The Cost of Federal Mandates to Retain Fossil-Burning Power Plants

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On behalf of
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Sierra Club

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I

EXECUTIVE SUMMARY

Over the last several months, the U.S. Department of Energy (DOE) has attempted to override decisions by power plant owners and state utility regulators to retire uneconomic fossil-fired power plants. This analysis quantifies the cost imposed on electricity consumers if DOE continues to mandate that these plants and other fossil-fired power plants slated for retirement remain open. Ratepayer costs could exceed $3 billion per year if DOE mandates that the large fossil power plants scheduled to retire between now and the end of 2028 remain open. If additional fossil power plants announce or move up their retirement dates in an attempt to obtain the ratepayer subsidies available to plants subject to DOE mandates, the cost could reach nearly $6 billion per year.

Table 1 below summarizes these results, with the MW quantity in the first row multiplied by the average per-MW subsidy cost in the second row to arrive at the total ratepayer cost in the third row. The three subsections of Section II explain the methods and calculations used to arrive at the results in each row of Table 1.

TABLE 1. Annual ratepayer cost of DOE mandates by end of 2028

	Low estimate	High estimate
MW subject to mandate	34,948 MW	66,337 MW
Average $/MW-year cost	$89,315/MW-year	$89,315/MW-year
Total annual ratepayer cost	**$3.121 billion**	**$5.925 billion**

These large costs are at odds with the stated intent of the Executive Order that directed DOE to issue these mandates, which included meeting the "surge in electricity demand driven by rapid technological advancements, including the expansion of artificial intelligence data centers and an increase in domestic manufacturing" and protecting "the national and economic security of the American people."[1] Increasing ratepayer costs to subsidize uneconomic power plants undermines the competitiveness of U.S. manufacturing and data centers, as well as inflating the electric bills paid by homeowners and businesses.

That DOE ordering retiring plants to remain open will increase ratepayer costs is intuitive and inherent. Power plant owners responding to market price signals, or state utility regulators responsible for ensuring utilities are cost-effectively meeting electricity demand, have determined that these plants are neither economic nor needed to maintain electric reliability. The state utility commissions of regulated utilities have determined that plants slated for retirement are not economic or needed for reliability through Integrated Resource Plans and other regulatory oversight. In deregulated Regional Transmission Organization (RTO) markets, merchant power plant owners cover the cost of operating their plants by selling their output into the market or under bilateral contracts with utilities or other customers under pricing that reflects the market value of that generation. Merchant owners that have decided to retire a plant have determined that the ongoing cost of operating the plant is greater than the revenue it can earn selling its energy, capacity, and other reliability services into the market or to a customer. RTOs also have mechanisms to retain plants scheduled for retirement that are needed to ensure local grid reliability, as discussed below, so RTOs have determined that plants slated for retirement are not needed for reliability. Thus, DOE mandates are overriding cost-minimizing retirement decisions that have been made by state utility regulators and merchant power plant owners based on extensive information regarding the cost, performance, condition, and need for each plant.

1 The White House, *Strengthening the Reliability and Security of the United States Electric Grid*, (April 2025), available at https://www.whitehouse.gov/presidential-actions/2025/04/strengthening-the-reliability-and-security-of-the-united-states-electric-grid/

II ANALYSIS

A. MW of retiring power plants subject to DOE mandates

To date, DOE has issued two 202(c) orders mandating the retention of both large fossil steam plants slated to retire since the executive order took effect. In May DOE issued a mandate requiring the retention of the three-unit Campbell coal plant in Michigan, even though the plant owner, regional grid operator, and Michigan utility regulator and attorney general supported the retirement of the plant. Later in May DOE also mandated the retention of the two-unit Eddystone oil and gas power plant in Pennsylvania, even though its owner had planned to retire the aging plant.

Based on the trend to date and indications that DOE has approached the owners of many retiring fossil power plants about potentially mandating their retention, DOE may attempt to mandate the retention of nearly all large fossil power plants slated for retirement between now and the end of 2028.

