

Levelized Costs of New Generation Resources in the Annual Energy Outlook 2026



Introduction

- This document presents average values of levelized costs for new generation resources as represented in the National Energy Modeling System (NEMS) for our *Annual Energy Outlook 2026* (AEO2026) Counterfactual Baseline case and select side cases. The estimates include only resources owned by the electric power sector, not those owned by the residential or commercial sector.
- Levelized cost of electricity (LCOE) and levelized cost of storage (LCOS) represent the estimated costs required to build and operate a generator and diurnal storage, respectively, over a specified cost recovery period.
- Levelized avoided cost of electricity (LACE) is an estimate of the revenue available to that generator during the same period.
- Although LCOE, LCOS, and LACE do not fully capture all factors contributing to the capacity expansion decisions as modeled, when used together as a value-cost ratio (the ratio of LACE-to-LCOE or LACE-to-LCOS), they provide a reasonable comparison of first-order economic competitiveness among a wider variety of technologies than is possible using LCOE, LCOS, or LACE individually.
- We included both a capacity-weighted average reflecting as-built regional cost variation and a simple average (unweighted) of the regional values across the 25 U.S. supply regions¹ of the Electricity Market Module (EMM).
- We included only laws and regulations effective as of December 2025.

¹U.S. supply regions of Electricity Market Module, https://www.eia.gov/outlooks/aeo/pdf/nerc_map.pdf

General assumptions

The costs presented in the report are for generation facilities entering service in 2031, which is the first feasible common online year for all technologies given the long construction lead time for some technologies.

The levelized costs are calculated based on a 30-year cost recovery period, using an after-tax weighted average cost of capital (WACC) of 7.27% for the 2031 online year.

The capacity-weighted average is the average levelized cost per technology, weighted by the new capacity coming online in each region in 2031, excluding planned capacity additions. Technologies for which no capacity additions are projected do not have a capacity-weighted average.

We assume the solar technology is photovoltaic (PV) with single-axis tracking. A solar PV-battery (PV-battery) hybrid system is a single-axis PV system coupled with a four-hour battery storage system. Costs are expressed in terms of net AC (alternating current) power available to the grid for the installed capacity.

As modeled, we assume that hydroelectric generating assets are seasonal because generation is a function of seasonal rainfall. We include the PV-battery hybrid generating assets under resource-constrained technologies because they are limited in their daily output.

Technology-specific assumption of tax incentives, 2025 online year and forward

The One Big Beautiful Bill Act (OBBBA) of 2025 modifies provisions of the Inflation Reduction Act (IRA) of 2022 on technology eligibility for the PTC and the ITC as follows:

		2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	
PTC (cents per kilowatt-hour)	advanced nuclear	16.5															12.4	8.3		
	biomass	16.5															12.4	8.3		
	wind, onshore	16.5																		
	solar PV	15.0																		
	PV-battery hybrid ^a	15.0		3.0%									2.3%	1.5%						
ITC (percent of capital cost)	battery storage	30%										23%	15%							
	geothermal	30%														23%	15%			
	hydroelectric	30%														23%	15%			
	wind, offshore	30%																		

^aWe assume PV-battery hybrid takes the PTC until 2028. After that, the battery storage portion takes the ITC until the expiration.

Note: PTC cents/kWh are in 1992 dollars (kWh=kilowatthour). Tax value represents the total value of the production tax credit (PTC) or investment tax credit (ITC) as represented in the Levelized Tax Credit component of the LCOE. All shown technologies are assumed to comply with prevailing wage and apprenticeship requirements, and domestic content qualify as presented.

Carbon capture and sequestration

We estimate the levelized captured carbon credit that represents the revenue (negative cost) at a power plant with a carbon capture and sequestration (CCS) system.

The price of CO₂ is determined in NEMS, and it includes the cost to transport CO₂ for either saline formation storage or enhanced oil recovery (EOR) for oil wells, net policy revenue, and revenue from selling CO₂ to EOR sites.

