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2024 Sustainable Energy in America Factbook

Thursday, March 21, 2024

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A bipartisan Congressional caucus founded EESI in 1984 to provide non-partisan 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

Commitment to Diversity, Equity, Inclusion, and Justice

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

Sustainable Solutions

Our mission is to advance science-based solutions for climate change, energy, and environmental challenges in order to achieve our vision of a sustainable, resilient, and equitable world.

Polycymaker Education



Briefings and Webcasts

Live, in-person and online public briefings, archived webcasts, and written summaries

Climate Change Solutions

Bi-weekly newsletter with everything policymakers and concerned citizens need to know, including a legislation and hearings tracker



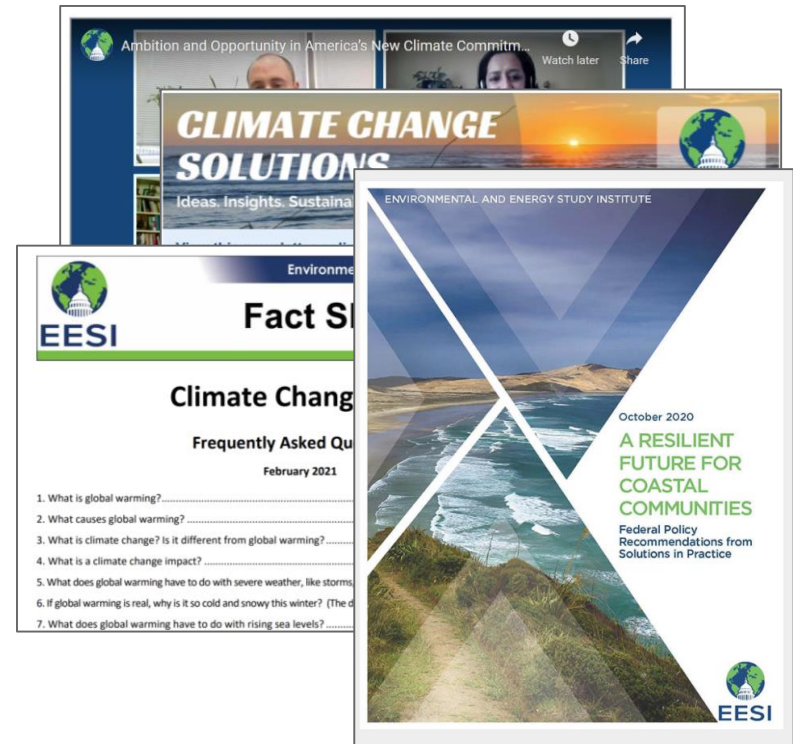
Fact Sheets and Issue Briefs

Timely, objective coverage of environmental, clean energy, and climate change topics



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Thursday, March 21, 2024



Sustainable Energy in America **2024 Factbook**

Tracking Market & Policy Trends

BloombergNEF

 **The Business Council
for Sustainable Energy®**

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Sustainable Energy in America **2024 Factbook**

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The Business Council for Sustainable Energy (BCSE) is a coalition of companies and trade associations from the energy efficiency, natural gas and renewable energy sectors.

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.

Records keep rising

Sustainable Energy in America Factbook

Tara Narayanan

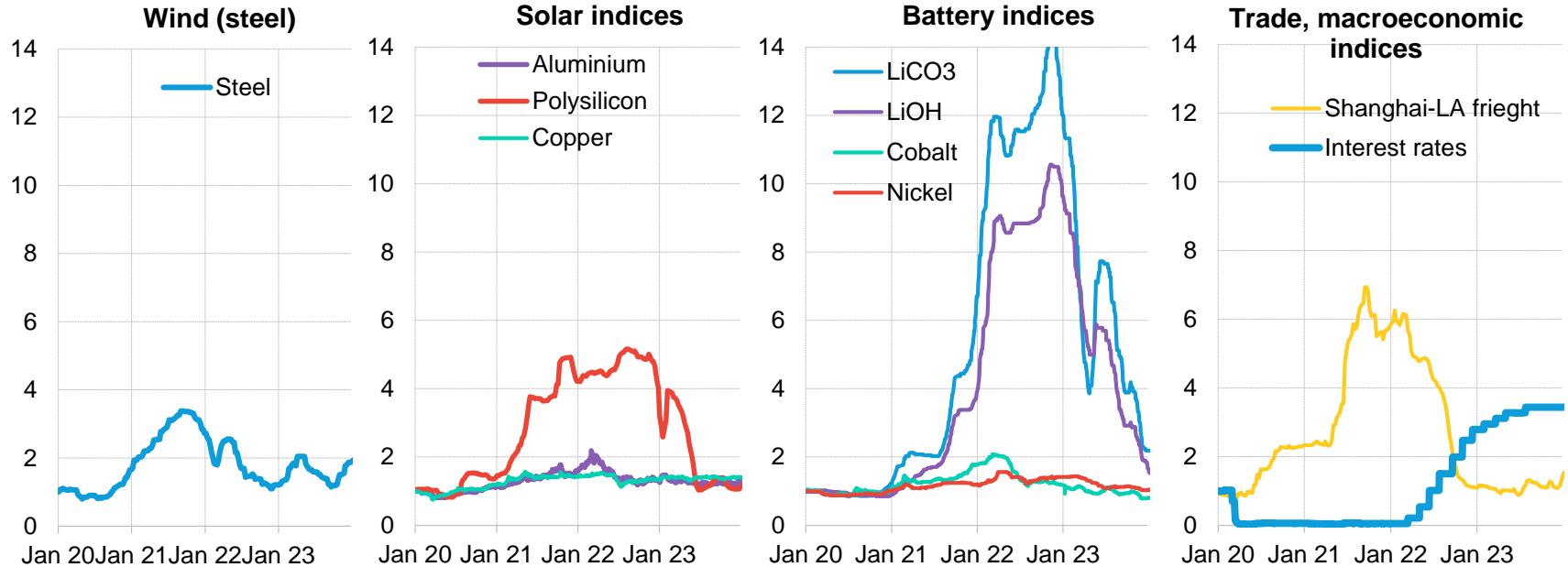
March 21, 2024

Disruptions in the rearview mirror

Prices ease

Cost inputs for wind, solar, batteries and other equipment

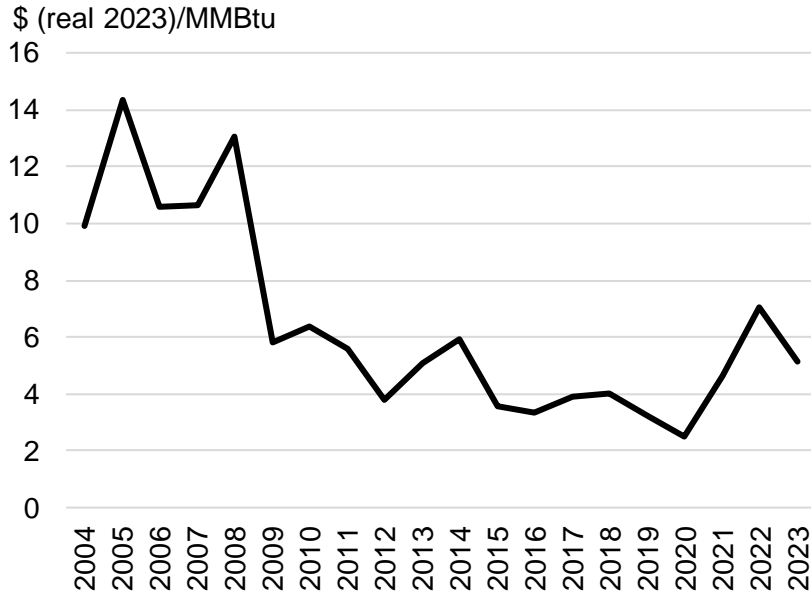
Price movements since January 2020 (rebased to 1)



Source: BloombergNEF, Bloomberg Terminal. Note: Data rebased to 1 on earliest available date in January 2020. Steel reflects North America costs, aluminum and copper are China prices. LiCO3 is lithium carbonate, LiOH is lithium hydroxide.

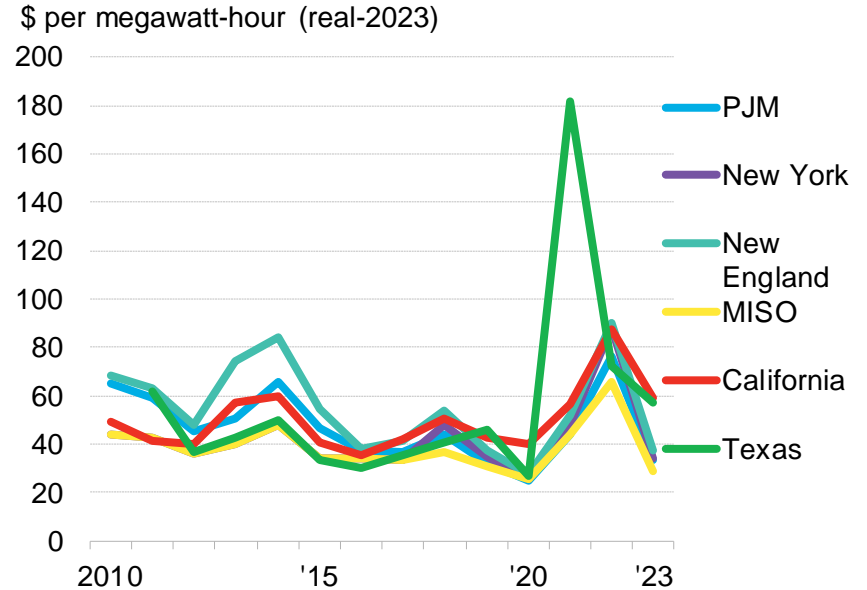
Wholesale prices for commodities are easing

Natural gas wholesale prices at Henry Hub, LA



Source: BloombergNEF, EIA Short Term Energy Outlook. LA is Louisiana

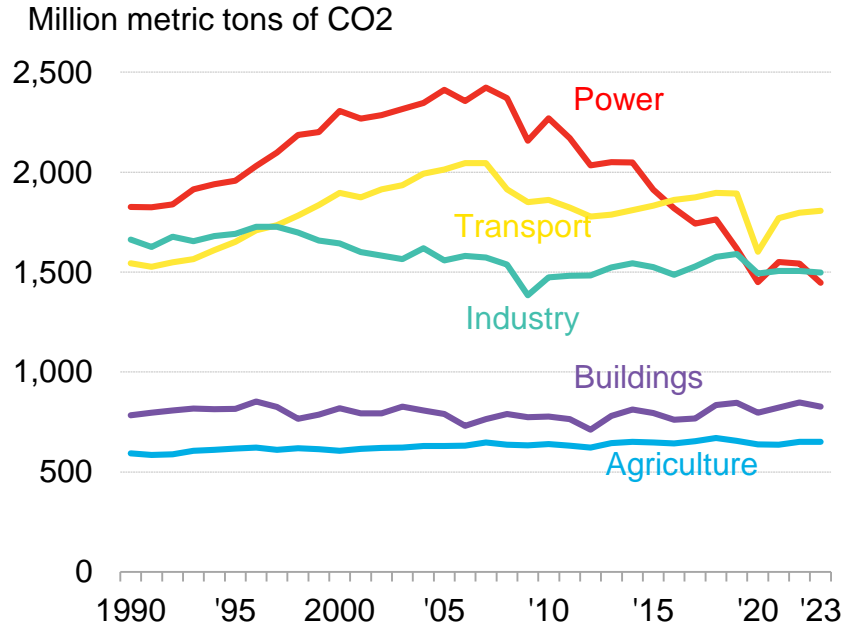
Wholesale power prices



Source: BloombergNEF, EIA, Bloomberg Terminal. Note: Wholesale prices are taken from proxy power hubs in each independent system operator (ISO).