As a result, the low estimate in Table 1 above calculates the cost if the 34,948 MW of large fossil power plants scheduled to retire between now and the end of 2028[2] are subject to DOE mandates overriding their planned retirement. This tally excludes 8,102 MW of retiring fossil plants for which at least part of the capacity is slated to be replaced by new fossil generation, which we conservatively assume will make it unlikely that DOE will attempt to override the retirement decision, and around 310 MW of retiring fossil plants that are below the 50 MW size specified in the Executive Order. All information on which power plants are scheduled for retirement was obtained from DOE itself, through the Energy Information Administration (EIA) Form 860 dataset.

For the high estimate, we included the 34,948 MW of large fossil plants with retirement dates scheduled between now and 2028 from the low estimate, and then added 31,389 MW across 36 fossil power plants that are currently 60 years old,[3] for 66,337 MW of total fossil capacity across 90 plants estimated to be subject to a DOE mandate by the end of 2028. The Midcontinent Independent System Operator, the RTO for much of the Midwest, has documented that the median retirement age for coal plants in its region is around 60 years.[4] EIA data show that the

2 EIA, *Preliminary Monthly Electric Generator Inventory*, data for May 2025 and published in June 2025, available at https://www.eia.gov/electricity/data/eia860m/

3 *Id.*

4 MISO, *Appendix E2: MTEP18 EGEAS Assumptions Document*, https://cdn.misoenergy.org/MTEP18%20E2%20Futures%20Definition%20Assumptions%20and%20Siting264883.pdf at 17

average age of coal plants that retired in 2024 was 54 years,[5] making our 60-year age threshold conservative. These 31,389 MW of plants older than 60 years old are comprised of 27,024 MW of plants without announced retirement dates and 4,365 MW of plants with retirement dates after 2028.

The inclusion of plants that are not yet scheduled to retire reflects the perverse incentive created by subsidizing plants that claim they want to retire. DOE mandates perversely incentivize plant owners to claim they plan to retire so they can receive a ratepayer subsidy to remain open. This perverse incentive is what economists would call a moral hazard. The information asymmetry between a plant owner and outside observers regarding actual plant economics and condition makes it challenging for an outsider to assess whether a plant is truly uneconomic and should retire. This is also why DOE second-guessing retirement decisions made by plant owners and state utility regulators, the entities with the best knowledge of the plant's economics, condition, and value for meeting future needs, is highly likely to be inaccurate and impose large costs on ratepayers.

This lack of transparent public information on plant condition and cost, as well as expectations for regional electricity supply and demand and market prices, is also why we used data collected on EIA Form 860 regarding fossil power plant age to assess which plants are likely to retire. Age is a simple and transparent metric that MISO has found to be highly predictive of retirement decisions, hence why MISO uses age instead of economic modeling to project retirements in its own planning analyses.

5 EIA, *Retirements of U.S. electric generating capacity to slow in 2024*, (February 2024), available at https://www.eia.gov/todayinenergy/detail.php?id=61425

B. Ratepayer cost of DOE mandates

The cost of recent Reliability Must Run (RMR) contracts is used as a proxy for the estimated cost of keeping fossil plants open due to DOE mandate. Many RTOs use RMR contracts or equivalent mechanisms to retain generators needed to ensure local electric reliability for a period of time until a long-term solution can be completed. RMR contracts are typically only used when the retirement of a power plant would cause local reliability problems, like voltage instability or overloads of transmission equipment, and are only an interim measure until longer-term transmission upgrades or other solutions address those problems. An extensive review of recent RMR contracts indicated the average cost of those contracts was $89,315/MW-year,[6] which we have used as a proxy for the cost of ratepayer subsidies needed to keep retiring fossil power plants open under DOE mandates. The methodology subsection below provides more detail on which RMR resources were included in the analysis.

We believe RMR costs are a reasonable proxy for likely DOE mandate costs, as plants kept open under either mechanism are likely to be able to recover the fixed costs associated with keeping the plant open. Retiring plants that have received an RMR are also likely to have similar costs to retiring plants subjected to DOE mandates, as both types of plants are retiring and thus likely have similarly unfavorable economics.

