certain-stationary-sources-to-promote-american-energy/?utm_source=chatgpt.com
[3] https://www.whitehouse.gov/presidential-actions/2025/04/strengthening-the-reliability-and-security-of-the-united-states-electric-grid/
[4] https://apnews.com/article/michigan-power-plant-coal-trump-aa6244ce5e7cca4326e582c849e0bc98



Source: U.S. Energy Information Administration

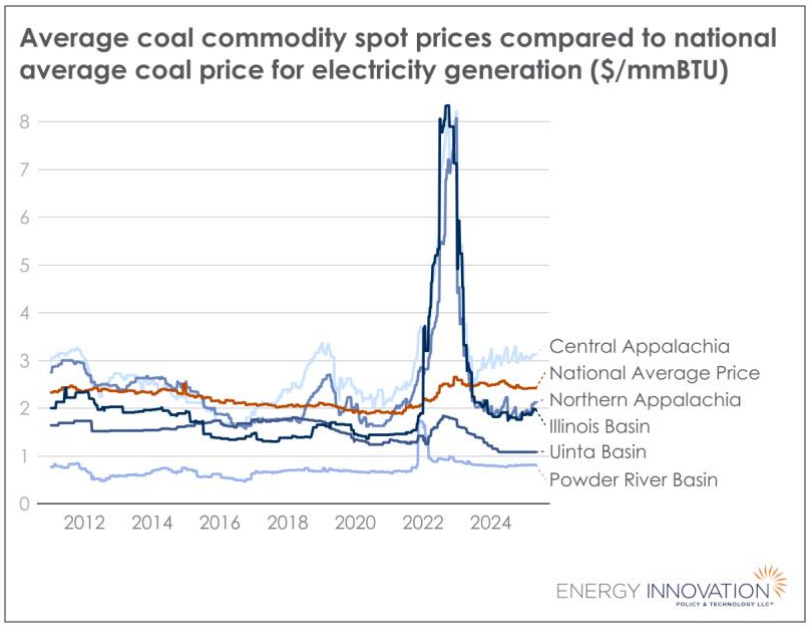
But these orders ignore the economic fundamentals underpinning coal's decline: wind, solar, batteries, natural gas, and efficiency are simply cheaper than coal power. Previous Energy Innovation research showed that 99 percent of coal plants were more expensive to continue operating compared to replacement with local wind or solar.[5] Attempts to keep coal running beyond plants' economic lifetime will force Americans to pay higher electricity bills.

As the new analysis detailed here shows, coal plants have only gotten more expensive since our last analysis based on the 2021 coal fleet, which largely followed the trends of the overall cost of coal for fuel.

Prices spiked in 2022, after Russia invaded Ukraine. This event increased all fossil fuel prices. While coal fuel prices fell after 2022, they remained elevated over 2021 levels in most regions of the country, and the national average price of coal delivered to the electricity sector remained elevated, too.

These higher prices are seen most acutely in the Appalachian coal producing regions, where coal has been more expensive for years due to the depth of coal within the mines, a problem that only becomes more acute with more mining.[6]

Our updated analysis uses the same methodology as detailed in the Coal Cost Crossover 3.0 for calculation of coal costs,[7] and shows coal's economic decline has continued.



Source: U.S. Energy Information Administration

[5] https://energyinnovation.org/report/the-coal-cost-crossover-3-0/
[6] https://www.eia.gov/energyexplained/coal/prices-and-outlook.php
[7] This methodology does not account for any increases in cost due to very large capital expenditures such as those required to comply with air pollutant regulations. Any pollution upgrades would significantly increase the costs of plants beyond what is calculated here.

