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2025 Sustainable Energy in America Factbook

Tuesday, April 01, 2025

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A bipartisan Congressional caucus founded EESI in 1984 to provide nonpartisan information on environmental, energy, and climate policies



Direct Assistance for Equitable and Inclusive Financing Program

In addition to a full portfolio of federal policy work, EESI provides direct assistance to utilities to develop “on-bill financing” programs



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We recognize that systemic barriers impede fair environmental, energy, and climate policies and limit the full participation of Black, Indigenous, people of color, and legacy and frontline communities in decision-making



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Sustainable Energy in America **2025 Factbook**

 **The Business Council**
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BCSE 2025 FACTBOOK BRIEFING

Congressional Staff

April 1, 2025



Sustainable Energy in America **2025 Factbook**

Tracking Market & Policy Trends

BloombergNEF



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Lisa Jacobson

President
Business Council for
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BCSE advocates for policies that promote clean, efficient, and sustainable energy products, technologies and services.



BCSE supports business development, networking and knowledge exchange among its members and networks.



BCSE provides a credible, broad-based business coalition on clean energy market trends and policy impacts.



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Derrick Flakoll

Senior Policy Associate, North
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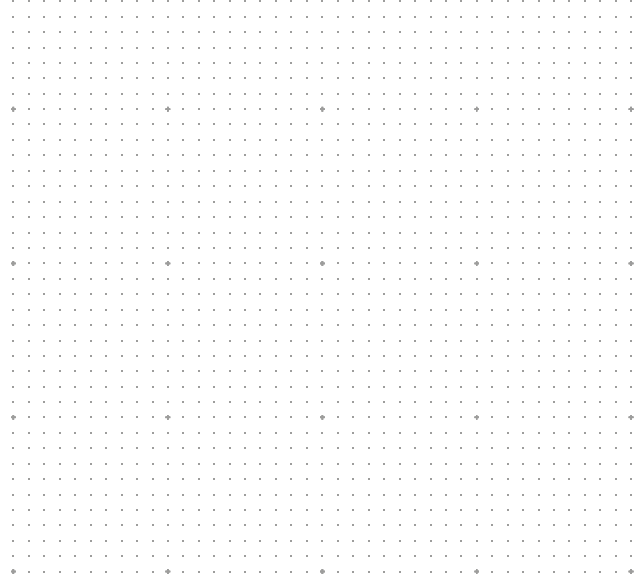
Sustainable Energy in America Factbook

EESI Congressional Briefing

BNEF

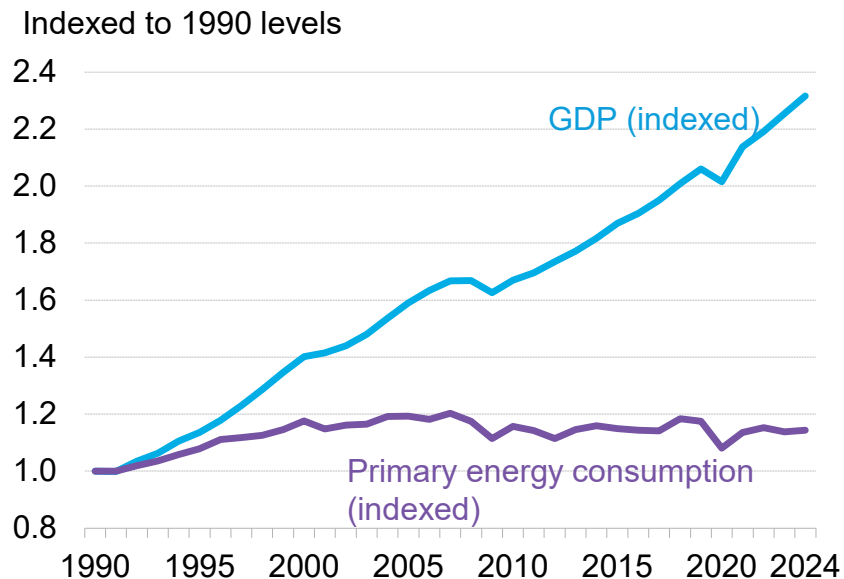
BloombergNEF

2024 At a Glance

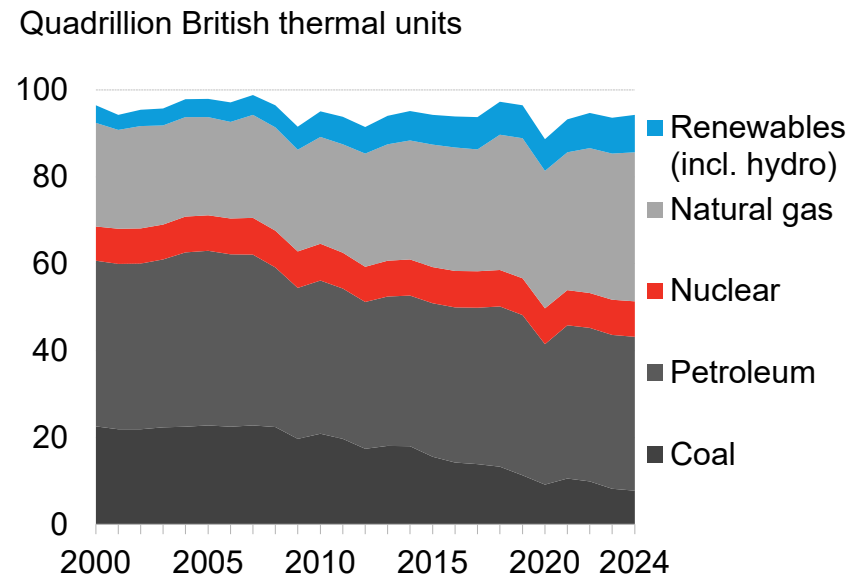


Primary energy consumption

US GDP (real) and primary energy



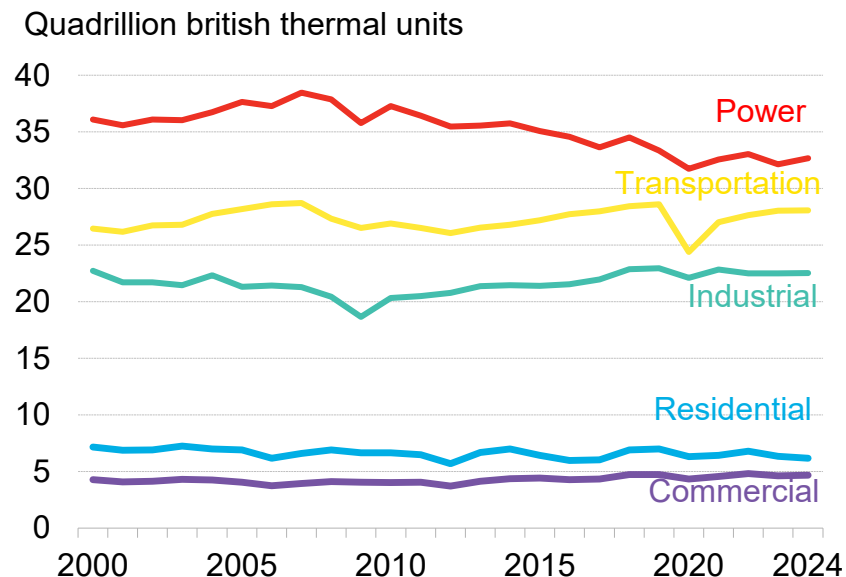
US energy consumption, by fuel



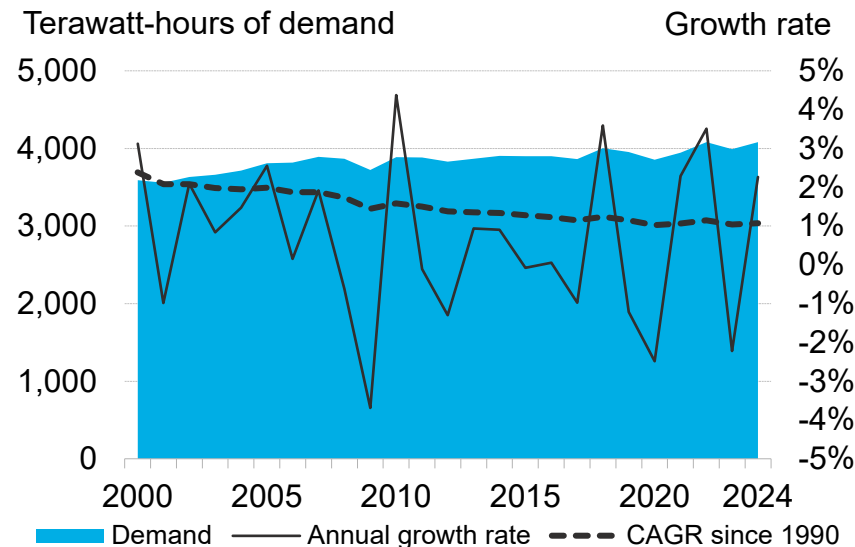
Source: Bureau of Economic Analysis, EIA, BloombergNEF. Note: Values for 2024 are projected, accounting for seasonality, based on latest monthly values from EIA (data available through September 2024).