However, the cost recovery for plants slated for retirement but kept operating due to DOE mandates has not yet been determined. Moreover, there is scant precedent for determining ratepayer subsidy costs for keeping plants open past their scheduled retirement date due to DOE mandates. The Citizens Utility Board estimates the cost for the Campbell and Eddystone plants that DOE has already mandated to remain open under 202(c) orders[7] equates to a weighted average annualized cost of $181,200/MW-year, more than twice our estimate of $89,315/MW-year based on recent RMR costs, suggesting our estimate may be conservative.

Cost data for the Campbell coal plant confirm that our estimated average cost is conservative for that plant. DOE's mandate for that plant to remain open cost $29 million over the first 38 days.[8] If DOE were to extend the Campbell order beyond 90 days and this cost trend were to persist, that would translate to $279 million in annual cost or $178,559/MW-year, almost exactly twice our estimate.

6 The recent RMR contracts used to calculate this weighted average include Brandon Shores, Wagner, and Indian River in PJM; Lakefront Unit 9 and Rush Island in MISO; Braunig Unit 3 in ERCOT; and six RMR units in CAISO, of which Midway is the largest. The cost of these contracts ranges from $49,858/MW-year for Wagner to $167,619/ MW-year for Lakefront Unit 9. We identified some of these contracts through the summations of RMR contracts for some regions provided at FERC, *2023 Common Metrics*, (January 2024), available at https://www.ferc.gov/media/new-bullet-point-2023-common-metrics at 20-22, and supplemented that list with additional recent RMR contracts identified through searches of public records.

7 Citizens Utility Board, *Statement: CUB Joins Other Consumer Advocates in Challenging Federally Mandated Rate Hike to Keep 'Zombie Power Plant' Open*, (June 2025), available at https://www.citizensutilityboard.org/blog/2025/06/30/statement-cub-joins-other-consumer-advocates-in-challenging-federally-mandated-rate-hike-to-keep-zombie-power-plant-open/

8 L. Larson, *Michigan coal plant cost $29 million over 5 weeks to keep running under Trump order*, (August 2025), available at https://www.mlive.com/environment/2025/08/michigan-coal-plant-cost-29-million-over-5-weeks-to-keep-running-under-trump-order.html

C. Total ratepayer cost

Low estimate

The first two charts below show the ongoing monthly and annualized cost of DOE mandates over time based on the scheduled retirement dates for fossil power plants included in the low case. These costs increase over time as more plants reach their scheduled retirement dates and begin receiving ratepayer subsidies as they are subjected to DOE mandates. Our analysis conservatively assumes that plants do not begin receiving subsidies until the month after their scheduled retirement, but DOE could issue mandates for these plants earlier than that, which would increase ratepayer costs. By January 2029 the monthly cost of DOE mandates reaches $260 million, which multiplied by 12 months equates to $3.121 billion in annualized costs.

FIGURE 1 | **Monthly** cost for low case (plants with retirement dates by YE2028), in millions

