
ESCALATING ELECTRICITY GENERATION AND TRANSMISSION COSTS; HOW DID WE GET HERE AND WHAT IS THE SOLUTION?

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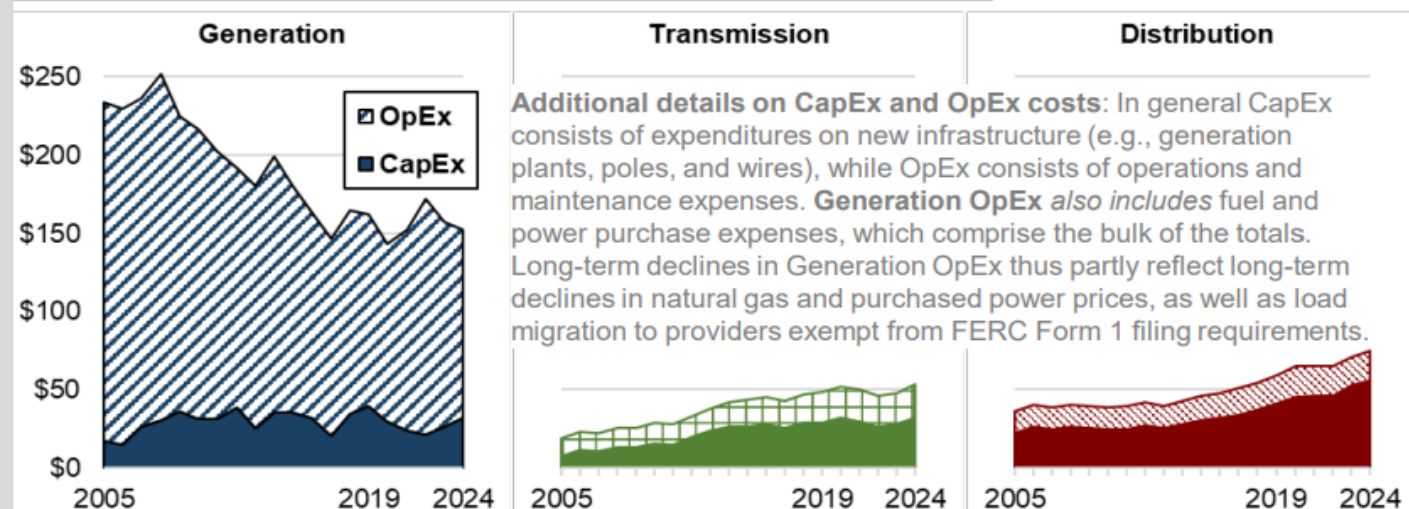


Distribution (and transmission) expenditures have contributed to retail price increases, whereas direct generation costs have declined nationally

- Over the last two decades, aggregate investor-owned utility (IOU) spending on distribution and transmission increased in real, inflation-adjusted terms, whereas expenditures on generation generally declined (*left figure*)¹
- Focusing on aggregate national data from 2019 to 2024, inflation-adjusted distribution and transmission expenditures increased, whereas generation costs declined (*right figure*)¹; distribution increase was widespread geographically
- Several factors drove distribution (and transmission) spending over this period:
 - Aging infrastructure:** Assets older than 50 years typically need to be replaced, costing over \$10 billion/year just for transmission²
 - Equipment hardening:** Utilities are spending on adaptation and resilience measures, hardening their T&D systems³
 - Supply-chain constraints:** Pandemic-era equipment shortages persist; T&D equipment costs have risen far above inflation⁴