Energy and electricity consumption

US sectoral primary energy consumption

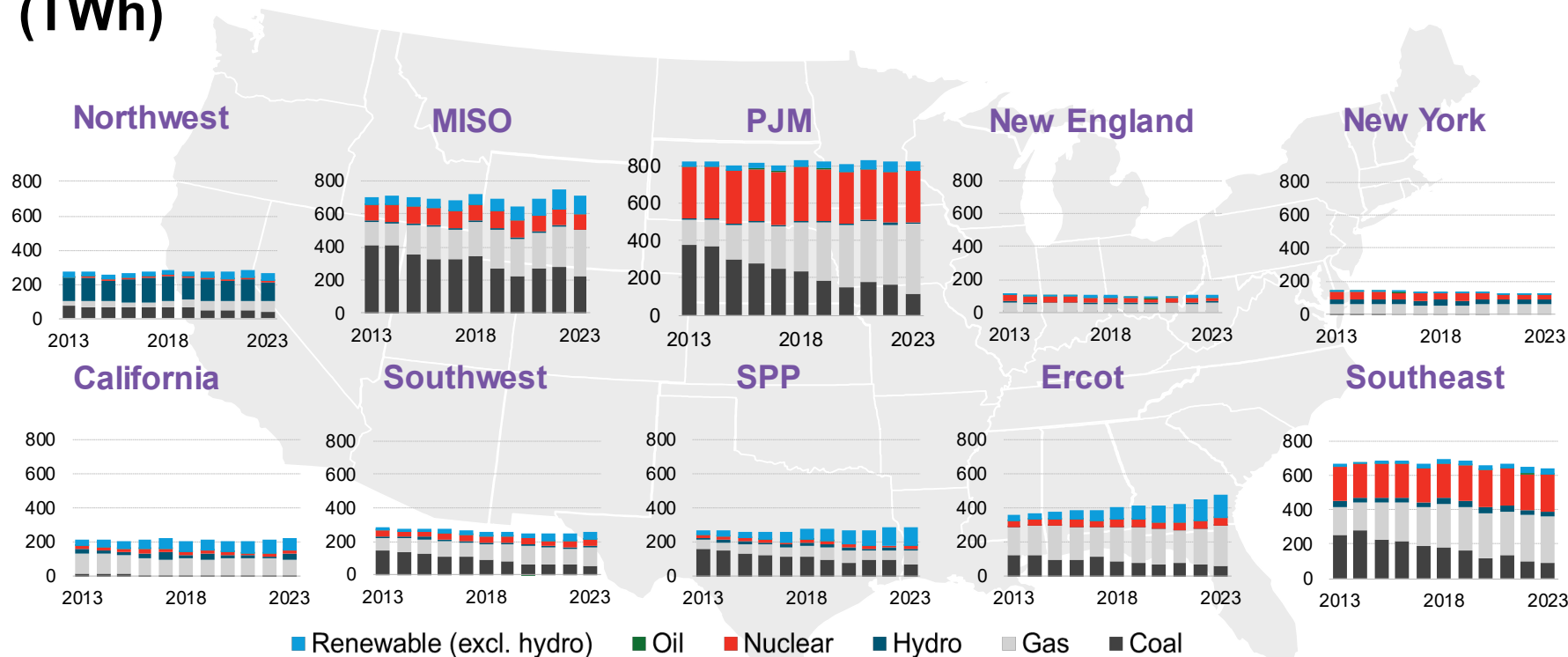


US electricity demand



Source: EIA, EPA, BloombergNEF. Note: Values for 2024 are projected, accounting for seasonality, based on latest monthly values from the EIA (data available through September 2024). Electricity is excluded from industrial, residential, commercial and transportation sectors and aggregated in "power" in the left-hand chart. "CAGR" in the right-hand chart is compound annual growth rate. BTU stands for British thermal units.

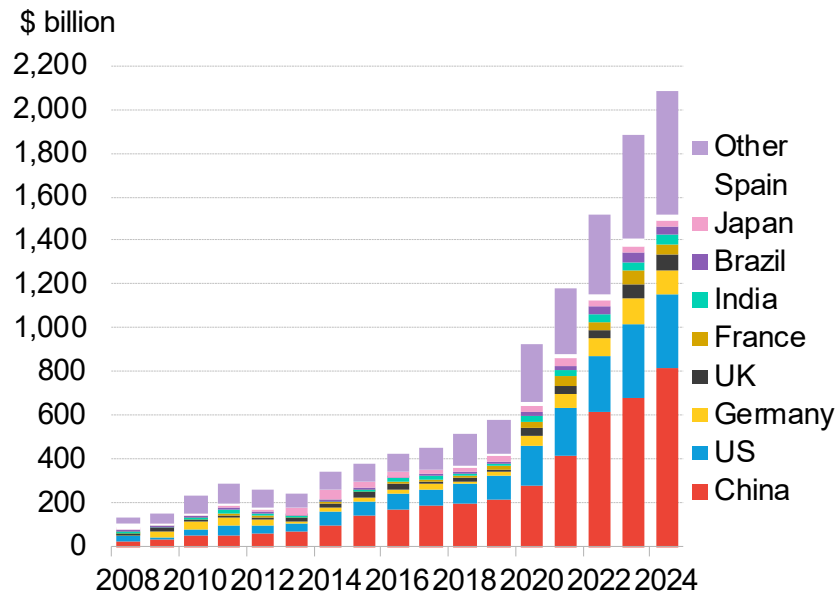
Electricity generation mix by power market (TWh)



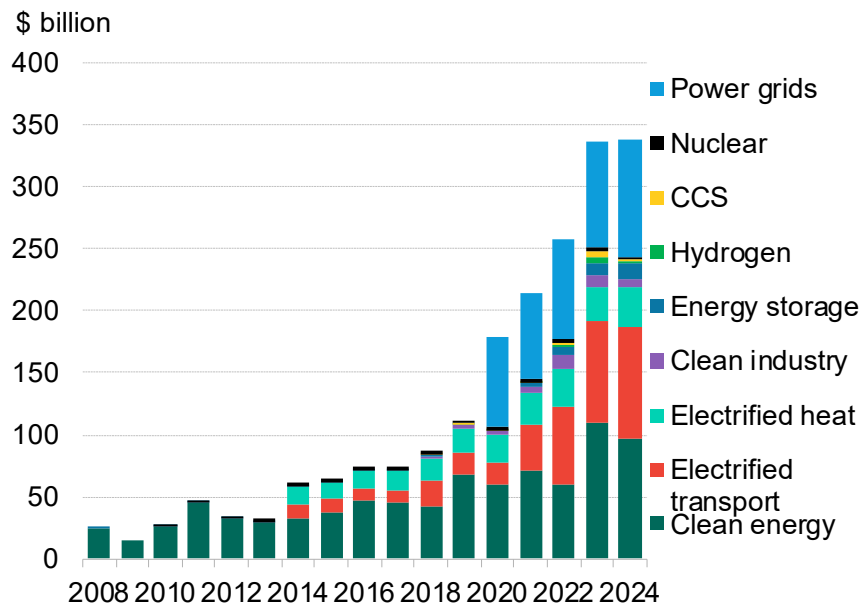
Source: US Energy Information Administration, BloombergNEF. Notes: MISO (Midcontinent Independent System Operator) is the Midwest region; PJM (PJM Interconnection) is the Mid-Atlantic region; SPP (Southwest Power Pool) covers the central southern US; Ercot (Electric Reliability Council of Texas) covers most of Texas.

Energy transition investment

Energy transition investment, by market



US energy transition investment, by sector

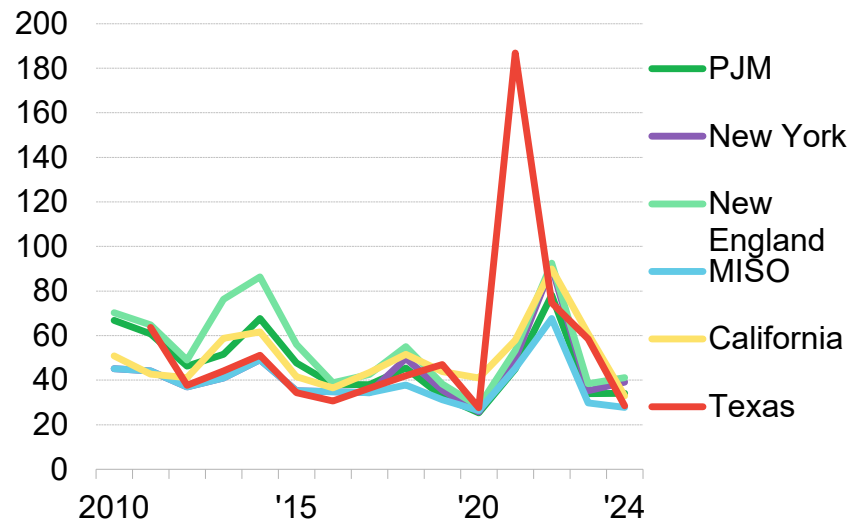


Source: BloombergNEF, Energy Transition Investment Trends database. Note: Start years differ by sector, but all sectors are present from 2020 onwards. Most notably, nuclear figures start in 2015 and power grids in 2020. CCS refers to carbon capture and storage.

Retail and wholesale power prices

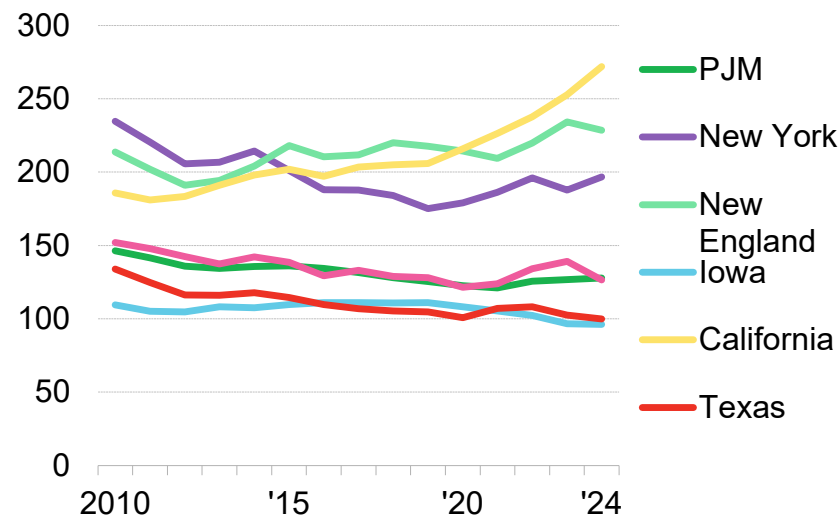
Wholesale power prices

\$ per megawatt-hour (real-2024)



Retail power prices

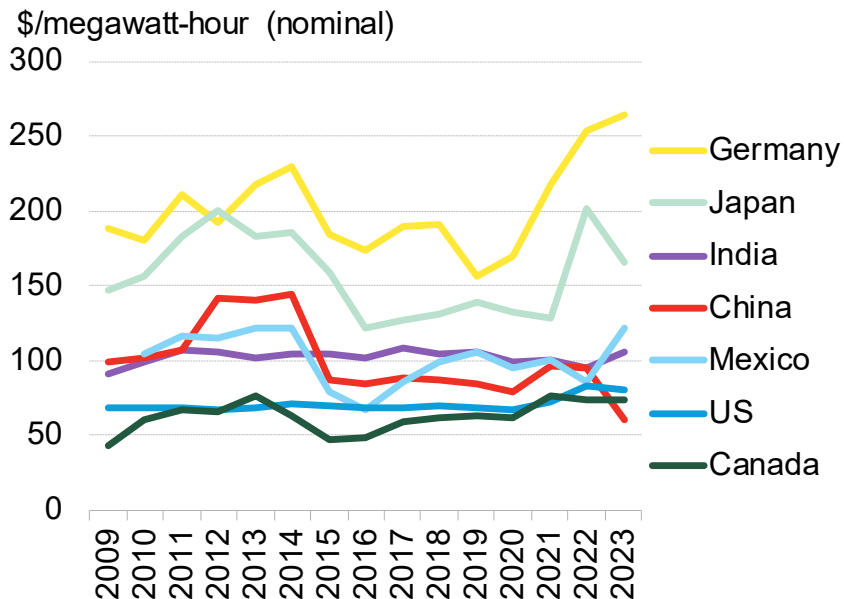
\$ per megawatt-hour (real-2024)