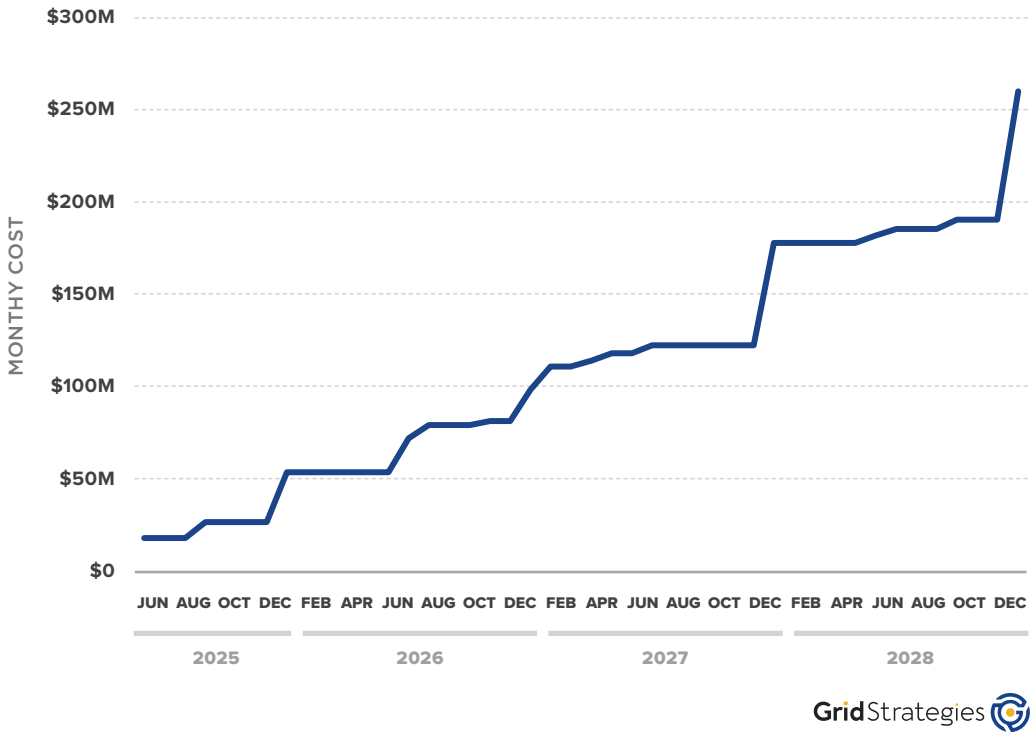
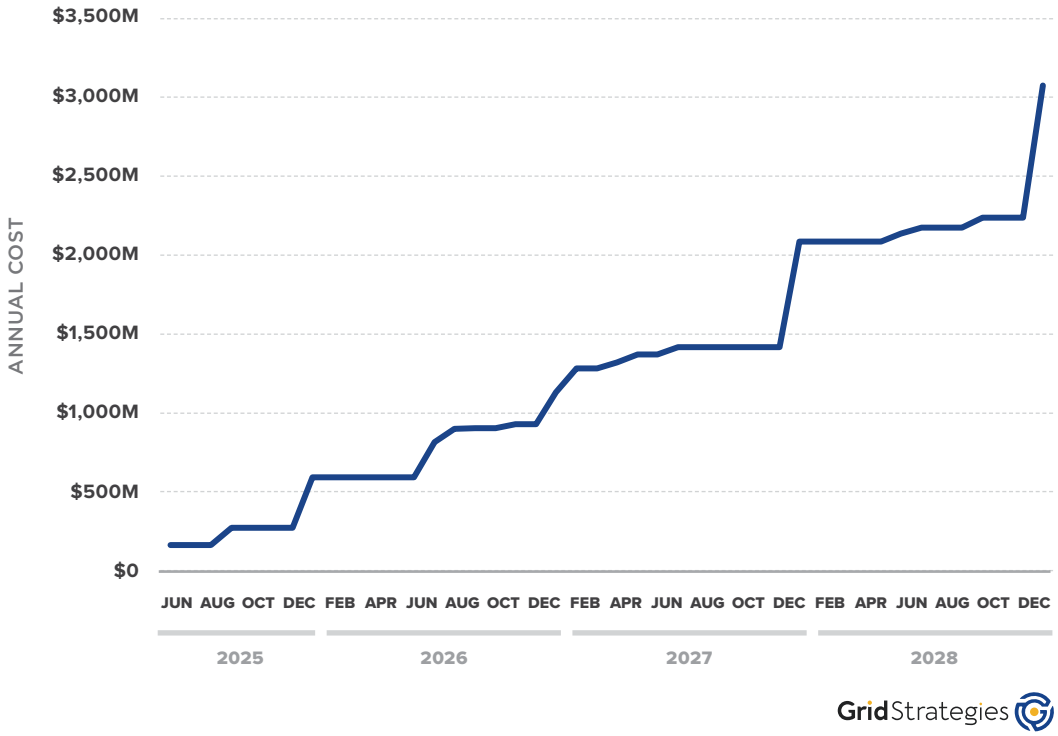
