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Environmental and Energy Study Institute

The Business Council for Sustainable Energy®

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2023 Sustainable Energy in America Factbook

Wednesday, March 15, 2023

About EESI

Non-partisan Educational Resources for Policymakers

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*.

Policymaker 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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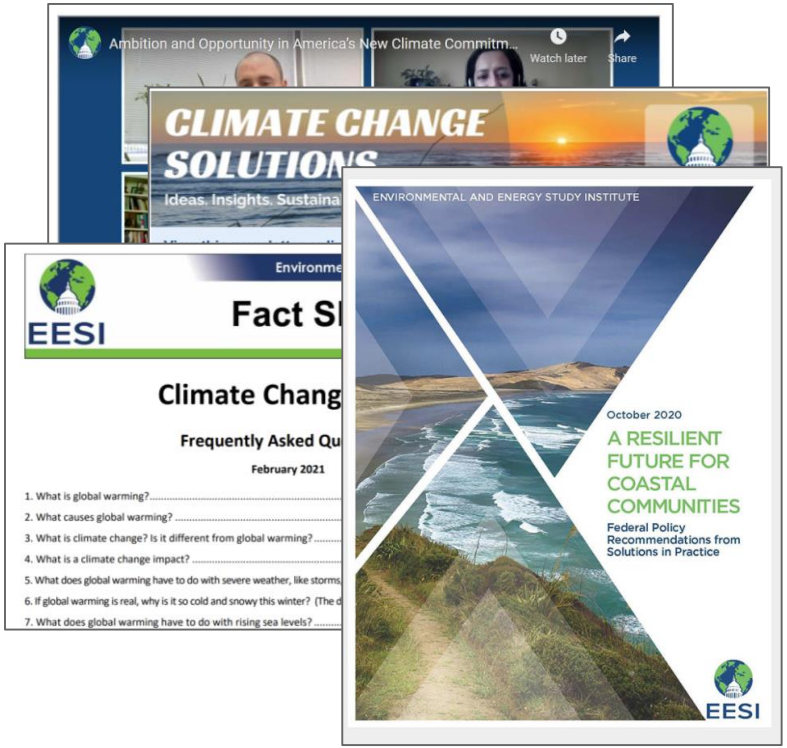
Active engagement on Twitter, Facebook, LinkedIn, and YouTube