The 45Q tax credits are as modified by the One Big Beautiful Bill Act of 2025 and available for the first 12 years of plant's operation with construction start date before 2033. In addition, we assume the prevailing wage and apprenticeship requirements are met for the additional bonus credit.

The Counterfactual Baseline includes the April 2024 finalized ruling of the U.S. Environmental Protection Agency (EPA) Section 111 of the Clean Air Act regulating CO₂ emissions from existing coal, oil, and natural gas-fired steam generating units and new natural gas-fired combustion turbines.¹

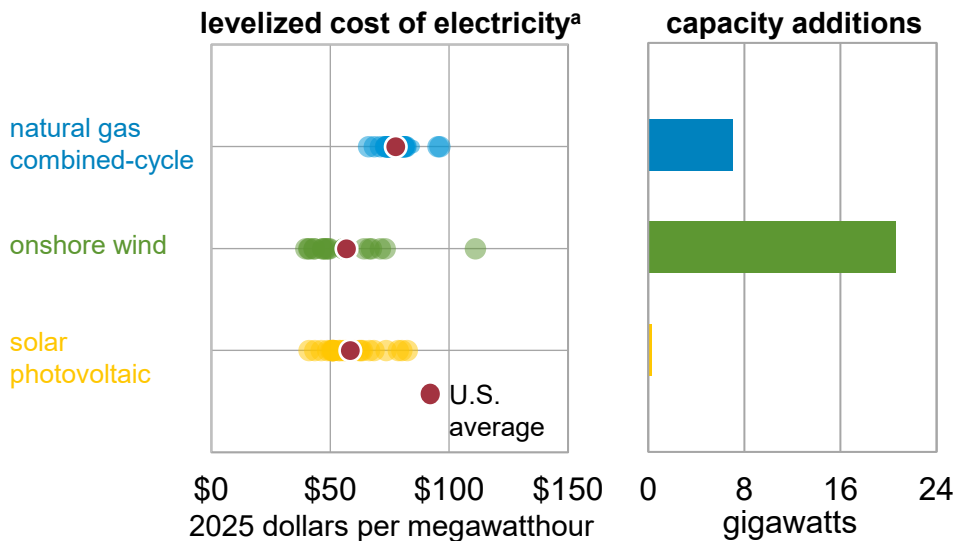
Part of the ruling requires that new natural gas-fired combustion turbines intended to run at greater than 40% capacity factor must operate with at least a 90% CO₂ removal rate CCS system by 2032. In AEO2026, we represent this operating restriction on any new natural gas-fired combined-cycle plants that are built without CCS.

We consider combustion turbines operating at or below a 40% capacity factor to be consistent with current efficient designs and the use of low-emitting fuel.

¹U.S. Environmental Protection Agency, [Greenhouse Gas Standards and Guidelines for Fossil Fuel-Fired Power Plants](#), April 25, 2024

Direct comparisons of LCOE or LCOS across technologies are misleading as a method to assess the economic competitiveness

Regional and U.S. average levelized cost of electricity and capacity additions for online year 2031 in AEO2026 Counterfactual Baseline case



LCOE does not capture all factors that contribute to investment decisions. The inherent uncertainty about future fuel prices, changing policies, or local considerations to ensure system reliability can place a value on portfolio diversification or other risk-related concerns.

In AEO2026, we project higher onshore wind capacity additions compared to the negligible additions of solar PV in 2031, even though the average LCOE is comparable. This suggests that adding onshore wind capacity to the grid provides greater value in certain regions that LCOE may not fully capture.

