

# The Energy Transition: Hardwired Into US Growth

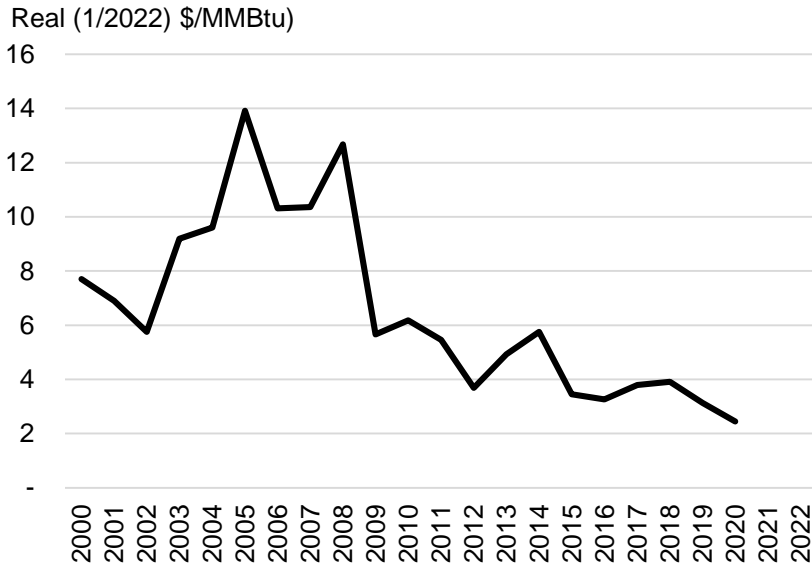
Sustainable Energy in America Factbook  
presentation to EESI

Ethan Zindler

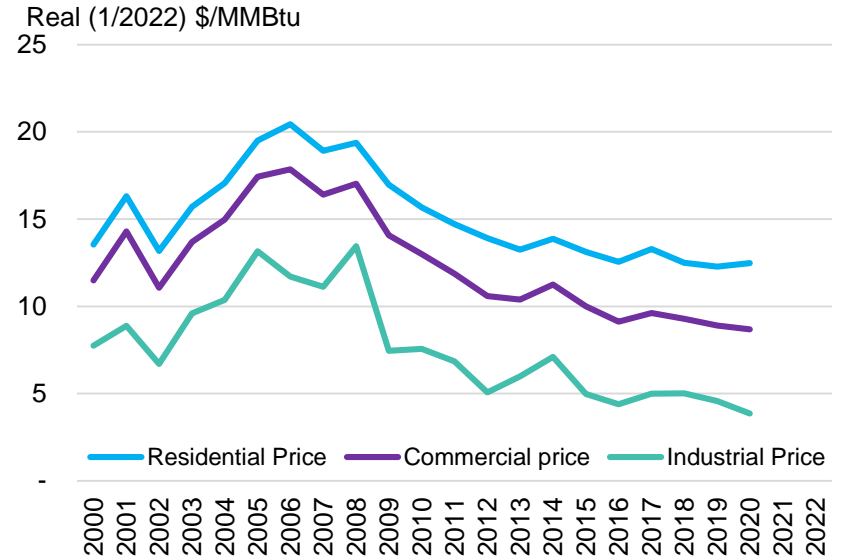
March 15, 2023

# US energy overview: US natural gas pricing, wholesale and by end use

## Natural gas wholesale prices at Henry Hub, LA



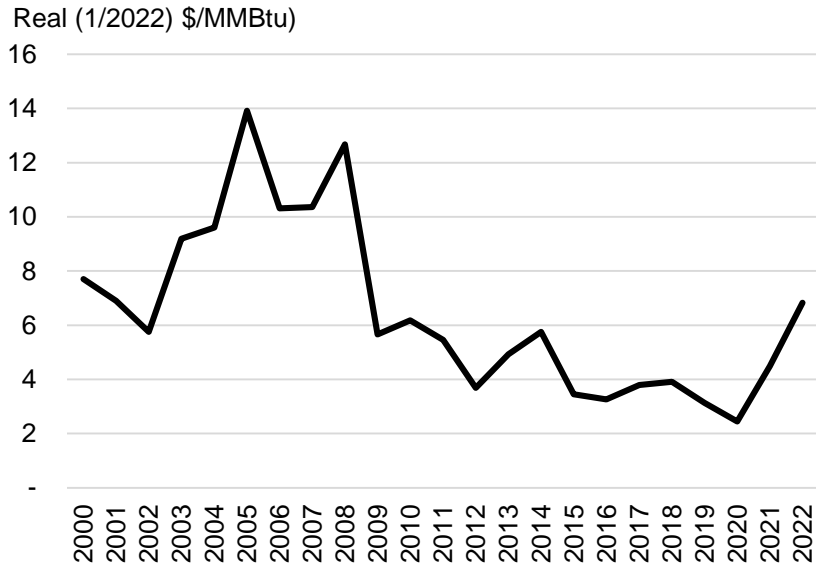
## Natural gas prices to end users, US average



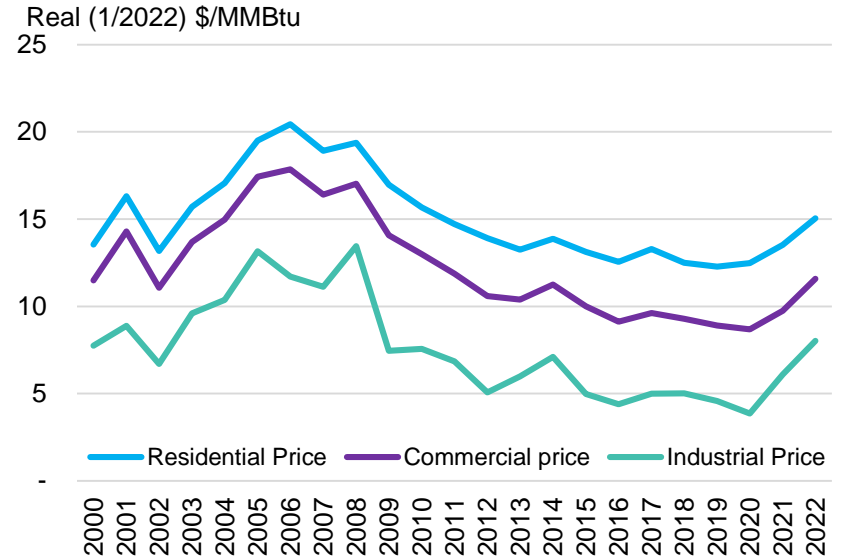
Source: BloombergNEF, EIA Short Term Energy Outlook