The Energy Transition: Hardwired Into US Growth

Sustainable Energy in America Factbook presentation to EESI

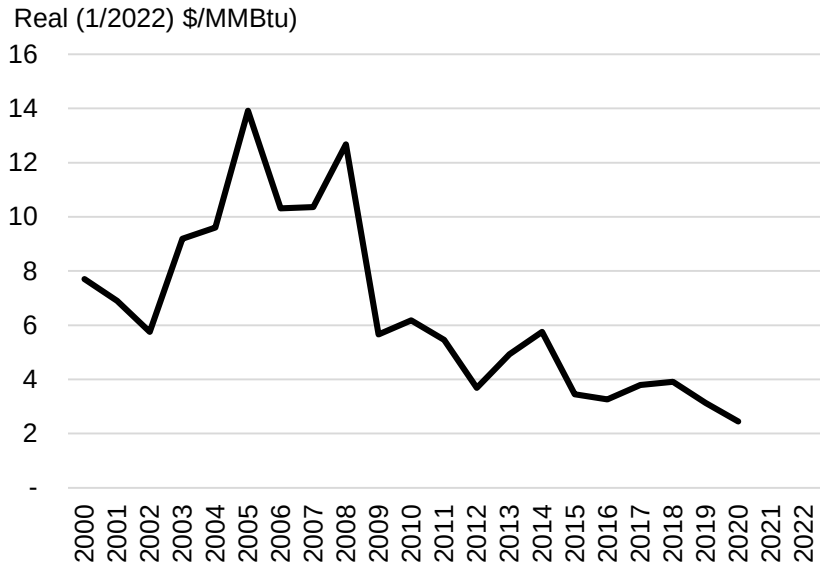
Ethan Zindler

March 15, 2023

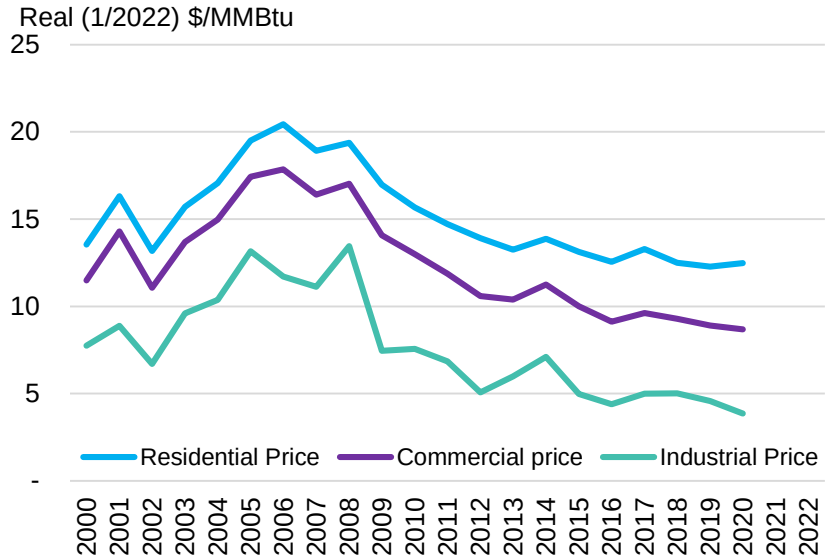
BloombergNEF

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

BloombergNEF

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

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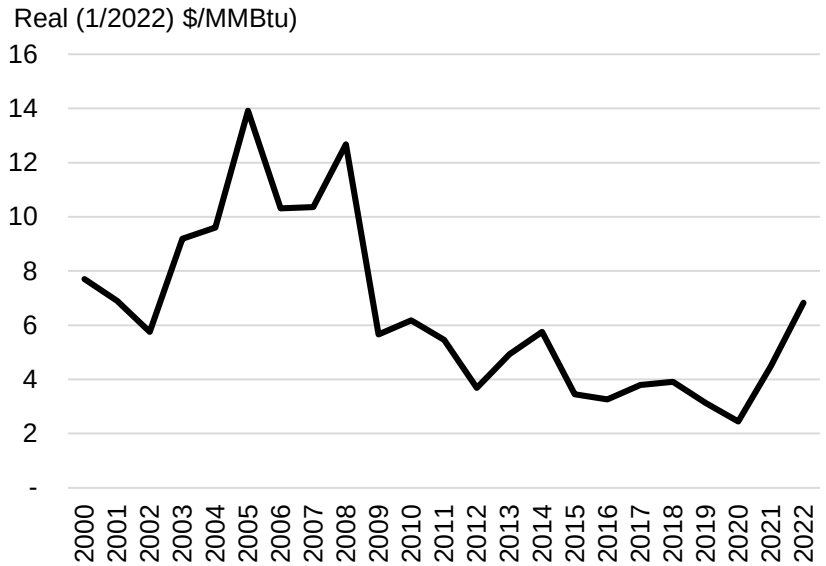