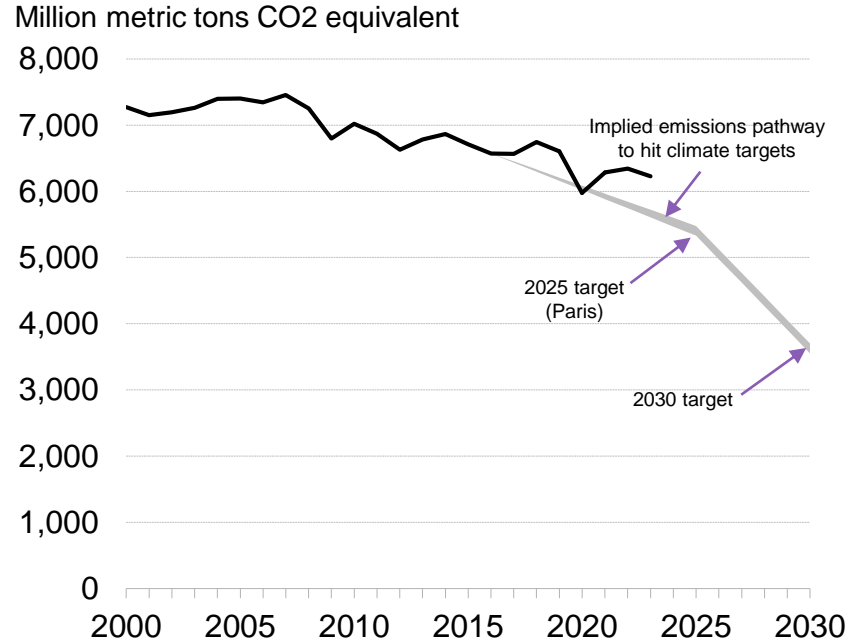
Greenhouse gas (GHG) emissions

US emissions by sector



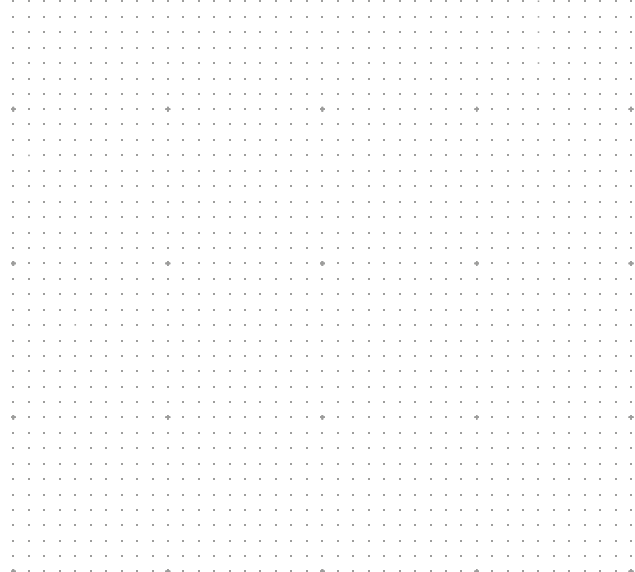
Source: BloombergNEF, EIA, EPA

US economy-wide emissions



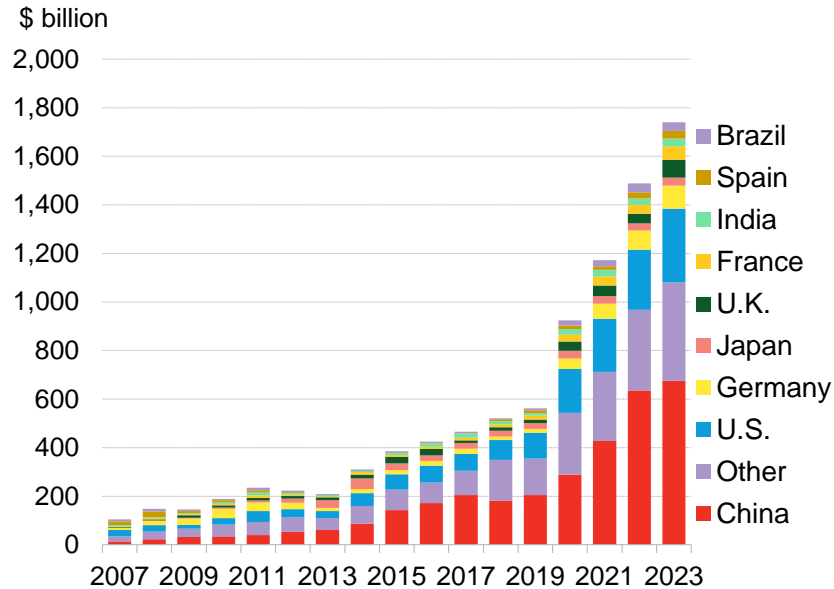
A post-IRA market

Excitement and activity

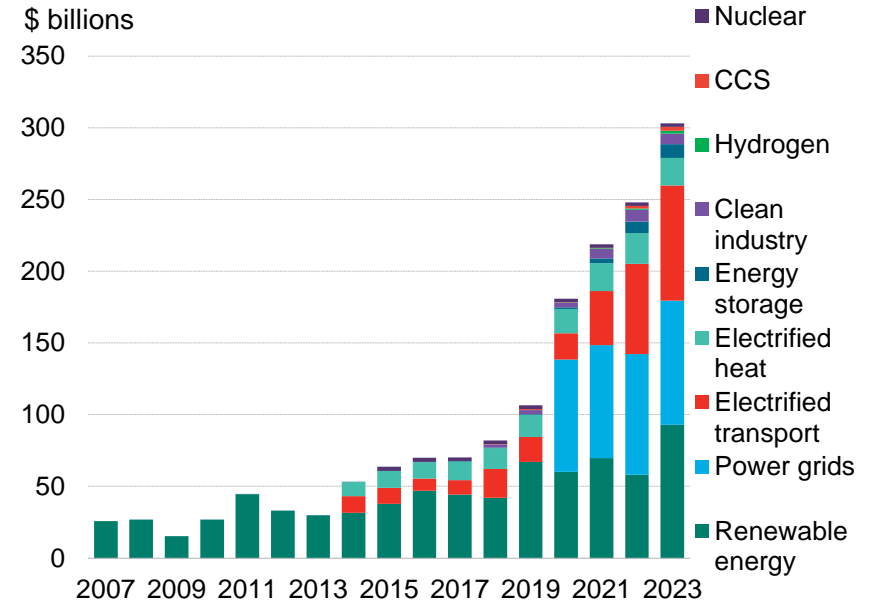


Energy transition investment

Energy transition investment, by market

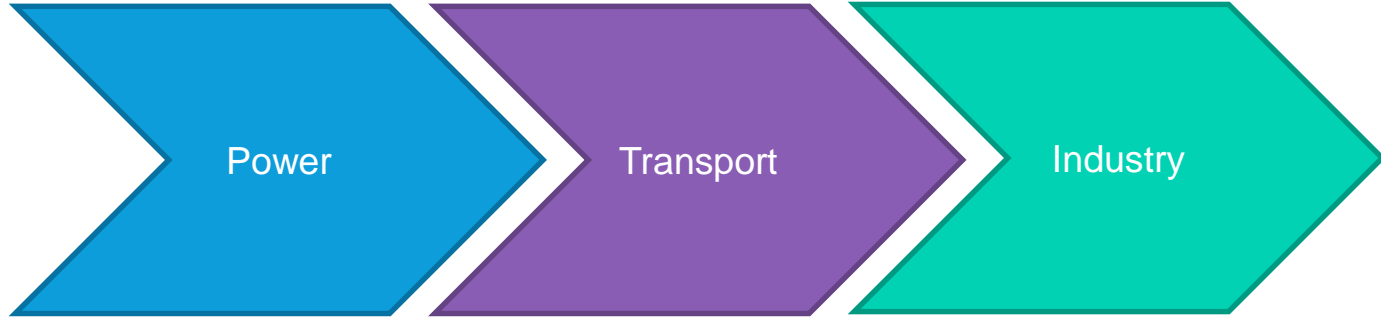
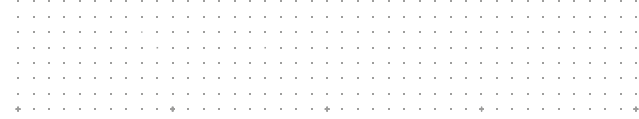


US energy transition investment, by sector

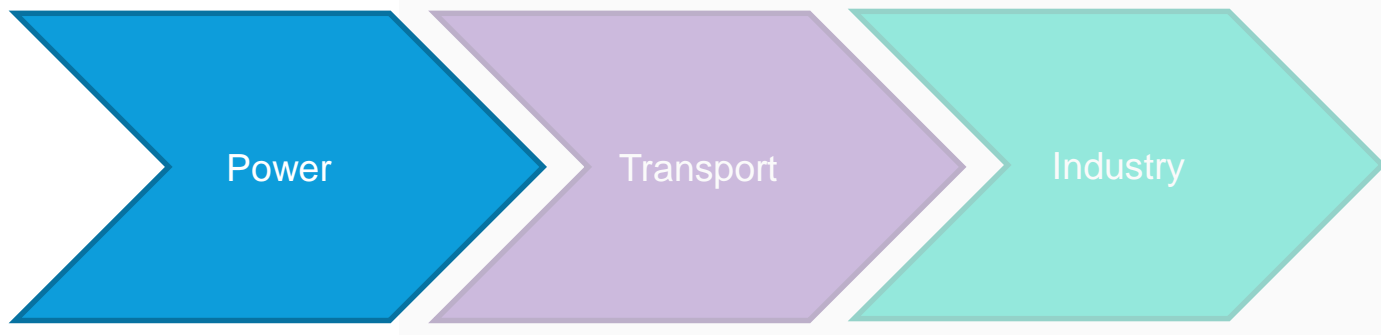
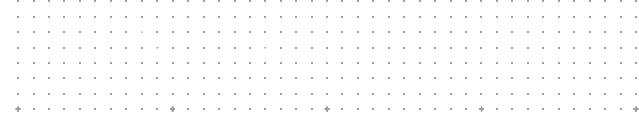


Source: BloombergNEF, Energy Transition Investment Trends database, World Bank. Note: Start years differ by sector, but all sectors are present from 2020 onwards. Most notably, nuclear figures start in 2015 and power grids in 2020. CCS refers to carbon capture and storage.