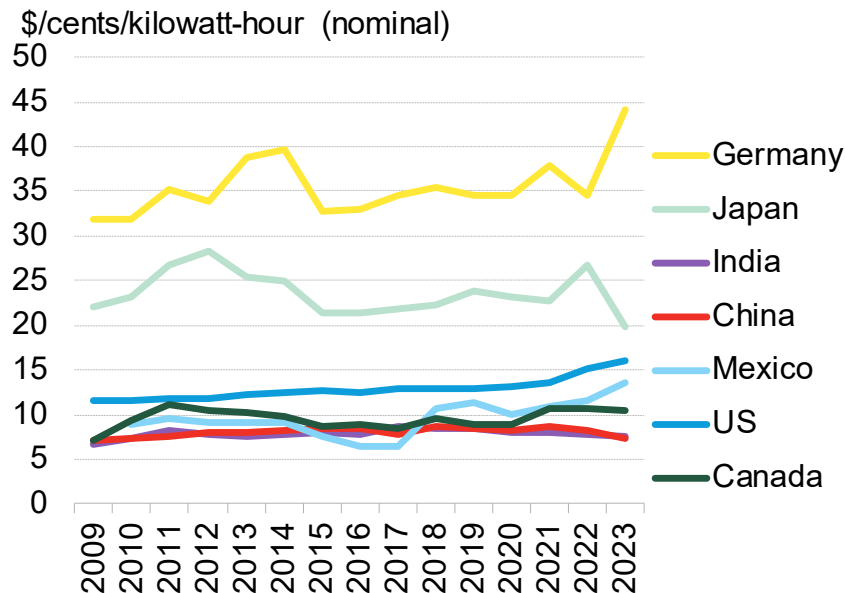
Source: BloombergNEF, US Energy Information Agency, Bloomberg Terminal. Note: Wholesale prices are taken from proxy power hubs in each independent system operator (ISO). All prices are in real 2024 USD. Retail power prices shown here are not exact retail rates but weighted averages across all rate classes by state, as published by the US Energy Information Administration. Retail prices are updated through September 2024. MISO is the Midwest region; PJM is the Mid-Atlantic region.

Average electricity rates by country

Industrial power prices



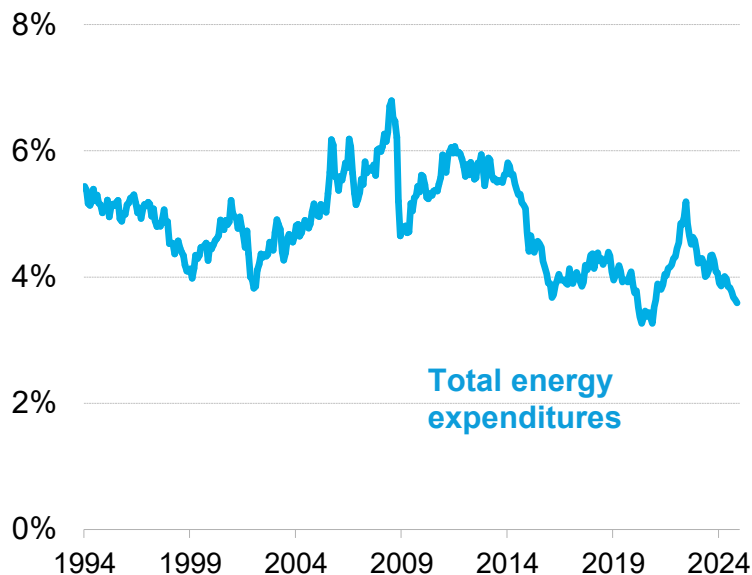
Residential power prices



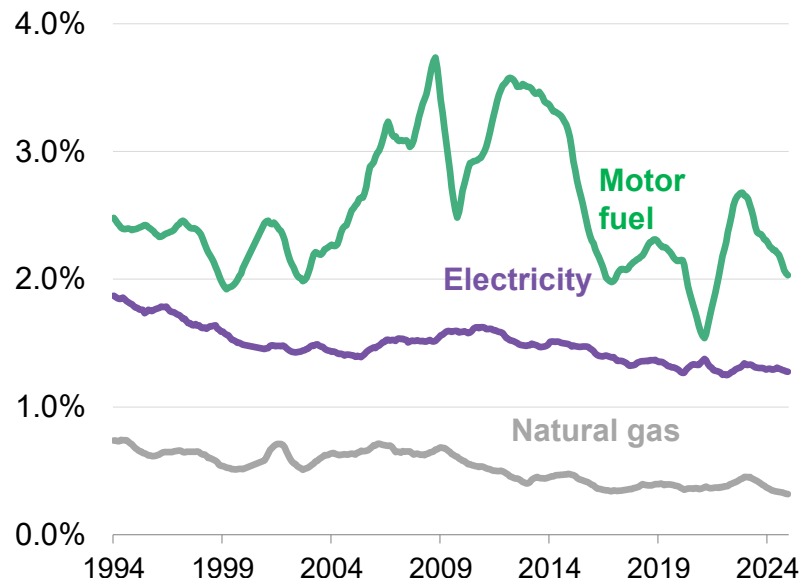
Source: BloombergNEF, government sources (US Energy Information Administration for the US). Note: Prices are averages (and in most cases, weighted averages) across all regions within the country. Japanese data are for the commercial and industrial (C&I) segment

Energy as a share of personal consumption expenditures

Total energy goods and services as share of total consumption expenditure



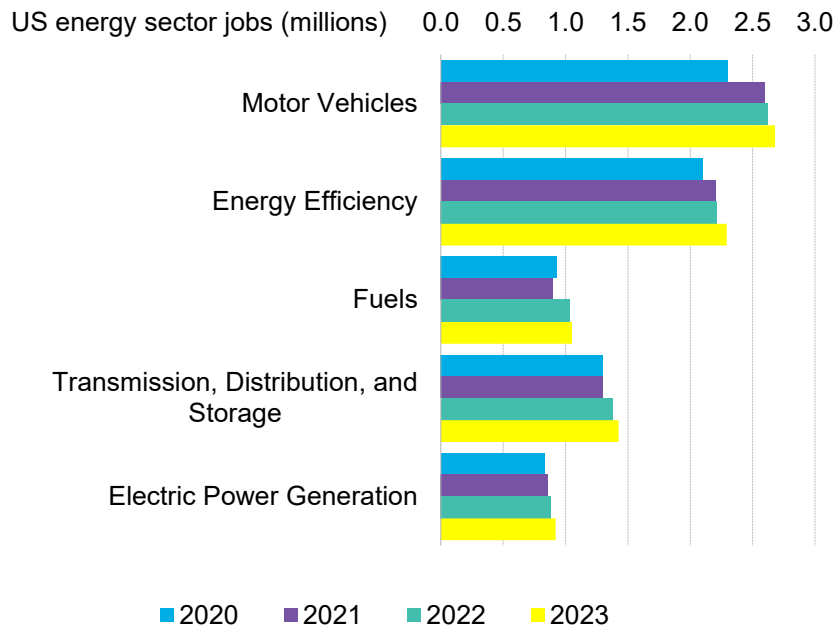
Components of total consumption expenditure, 12-month rolling average



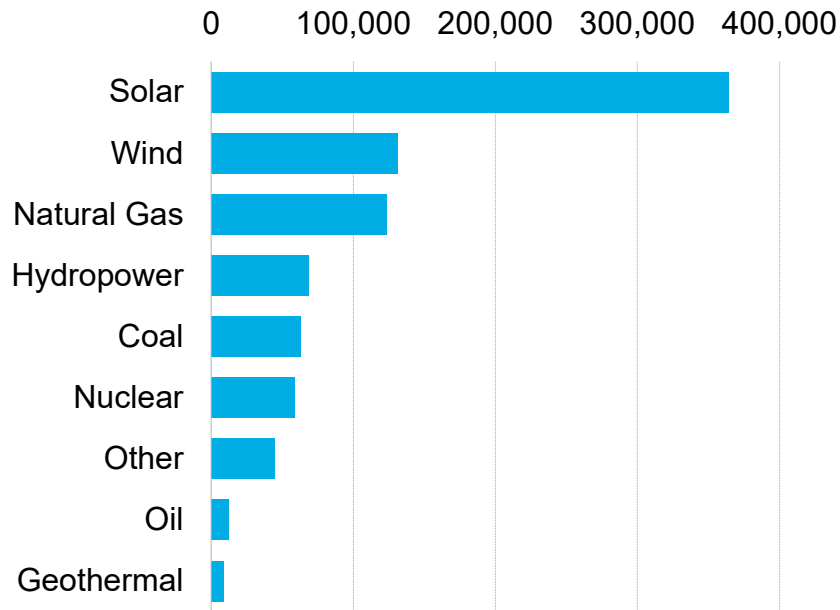
Source: Bureau of Economic Analysis "Table 2.4.5U. Personal Consumption Expenditures by Type of Product", BloombergNEF.