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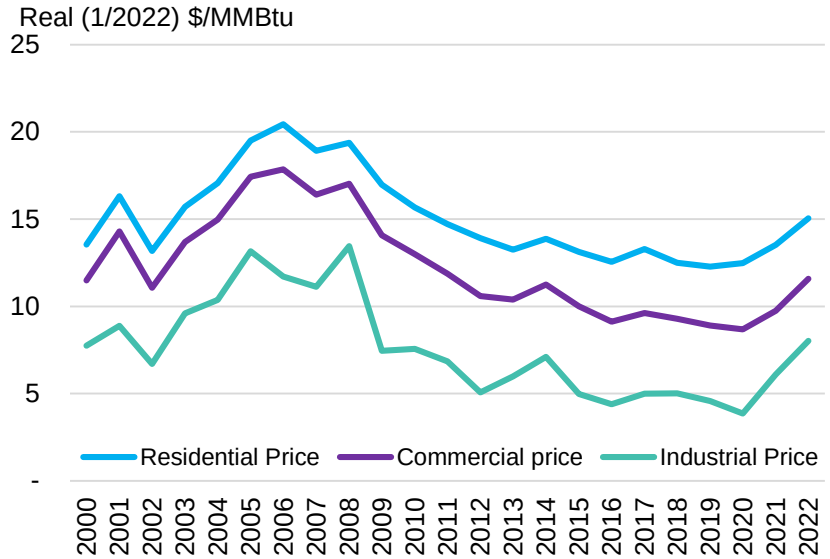
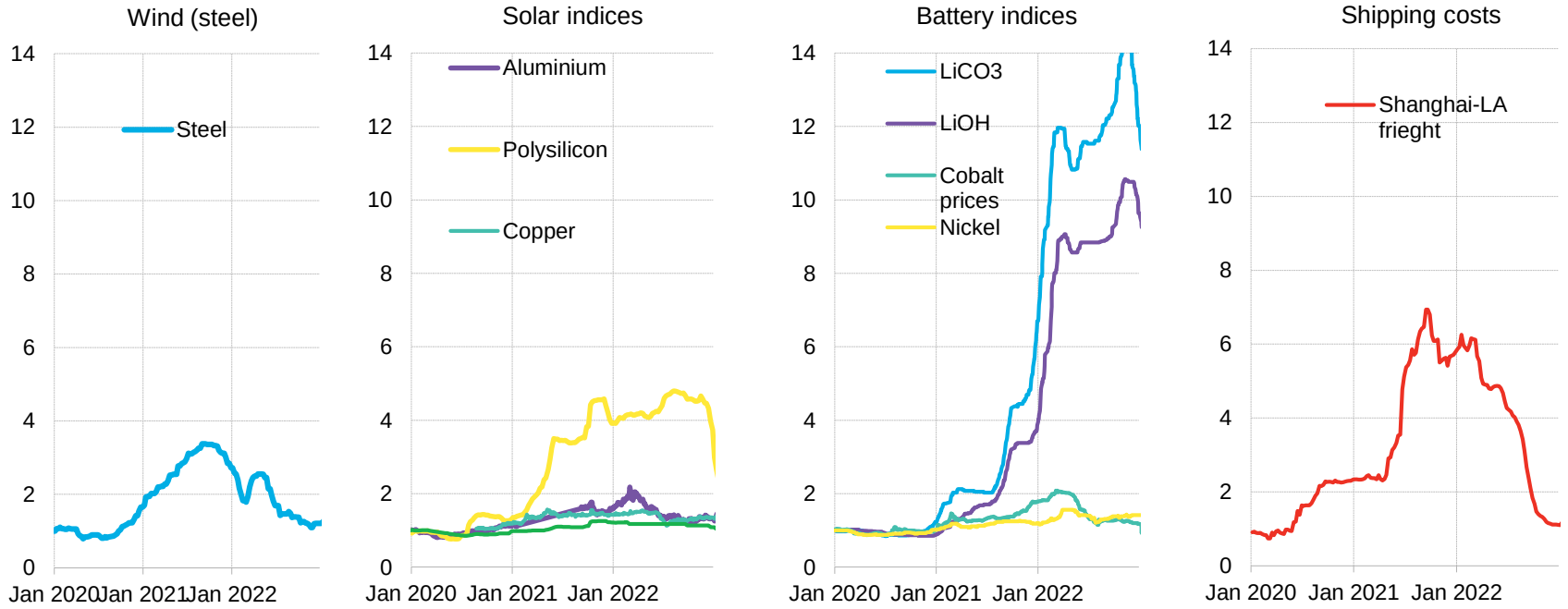


Source: BloombergNEF, EIA Short Term Energy Outlook

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

Price movements since January 2020

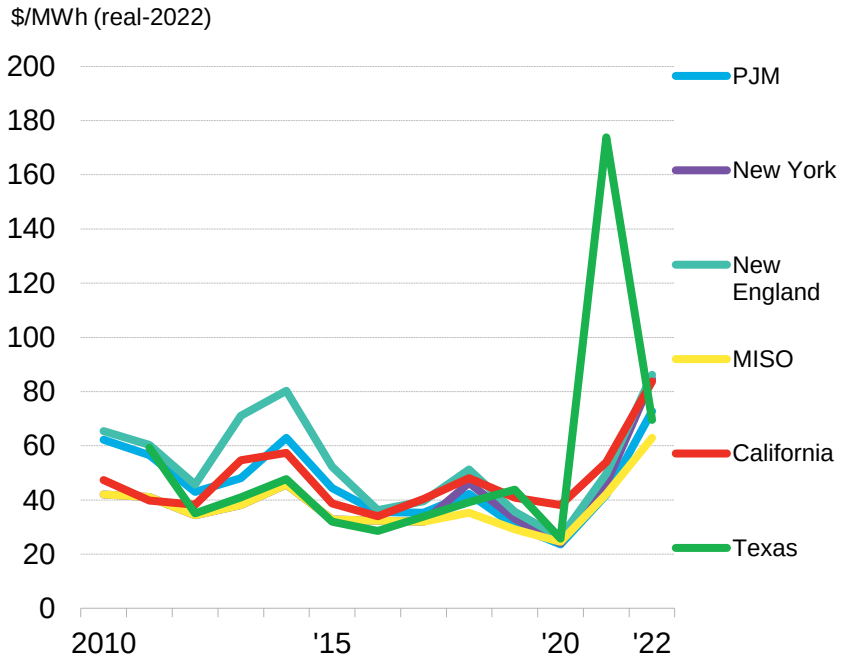


Source: 2H 2022 US Clean EnergyMarket Outlook, BloombergNEF, Bloomberg Terminal. Note: Data rebased to 1 on earliest available date in January 2020. Steel reflects North America costs, while aluminum and copper are China prices –more details as well as Bloomberg Terminal tickers available in the Excel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