A sector level view



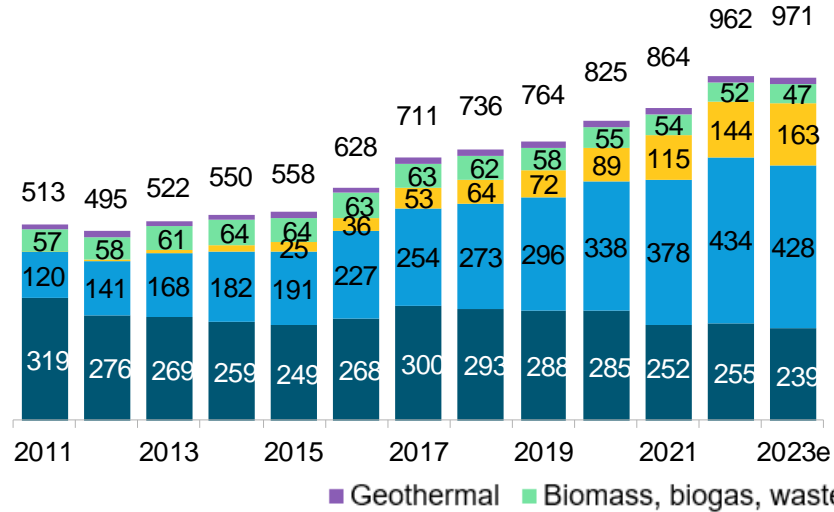
A sector level view



Cumulative renewable energy

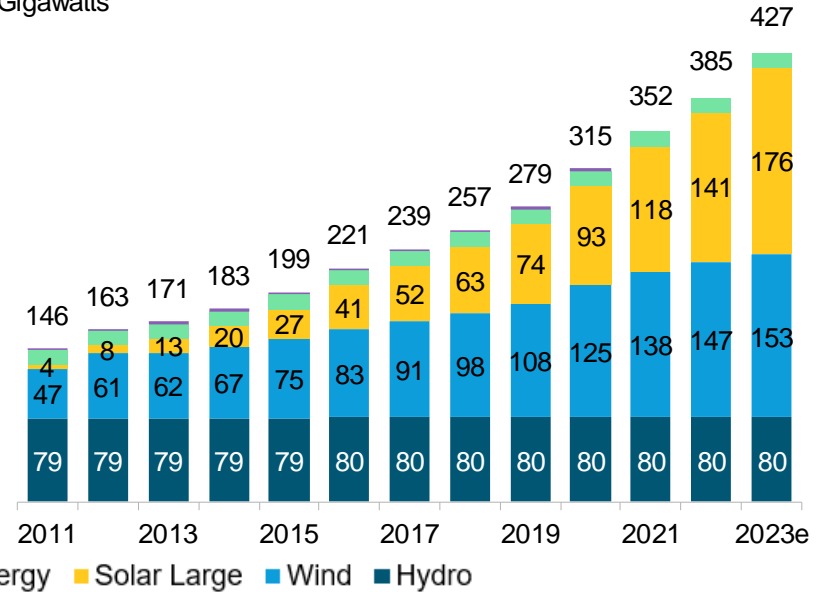
US renewable generation, by technology

TWh



US cumulative renewable power capacity

Gigawatts

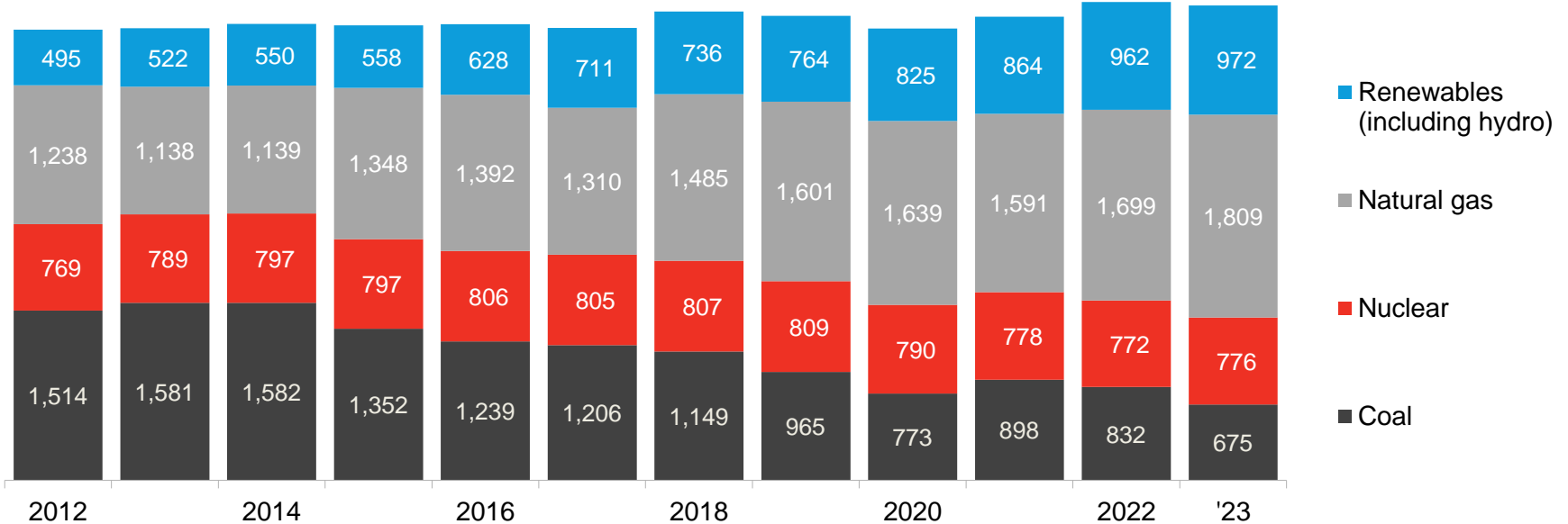


Source: BloombergNEF, EIA. Note: All values are shown in alternating current (AC) except solar, which is in direct current (DC) capacity using a 1.34 conversion factor. Totals may not sum due to rounding. Values for 2023 are projected, accounting for seasonality, based on latest monthly values from EIA (data available through October 2023).

The composition of the generation mix is changing

US electricity generation, by fuel type

Terawatt-hours

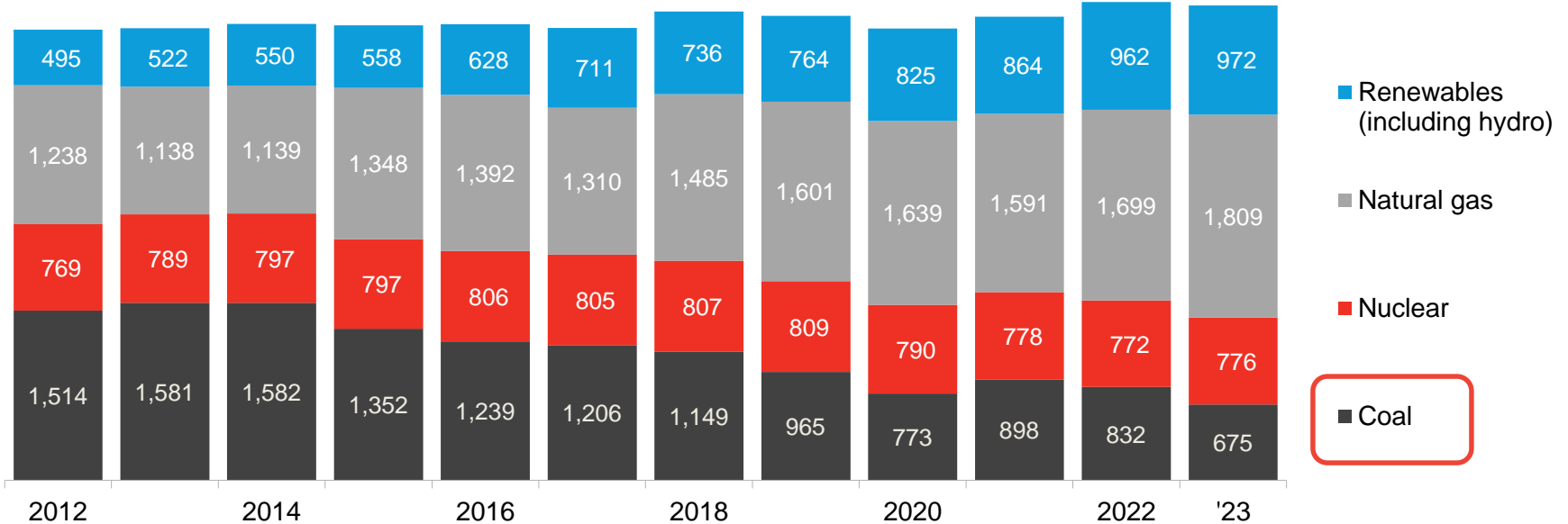


Source: EIA, BloombergNEF. Note: Values for 2023 are projected, accounting for seasonality, based on latest monthly values from EIA (data available through October 2023).

The composition of the generation mix is changing

US electricity generation, by fuel type

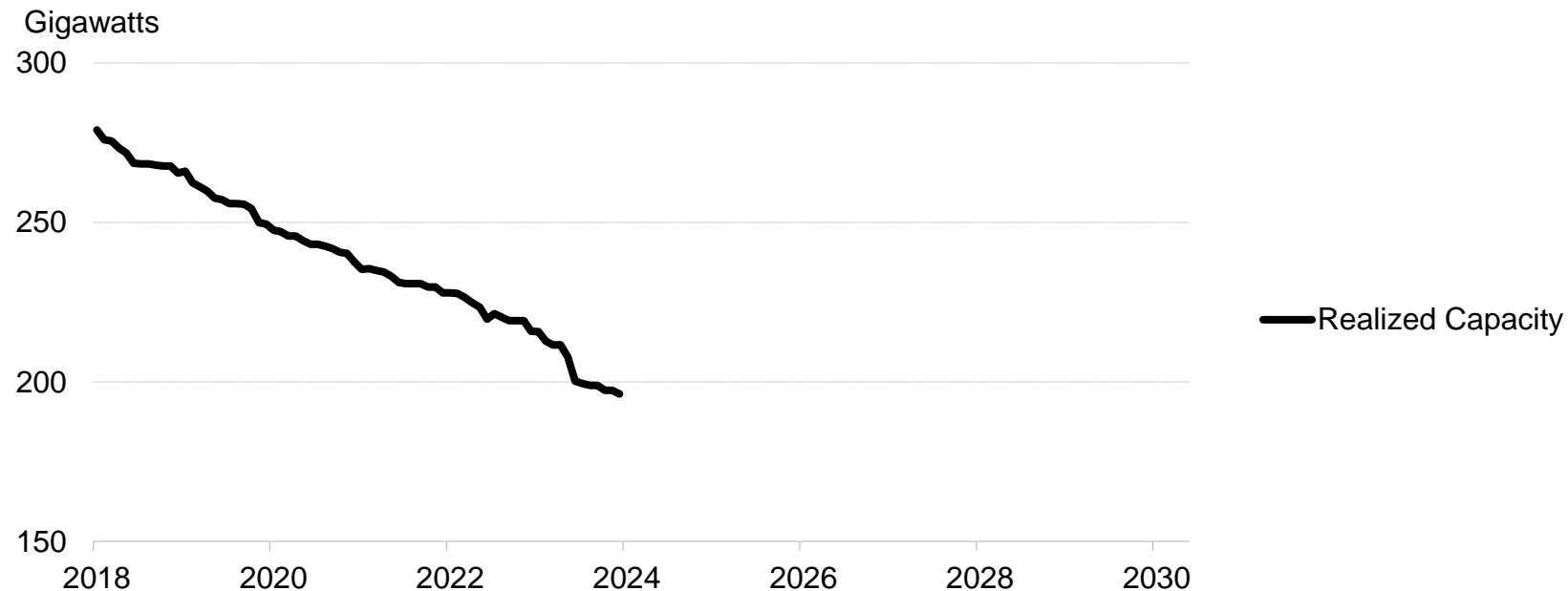
Terawatt-hours



Source: EIA, BloombergNEF. Note: Values for 2023 are projected, accounting for seasonality, based on latest monthly values from EIA (data available through October 2023).