Jobs in select segments of the energy sector

Jobs in select energy segments, 2019-23

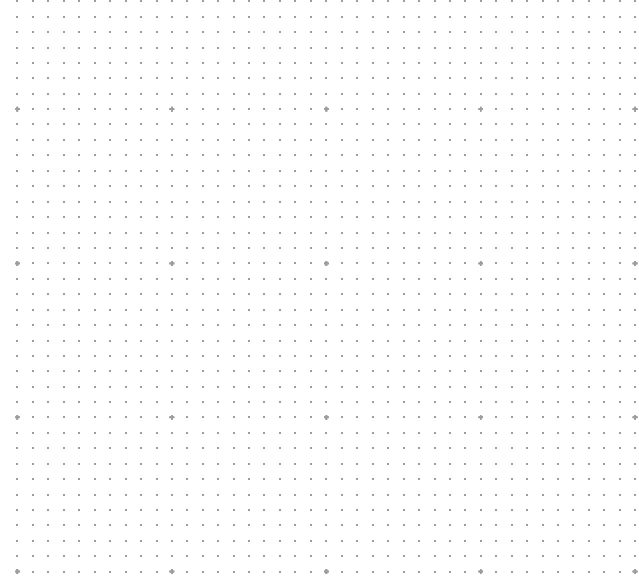


Jobs by power-generating technology, 2023



Source: US Department of Energy's 2024 Energy & Employment Report

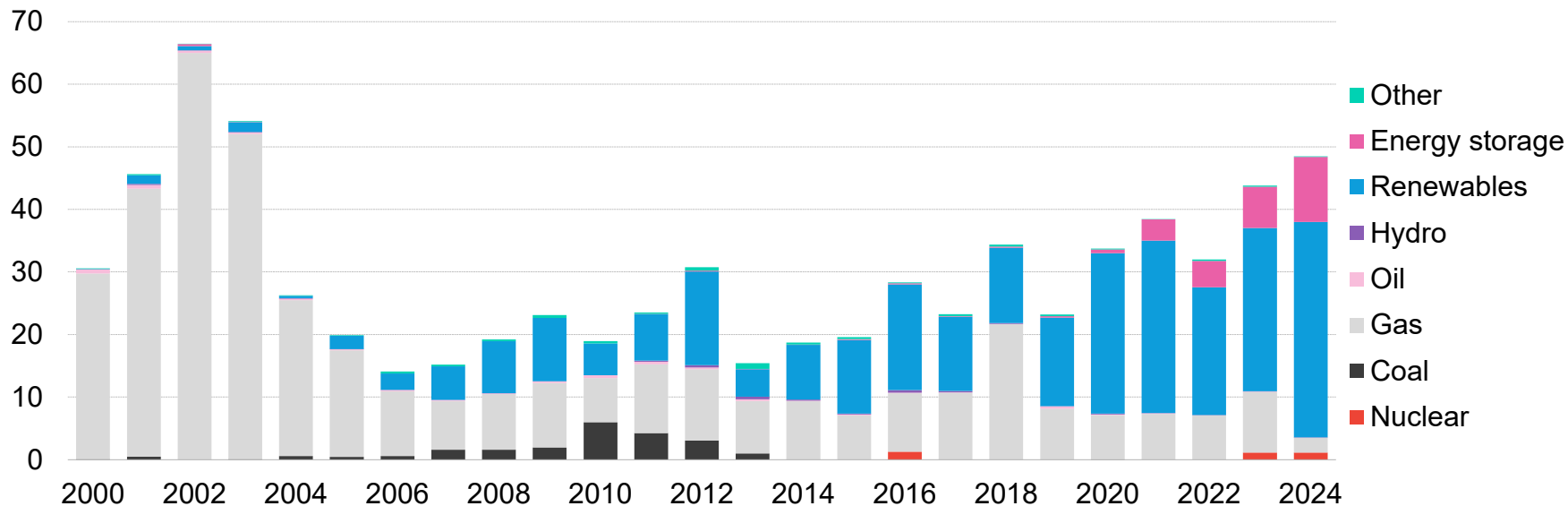
Key Trends



Electric generating capacity build, by fuel type

US new electric generating capacity build, by fuel type

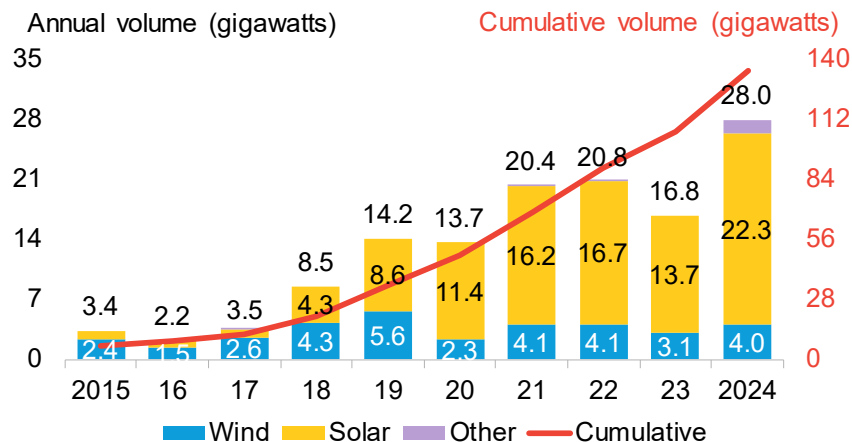
Gigawatts



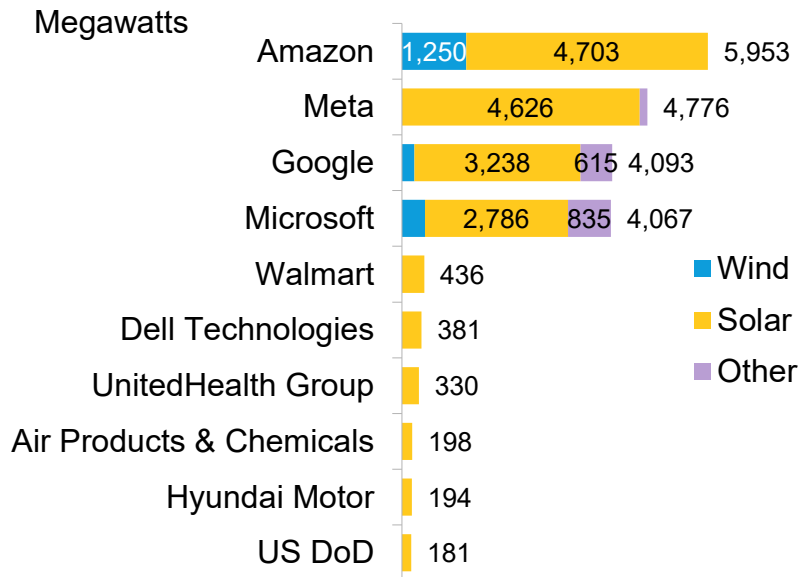
Source: EIA, BloombergNEF. Note: Solar capacity counted in alternating current (AC) terms to enable a comparison to other grid-facing technology. Distributed rooftop solar not included.

Corporate procurement expands

Renewable capacity contracted by corporations, by sector

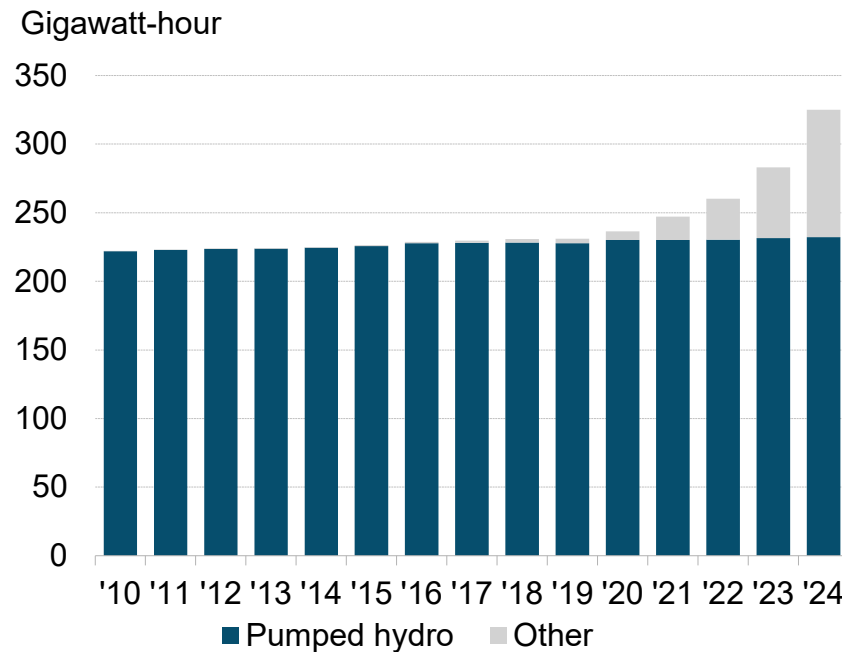
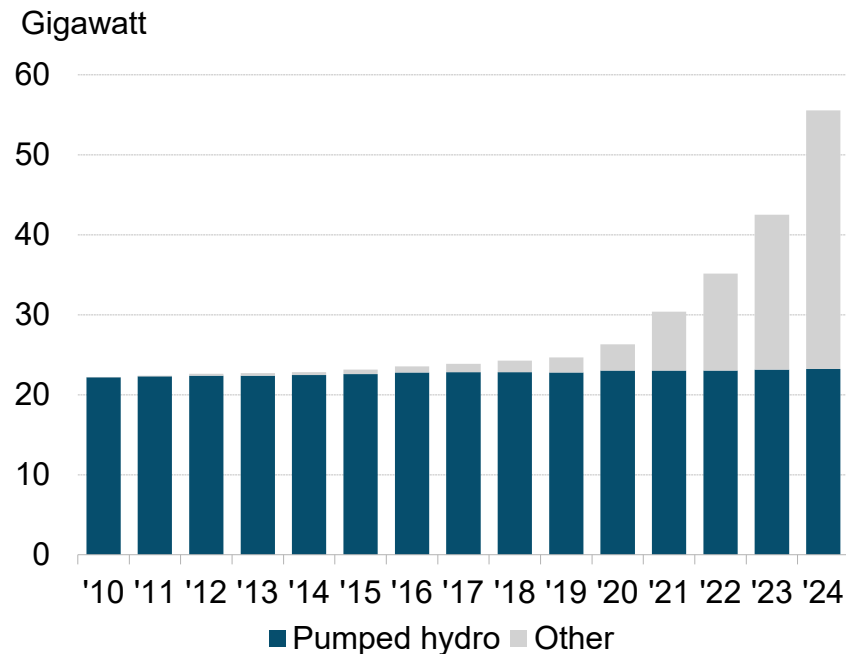


Largest corporate offtakers in the US, 2024



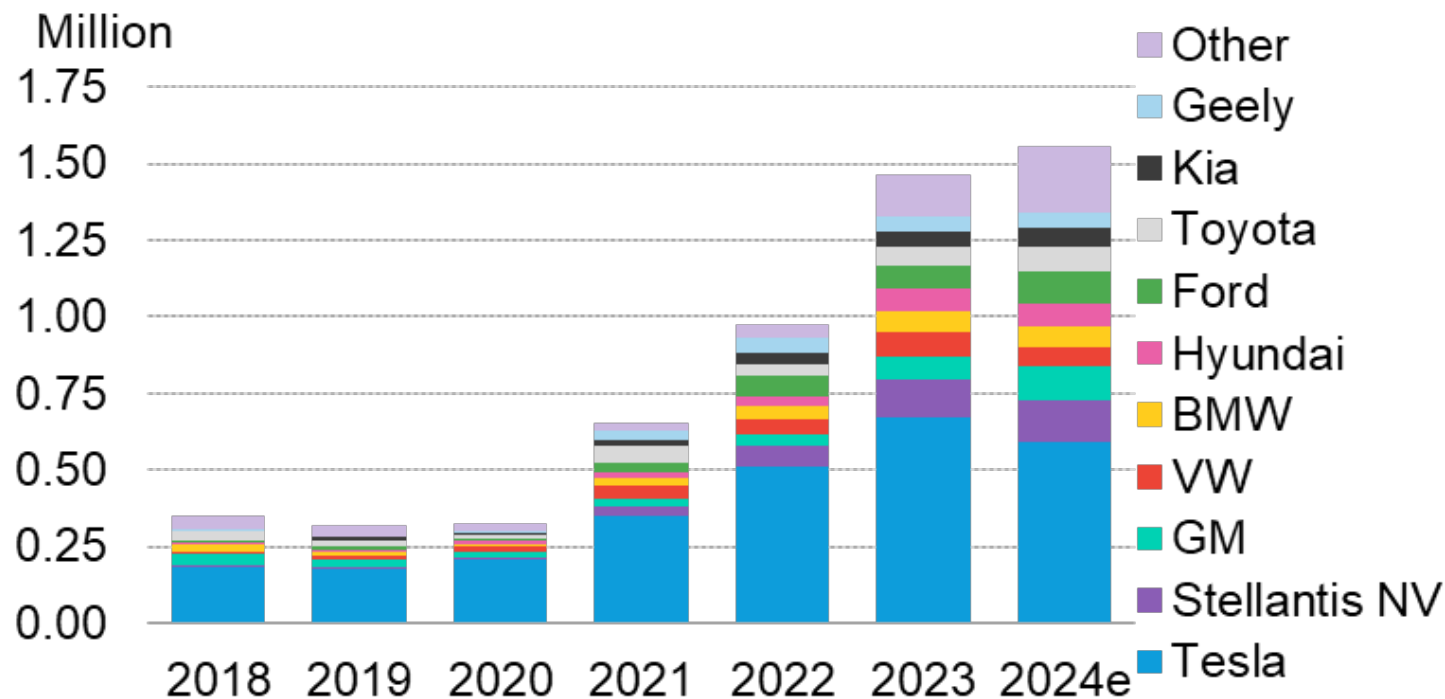
Source: BloombergNEF. Note: Charts show offsite PPAs only. The 'Other' sector includes nuclear and geothermal. US DoD is United States Department of Defense.