KEY FINDINGS

Power generated by coal in 2024 was 28 percent more expensive on average than in 2021

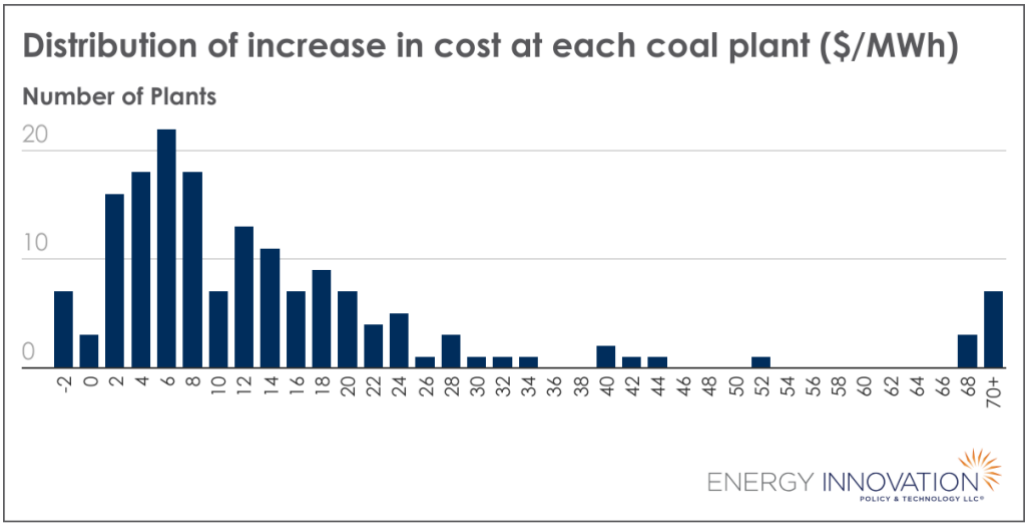
In 2021, the weighted average cost of a megawatt-hour (MWh) of power generated by coal-fired power plants was $36/MWh, while in 2024, this number rose to $46/MWh, or a 28 percent increase across the U.S. coal fleet. The Consumer Price Index, a proxy for inflation, increased by 16 percent from 2021 to 2024,[8] which means the cost of power generated by coal grew significantly faster than inflation.

Factors contributing to this increase include a rise in the cost of fuel for plants, as well as increased operations and maintenance costs and capital costs due to aging plants and inflation. Plants also ran less on average, which drives up their cost in dollars per MWh, with our analysis showing that the average coal plant capacity factors dropped to 38 percent in 2024 from 46 percent in 2021.

With 622 million megawatt hours of power generated by coal in 2024, this means coal plant owners spent over $6.2 billion more than they would have spent for that same amount of electricity generated by coal in 2021, costs that are directly passed onto consumers through electricity rates.

95 percent of remaining coal plants generated power at a higher cost than they did in 2021

We analyzed 162 plants, consisting of 181 GW of capacity, that were still operating at the beginning of 2025. Almost every plant saw costs increase but increases ranged widely between plants. 95 percent of plants were more expensive, and 76 percent of plants (142 GW) saw costs rise faster than inflation since 2021. Nearly half of these saw cost increases double the rate of inflation over this period.

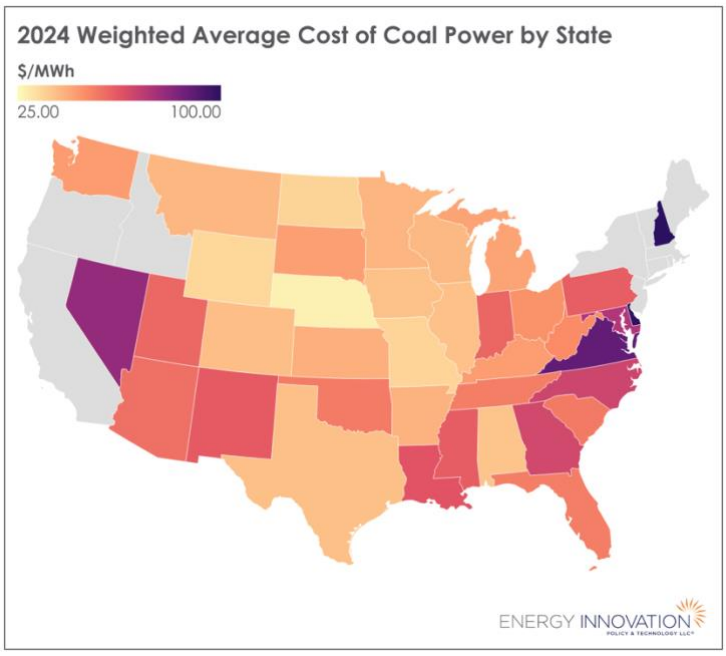


[8] https://www.minneapolisfed.org/about-us/monetary-policy/inflation-calculator/consumer-price-index-1913-