Trends in coal retirement expectations

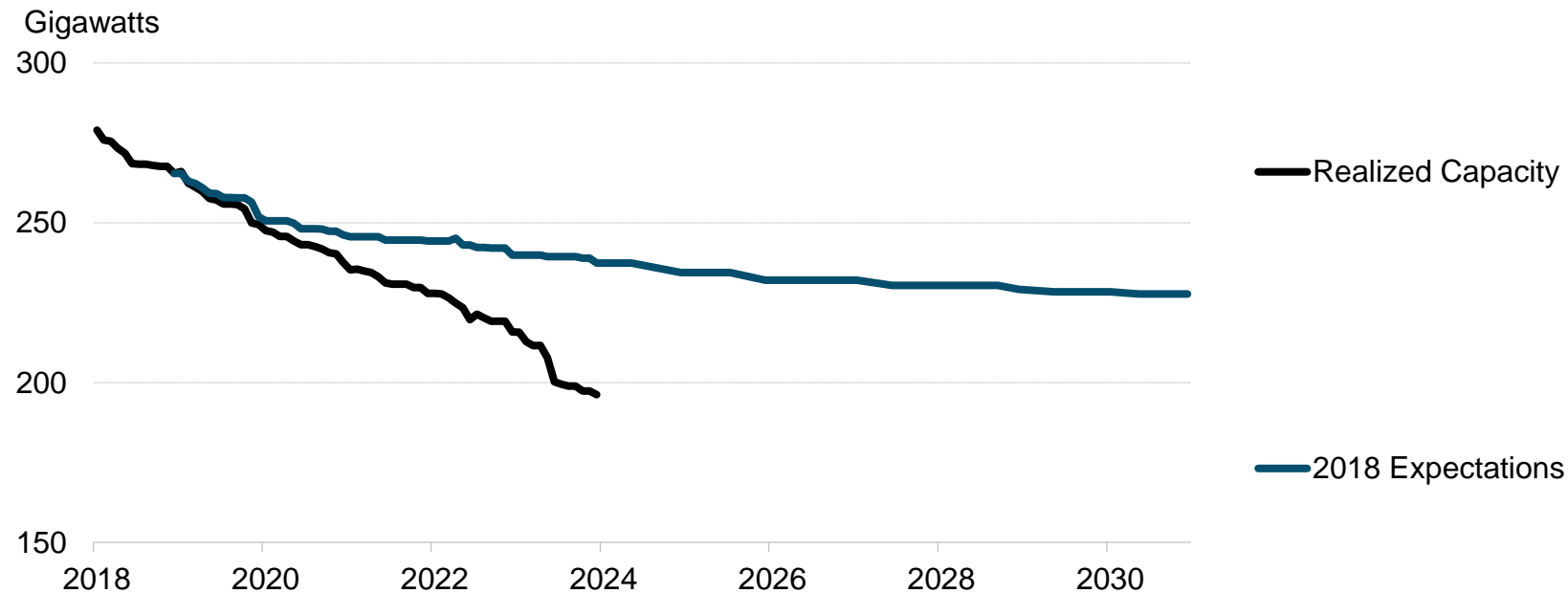
Actual coal capacity



Source: EIA, BloombergNEF

Trends in coal retirement expectations

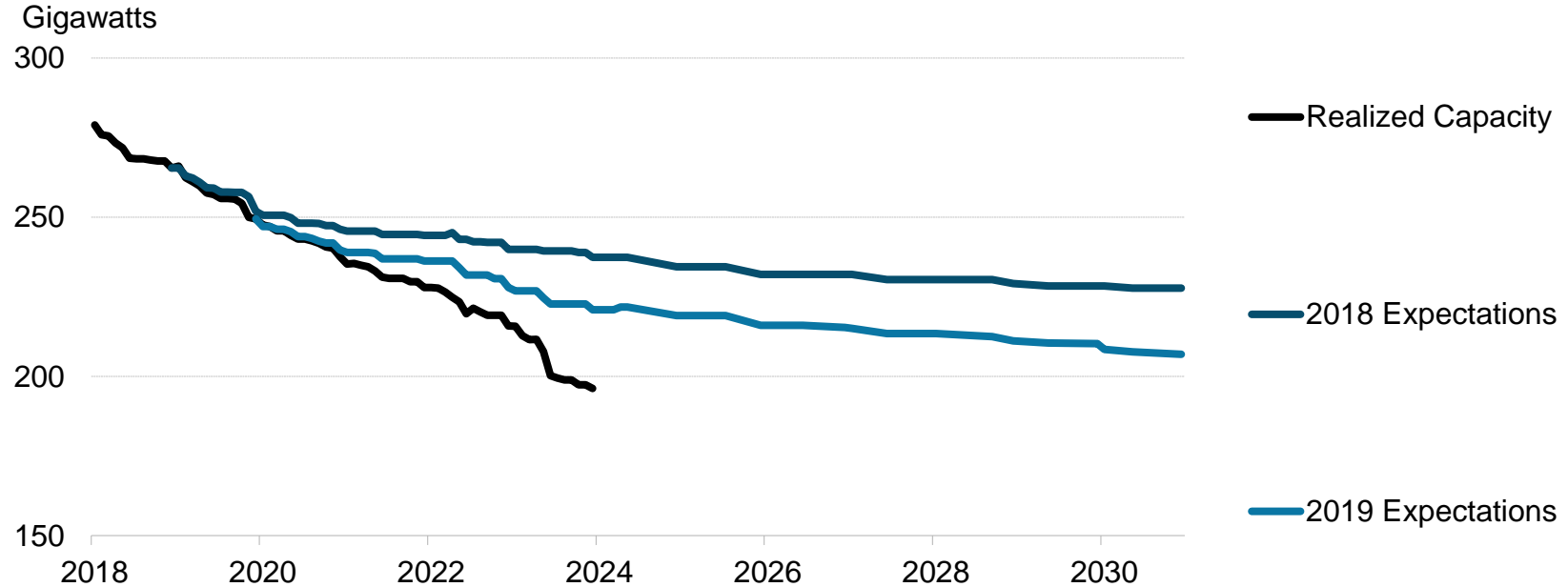
Actual and planned coal capacity



Source: EIA, BloombergNEF

Trends in coal retirement expectations

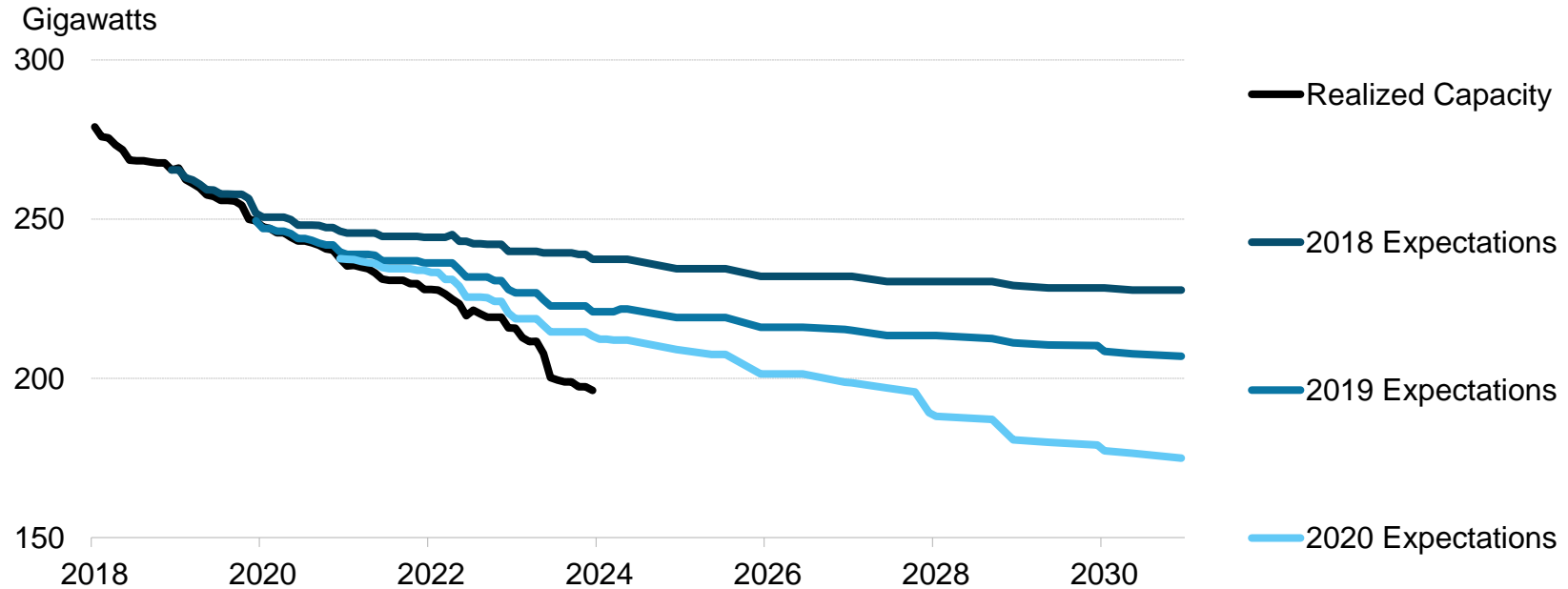
Actual and planned coal capacity



Source: EIA, BloombergNEF

Trends in coal retirement expectations

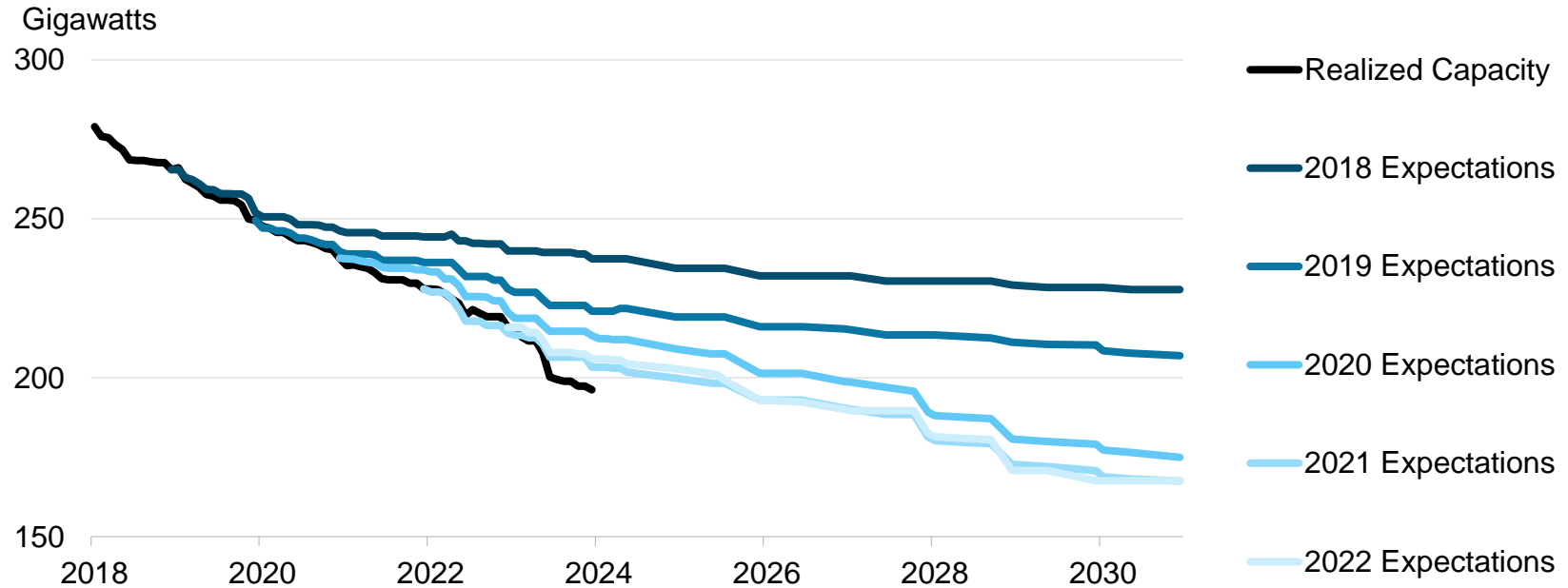
Actual and planned coal capacity



Source: EIA, BloombergNEF

Trends in coal retirement expectations

Realized and planned coal capacity

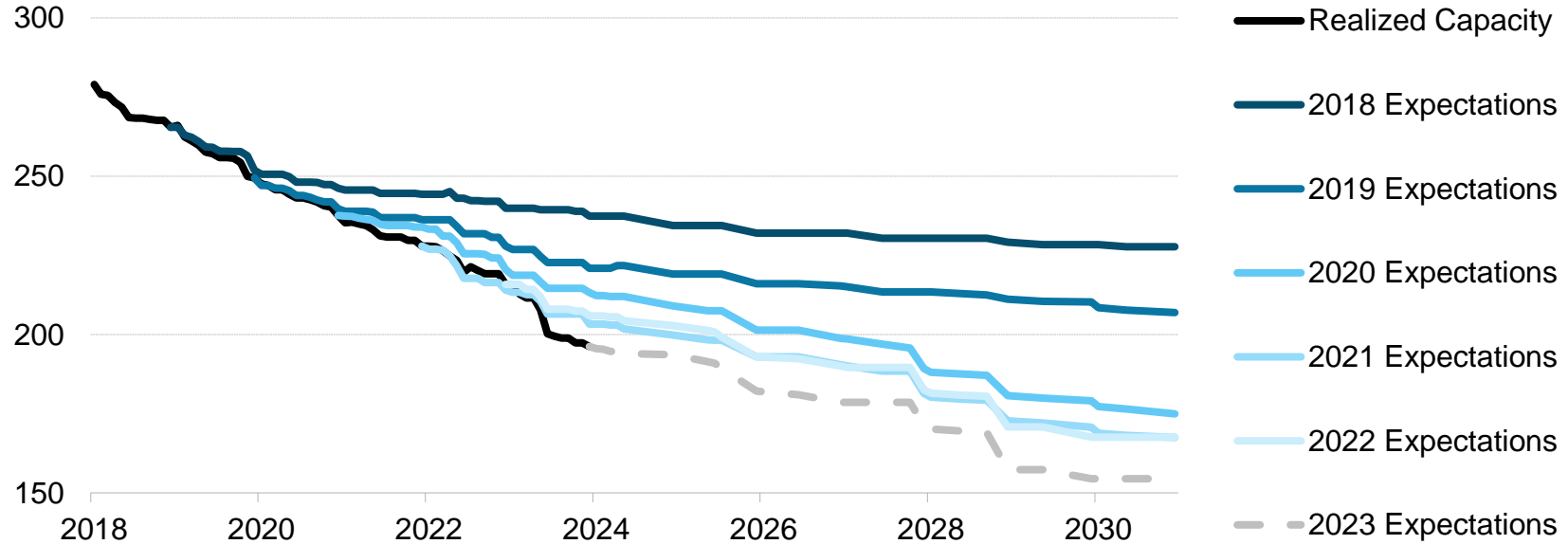


Source: EIA, BloombergNEF

Trends in coal retirement expectations