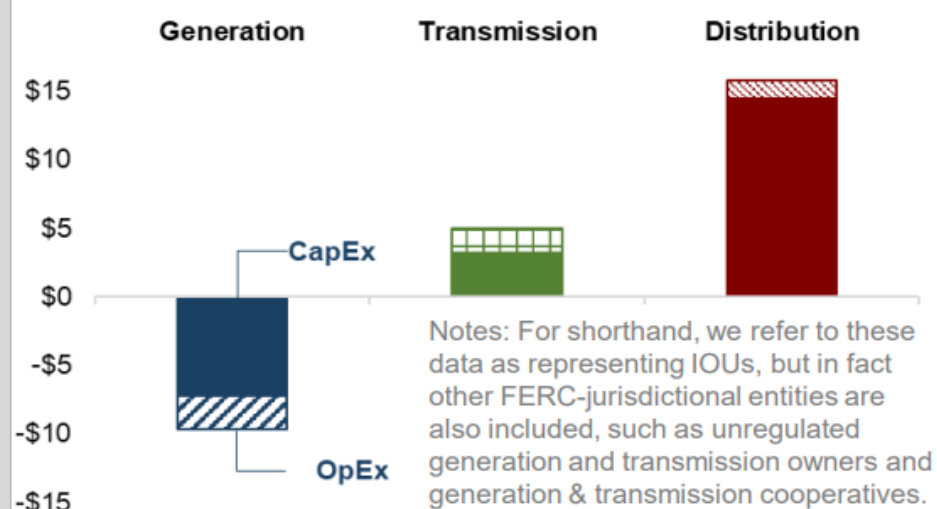
Annual U.S. electric IOU expenditures

billions of 2024 U.S. dollars



2019-2024 change in annual U.S. electric IOU expenditures

billions of 2024 U.S. dollars



Source: ¹ Updated analysis of FERC Form 1 data, based on similar methods as in [EIA \(2024\)](#) and [Forrester et al. \(2024\)](#)

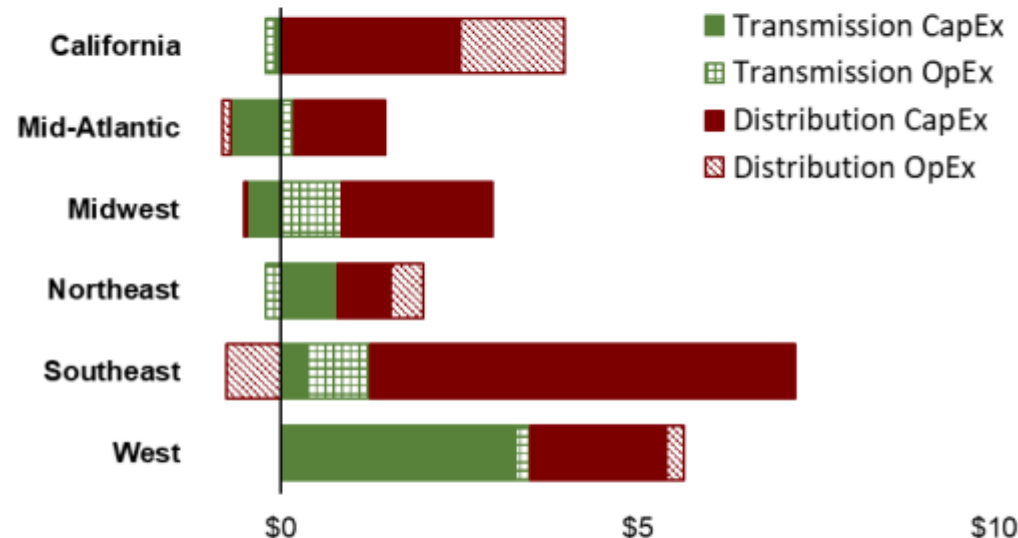
Distribution capital expenditures increased across all regions, but other IOU T&D expenditure trends vary regionally

Focusing on IOU T&D trends¹ from 2019-2024, after adjusting for inflation...

- **Distribution CapEx** rose in all regions, led by the Southeast, where growth is likely partly driven by storm-related recovery and hardening (see later slide)
- **Distribution OpEx** rose notably in California, likely wildfire-related (see later slide), with smaller changes in other regions
- **Transmission CapEx** rose in several regions, most notably in the West, driven by a large PacifiCorp project that entered service in 2024
- **Transmission OpEx** increased in the Midwest and Southeast, but were flat elsewhere; more reflective of year-to-year variability than any persistent trend

¹ We focus here on T&D trends, partly because those are the costs that have risen, nationally, in recent years. In addition, generation cost trends from FERC Form 1 are more prone to misinterpretation, given differences in how and whether those costs are reported, depending on the type of utility. Other elements of this slide deck address generation costs more directly.