The cost of coal was highest in the Mid-Atlantic, Southeast, and Southwest

Delaware and New Hampshire saw the highest coal costs on average in 2024. Each state has only one plant still in operation, and plans to shut these plants down are imminent, with Delaware's scheduled for retirement in 2026 and New Hampshire's in 2028. Outside of these two, the states with the highest coal cost were Georgia, Louisiana, Maryland, Mississippi, Nevada, New Mexico, North Carolina, and Virginia.

Many of the most expensive coal-burning states source coal from the most expensive mines, with states east of the Mississippi generally seeing more expensive average costs than those in the West.



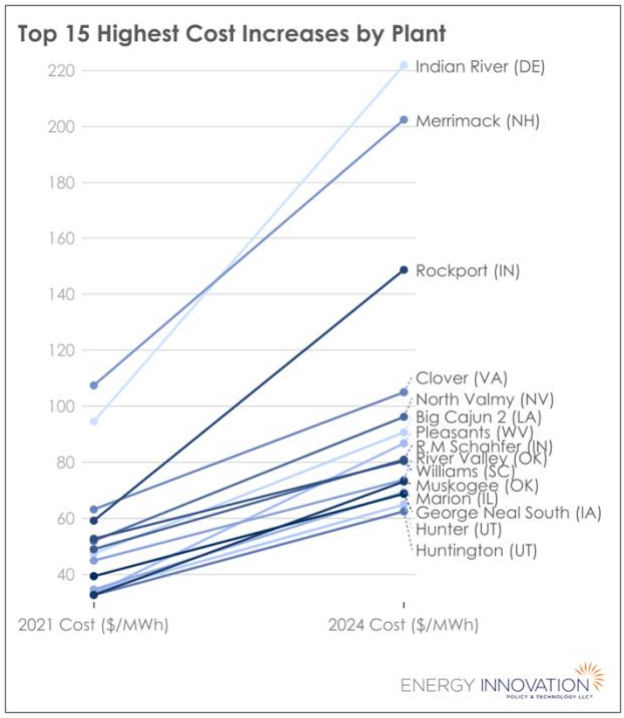
Despite these high costs, states like Georgia and South Carolina have extended the lives of several plants, including Plant Bowen and Williams. Plant Bowen was originally scheduled for retirement in 2028, but Georgia Power has recently extended its life to 2035.[9] Its costs increased by $26/MWh, from $46/MWh to $72/MWh. Williams, a 659 MW plant in South Carolina has had its retirement pushed from 2028 to 2031 or even later in Dominion Energy's recent integrated resource plan. This delay comes even as this analysis shows the plant has increased in cost by $27/MWh, or over 50 percent.[10]

States in the West were not insulated from cost increases. Cost increases in Utah were particularly high, largely due to the Hunter and Huntington plants, which were previously scheduled for retirement in 2032, but instead are now planned to stay online indefinitely. The cost increase is largely due to issues with the mine that supplies coal to these plants, the Lila Coal Mine, which caught on fire in 2022, was declared "idled indefinitely" at the end of 2023 and all 150 workers laid off.[11] Costs to run these two plants nearly doubled from around $30/MWh to over $60/MWh. Even plants that have functioning dedicated mines in the cheapest coal region of the country, the Powder River Basin, have still seen significant increases in coal costs.