Actual and planned coal capacity

Gigawatts

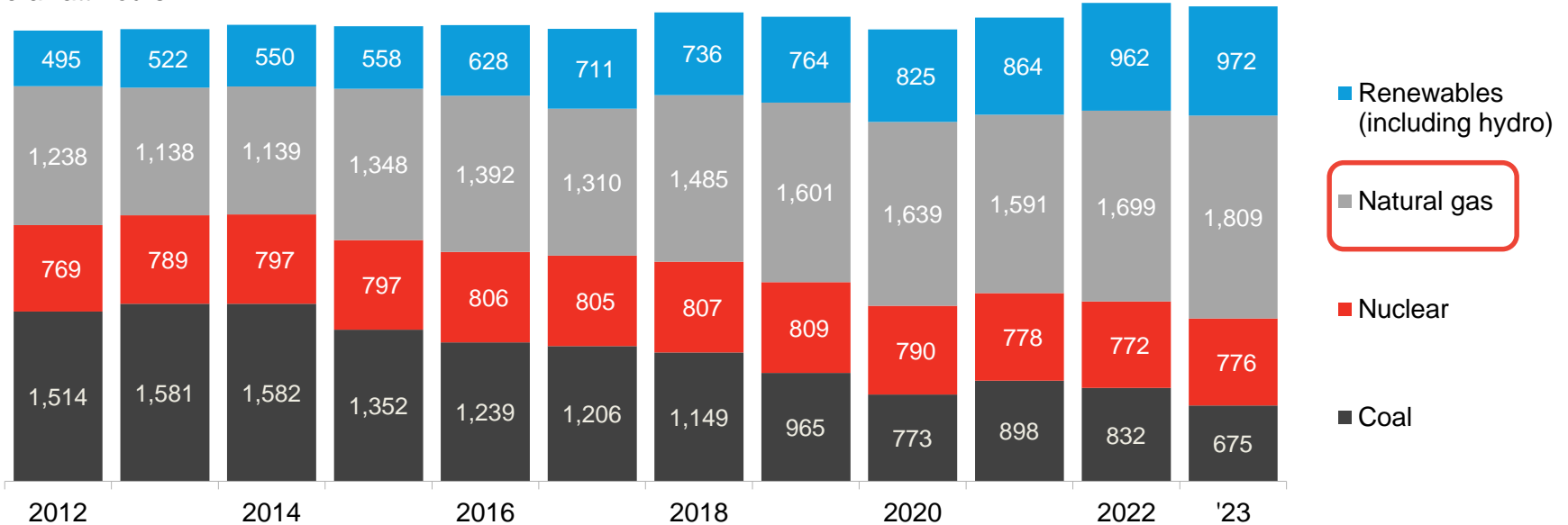


Source: EIA, BloombergNEF

The composition of the generation mix is changing

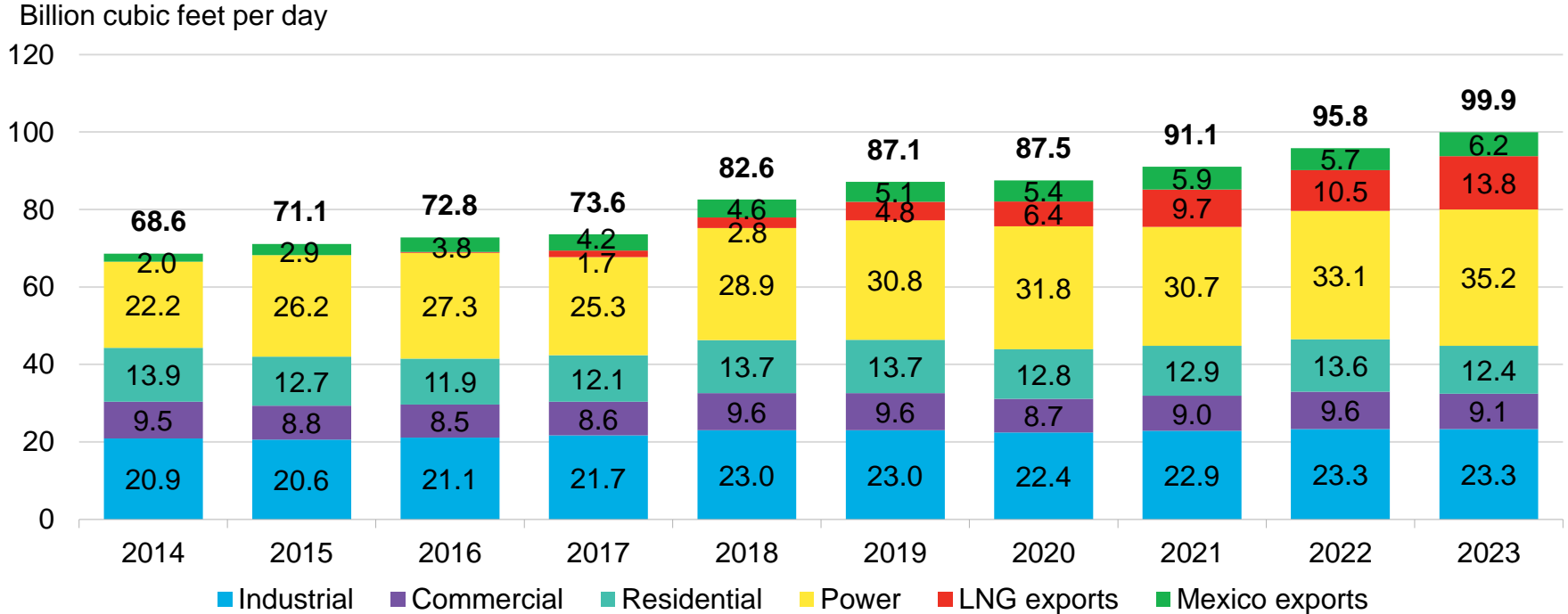
US electricity generation, by fuel type

Terawatt-hours



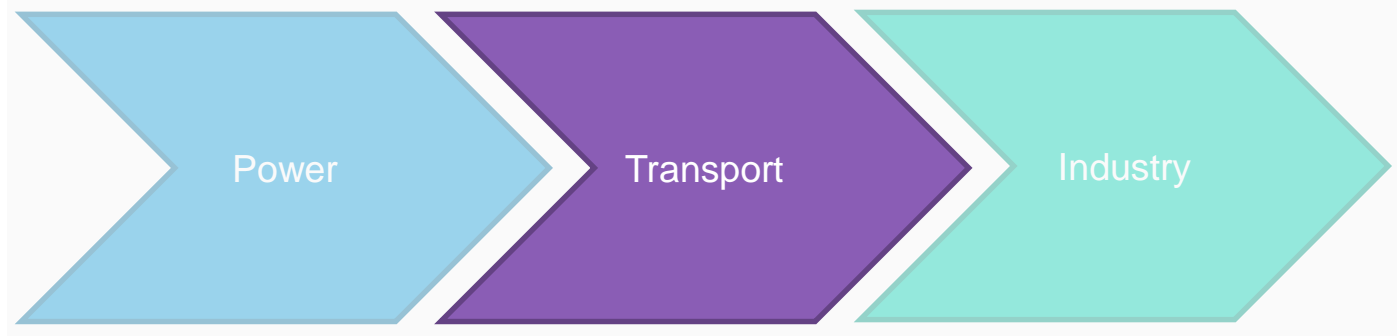
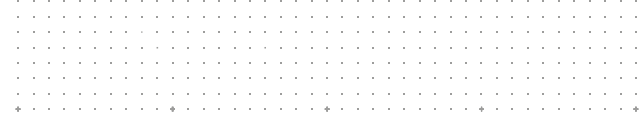
Source: EIA, BloombergNEF. Note: Values for 2023 are projected, accounting for seasonality, based on latest monthly values from EIA (data available through October 2023).

US natural gas demand by end use

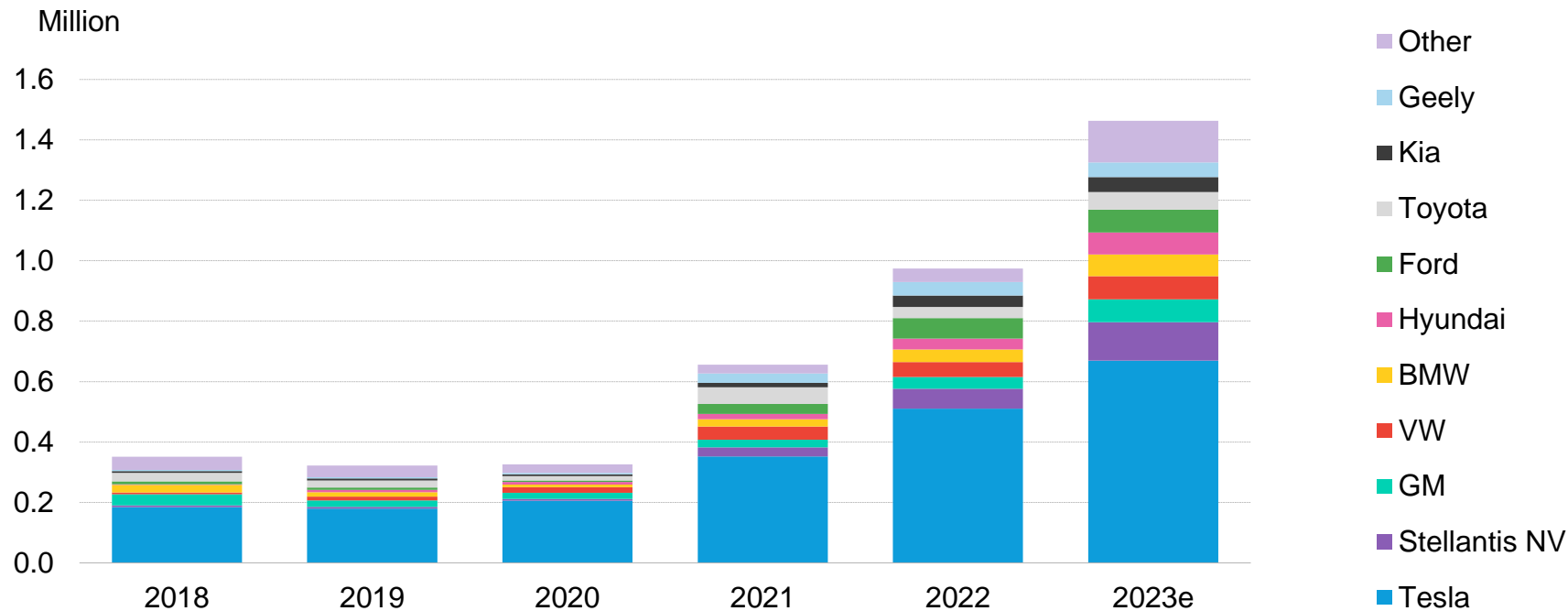


Source: BloombergNEF, EIA, US Department of Energy (DOE). Note: November and December 2023 values are forecasts. LNG is liquefied natural gas.