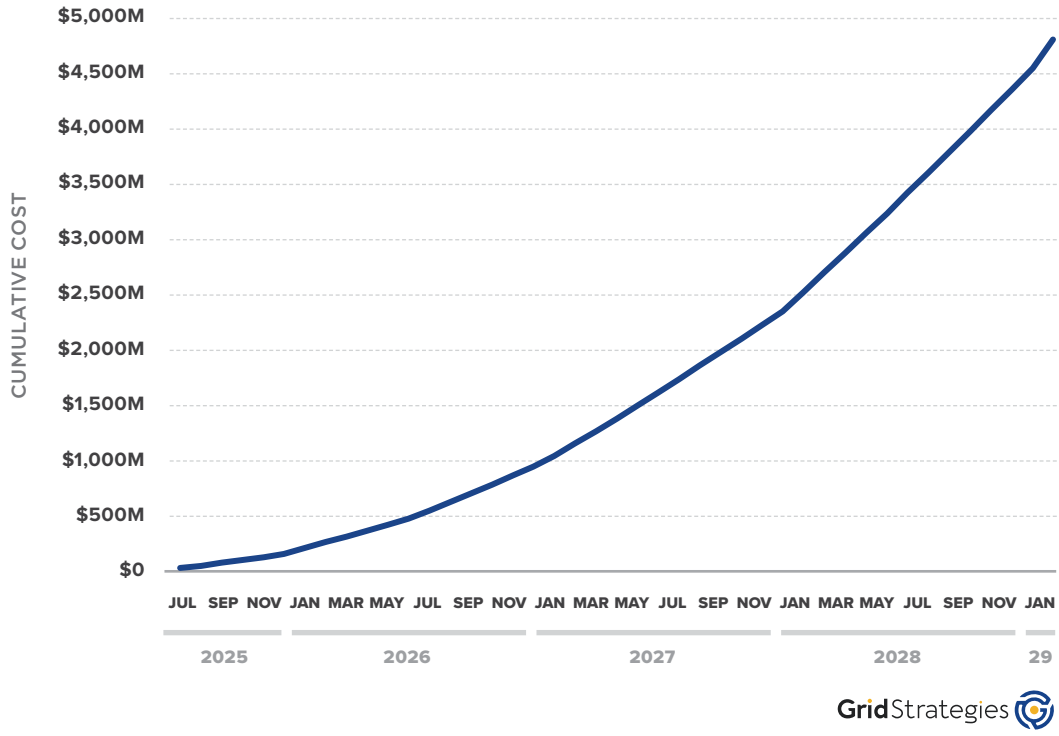