[9]https://georgiarecorder.com/briefs/two-georgia-power-coal-plants-among-the-dozens-now-exempt-from-biden-era-pollution-rule/
[10]https://www.wfyi.org/news/articles/duke-energy-plans-to-delay-gibson-coal-plant-retirement-activists-say-its-a-step-backward
[11]https://www.sierraclub.org/press-releases/2025/04/dominion-energy-keeps-south-carolina-s-coal-plants-operating-2025-irp-update#:~:text=Dominion%20has%20already%20pushed%20back,potentially%20as%20late%20as%202034.

ACTIONS TO PROTECT CONSUMERS FROM RISING COSTS

Because the cost of coal power is increasing faster than inflation, the Trump administration's executive orders and attempts to keep coal-fired power plants running will increase the cost of electricity.



Coal-fired power increases its cost burden on customers year after year, and the period from 2021 to 2024 was no different. With costs increasing across America's entire fleet, states that continue to rely on coal, like Kentucky and West Virginia, have unsurprisingly suffered electric rates climbing faster than even those coal-heavy states that have begun to incorporate renewable power.[12] Even as this coal reliance has harmed electricity customers and neighboring states have declined cost recovery for upgrades, regulators in West Virginia have required plants to stay online. Meanwhile, residential electricity rates in West Virginia have risen 24 percent since 2021.

While keeping coal power online longer to meet growing load may seem like an attractive option, continuing to rely on these aging plants with high fuel costs will likely continue harming those captive customers whose policymakers force expensive plants to stay online, even as cheaper options are available. Strategies like moving new generation and battery storage through interconnection queues more quickly,[13] getting more out of the grid by upgrading transmission lines[14] and utilizing surplus interconnection capacity,[15] and deploying demand response and efficiency[16] can help ensure America has the capacity needed to meet growing load while protecting consumers from paying the price to subsidize uneconomic coal.

Comprehensive planning and competitive procurement are also essential to ensuring that electricity customers pay the cheapest price for power. Using best practices in integrated resource planning will make sure that least-cost resource portfolios are selected. These include inclusive stakeholder processes with technical experts participating, developing model inputs and cost estimates that align with real-world data and high quality forecasts, and analyzing multiple scenarios and sensitivities.[17]

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[12]https://kentuckylantern.com/2025/04/10/heavy-reliance-on-coal-has-eroded-a-ky-economic-advantage-can-trump-reverse-the-trend/
[13]https://collaborative.evergreenaction.com/memos/approving-clean-energy-projects-faster-could-save-consumers-505-a-year-in-these-13-states-16
[14] https://www.2035report.com/reconductoring/
[15] https://www.utilitydive.com/news/surplus-interconnection-gridlab-berkeley-report/740262/
[16] https://energyinnovation.org/wp-content/uploads/2024/03/MEETING-GROWING-ELECTRICITY-DEMAND-WITHOUT-GAS.pdf
[17] https://emp.lbl.gov/publications/best-practices-integrated-resource

Beyond good planning, all-source competitive procurement, or the process by which all technologies are fairly considered to meet grid needs, can make sure that the cheapest plans turn into the cheapest projects built.[18]

Common-sense policies can also help reduce the impact of expensive coal plants on consumers. For instance, in many states, coal plants are permitted to run even when they are not the cheapest resource to meet the need. This is called "uneconomic dispatch," costs consumers over $2 billion annually, and is most prevalent in the Southeast and West where the lack of regional transmission operator reduces pricing transparency. Where full electricity markets are not implemented, moving towards day ahead or real time energy markets that are coordinated by a centralized entity is key to ensuring consumers pay a fair price, and utility regulators can push for better operational practices to save customers money.[19]

Electricity planners have options to keep the lights on, but electricity consumers generally have little to no choice in the price they pay for power. As costs continue to rise, now is not the time to double down on coal. It is up to the regulators and policymakers overseeing the coal fleet to protect consumers, and find cheaper, cleaner options to help Americans thrive.

[18]https://energyinnovation.org/report/making-the-most-of-the-power-plant-market-best-practices-for-all-source-procurement-of-electric-generation/
[19] https://rmi.org/how-utilities-can-save-customers-billions-of-dollars/