A sector level view



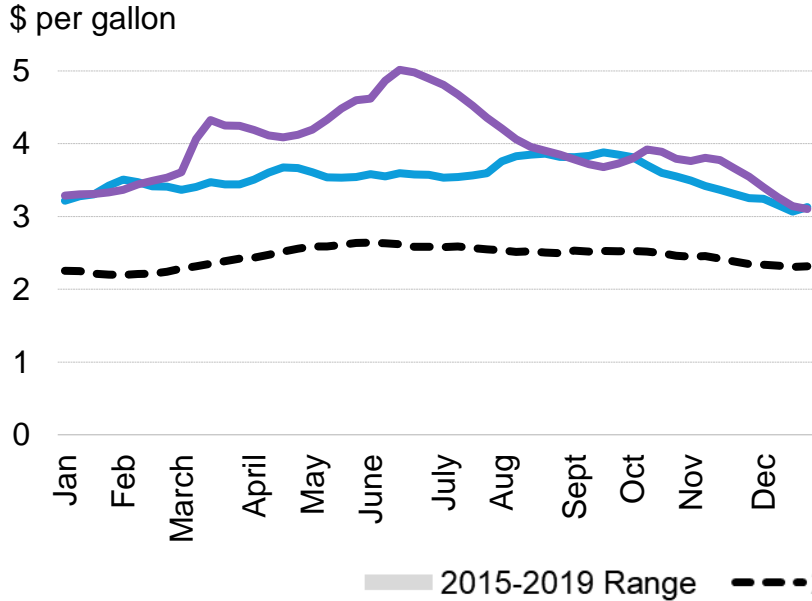
US electric vehicle sales



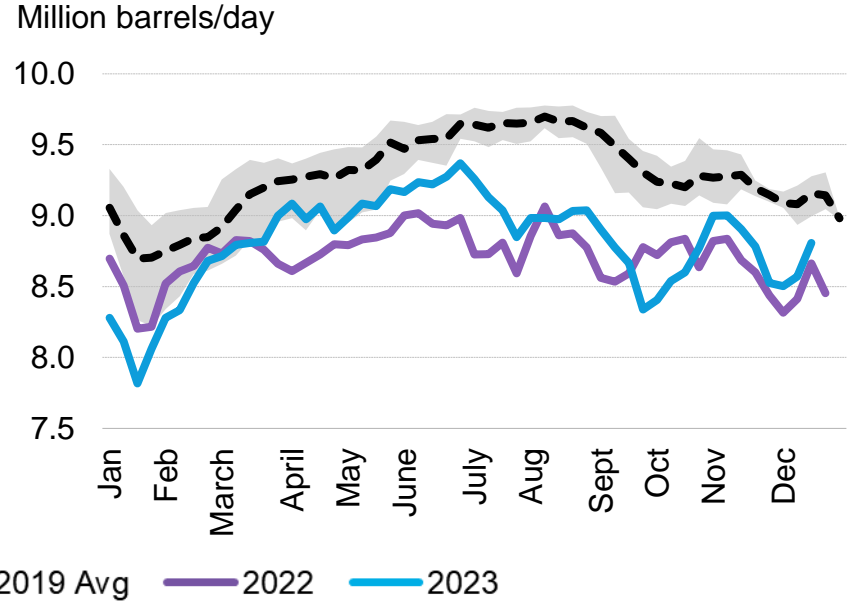
Source: BloombergNEF, Marklines

Gasoline consumption is lower than pre-pandemic levels

US wholesale gasoline prices

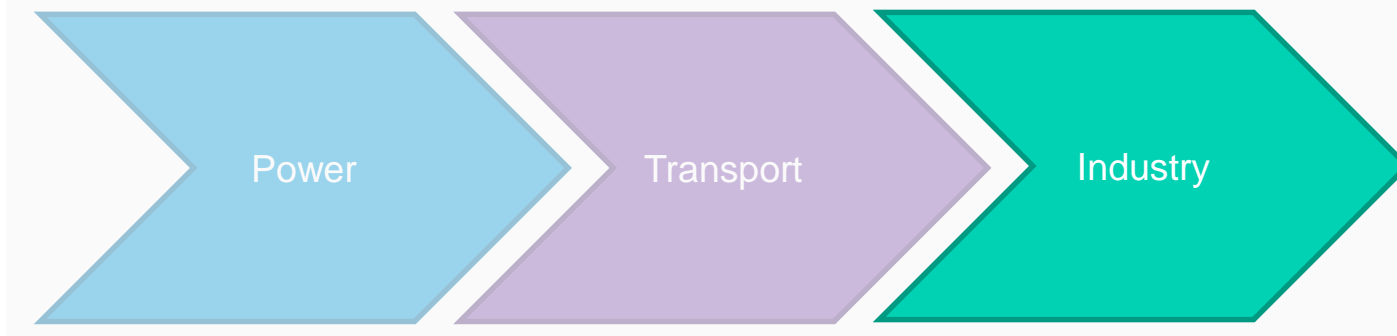
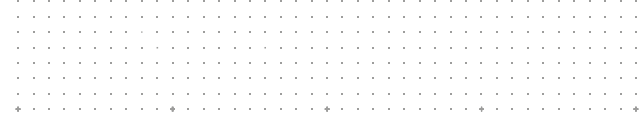


US gasoline demand



Source: BloombergNEF, EIA, American Automobile Association; Note: Gasoline demand data is the four-week rolling average for gasoline supplied data from the Energy Information Administration (EIA). Wholesale gasoline prices are the daily national average gasoline price.