# US energy overview: US natural gas pricing, wholesale and by end use

## Natural gas wholesale prices at Henry Hub, LA



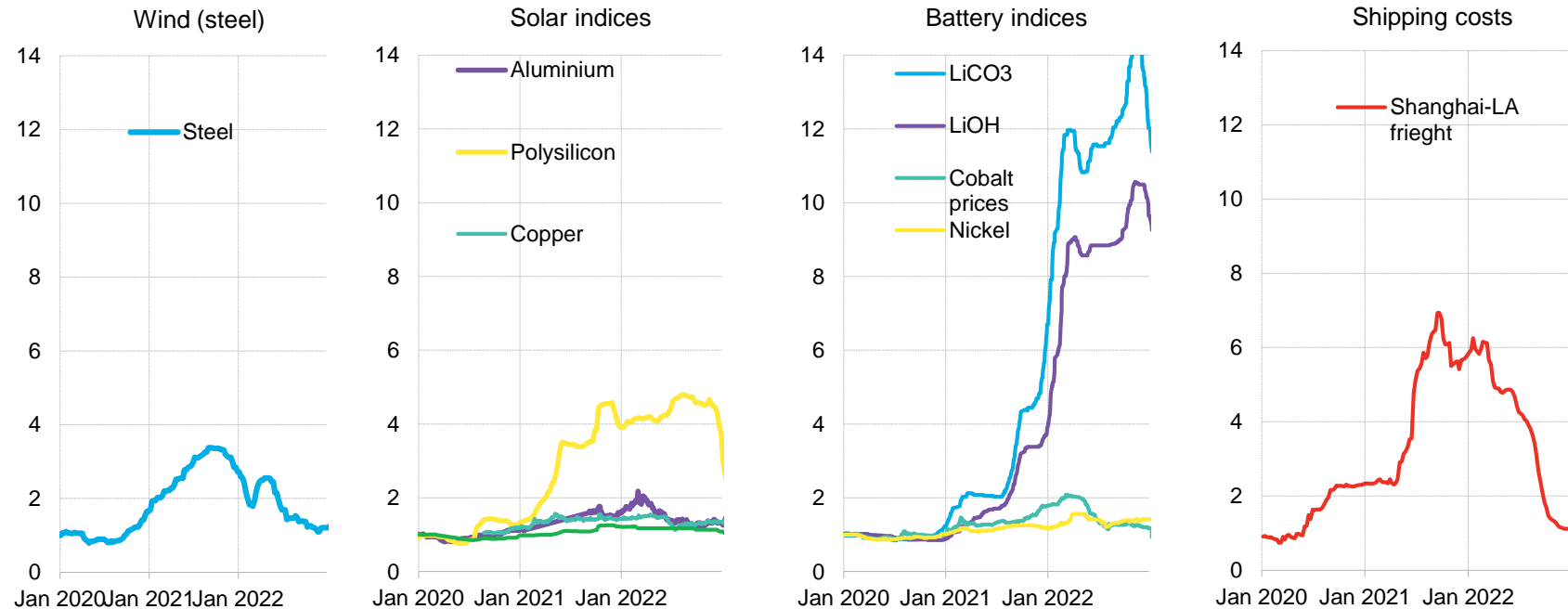
## Natural gas prices to end users, US average



Source: BloombergNEF, EIA Short Term Energy Outlook

# Economics: Commodity costs for wind/solar/batteries/other equipment

## Price movements since January 2020

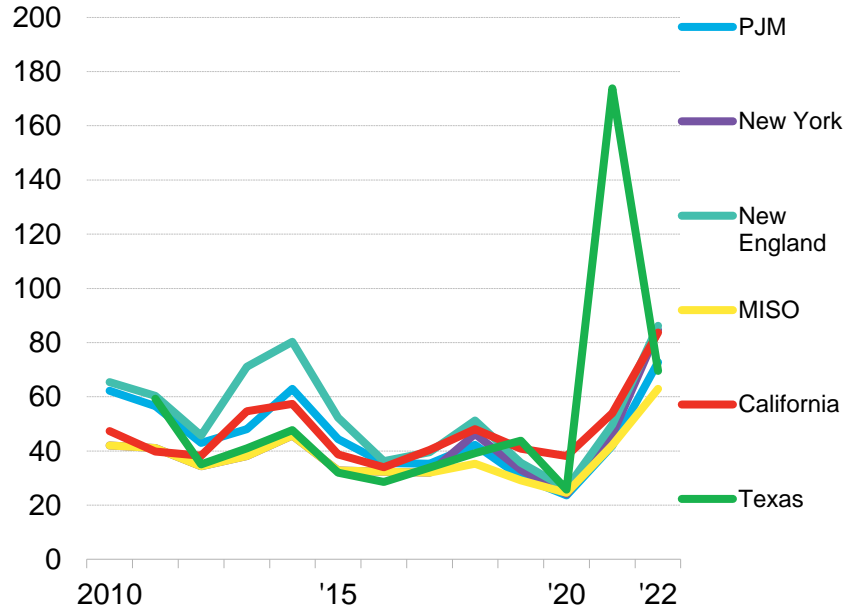


Source: 2H 2022 US Clean Energy/Market Outlook, BloombergNEF, Bloomberg Terminal. Note: Data rebased to 1 on earliest available date in January 2020. Steel reflects North America costs, while aluminum and copper are China prices –more details as well as Bloomberg Terminal tickers available in the Excel attached to the report.

# US energy overview: Retail and wholesale power prices

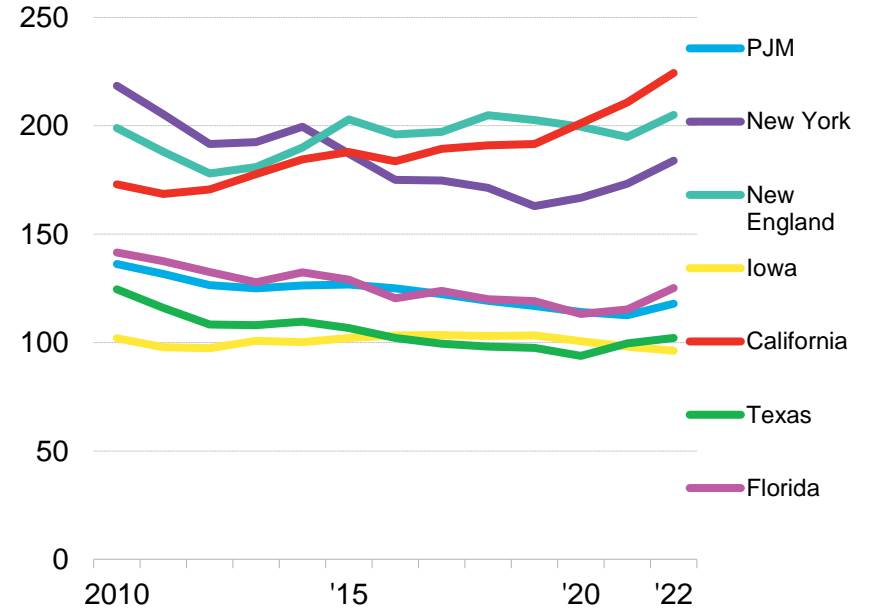
## Wholesale power prices

\$/MWh (real-2022)



## Retail power prices

\$/MWh (real-2022)

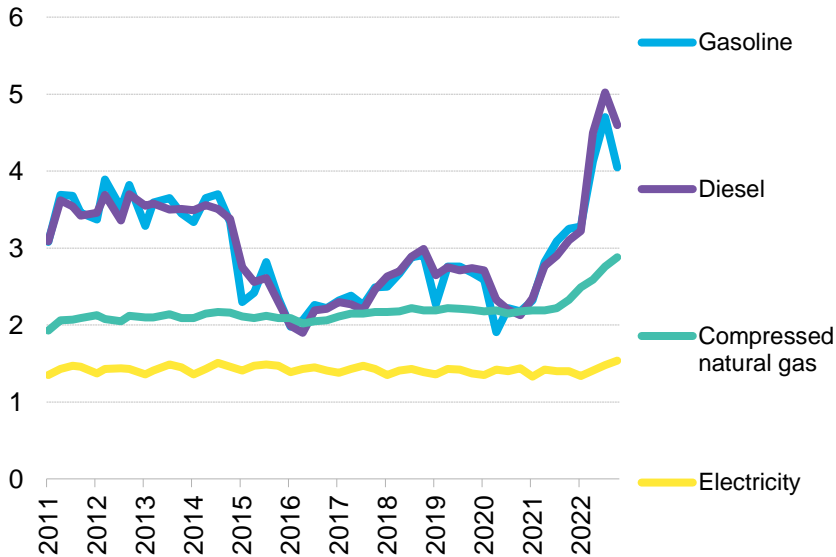


Source: BloombergNEF, EIA, Bloomberg Terminal. Notes: Wholesale prices are taken from proxy power hubs in each ISO. All prices are in real 2022 USD. Retail power prices shown here are not exact retail rates but weighted averages across all rate classes by state, as published by the EIA. Retail prices are updated through November 2022.