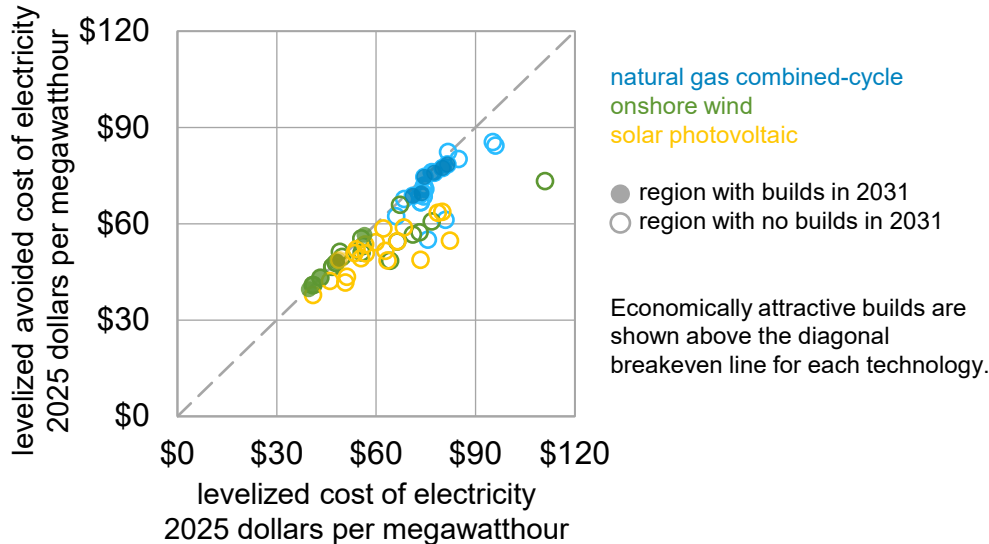
Data source: U.S. Energy Information Administration, Annual Energy Outlook 2026

Note: Each solid circle on the figure represents an electricity market region as modeled.

^aLevelized cost includes tax credits available for plants entering service during the projection period.

LCOE is limited because it only reflects the *cost* to build and operate a plant, not the *value* of the plant to the grid

Levelized cost of electricity^a and levelized avoided cost of electricity by region for online year 2031, AEO2026 Counterfactual Baseline case



We use LACE as a companion metric to LCOE. This method improves comparisons of different generation technologies by providing the value of the plant serving the electric grid.

The LACE (value) provides a proxy measure for potential revenues (or avoided costs) from the sales of electricity or other ancillary services produced from a candidate project displacing another marginal asset.

Projects with LACE (value) greater than LCOE or LCOS (cost) are more economically attractive to build than those with a value-cost ratio less than one (that is, LACE is less than LCOE or LCOS).

Data source: U.S. Energy Information Administration, Annual Energy Outlook 2026

^aLevelized cost includes tax credits available for plants entering service during the projection period.

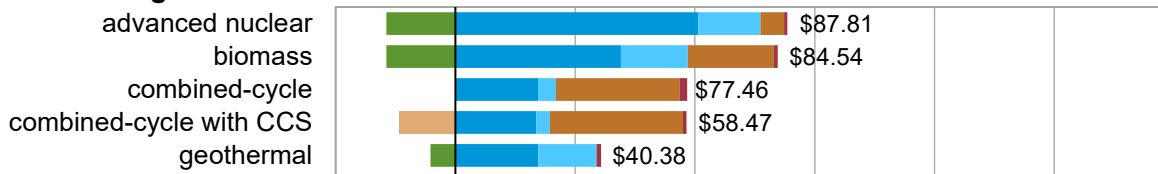
Estimated average levelized cost of electricity (LCOE) and levelized cost of storage (LCOS) for new resources entering service in 2031

Average levelized cost of electricity and levelized cost of storage for new resources entering service in 2031 by technology, AEO2026 Counterfactual Baseline case

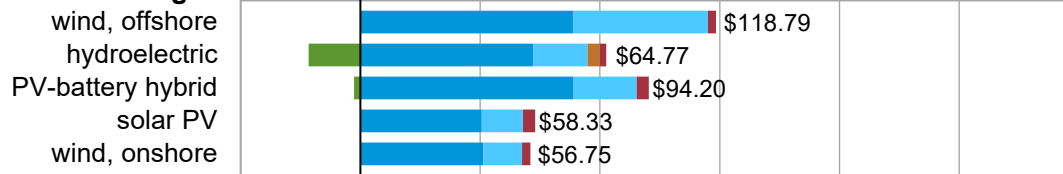
2025 dollars per megawatthour



dispatchable technologies



resource-constrained technologies



capacity resource technologies



levelized capital cost
 levelized fixed O&M
 levelized variable O&M
 levelized transmission cost
 levelized tax credit
 levelized captured carbon credit