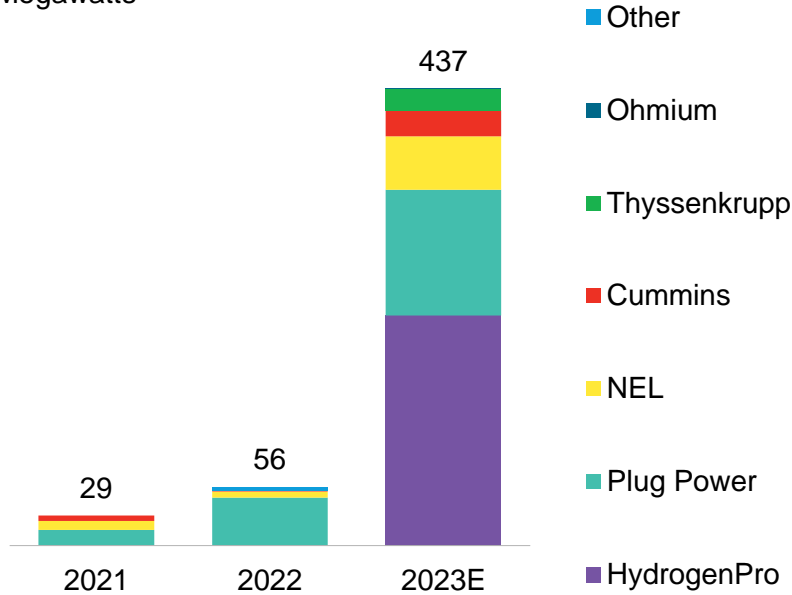
A sector level view



Maturing technologies are growing up fast

Electrolyzer shipments to the US

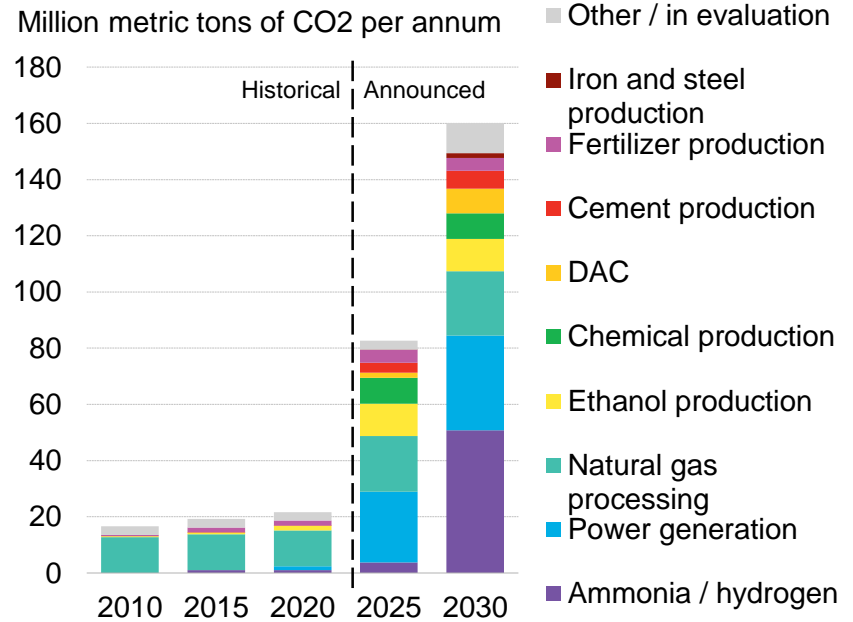
Megawatts



Source: BloombergNEF

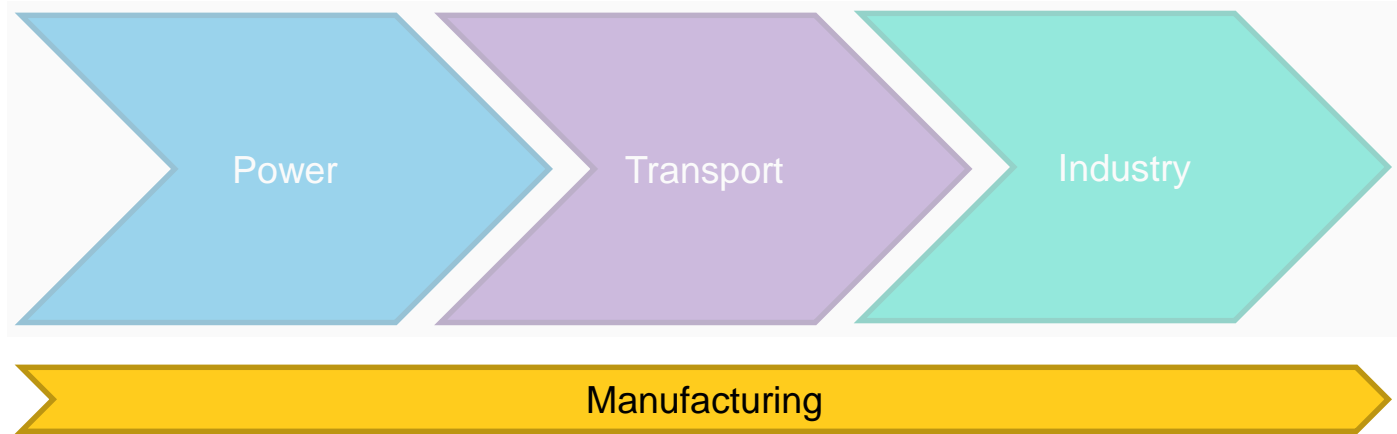
CCS in the US, by source

Million metric tons of CO2 per annum



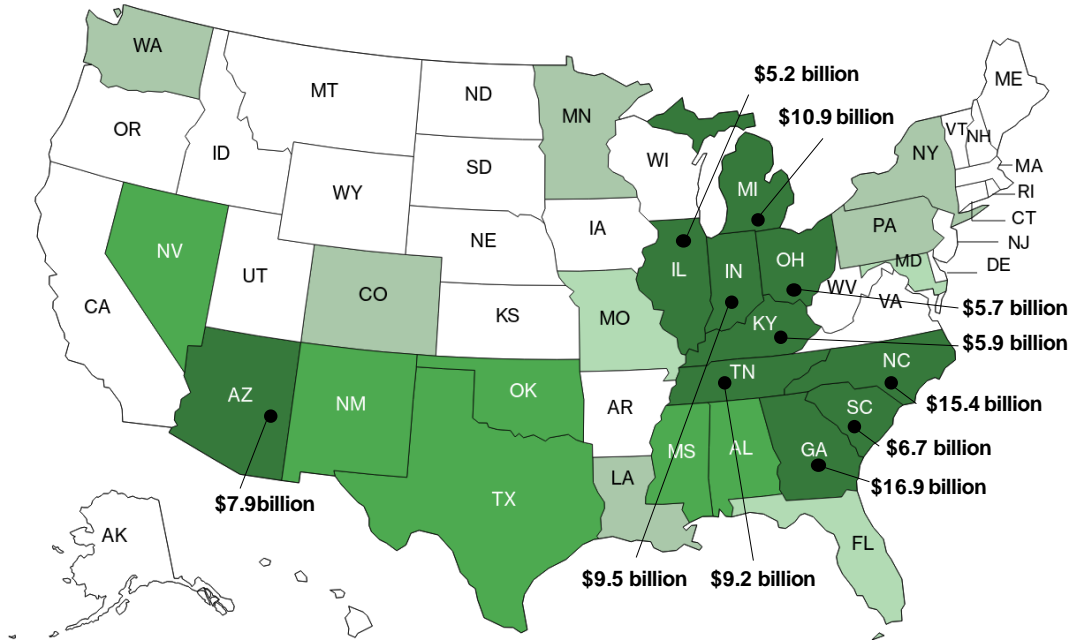
Source: BloombergNEF. Note: DAC is direct air capture.

A sector level view



Manufacturing projects announced since the passage of the IRA

Clean-tech manufacturing investment announcements post-IRA

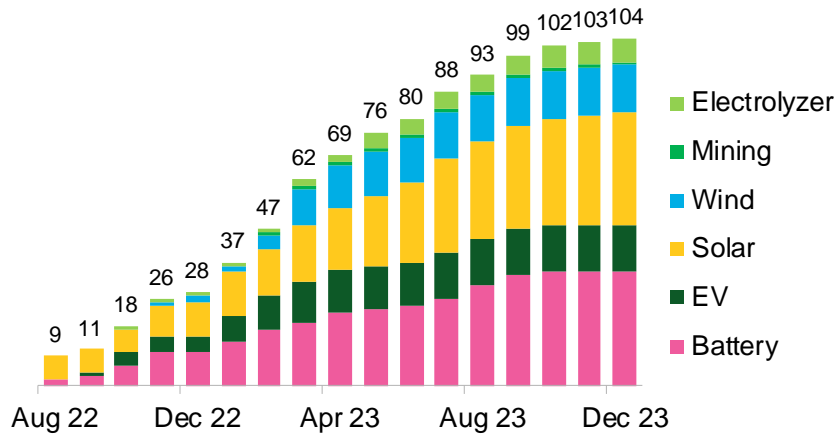


Source: BloombergNEF. Note: Data as of the end of December 2023. Only the top 10 investment figures are labeled.

Clean-tech manufacturing announcements and activity

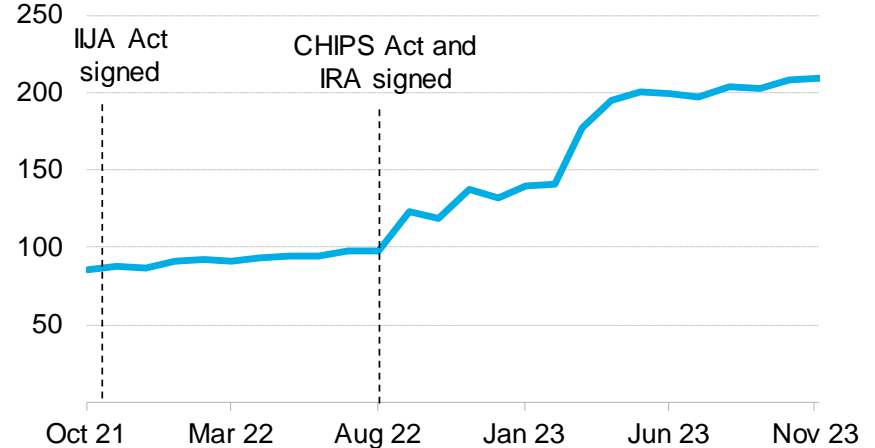
Clean-tech manufacturing investments announcement post-IRA

Number of facilities



Total manufacturing construction spending in the US

\$ billion



Source: BloombergNEF. US Census Bureau. Note: IJIA is the Infrastructure Investment and Jobs Act; CHIPS stands for Creating Helpful Incentives to Produce Semiconductors; IRA is the Inflation Reduction Act.



Sustainable Energy in America **2024 Factbook**



Charles Bolden
Solar Energy Industries
Association



Lisa Jacobson
BCSE



Billie Kaumaya
American Clean Power
Association



Ali McGuigan
National Grid



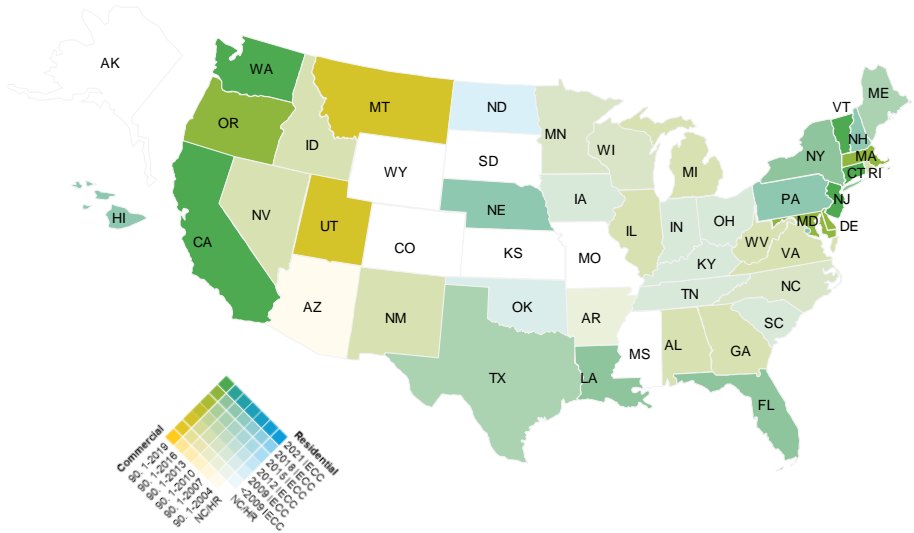
Heather Reams
CRES Forum



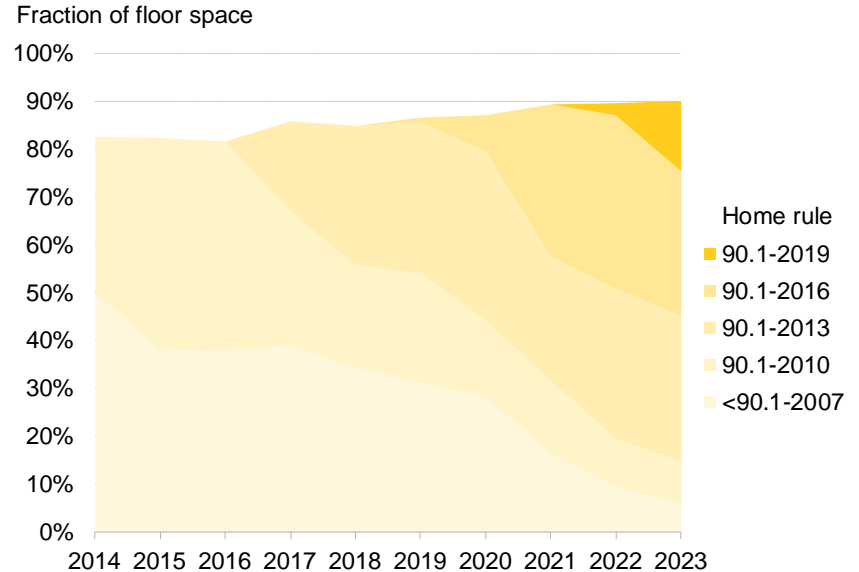
Helen Walter-Terrinoni
Trane Technologies

Statewide energy code adoption

Residential and commercial building codes by state



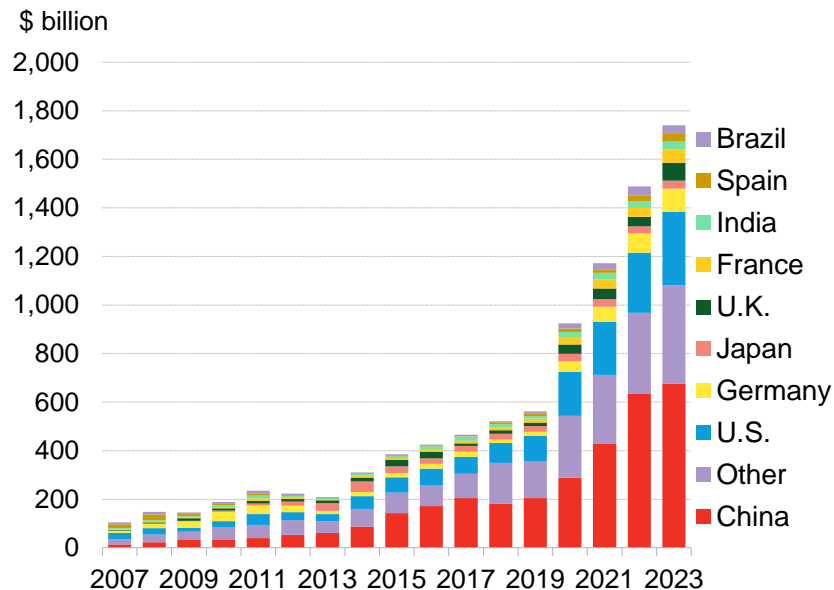
Proportion of new commercial buildings covered by code



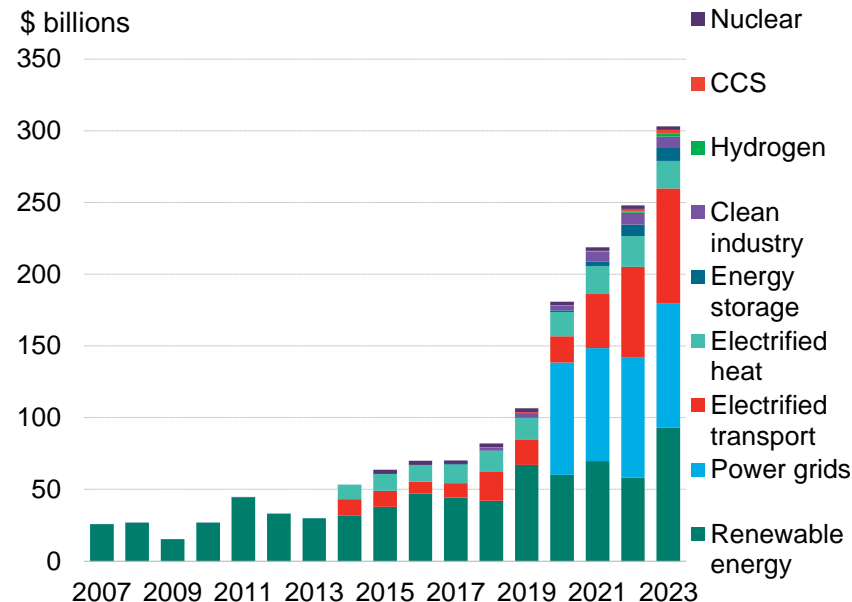
Source: EERE, ACEEE, BloombergNEF, US Green Building Council. Note: The maps represent EERE analysis of energy savings impacts from state code adoptions. Any code for which the Energy Index is not more than 1% higher than that of an IECC or Standard 90.1 edition is considered equivalent to that code edition.