# Vehicle fuel prices and EV sales

## Average vehicle fuel prices

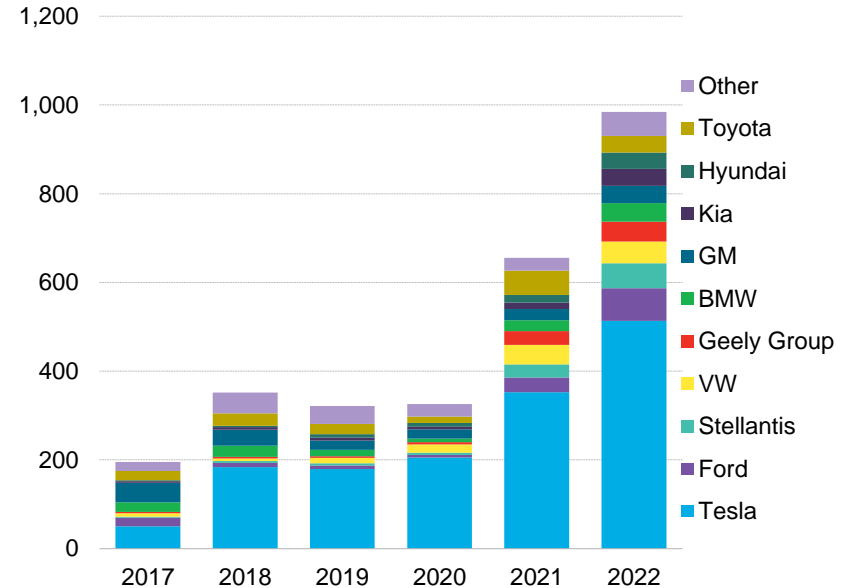
\$/gasoline gallon equivalent (GGE)



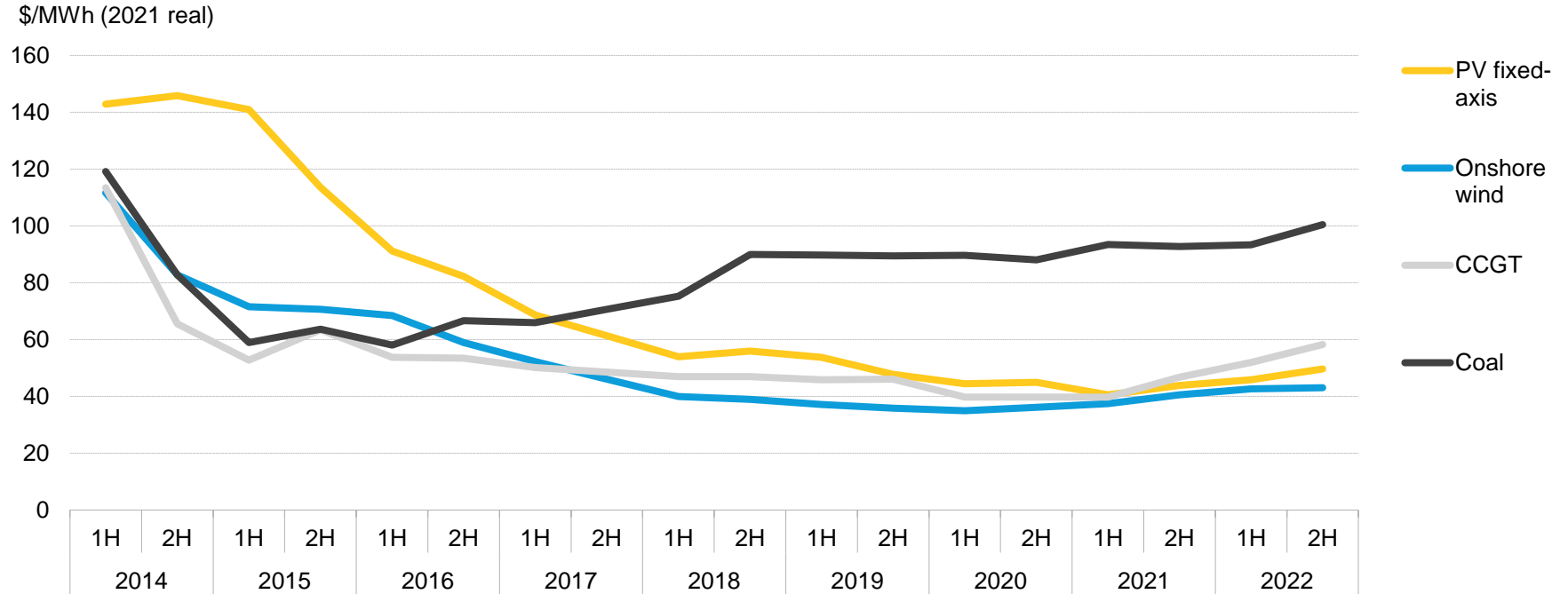
Source: BloombergNEF, Marklines, US Department of Energy.

## US electric vehicle sales

Thousand



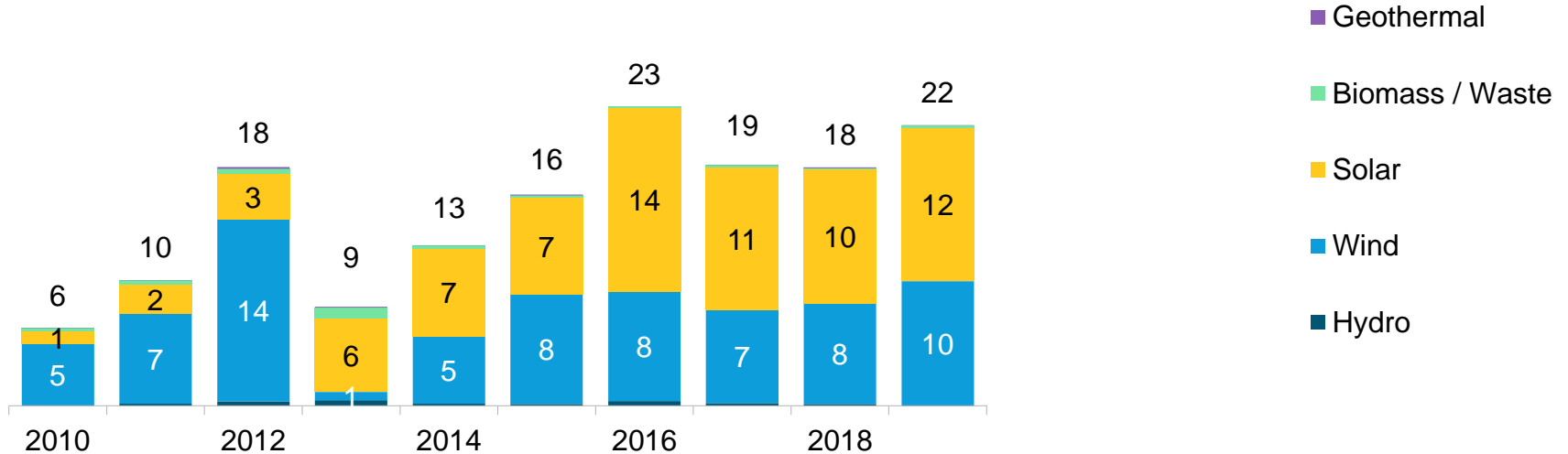
# Economics: US levelized costs of electricity, 2014-22



Source: BloombergNEF. BNEF started collecting country-level LCOE inputs in 2014, prior to 2014 only global LCOE are available see LCOE report. LCOE displayed by financing date.