FIGURE 2 | **Annualized** cost for low case (plants with retirement dates by YE2028), in millions



The next chart shows that the cumulative cost of DOE mandates reaches $4.8 billion by January 2029 in the low estimate, summing the monthly costs between now and then.

FIGURE 3 | **Cumulative** cost for low case (plants with retirement dates by YE2028), in millions



The likely allocation across states of the $3.1 billion in annualized costs to ratepayers by the end of 2028 from DOE mandates is indicated in the map below, which shows the cost per year in millions of dollars. We estimate that ratepayers in 39 states and the District of Columbia will incur costs if DOE mandates plants slated for retirement to remain open under DOE mandates. States and regions that are not estimated to receive a cost allocation are those without plants slated for retirement, which are the six New England states, New York, Hawaii, Alaska, Oregon, and South Carolina.

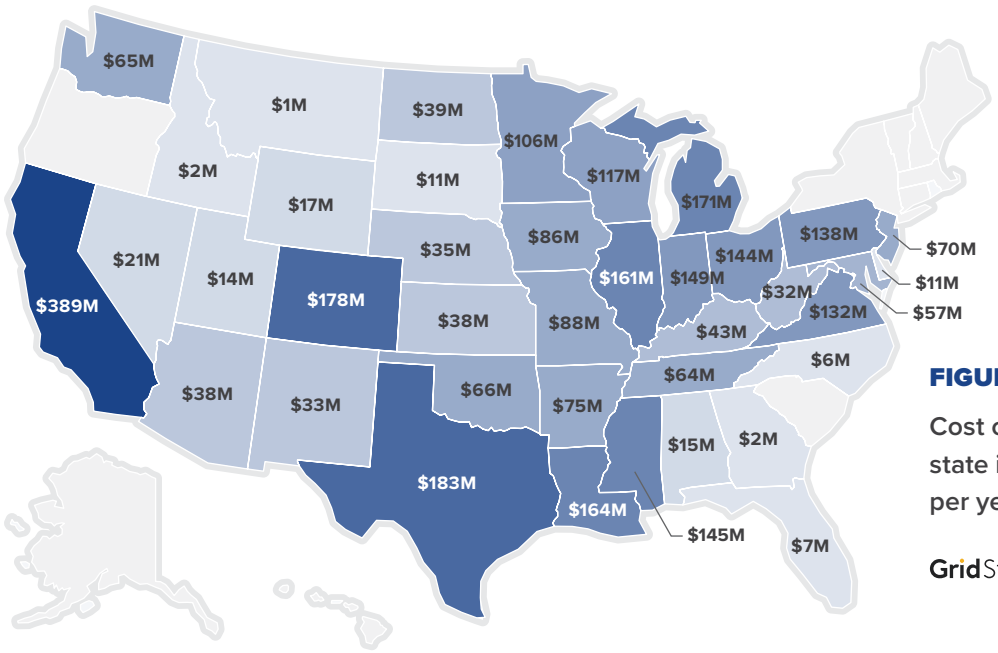


FIGURE 4

Cost of DOE mandates by state in low case, in dollars per year by YE2028

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The analysis allocated the cost to each state on a load ratio share basis across the Balancing Authority in which the retiring plant is located, reflecting that the supply of that plant is pooled with other sources of supply to serve demand across that footprint. This is analogous to proposed allocations for the cost of DOE's two recent 202(c) orders for plants in RTOs. Utilities outside of regional transmission organizations are likely to similarly recover the cost of keeping plants open under DOE mandates from ratepayers across their service territories. As a result, we allocated the cost of retaining each plant based on the MWh of demand served in each state by the RTO or utility in whose footprint it is located.

High estimate

For the high estimate, total costs are expected to exceed $5.9 billion annually by the end of 2028, as shown in Table 1 above. Costs for the high estimate case are not allocated geographically or plotted by retirement date because this is more of a statistical, albeit conservative, estimate based on the typical retirement age for power plants. Unlike scheduled retirement dates, plant age does not determine that a specific unit will retire and be subject to a DOE mandate. However, the 60-year age screen should provide a conservative estimate of the total fossil capacity that is likely to retire, even if there is not certainty that a specific plant will

retire. The exact retirement dates for these age-based retirements are also not known, so we have not plotted the trend of cost over time for the high estimate.

The location of plants that are likely to retire based on age is highly consistent with that of plants with scheduled retirement dates, so the geographic distribution of costs in the high estimate case is likely very similar to that indicated in the map in Figure 4 above. As a result, roughly doubling the low estimate state cost figures provided in the map above should approximate the costs ratepayers in each state are likely to incur under the high estimate in which plants announce plans to retire or move up their retirement date to receive a ratepayer subsidy.

III CONCLUSION

DOE mandates to retain retiring fossil power plants could cost U.S. electricity consumers between $3.1 billion and $5.9 billion per year, depending on how many plants are mandated to remain open. These costs will be broadly distributed across ratepayers in all regions except the Northeastern U.S., with electricity costs increasing by tens if not hundreds of millions of dollars per year in most states. Power plants have been slated to retire because their owners and state regulators have determined they are no longer economic or needed. DOE mandates override those well-informed decisions, inflating electric bills for homeowners and businesses and undermining the competitiveness of U.S. factories and data centers.

APPENDIX A

NOTES ON METHODOLOGY

For our review of recent RMR contracts, we excluded the Mystic plant in Massachusetts because a large share of costs recovered under that contract were associated with fuel costs for managing storage capacity in the associated Everett liquefied natural gas storage tank,[9] which would not apply to other power plants slated for retirement. At $291,431/MW-year, the Mystic RMR was more than three times greater than the average of other recent RMR contracts. Similarly, we also excluded a recent RMR contract awarded to a mobile generator in Texas, as its cost profile is likely different from that of retiring power plants.

The review of recent RMR contracts suggests a trend that larger plants have lower $/MW-year costs, which is to be expected given economies of scale in generator fixed costs. The 34,948 MW of fossil plants slated for retirement between now and the end of 2028 and used as the basis for our low-end cost estimate are comprised of 115 units across 54 plants, with an average unit size of 304 MW and an average plant size of 647 MW. The average plant size in our RMR sample is 646 MW, almost exactly equal to the 647 MW average among the retiring plants that are likely candidates for DOE mandates. As a result, our projected cost of DOE mandates should be accurate.