Energy transition investment

Energy transition investment, by market



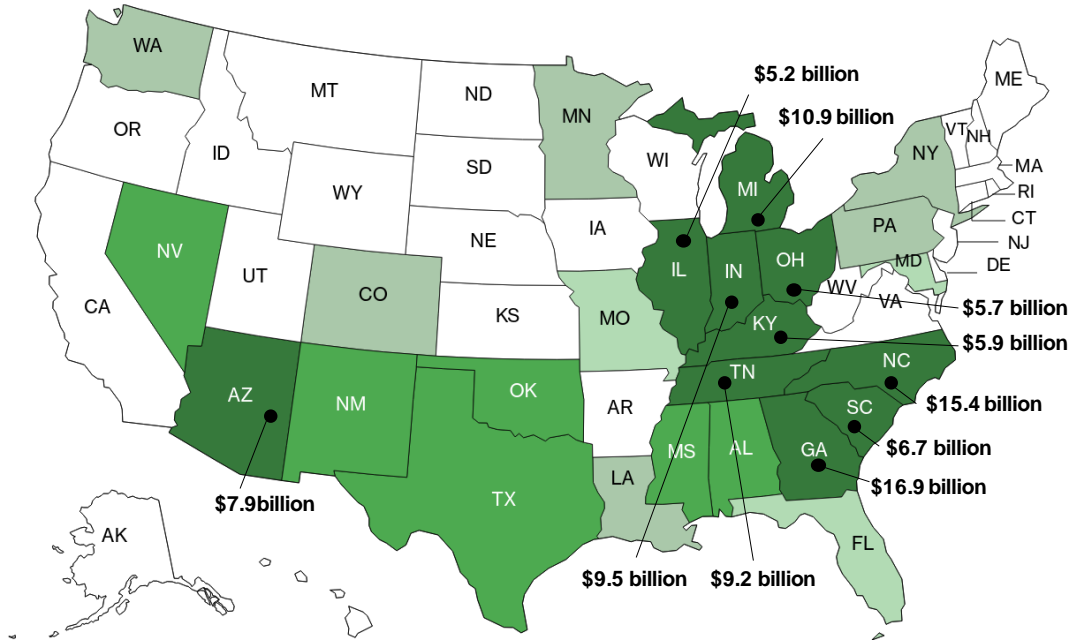
US energy transition investment, by sector



Source: BloombergNEF, Energy Transition Investment Trends database, World Bank. 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.

Manufacturing projects announced since the passage of the IRA

Clean-tech manufacturing investment announcements post-IRA

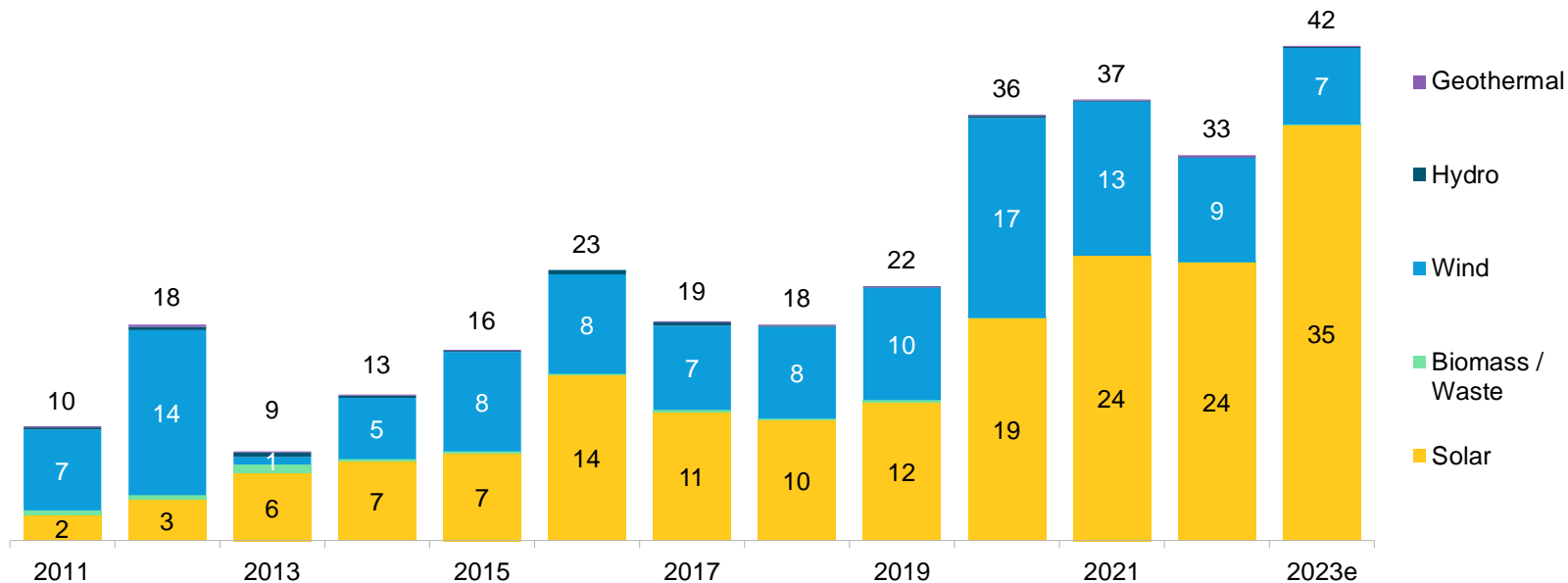


Source: BloombergNEF. Note: Data as of the end of December 2023. Only the top 10 investment figures are labeled.

US deployment of renewable energy

Renewable energy capacity build by technology

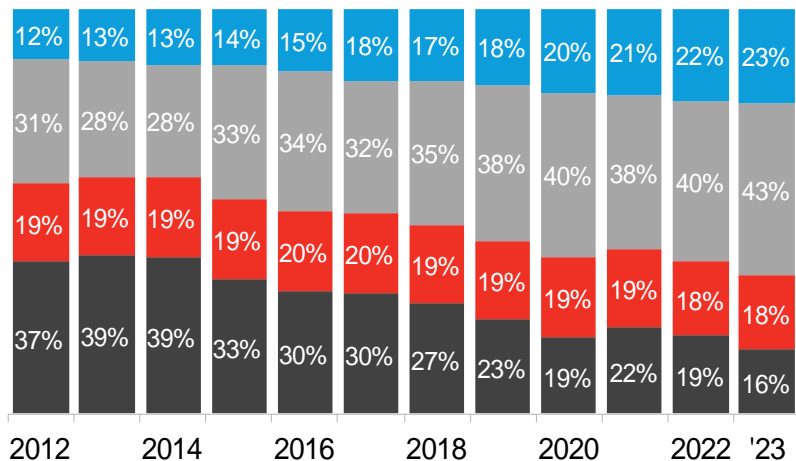
Gigawatts



Source: BloombergNEF. Note: All values are shown in alternating current (AC) except solar, which is included as direct current (DC) capacity using a 1.34 conversion factor. Numbers include utility-scale (>1MW) projects of all types, rooftop solar, and small- and medium-sized wind. Includes installations or planned installations reported to the EIA through November 2023, as well as BloombergNEF projections..

Electricity generation mix

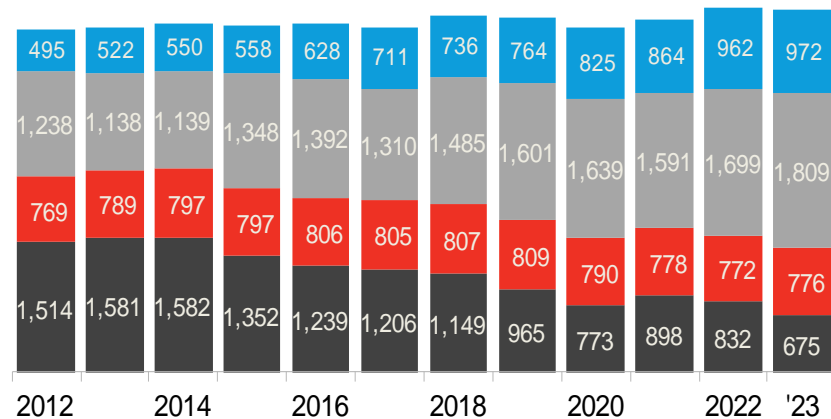
Share of US electricity generation, by fuel type



Coal
 Nuclear
 Natural gas
 Renewables (including hydro)

US electricity generation, by fuel type

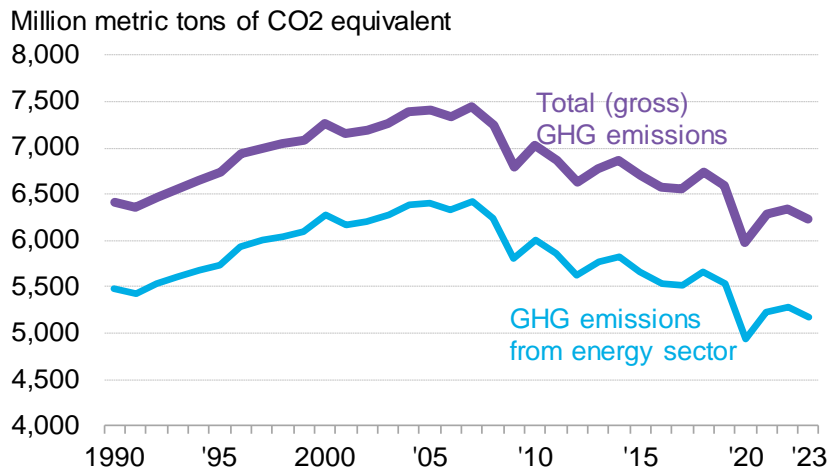
Terawatt-hours



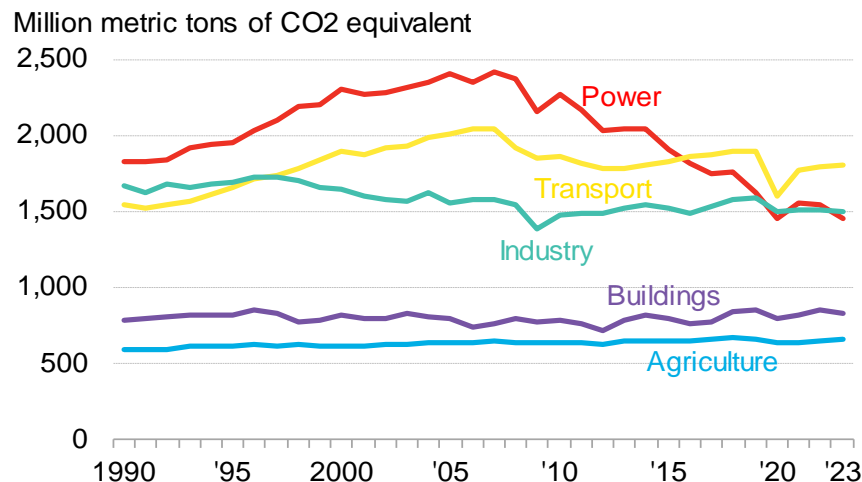
Source: EIA, BloombergNEF. Note: Values for 2023 are projected, accounting for seasonality, based on latest monthly values from EIA (data available through October 2023).

Greenhouse gas (GHG) emissions

Economy-wide and energy sector emissions



Emissions by sector



Source: BloombergNEF, EIA, EPA. Note: GHG stands for greenhouse gas.