2019-2024 change in annual U.S. electric IOU expenditures
billions of 2024 U.S. dollars



Key caveats for the data and trends above

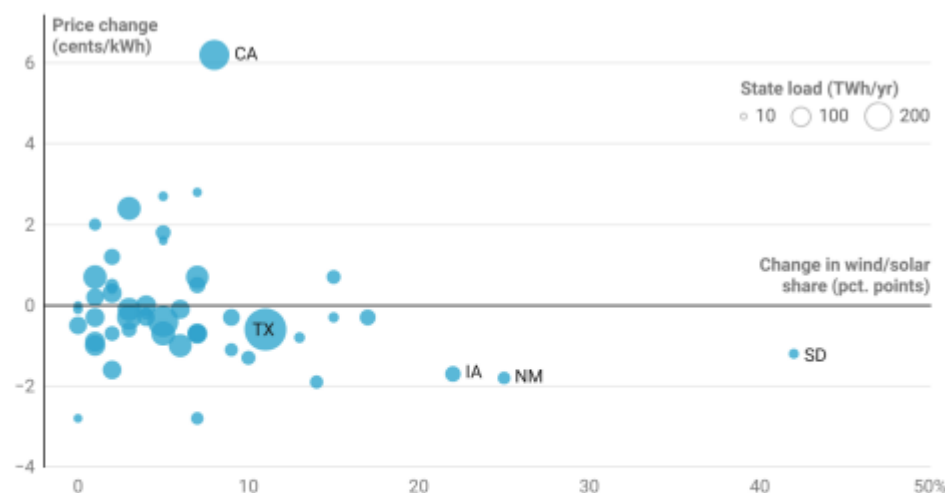
- Regions vary in size, with potentially large differences in total expenditures
- Most distribution cooperatives and municipal utilities are not included; distribution expenditures are therefore incomplete, to varying degrees depending on the region
- CapEx is lumpy; parsing the data into regions can amplify the volatility when comparing expenses across a given set of years

“Market-based” wind and solar generation have not driven price increases; but many state RPS programs have contributed to retail price increases

- There is no significant correlation between higher prices and deployment of utility-scale solar & wind
- The states with the largest increase in solar & wind between 2019-2024 appear, if anything, to have experienced price decreases over the same period*
- But...the 25% of recent solar & wind growth that contributed to incremental state RPS often did increase prices
- Increased RPS compliance costs from 2019-2024 equate to an average price increase of ~ 0.25 ¢/kWh; in the higher cases equal to ~ 1 ¢/kWh¹; broadly consistent with statistical results

Growth in Utility-Scale Wind and Solar vs. Retail Price Changes from 2019 to 2024

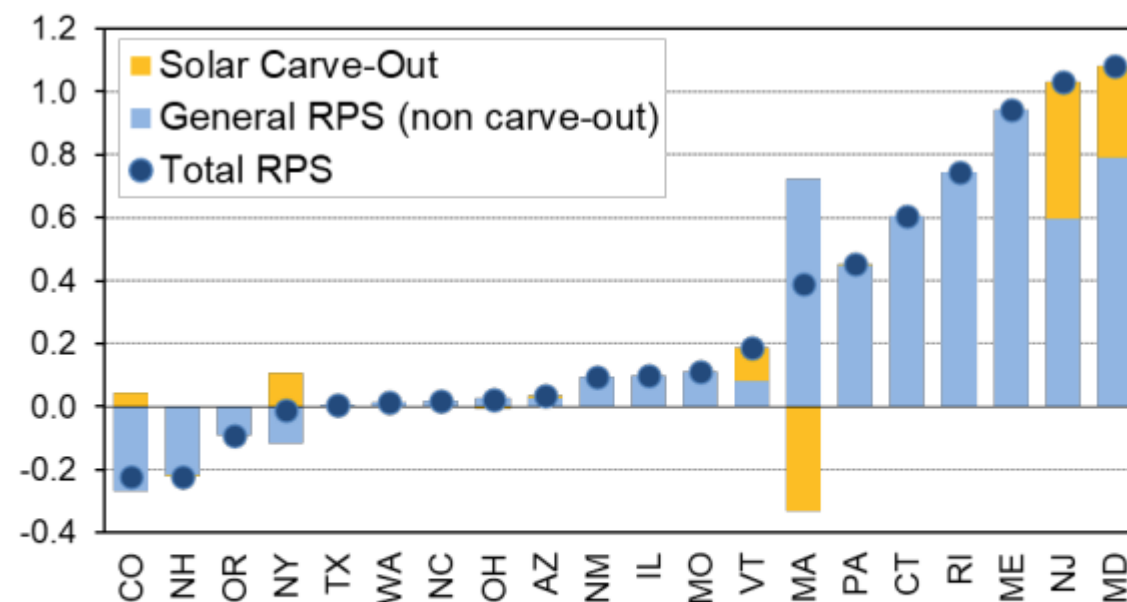
Price change in cents/kWh, inflation adjusted to 2024\$. Utility-scale wind+solar in-state market share is presented as a percentage point change in share from 2019 to 2024.