-\$40 \$0 \$40 \$80 \$120 \$160 \$200 \$240

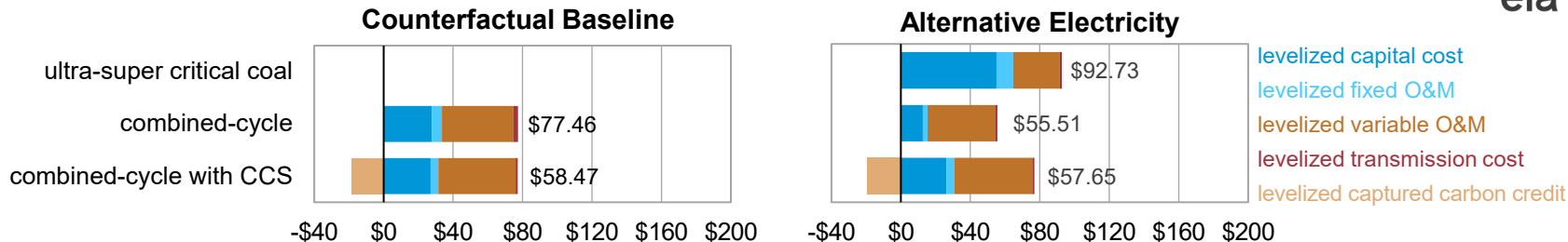
Data source: U.S. Energy Information Administration, Annual Energy Outlook 2026

Note: The stated LCOE values include the levelized tax credit component for eligible technologies. CCS=carbon capture & sequestration, PV=photovoltaic, O&M=operations and maintenance

Comparing the effects of EPA 111 regulations on estimated levelized cost of electricity (LCOE) for select new resources entering service in 2031

Average levelized cost of electricity for new resources entering service in 2031 for select thermal technologies, AEO2026 Counterfactual Baseline and Alternative Electricity cases

2025 dollars per megawatthour



The Alternative Electricity case assumes the requirements of the final Clean Air Act's Section 111 rule issued in April 2024 are repealed. As a result, coal-fired power plants remain an available option for capacity expansion, whereas they are excluded in the Counterfactual Baseline case.

New natural gas-fired combined-cycle units also have no restrictions on operating hours in the Alternative Electricity case, spreading fixed cost components over more generation. The levelized variable O&M component, however, remains similar between the two cases because fuel costs are largely the same.