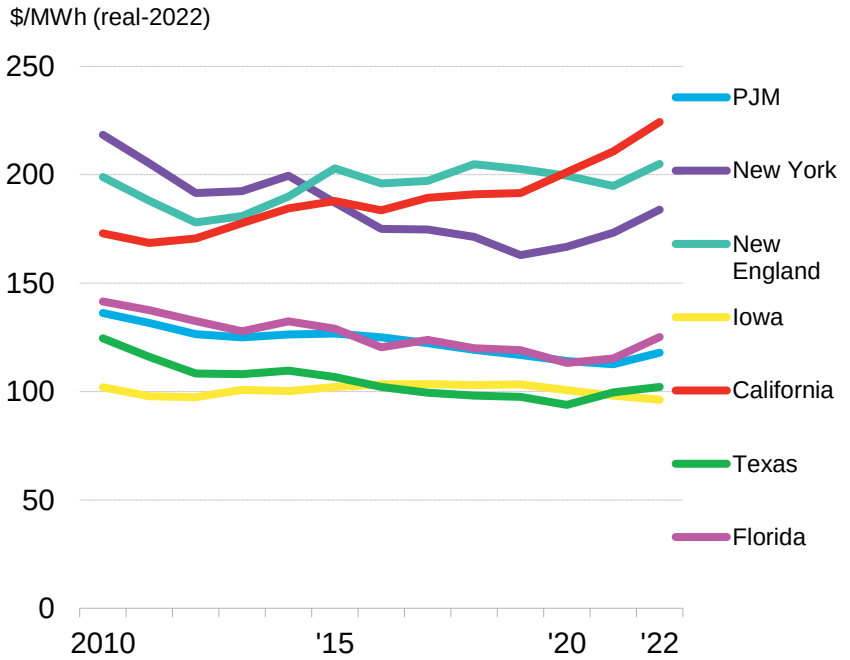
BloombergNEF

US energy overview: Retail and wholesale power prices

Wholesale power prices



Retail power prices

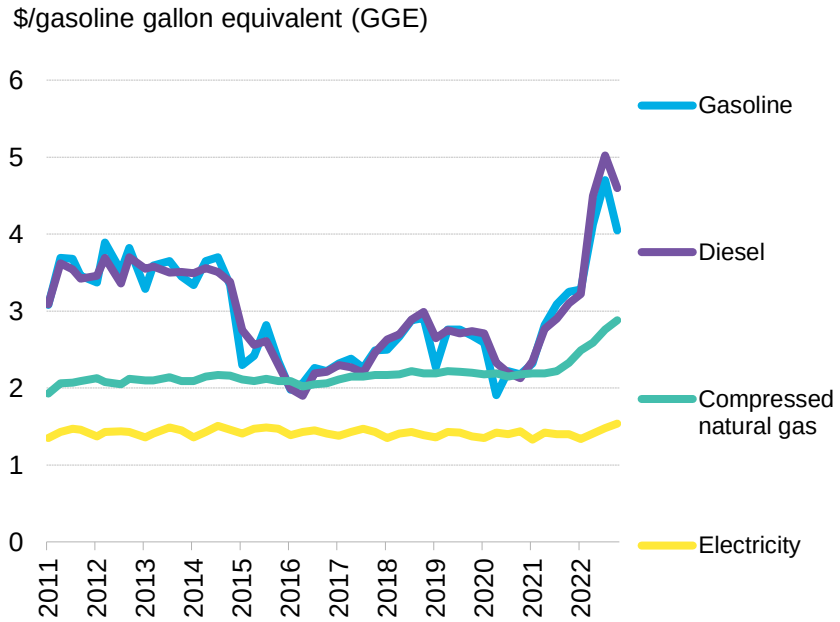


Source: BloombergNEF, EIA, Bloomberg Terminal Notes: Wholesale prices are taken from proxy power hubs in each ISO. All prices are in real 2022 USD. Retail power prices shown here are not exact retail rates but weighted averages across all rate classes by state, as published by the EIA. Retail prices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