Source: EIA, LBNL • Created with Datawrapper

Change in RPS Compliance Costs from 2019-2024

(cents per kWh of retail sales)¹



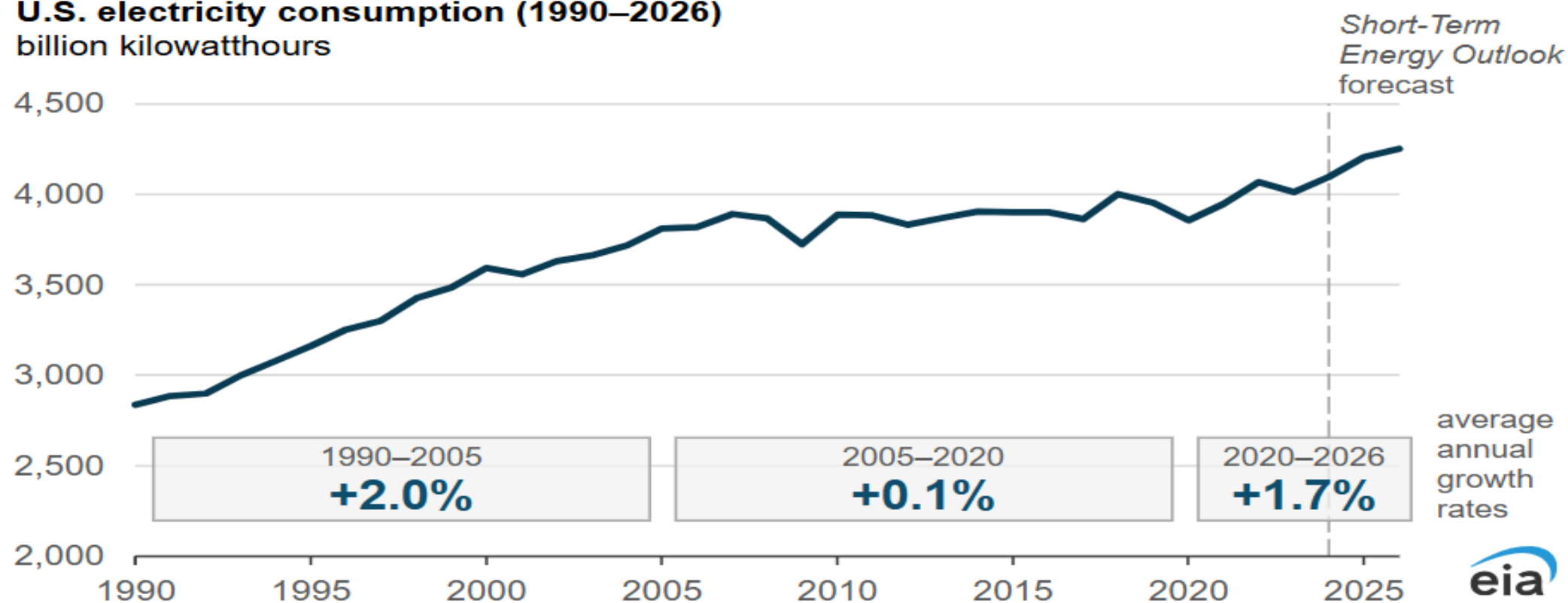
* Simple bubble graphic should be interpreted with care; statistical analysis over recent years shows that “market-based” (with tax credits, but outside RPS) wind & solar have generally not increased retail prices; instead, there is evidence that increased utility-scale wind and solar reduced prices

MAY 13, 2025

After more than a decade of little change, U.S. electricity consumption is rising again