# US energy overview: Renewable energy capacity build by technology

GW

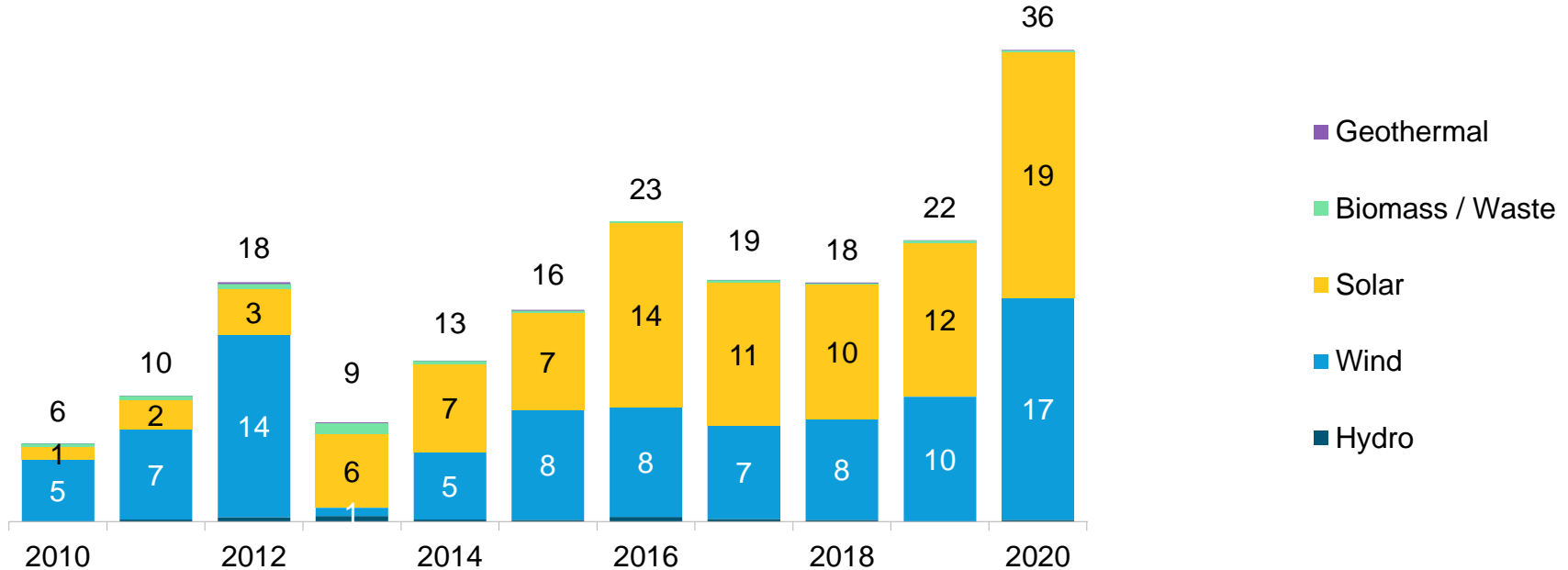


Source: BloombergNEF, EIA Notes: All values are shown in AC except solar, which is included as DC capacity. Numbers include utility-scale (>1MW) projects of all types, rooftop solar, and small- and medium-sized wind. Includes installations or planned installations reported to the EIA through October 2021, as well as BloombergNEF projections.



# US energy overview: Renewable energy capacity build by technology

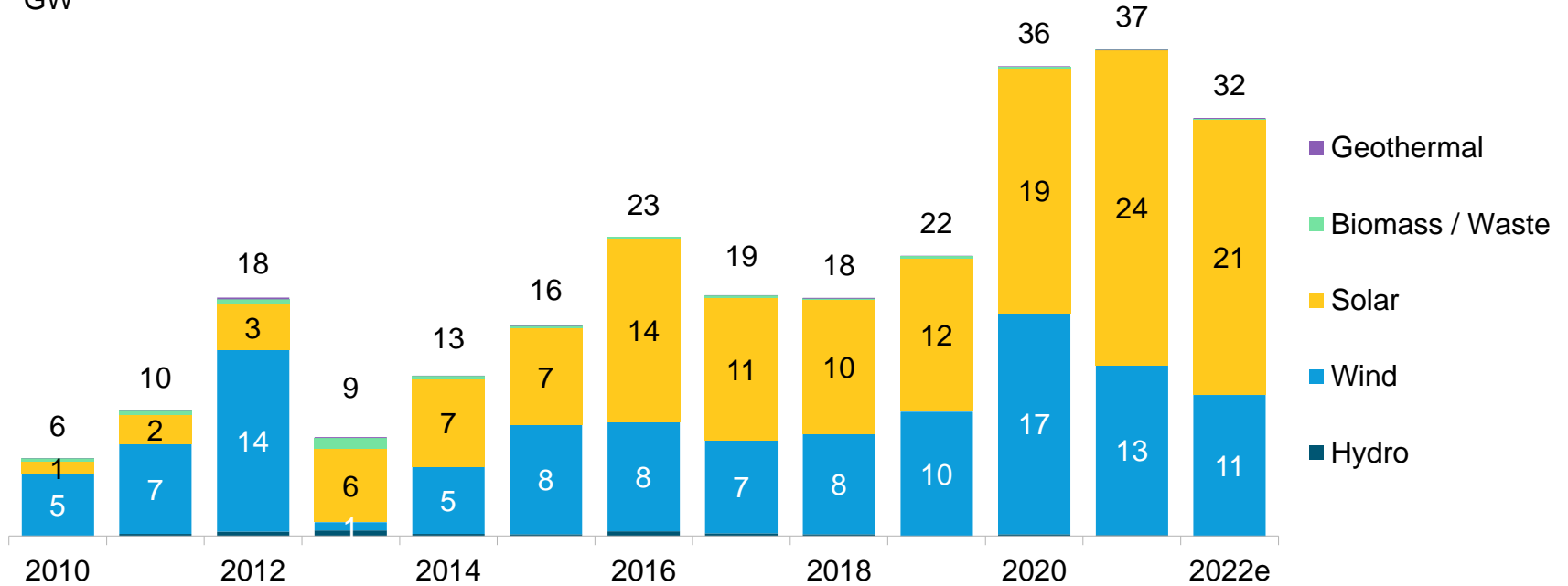
GW



Source: BloombergNEF, EIA Notes: All values are shown in AC except solar, which is included as DC capacity. 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 October 2021, as well as BloombergNEF projections.

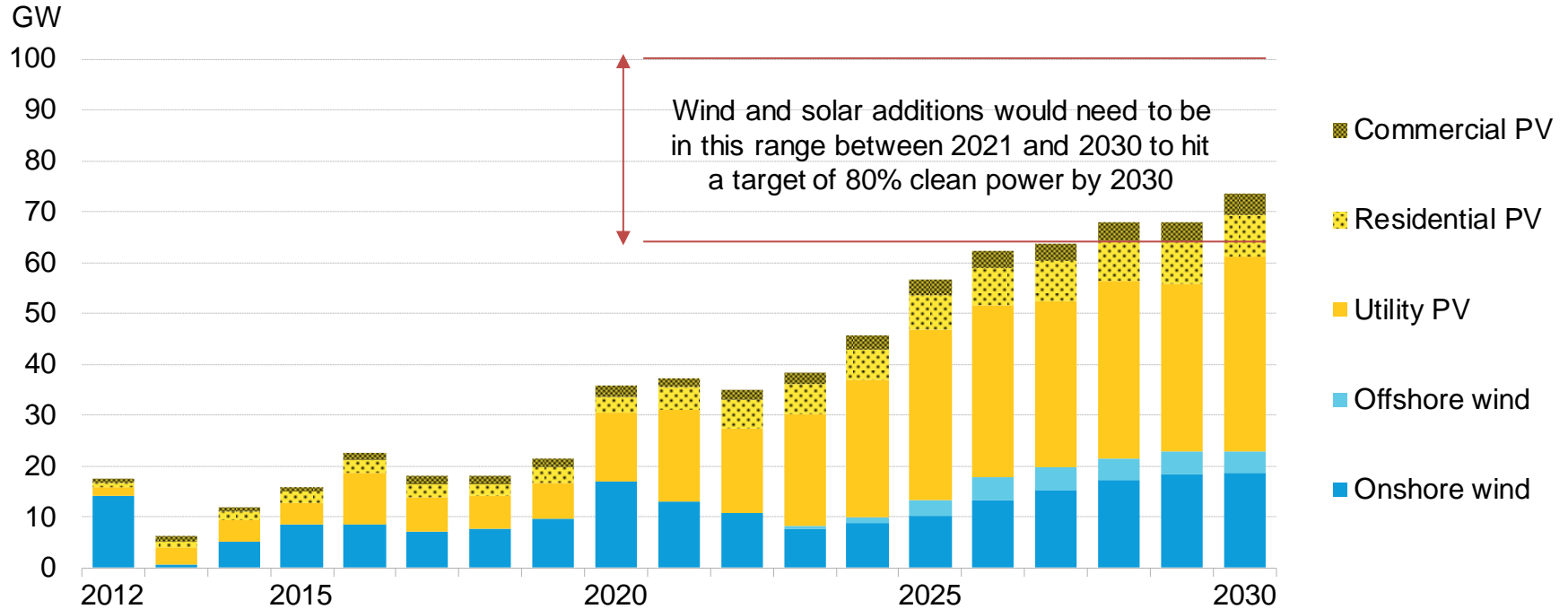
# US energy overview: Renewable energy capacity build by technology