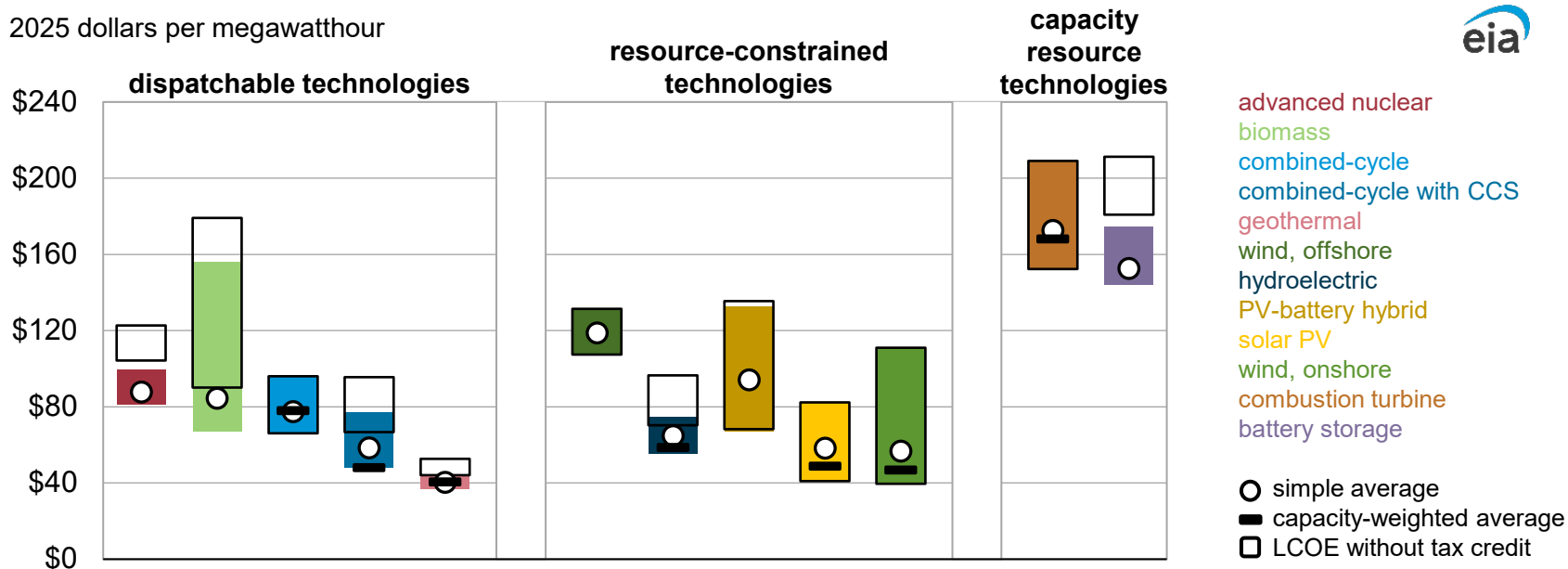
Data source: U.S. Energy Information Administration, Annual Energy Outlook 2026

Note: CCS=carbon capture & sequestration, O&M=operations and maintenance

Natural gas combined-cycle with CCS is cost competitive because of tax credit and higher allowable capacity factor under EPA Section 111 regulations