U.S. electricity consumption (1990–2026)

billion kilowatthours



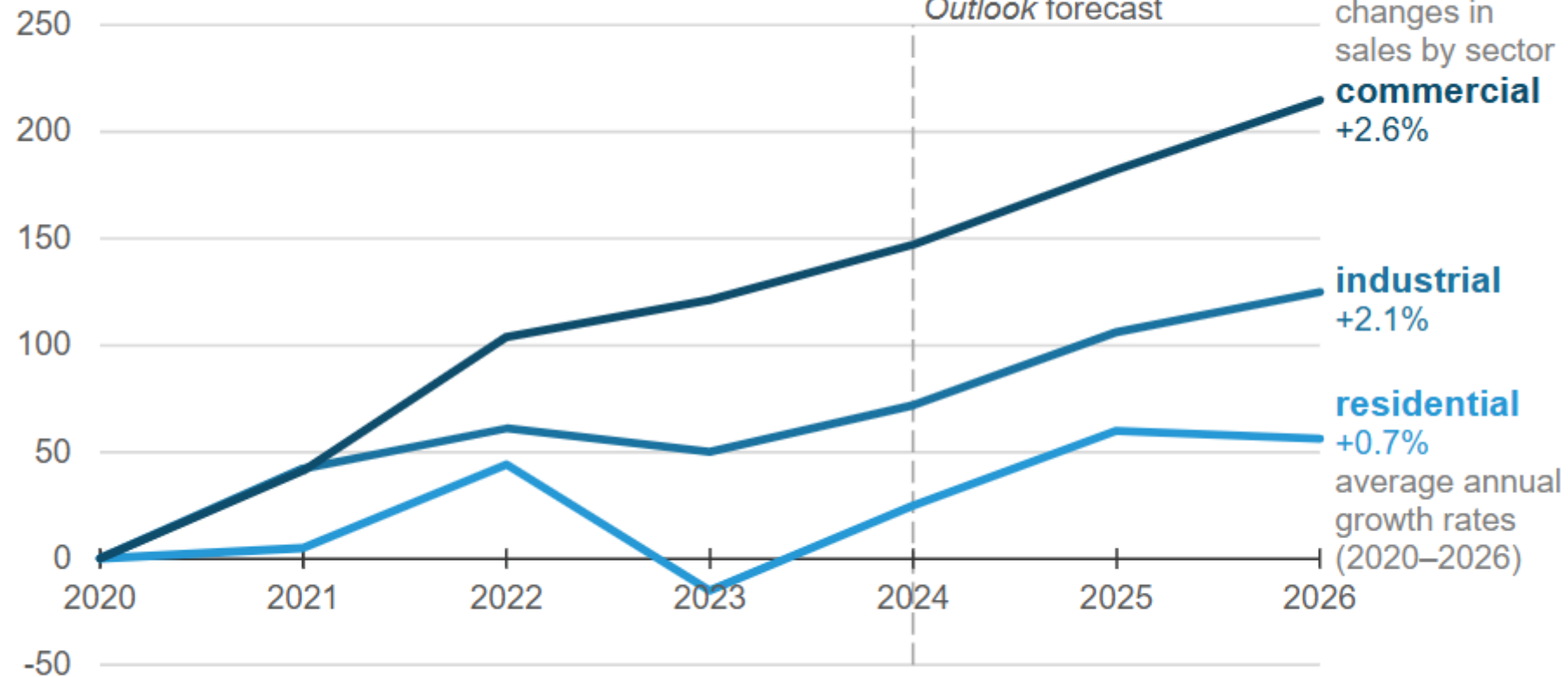
Data source: U.S. Energy Information Administration, [Monthly Energy Review](#) and [Short-Term Energy Outlook](#), May 2025

Data values: [Electricity Overview](#) (history) and [U.S. Electricity Industry Overview](#) (forecast)