GW



Source: BloombergNEF, EIA Notes: All values are shown in AC except solar, which is included as DC capacity. 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 October 2021, as well as BloombergNEF projections.

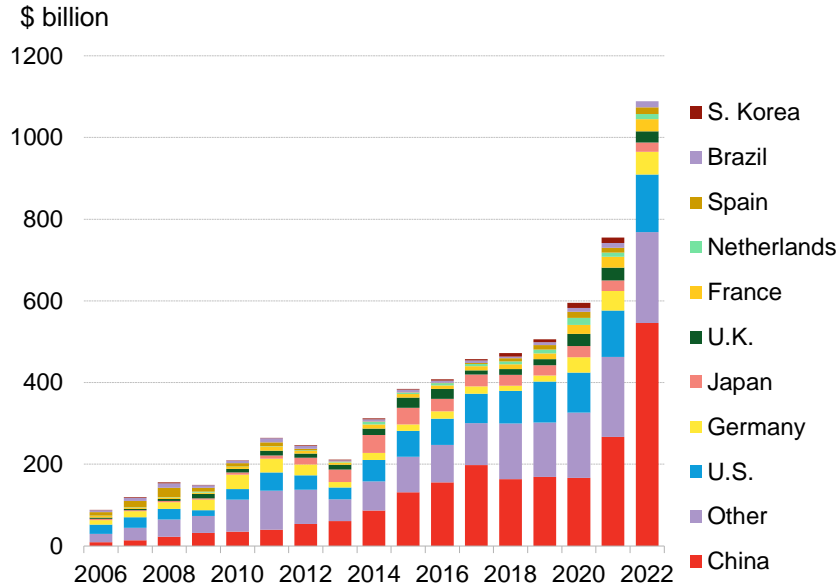
# Projected annual US wind and solar capacity additions



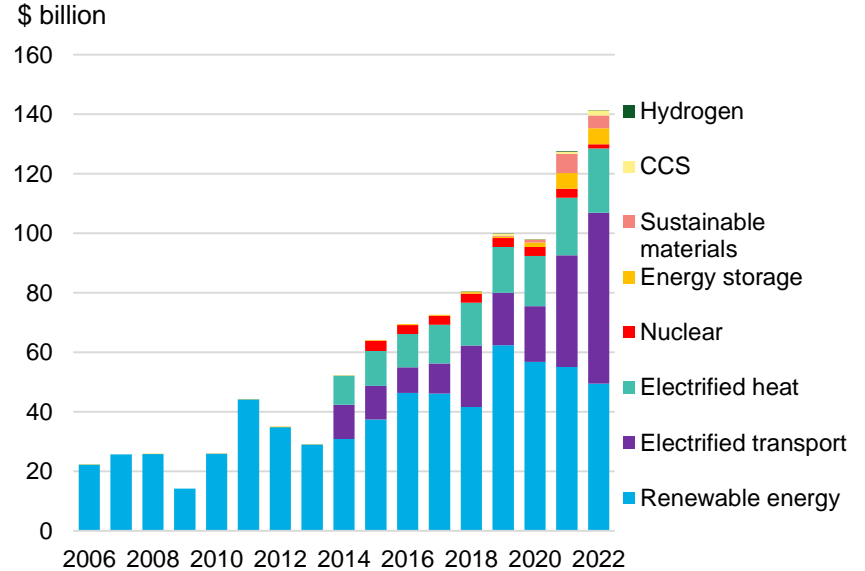
Source: BloombergNEF

# Finance: Energy transition investment

## Energy transition investment, by country



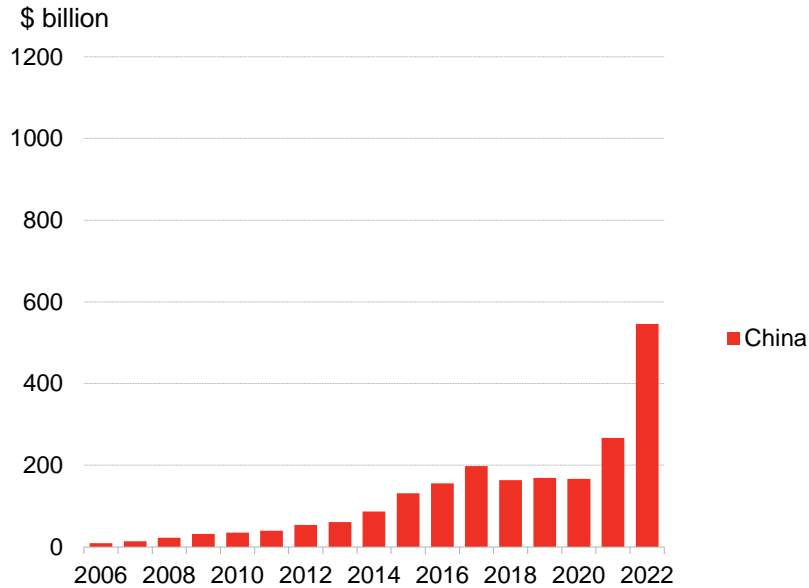
## US energy transition investment, by sector



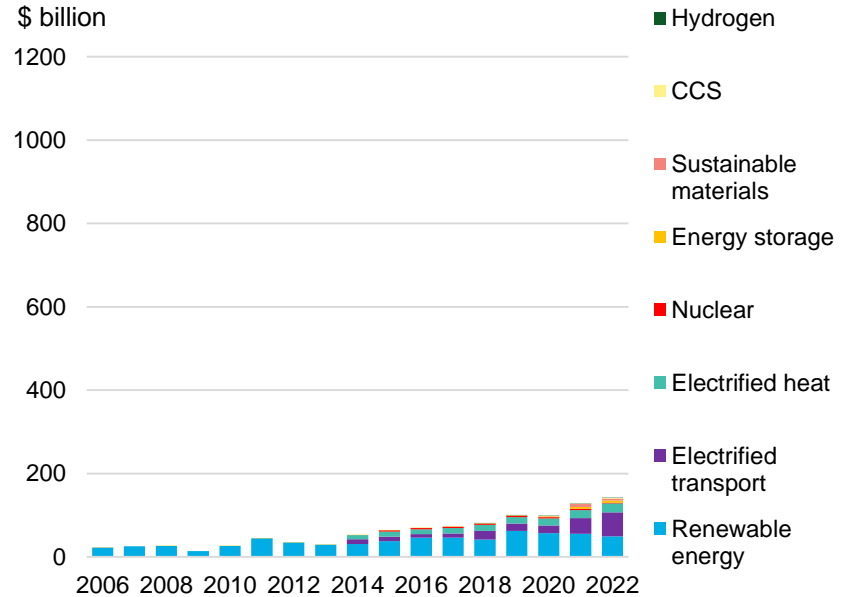
Source: BloombergNEF, "Energy Transition Investment Trends, 2022". Note: BNEF has updated and expanded its coverage of energy transition investment and slightly modified its methodology. For more see <https://www.bnef.com/flagships/clean-energy-investment>.