US cumulative energy storage



Source: US Energy Information Administration, Federal Energy Regulatory Commission (FERC), BloombergNEF. Note: "Other" primarily represents lithium-ion batteries but includes projects where the technology is unknown. Assumes ten hour discharge duration for pumped hydro facilities.

Electric vehicle sales

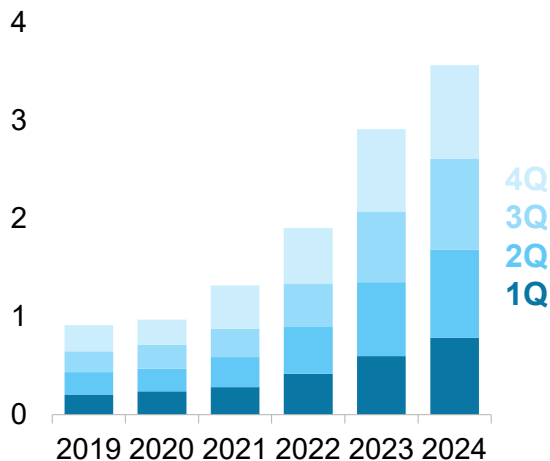


Source: BloombergNEF, Marklines

Renewable fuel supply continues to climb to new highs

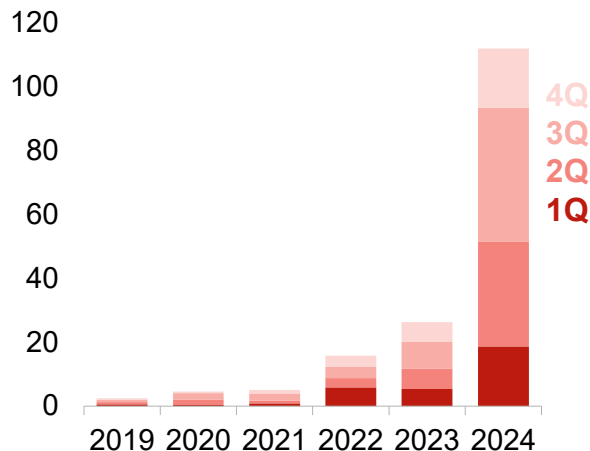
US renewable diesel supply

Billion gallons



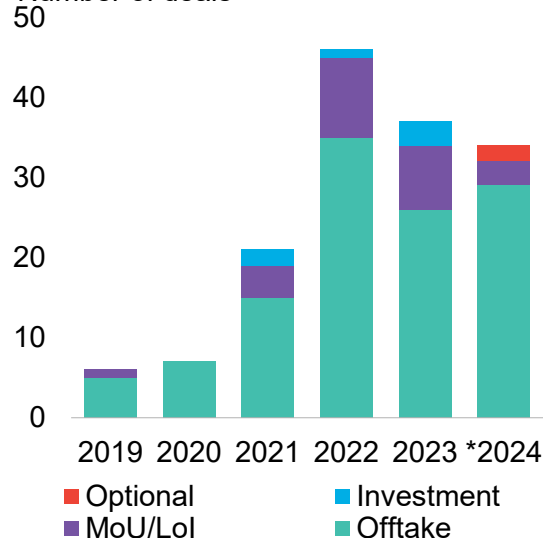
US SAF supply

Million gallons



Airlines' SAF procurement agreements

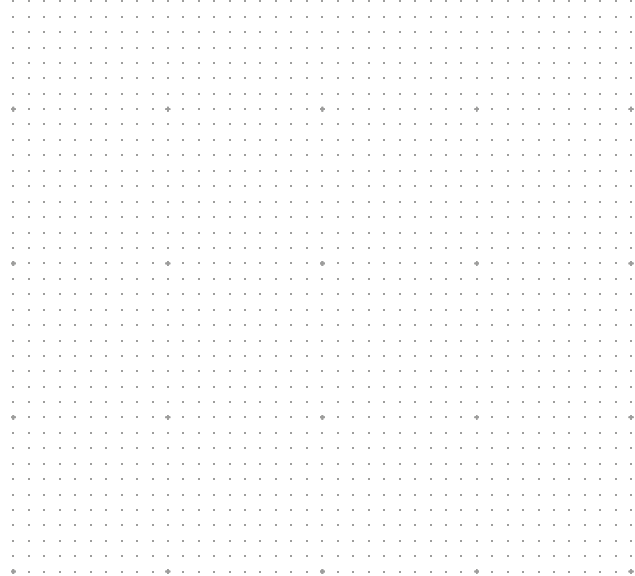
Number of deals



Source: BloombergNEF, EPA, company press releases, ICAO, US Securities and Exchange Commission. Note: SAF stands for sustainable aviation fuel, Lol stands for letter of intent, MoU stands memorandum of understanding.