U.S. electricity sales to ultimate customers (2020–2026)

change since 2020, billion kilowatthours

*Short-Term Energy
Outlook forecast*

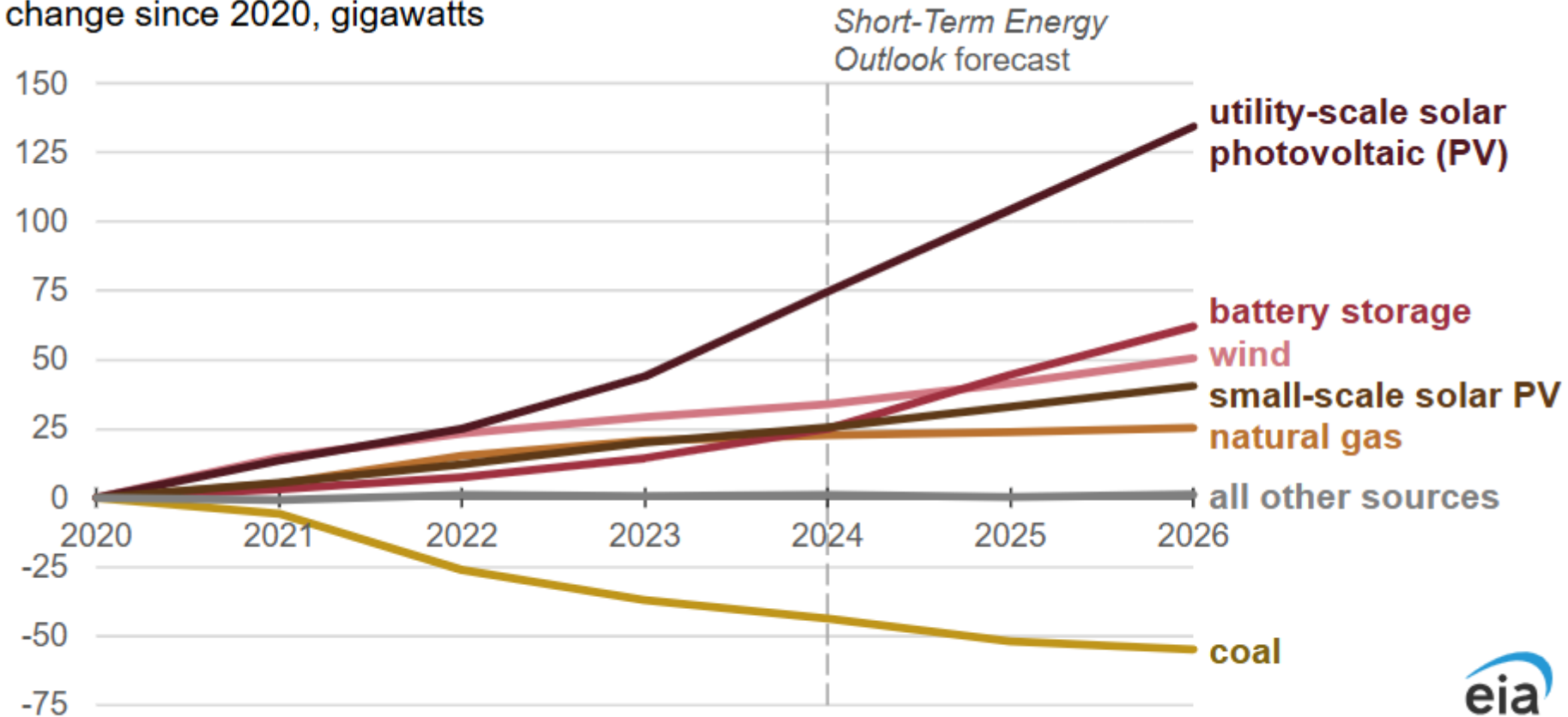


Data source: U.S. Energy Information Administration, *Short-Term Energy Outlook*, May 2025

Data values: U.S. Electricity Industry Overview

U.S. electric generating capacity (2020–2026)

change since 2020, gigawatts



Data source: U.S. Energy Information Administration, *Short-Term Energy Outlook*, May 2025

Data values: U.S. Electric Generating Capacity



SOURCES

- PSA/ETE (May 2025): <https://epsa.org/power-generation-costs-and-impacts-on-electric-bills/>
 - Lawrence Berkely National Laboratory/Brattle (Oct. 2025):
https://www.sciencedirect.com/science/article/pii/S1040619025000612?ref=pdf_download&fr=RR-2&rr=9952badb6f65f3ed
 - https://eta-publications.lbl.gov/sites/default/files/2025-10/presentation_retail_price_trends_drivers.pdf
 - EIA: [After more than a decade of little change, U.S. electricity consumption is rising again - U.S. Energy Information Administration \(EIA\)](#)
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