# Finance: Energy transition investment

## Energy transition investment, by country



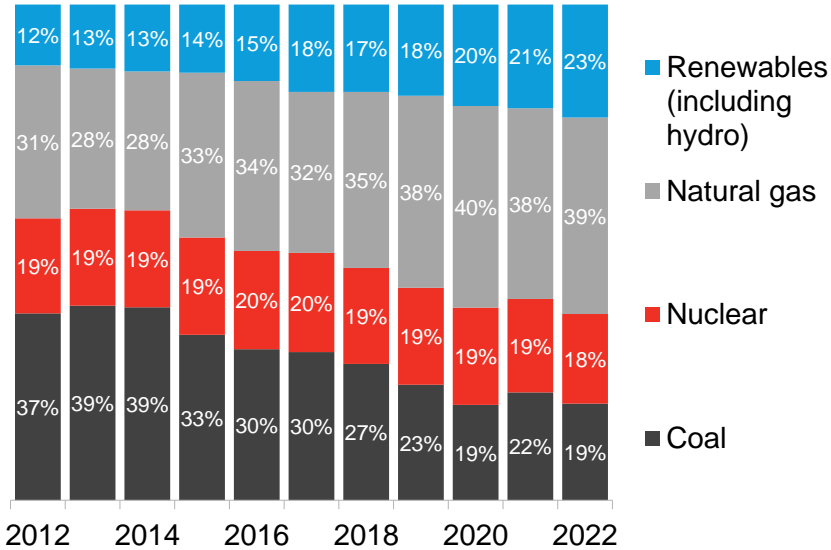
## US energy transition investment, by sector



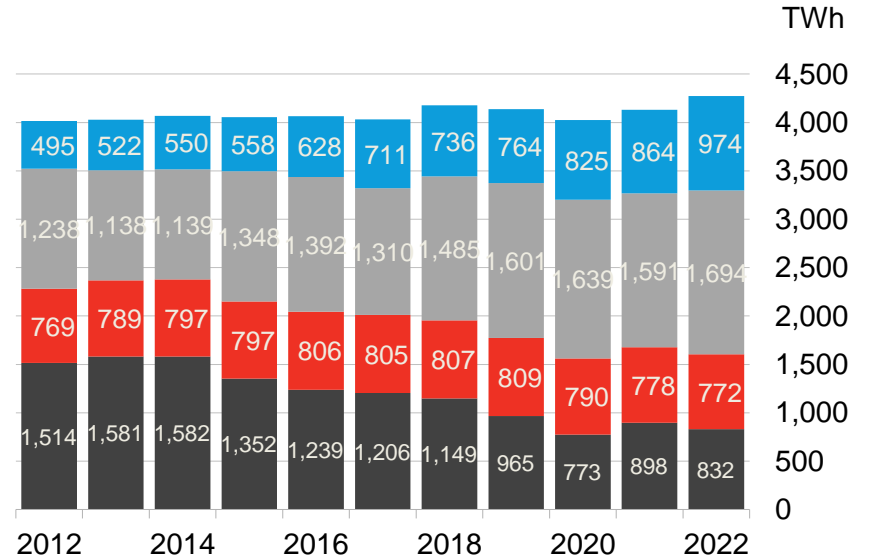
Source: BloombergNEF, "Energy Transition Investment Trends, 2022". Note: BNEF has updated and expanded its coverage of energy transition investment and slightly modified its methodology. For more see <https://www.bnef.com/flagships/clean-energy-investment>.

# US energy overview: Electricity generation mix

## US electricity generation, by fuel type

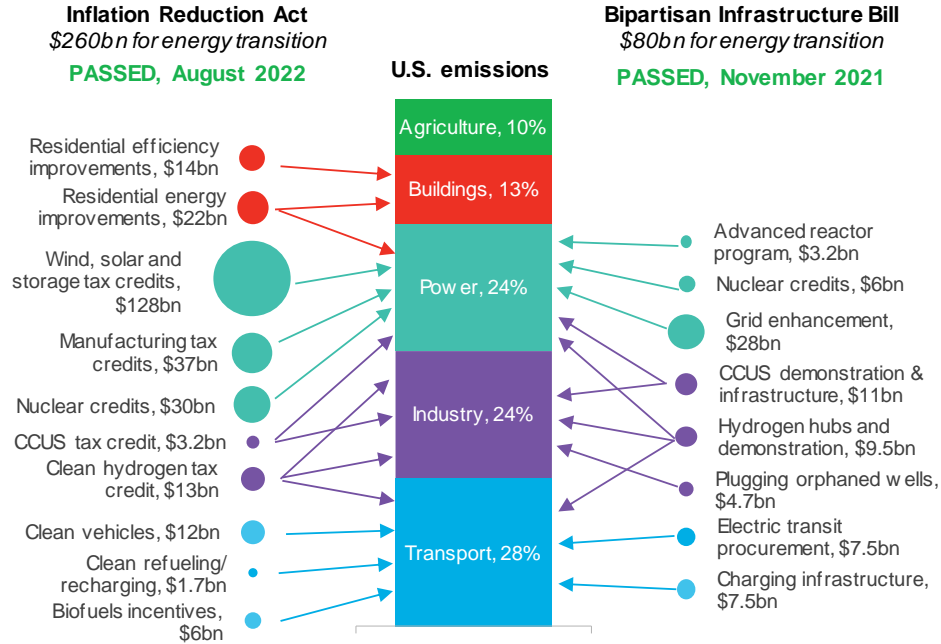


## US electricity generation, by fuel type



Source: EIA, BloombergNEF Note: Values for 2022 are projected, accounting for seasonality, based on latest monthly values from EIA (data available through October 2022)

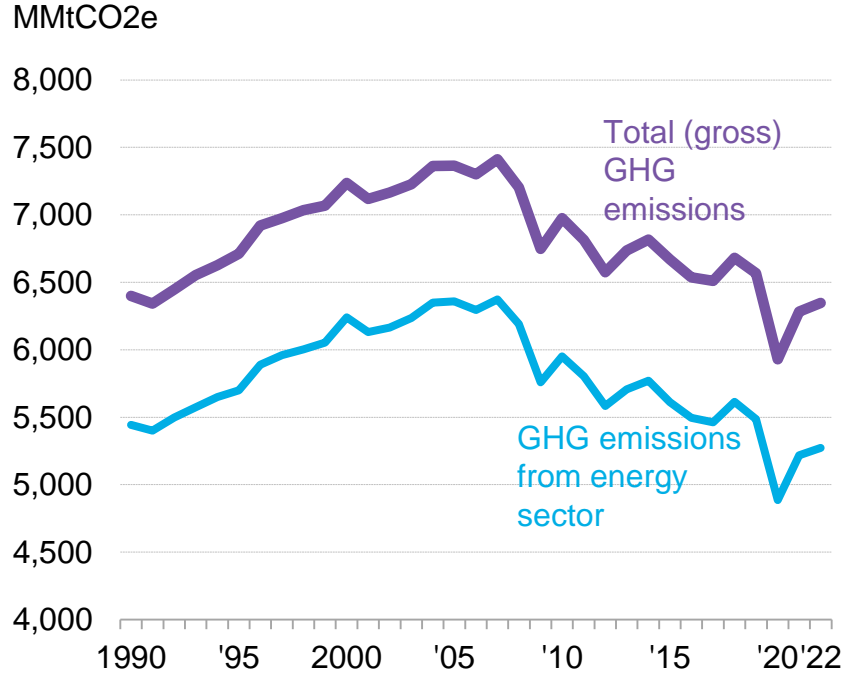
# Estimated 2022-31 energy transition spend in IRA and infrastructure law



Source: EIA, EPA, Joint Committee on Taxation, Inflation Reduction Act, BloombergNEF. Note: Left-hand chart only captures tax credits and incentives, not grant programs or loans.. CCUS is carbon capture, utilization and storage.