Our sample of recent RMR contracts also suggests that coal plants tend to have higher contract costs ($113,904/MW-year) than gas plants ($49,858/MW-year). However, the coal versus gas capacity share in the sample of recent RMR contracts is nearly identical to that in the 34,948 MW of plants slated for retirement between now and 2028, so this cost difference by fuel type does not significantly affect our national estimate of the cost of DOE mandates. Specifically, we calculated a total national cost of DOE mandates of $3.158 billion per year by applying fuel-specific costs to retiring coal and gas plants, which is only marginally higher than the $3.121 billion per year we calculated using a $89,315/MW-year average across both fuel types. This suggests our total national cost estimate is reasonable if not a bit conservative.

9 For example, see ISO-NE, *Mystic Cost of Service – Description of controls over the administration of the Agreement*, (May 24, 2023), available at https://www.iso-ne.com/static-assets/documents/2023/05/report_audit_controls_for_cosa.pdf

APPENDIX B

ESTIMATED ANNUAL RATEPAYER COST BY PLANT AND REGION IN LOW CASE (PLANTS WITH RETIREMENT DATES BY YE2028)

Plant Name	Estimated annual cost	Plant State	Balancing Authority region	Total cost for region
Lake Catherine	$49,346,564	AR	MISO	$1,081,614,162
Baldwin Energy Complex	$112,501,234	IL		
Newton	$55,143,111			
F B Culley	$9,261,970	IN		
R M Schahfer	$75,649,846			
Michigan City	$48,230,126			
Little Gypsy	$37,574,841	LA		
Waterford 1 & 2	$39,789,854			
J H Campbell	$139,402,927	MI		
Wyandotte	$3,885,205			
Monroe (MI)	$146,458,816			
Belle River	$124,594,492			
Inver Hills	$25,079,665	MN		
Sioux	$98,192,964	MO		
Sabine	$116,502,549	TX		
Elwood Energy LLC	$154,336,403	IL	PJM	$731,829,640
Kincaid Generation LLC	$117,806,548			
Rockport	$232,219,125	IN		
Miami Fort	$99,568,415	OH		
Cardinal	$58,054,781			
Eddystone Generating Station	$69,844,367	PA		
Transalta Centralia Generation	$65,191,053	WA	BPA	$65,191,053

Plant Name	Estimated annual cost	Plant State	Balancing Authority region	Total cost for region
AES Alamitos LLC	$99,586,278	CA	CAISO	$389,440,403
AES Huntington Beach LLC	$19,470,680			
Ormond Beach	$143,975,857			
Ellwood	$5,180,273			
Desert Star Energy Center	$47,988,975	NV		
Intermountain Power Project	$73,238,339	UT	LADWP	
Rio Grande	$8,931,505	NM	EPE	$23,507,721
Newman	$14,576,216	TX		
O W Sommers	$39,834,511		ERCOT	$90,386,829
J K Spruce	$50,552,317			
Deerhaven Generating Station	$6,698,629	FL	GVL	$6,698,629
Fort Churchill	$20,542,461	NV	NEVP	$20,542,461
Dave Johnston	$20,497,803	WY	PACE	$20,497,803
Alamosa	$4,751,561	CO	PSCO	$132,373,833
Fruita	$2,375,780			
Valmont	$5,296,382			
Fort Lupton	$9,002,957			
Cherokee	$34,011,170			
Hayden	$41,567,223			
Comanche	$35,368,759			
Victor J Daniel Jr	$97,942,882	MS	SOCO	$97,942,882
Riverton	$2,911,671	KS	SPP	$246,500,601
North Omaha	$25,999,610	NE		
Maddox	$18,934,790	NM		
Cunningham	$17,005,585			
GREC	$53,053,138	OK		
Nichols	$10,146,189	TX		
Plant X	$17,005,585			
Tolk	$101,444,031			

Plant Name	Estimated annual cost	Plant State	Balancing Authority region	Total cost for region
Springerville	$37,941,032	AZ	TEPC	$37,941,032
Johnsonville	$97,174,772	TN	TVA	$97,174,772
Craig (CO)	$79,740,475	CO	WACM	$79,740,475
Total	**$3,121,382,295**			

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