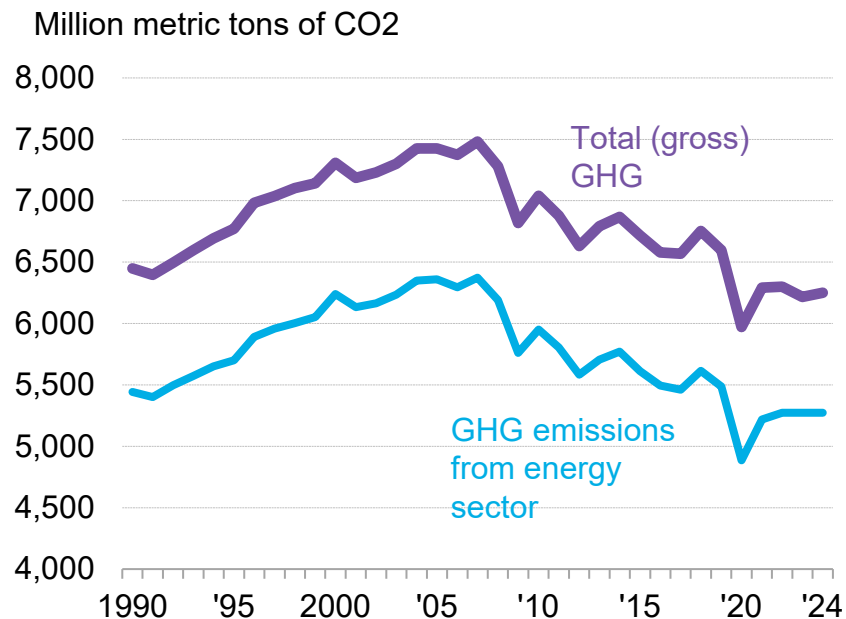
Room for improvement

Where more progress can be
made



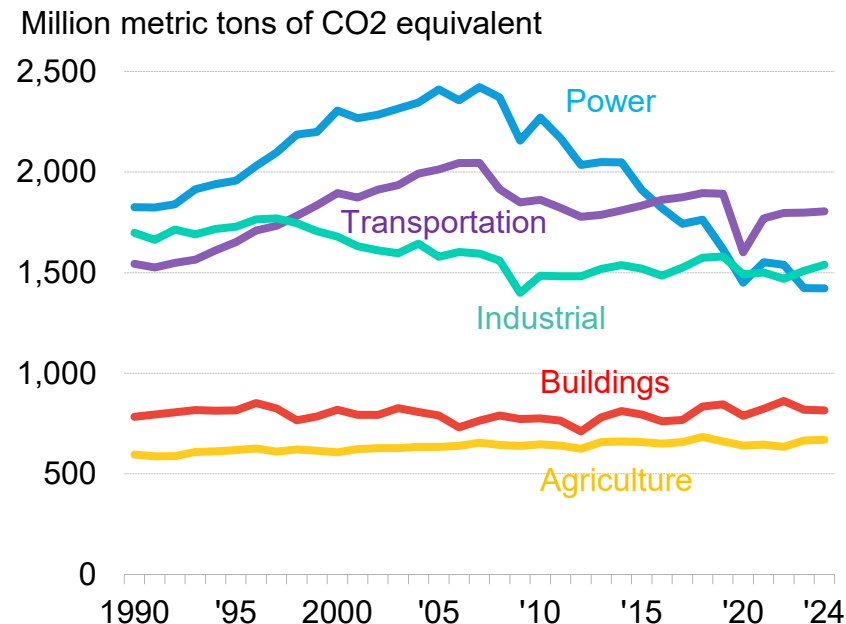
Greenhouse gas emissions

Economy-wide and energy sector emissions

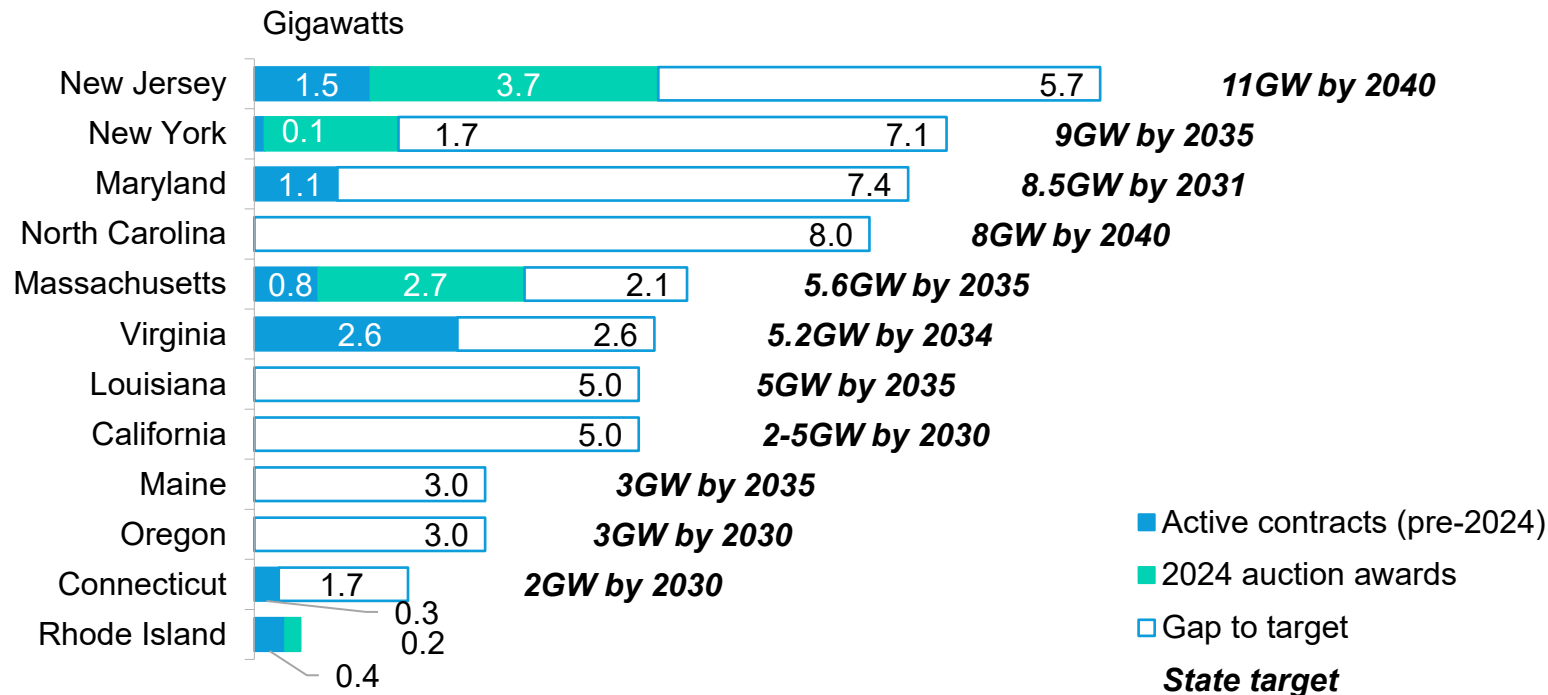


Source: BloombergNEF, US Energy Information Administration, US Environmental Protection Agency. Note: GHG stands for greenhouse gas.

Emissions by sector



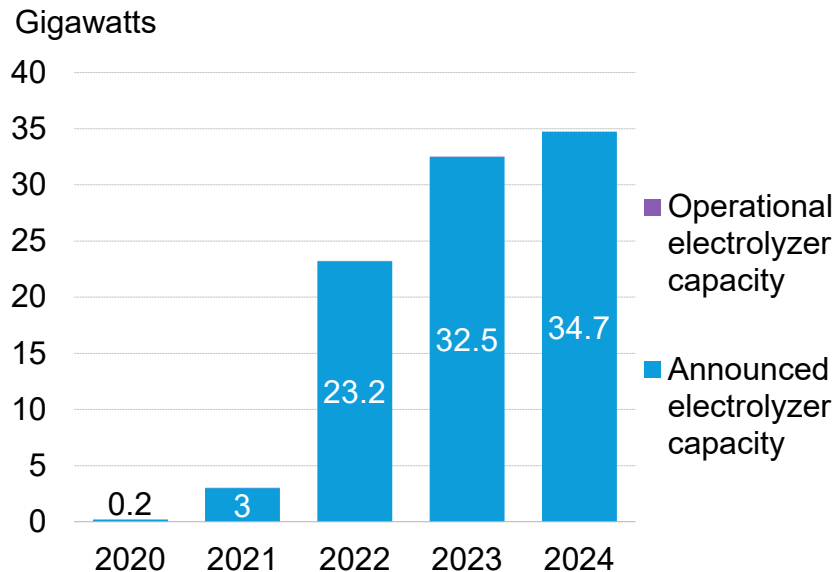
Status of contracted offshore wind capacity and targets across US states



Source: BloombergNEF, news reports, company filings and announcements. Note: GW is gigawatts.

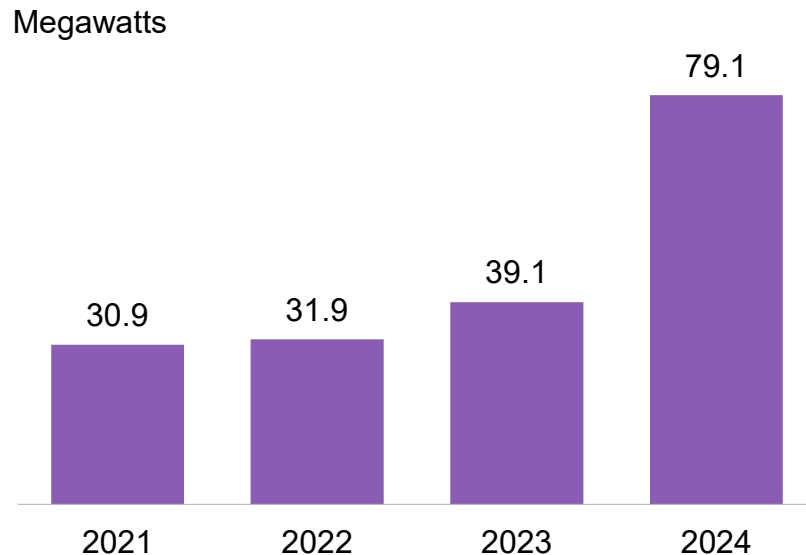
Operational electrolyzer capacity on the rise

US electrolyzer capacity announced and operational, by year



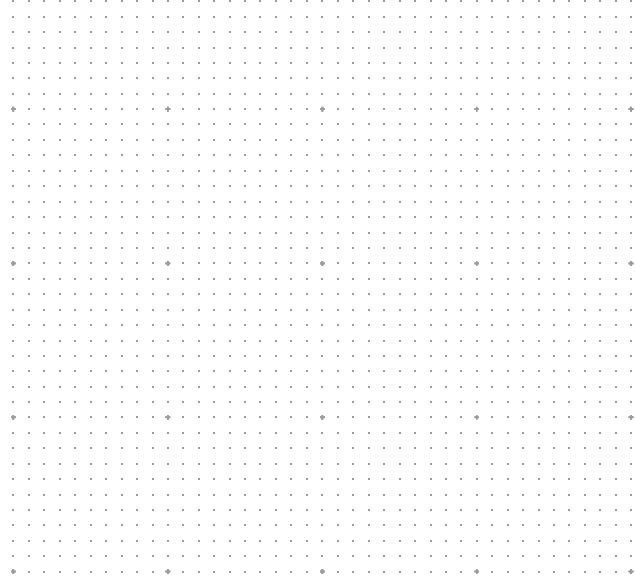
Source: BloombergNEF. Note: Data is estimated based on publicly available information as of January 17, 2025.