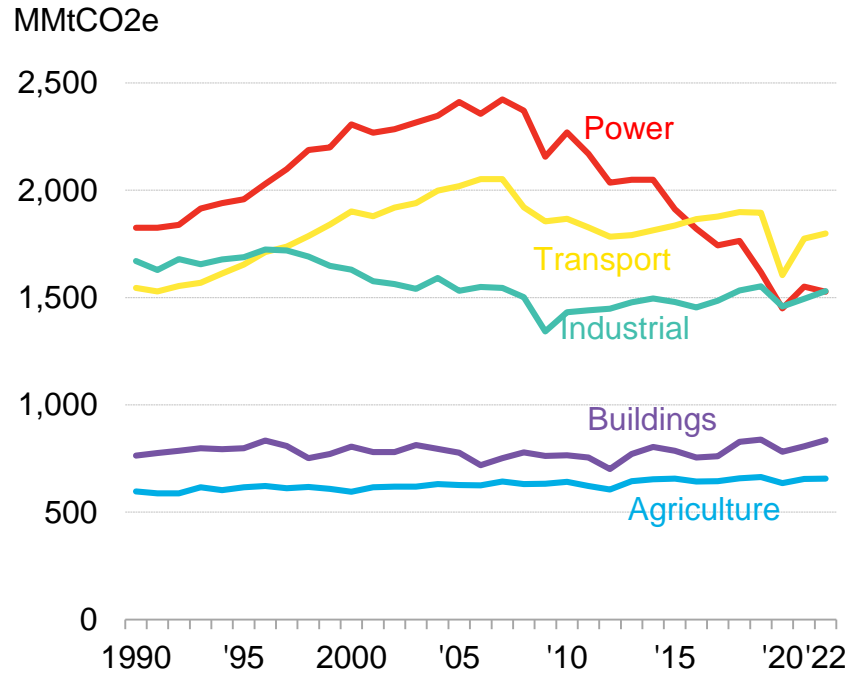
# US energy overview: Greenhouse gas (GHG) emissions

## Economy-wide and energy sector emissions



Source: BloombergNEF, EIA, EPA.