Regional variation in levelized cost of electricity (LCOE) and levelized cost of storage (LCOS) for new resources entering service in 2031 by technology, AEO2026 Counterfactual Baseline case

2025 dollars per megawatthour



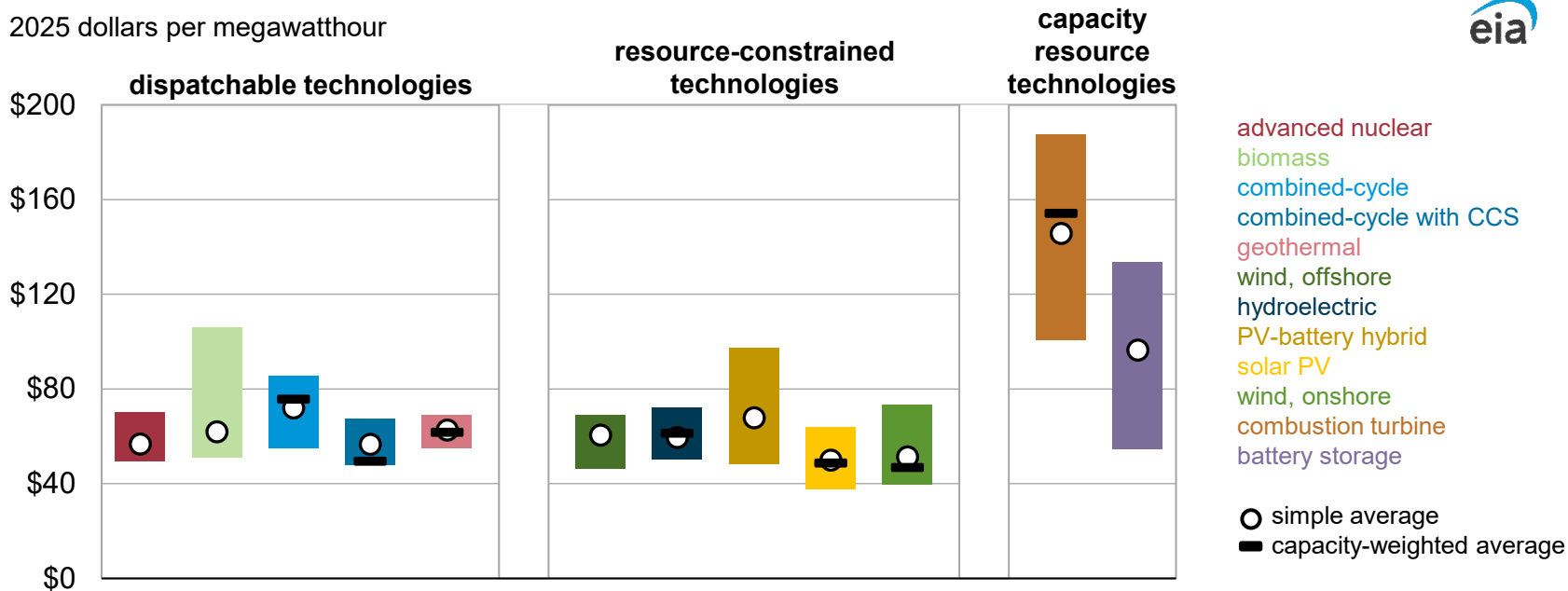
Data source: U.S. Energy Information Administration, Annual Energy Outlook 2026