Operational US electrolyzer capacity by commissioning year



What's changing

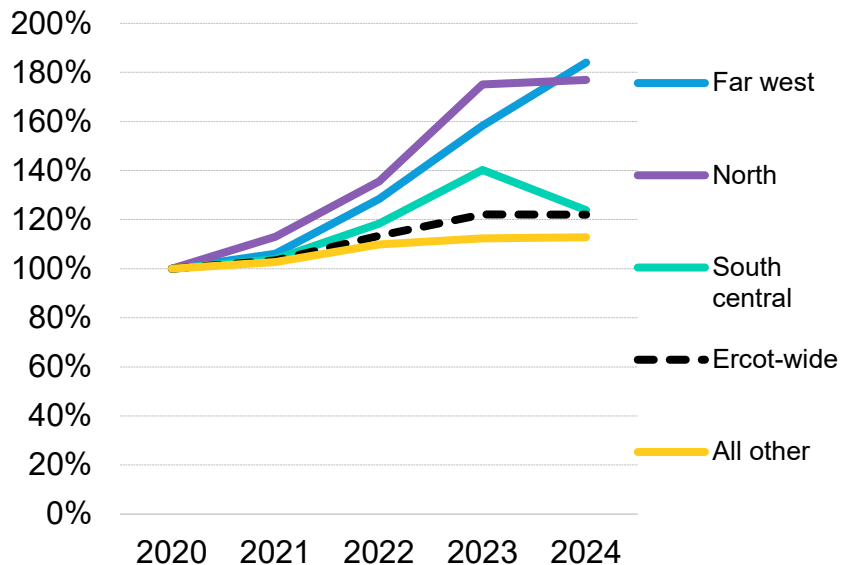
How the landscape is shifting



Impact of growing load due to industrial activity

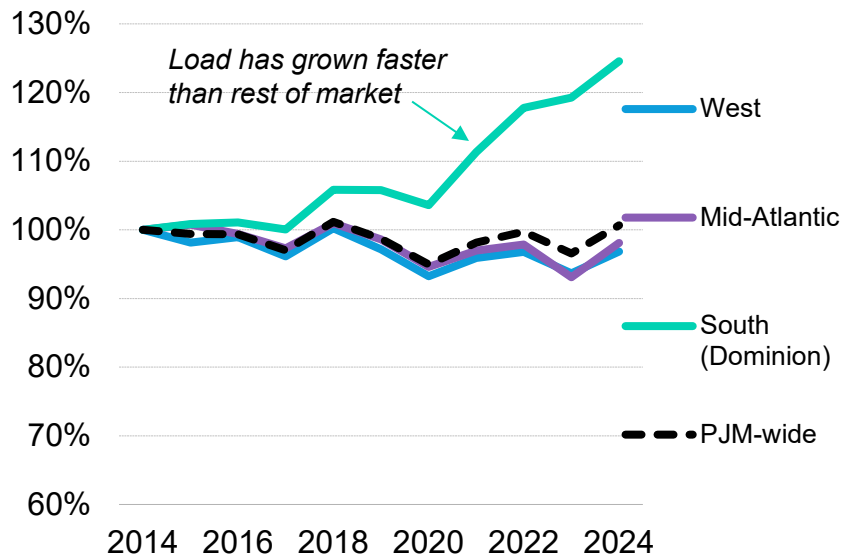
Load by sub-region, ERCOT

Load relative to 2020



Load by region, PJM

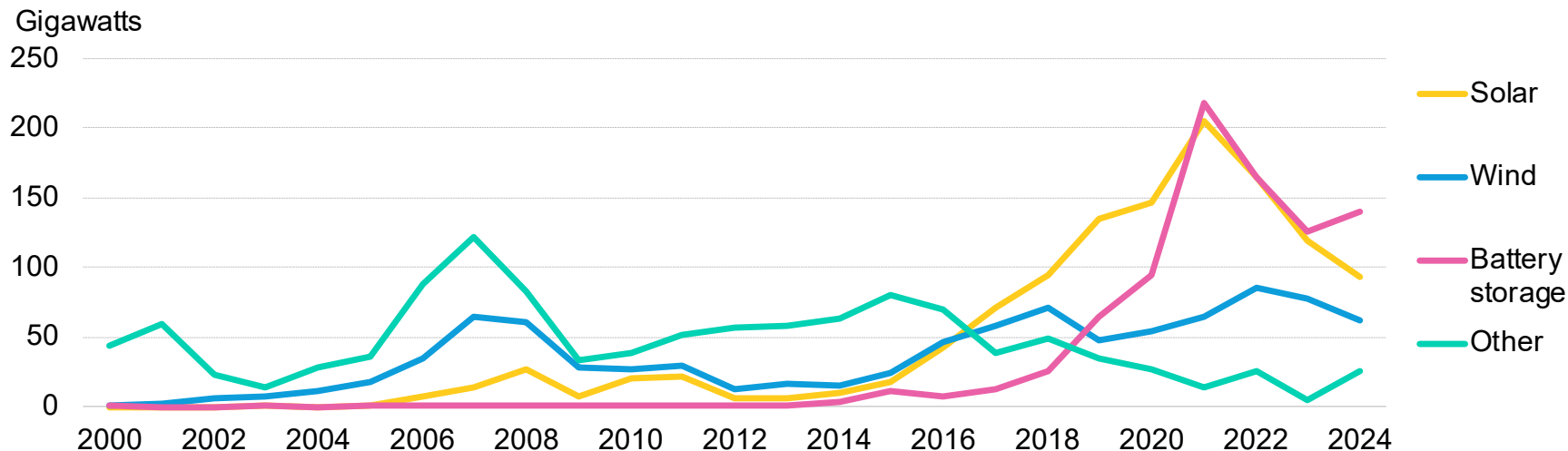
Load relative to 2014



Source: Electricity Reliability Council of Texas (Ercot), PJM Interconnection (PJM), BloombergNEF. Note: PJM data for 2024 is a BNEF estimate.

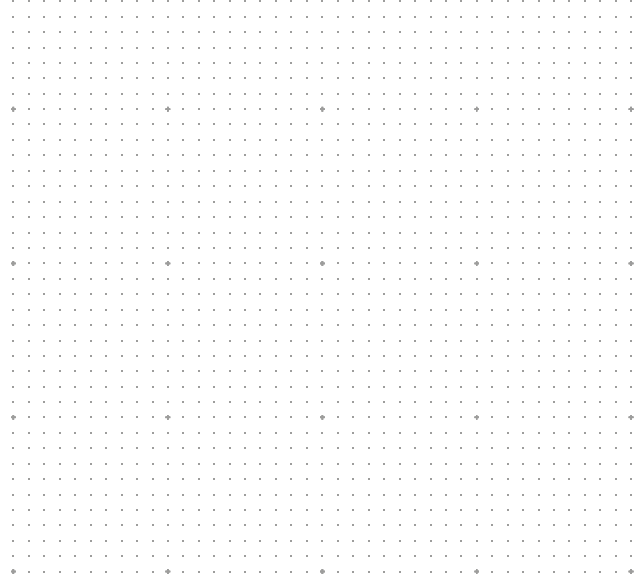
Renewables fill interconnection queues

Total yearly generation capacity that applied for interconnection to US ISO power grids



Source: California Independent System Operator (Caiso), ISO-New England, Midcontinent Independent System Operator (MISO), New York Independent System Operator (NYISO), PJM Interconnection, Southwest Power Pool (SPP), Electric Reliability Council of Texas (Ercot), Berkeley Lab, BloombergNEF. Note: Caiso covers California, ISO-NE covers New England, MISO covers the Midwest ; NYISO covers New York, PJM covers the Mid-Atlantic ; SPP covers the central southern US; Ercot covers most of Texas.

Thank you!





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Tracking Market & Policy Trends

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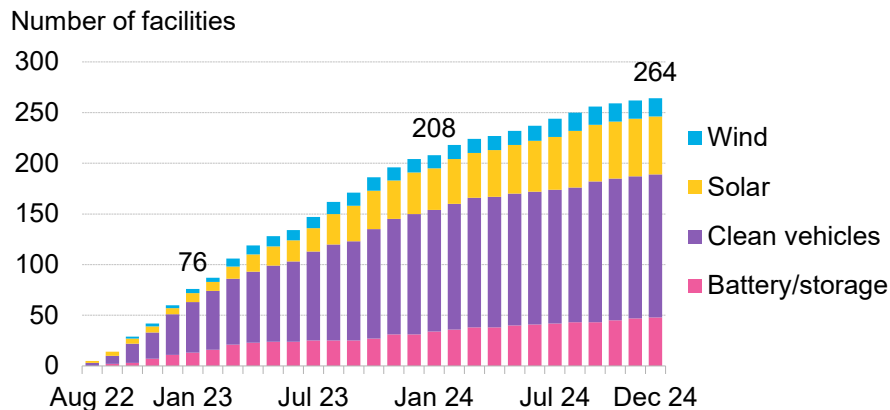
Diana Godlevskaya

Deputy Director, Federal
Affairs

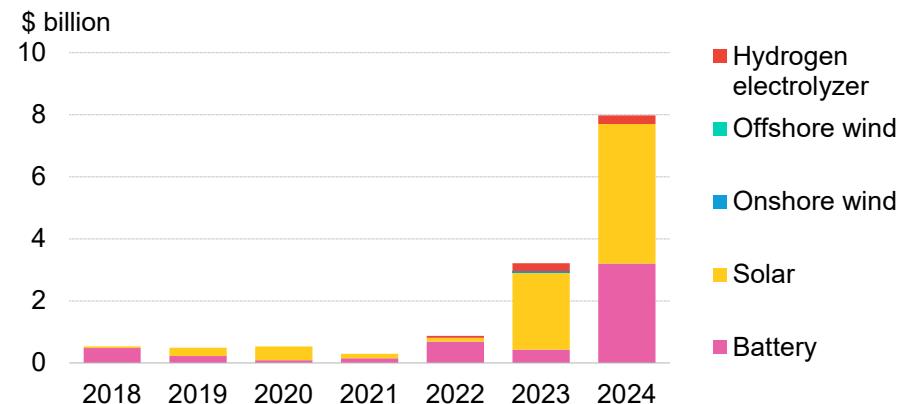
American Clean Power
Association

Clean-tech manufacturing investments

Cumulative clean-tech manufacturing investment announcements in the US, post-IRA



Annual clean-tech manufacturing investment in the US



Source: E2, BloombergNEF. Note: The chart [on the left](#) includes factory investment announcements across the manufacture of solar (including components), wind (including components), battery/storage (mineral extraction and processing, battery components, battery cells and packs), clean vehicles (EV battery components and assembly, vehicle components and assembly, and EV chargers). The Inflation Reduction Act (IRA) was signed into law on August 16, 2022. The chart [on the right](#) includes factory investment across the manufacture of solar (polysilicon, wafers, cells and modules), batteries (separators, electrolytes, cathodes, anodes and cells serving both the EV and stationary energy storage markets), wind turbines (nacelles only), and hydrogen electrolyzer manufacturing (stack assembly only). Investment derived from estimated capex of factories commissioned in the years shown.

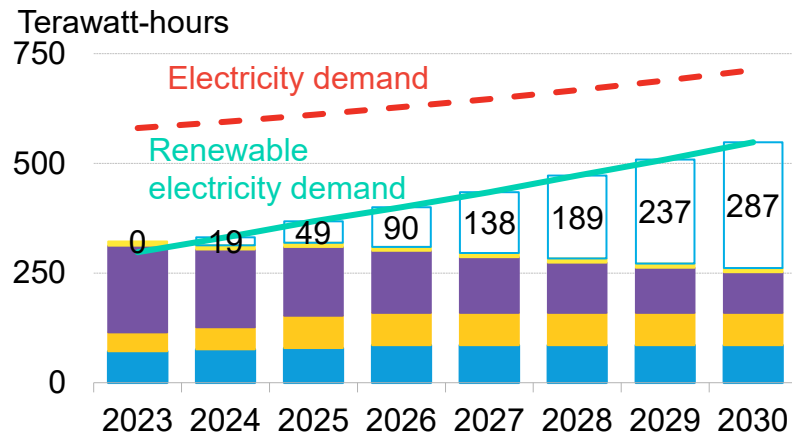


Charles Hernick

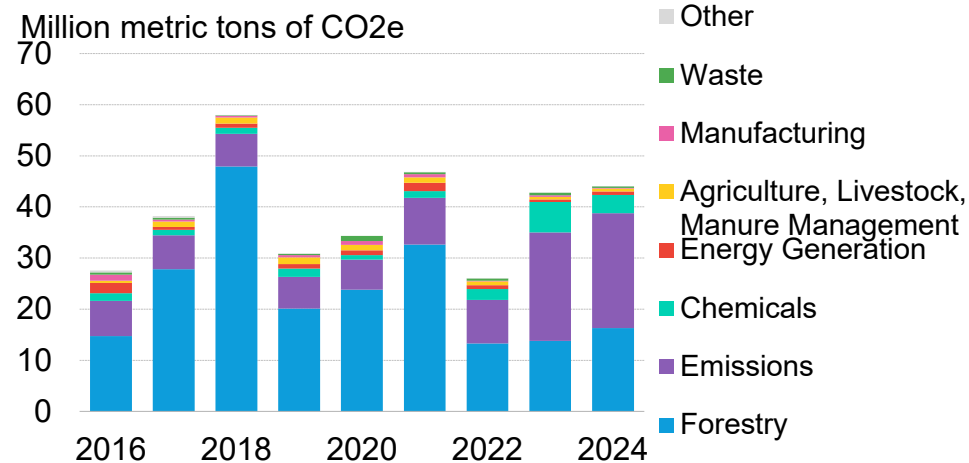
Head of U.S. Environmental
Policy
Amazon

Voluntary markets for decarbonization evolve

Clean electricity supply and demand for RE100 members



Annual offset issuance in the US, by sector



Source: BloombergNEF, Bloomberg Terminal, Carbon Disclosure Project, company filings. Note: In the chart on the left, certificate purchases are assumed to step down 10% each year. Onsite generation and contracted wind and solar purchases remain flat through 2030. Regional breakdown of shortfall is estimated based on each company's share of revenue by region. Electricity demand and renewable electricity demand do not intersect in 2030, as some companies have targets extending out past 2030. Data as of June 2024. In the chart on the right, 'Other' category includes transportation, energy demand, metals. CO₂e refers to carbon dioxide equivalent.