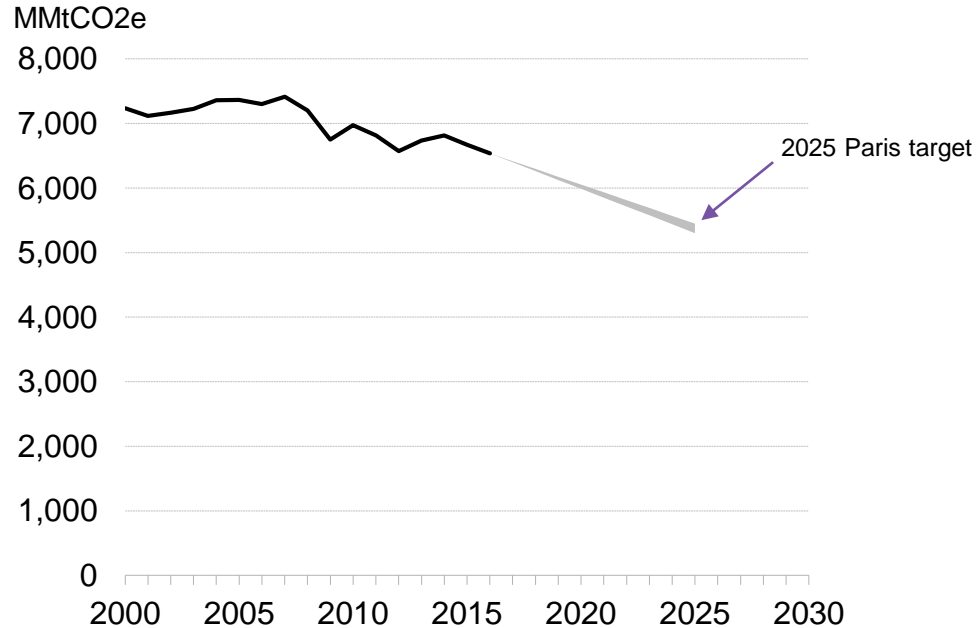
## Emissions by sector





# Policy: US progress toward emissions goals

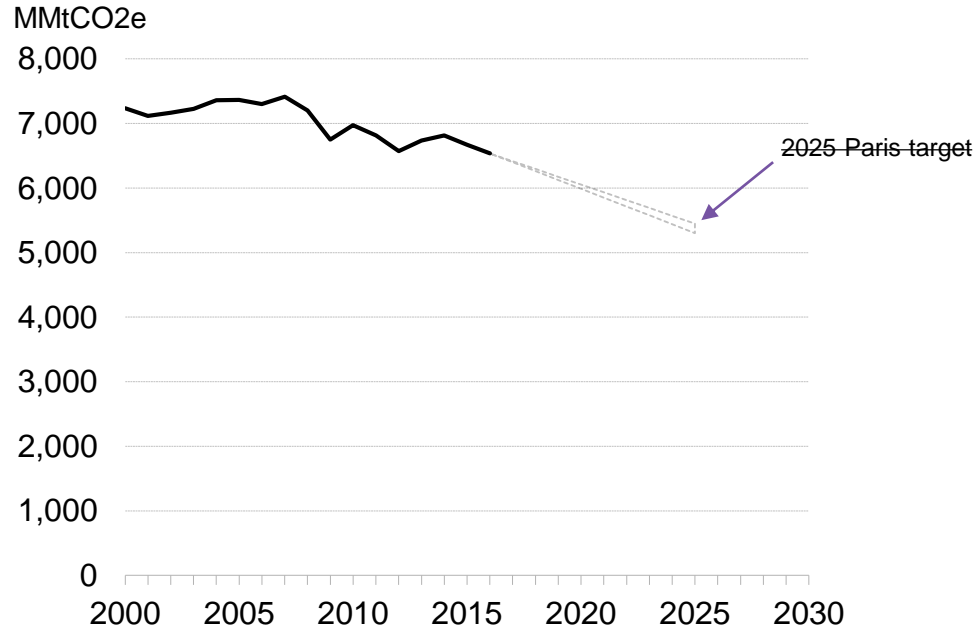
## US economy-wide emissions



Source: EIA, EPA, BloombergNEF

# Policy: US progress toward emissions goals

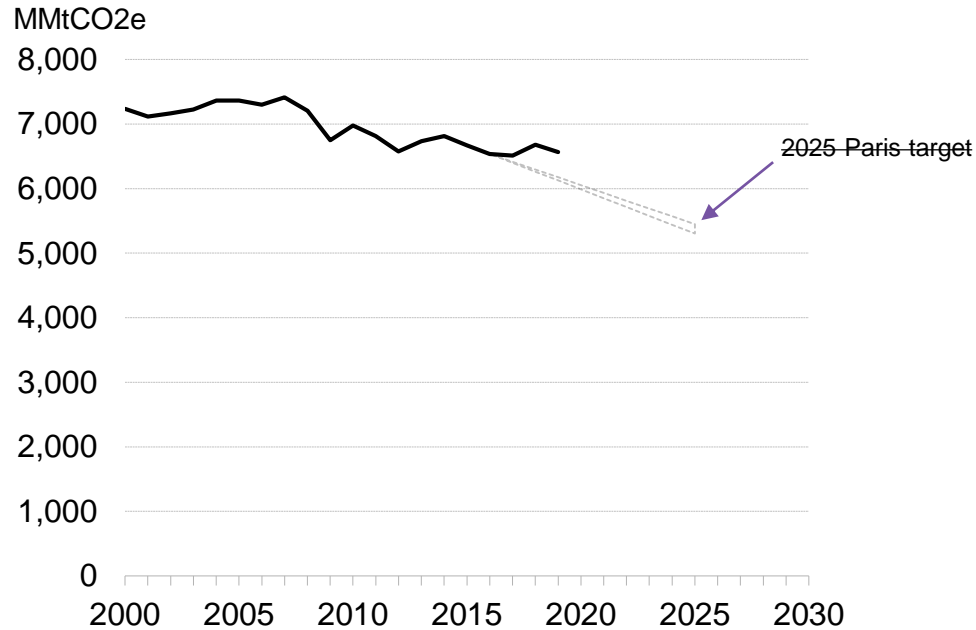
## US economy-wide emissions



Source: EIA, EPA, BloombergNEF

# Policy: US progress toward emissions goals

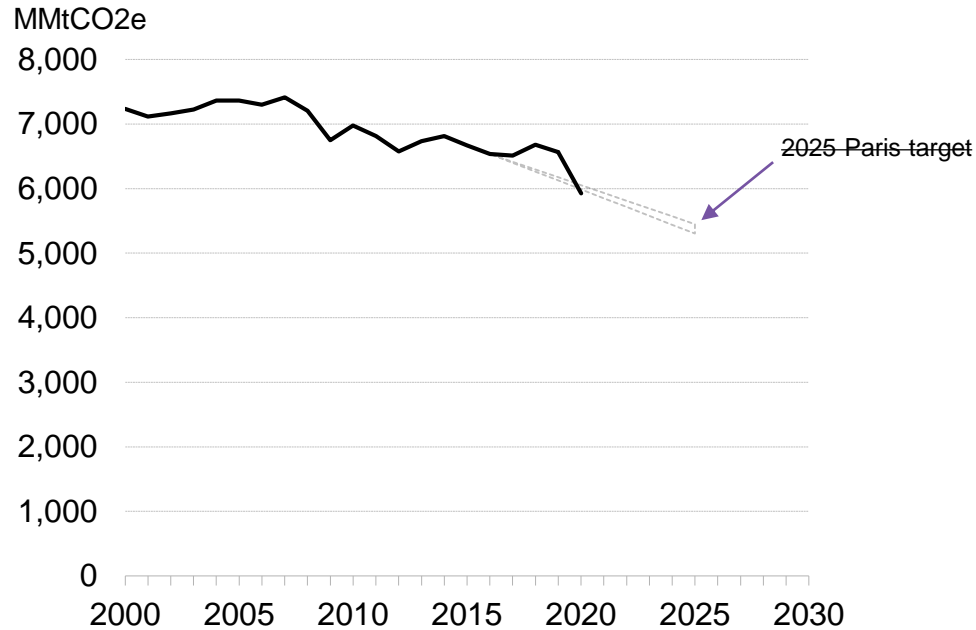
## US economy-wide emissions



Source: EIA, EPA, BloombergNEF

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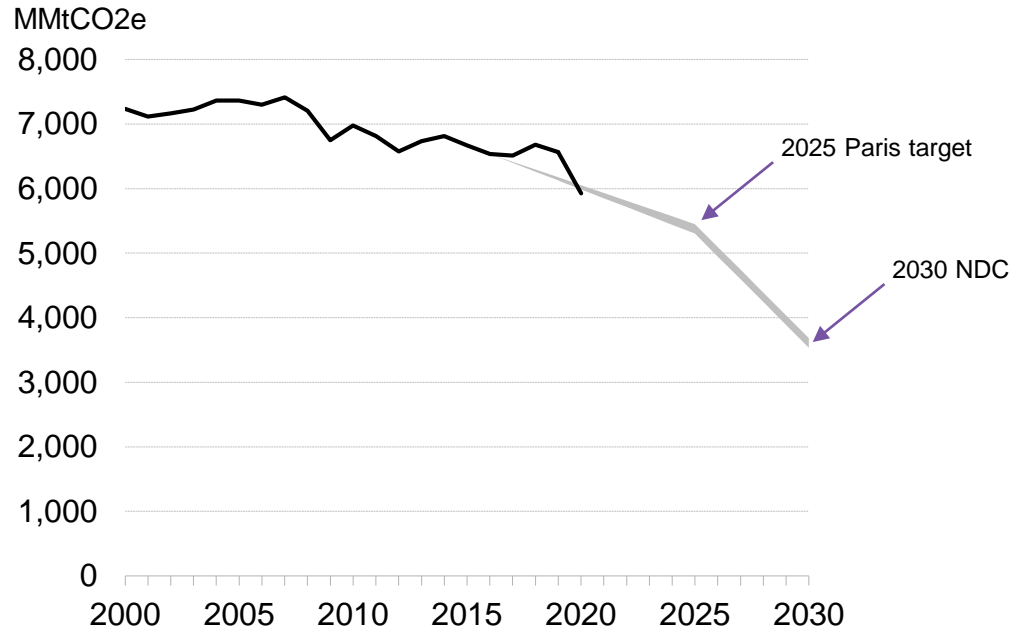
## US economy-wide emissions



Source: EIA, EPA, BloombergNEF

# Policy: US progress toward emissions goals

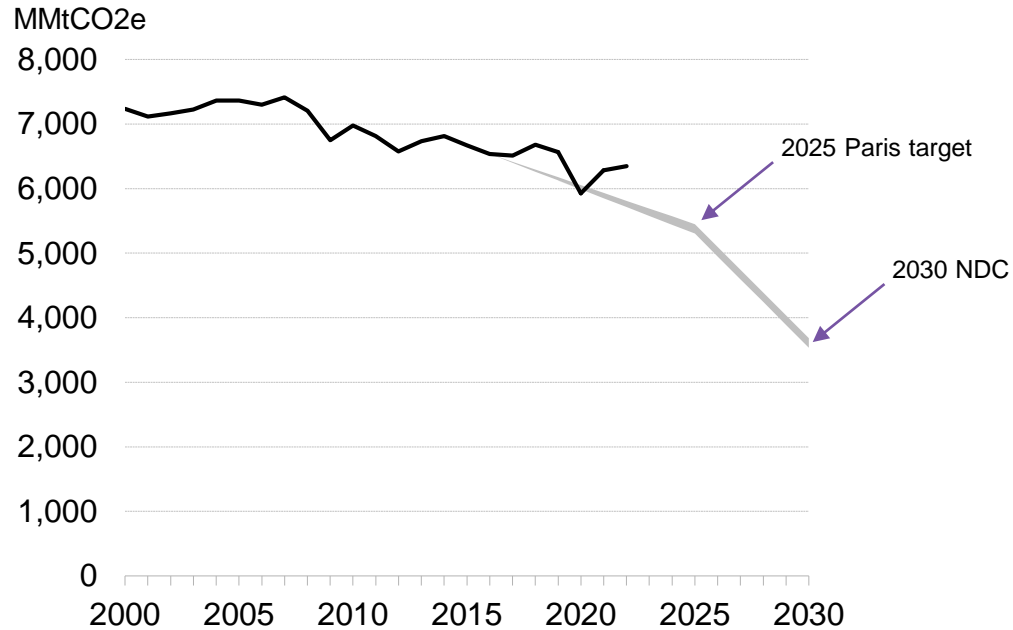
## US economy-wide emissions



Source: EIA, EPA, BloombergNEF

# Policy: US progress toward emissions goals

## US economy-wide emissions



Source: EIA, EPA, BloombergNEF

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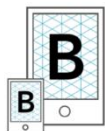
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Our expert coverage assesses pathways for the power, transport, industry, buildings and agriculture sectors to adapt to the energy transition.

We help commodity trading, corporate strategy, finance and policy professionals navigate change and generate opportunities.

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