Note: Technologies with no additions in 2031 do not have a capacity-weighted average. CCS=carbon capture & sequestration, PV=photovoltaic

LACE for some resource-constrained technologies is lower because of their lower contribution for energy, capacity, and spinning reserve to the grid

Regional variation in levelized avoided cost of electricity (LACE) for new resources entering service in 2031 by technology, AEO2026 Counterfactual Baseline case

2025 dollars per megawatthour

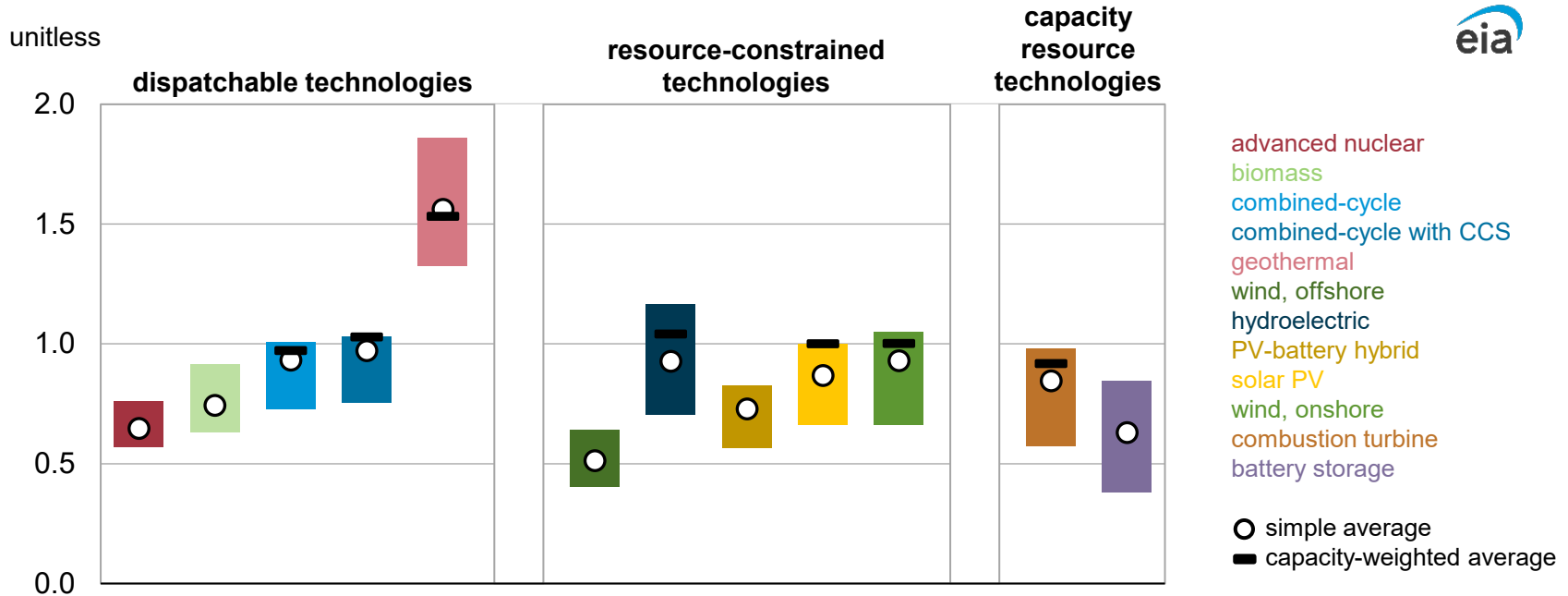


Data source: U.S. Energy Information Administration, Annual Energy Outlook 2026

Note: Technologies with no additions in 2031 do not have a capacity-weighted average. CCS=carbon capture & sequestration, PV=photovoltaic

Capacity-weighted value-cost ratio stays above simple average value-cost ratio, indicating capacity is added in regions where it is most economical

Regional variation in value-cost ratio (VCR) for new resources entering service in 2031 by technology, AEO2026 Counterfactual Baseline case

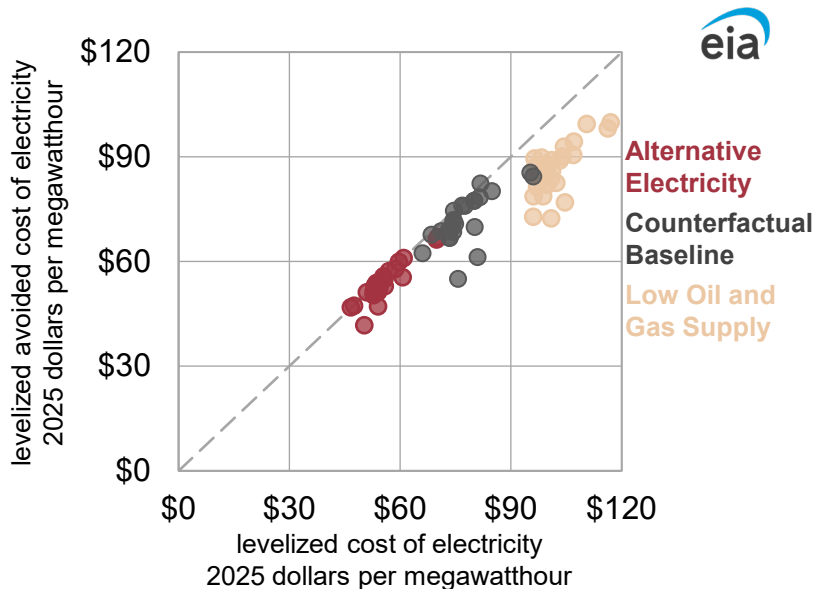


Data source: U.S. Energy Information Administration, Annual Energy Outlook 2026

Note: Technologies with no additions in 2031 do not have a capacity-weighted average. CCS=carbon capture & sequestration, PV=photovoltaic

Multiple factors affect LCOE, LACE, and value-cost ratio differently at regional level, making the context of projection scenarios important

Levelized cost of electricity and levelized avoided cost of electricity for combined-cycle plants entering service in 2031, AEO2026 select cases



LCOE is lower in the Alternative Electricity case because the capacity factor is not limited at 40%, like in the Counterfactual Baseline case, distributing the same costs over more generation. LACE is also lower because fewer hours are available to contribute toward spinning reserves. Although capacity revenue is the same in both cases, the Alternative Electricity case has higher expected annual generation, which leads to lower capacity payment per megawatthour compared with the Counterfactual Baseline case.