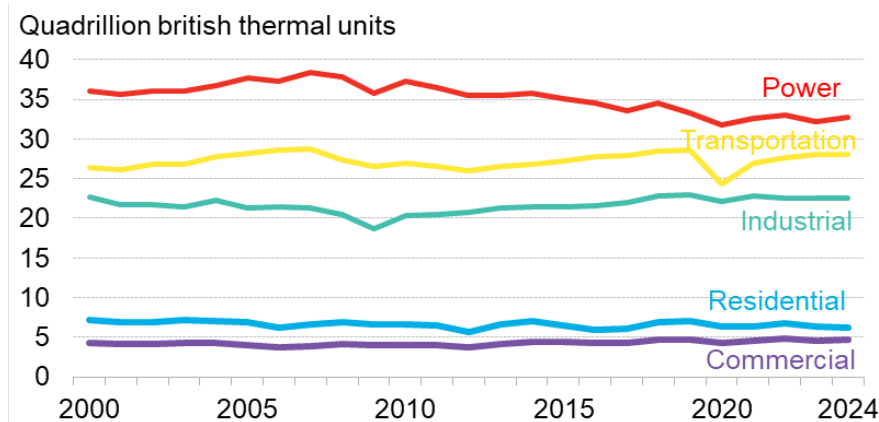


James Manser

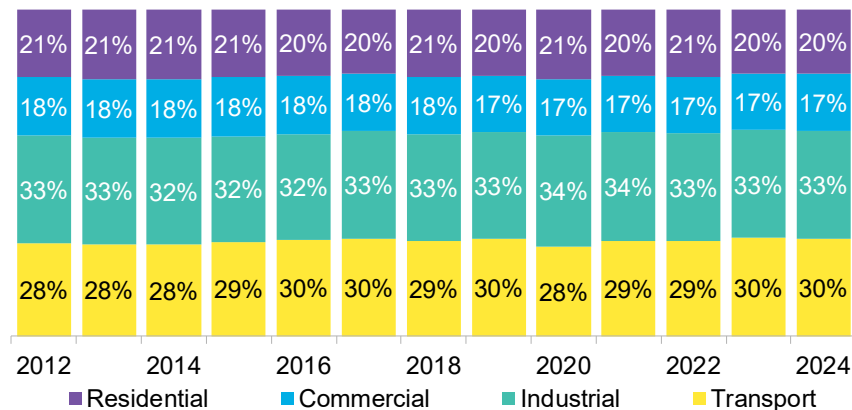
Vice President, Global
Government Relations
Johnson Controls

Primary energy consumption, by sector

US primary energy consumption



US end-use energy consumption



Source: US Energy Information Administration, EPA, BloombergNEF. Note: Values for 2024 are projected, accounting for seasonality, based on latest monthly values from the US Energy Information Administration (data available through September 2024). Electricity is excluded from industrial, residential, commercial and transportation sectors and aggregated in "power" in the left-hand chart. In the right-hand chart, sector end uses include electricity use.

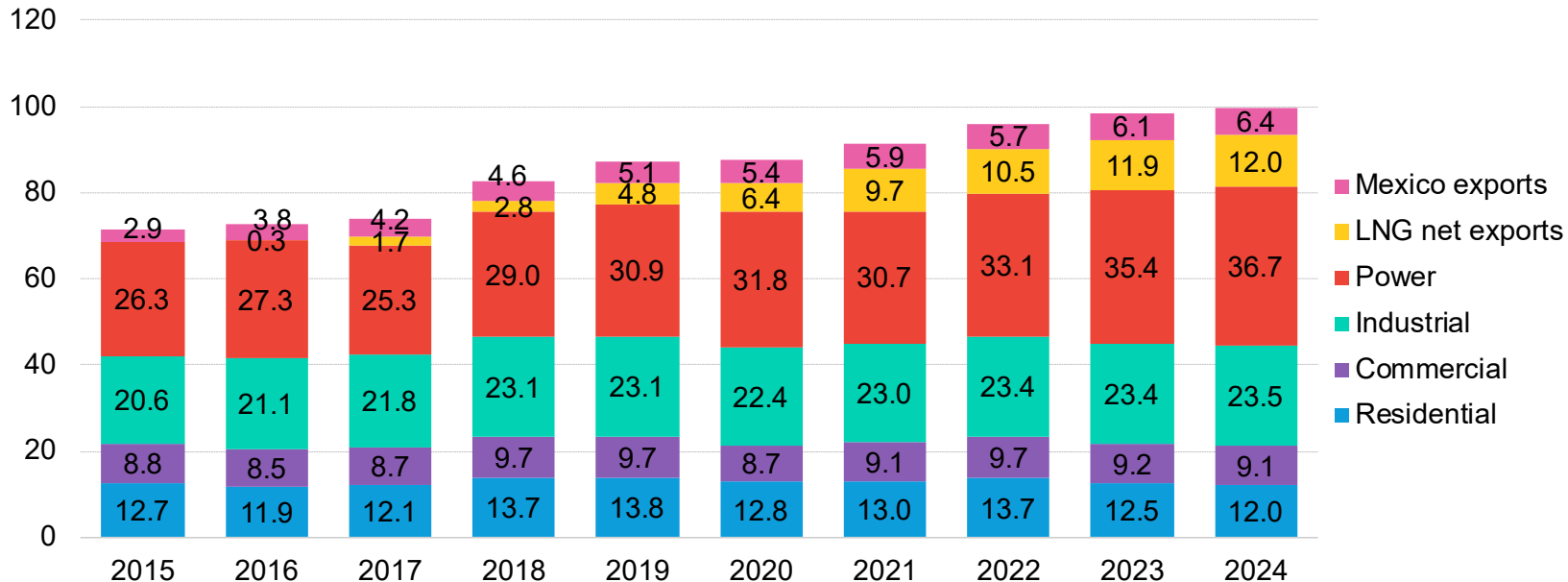


Jack Thirolf

Head of Energy Policy
NET Power

US natural gas demand, by end use

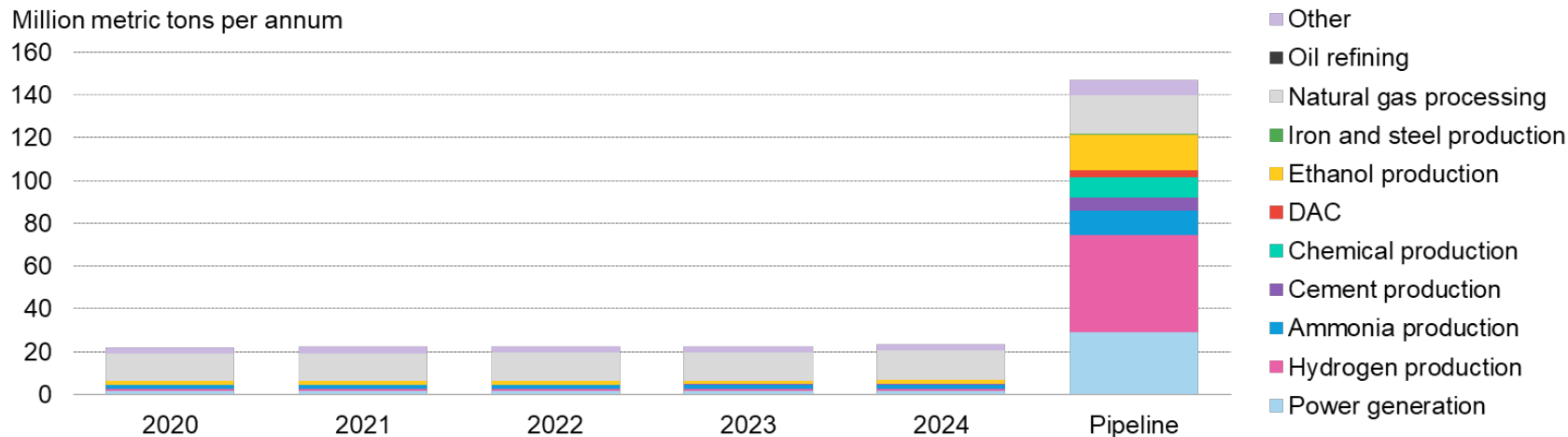
Billion cubic feet per day



Source: BloombergNEF, US Department of Energy. Note: November and December 2024 values are Bloomberg estimates. LNG refers to liquefied natural gas.

US deployment pipeline for carbon capture projects

Historical and proposed carbon capture capacity in the US, by source



Source: BloombergNEF. Note: DAC is direct air capture.

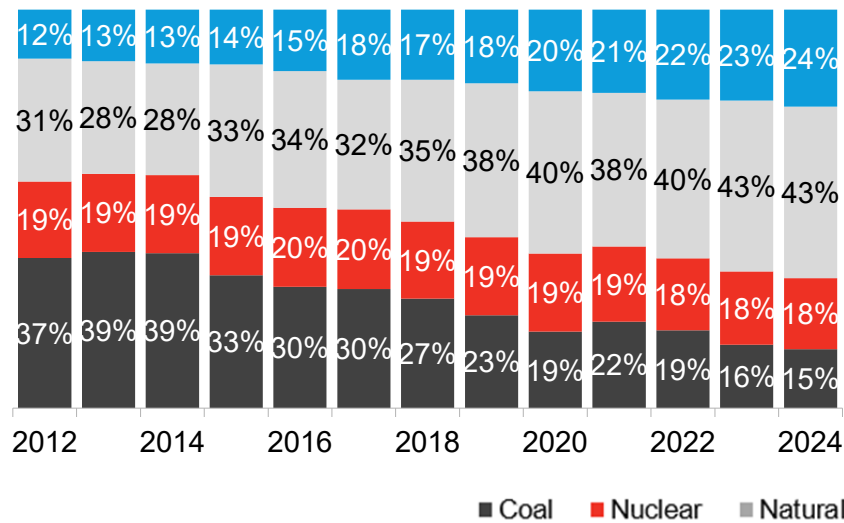


Michael Yancey

**Director, Congressional Policy
Citizens for Responsible
Energy Solutions**

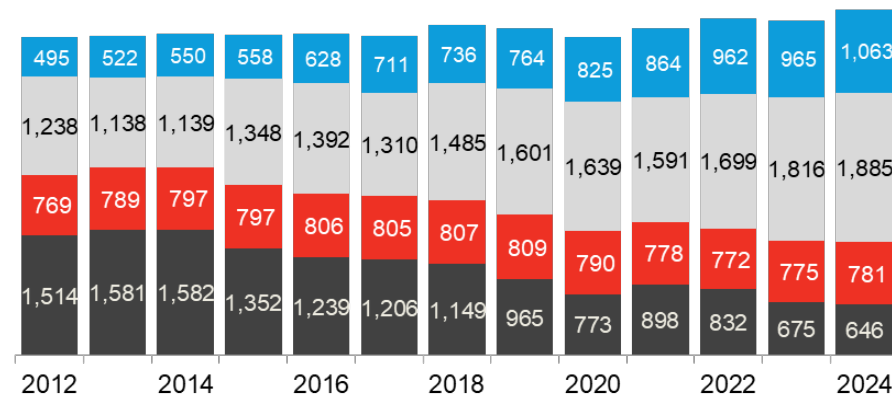
Electricity generation mix

Share of US electricity generation, by fuel type



US electricity generation, by fuel type

Terawatt-hours



Source: US Energy Information Administration, BloombergNEF. Note: Values for 2024 are projected, accounting for seasonality, based on latest monthly values from US Energy Information Administration (data available through October 2024).



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