Higher natural gas prices in the Low Oil and Gas Supply case lead to higher fuel cost and higher LCOE compared with the Counterfactual Baseline case. Higher natural gas prices, however, also lead to higher realized electricity prices and subsequently higher revenue that increase LACE when compared with the Counterfactual Baseline case.

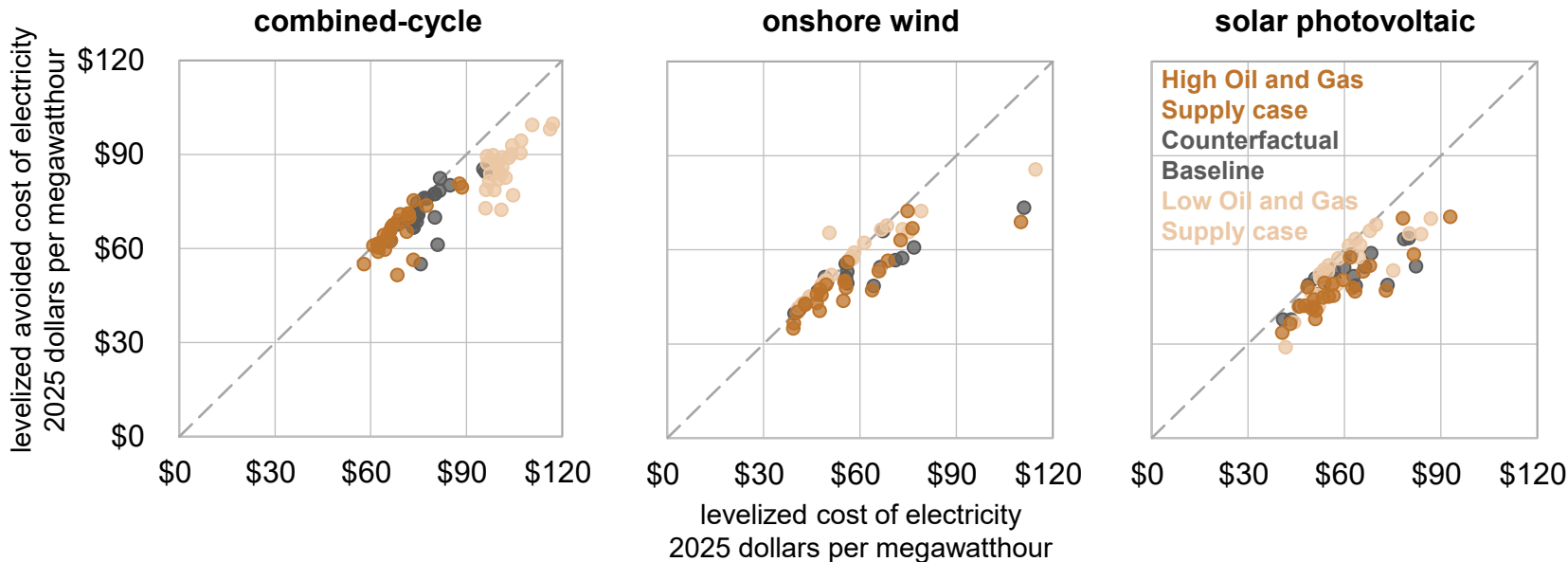
Data source: U.S. Energy Information Administration, Annual Energy Outlook 2026

Natural gas combined-cycle generally breakeven, but it is sensitive to natural gas prices that allow other technologies to become competitive

Levelized cost of electricity and levelized avoided cost of electricity by region for selected generation technologies in AEO2026, 2031 online year



2025 dollars per megawatthour



Data source: U.S. Energy Information Administration, Annual Energy Outlook 2026

For more information

U.S. Energy Information Administration home page | www.eia.gov

Annual Energy Outlook | www.eia.gov/aeo

Levelized Cost of New Generation Resources Methodology | https://www.eia.gov/outlooks/aeo/electricity_generation/pdf/LCOE_methodology.pdf