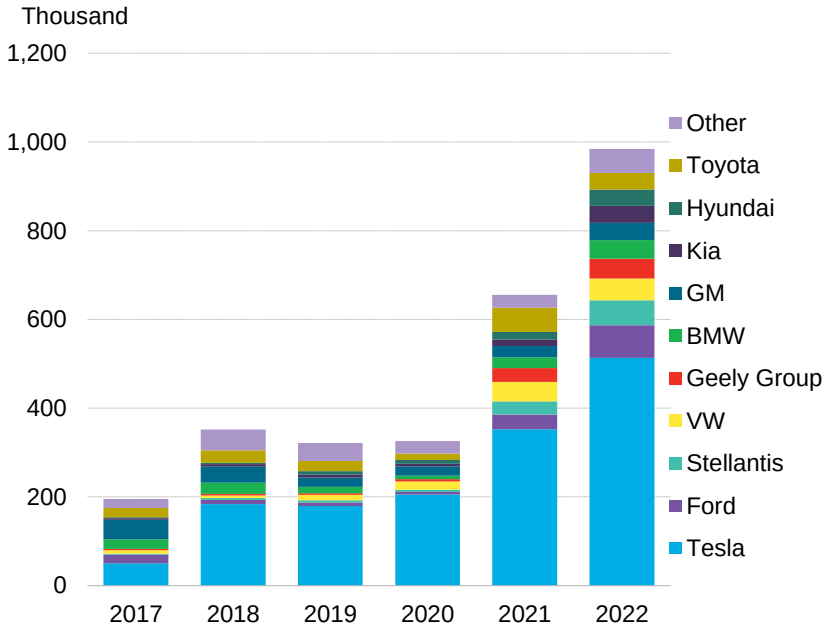
BloombergNEF

Vehicle fuel prices and EV sales

Average vehicle fuel prices



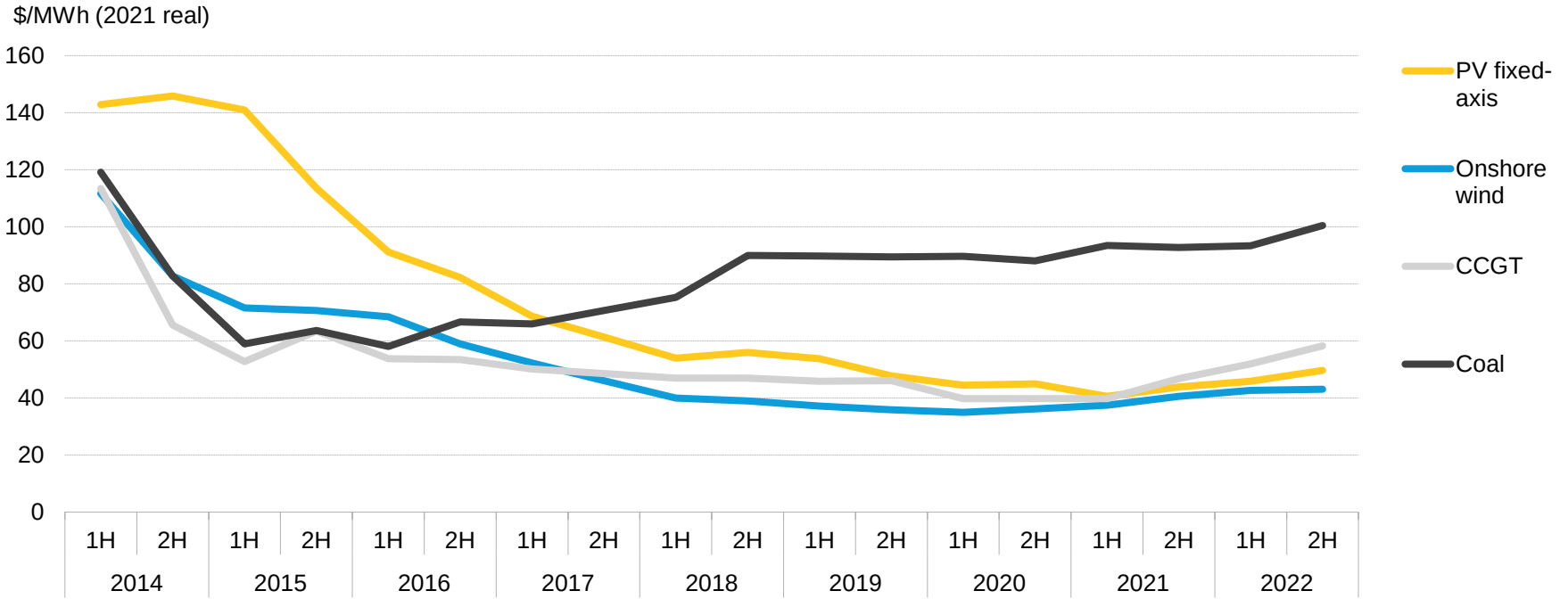
US electric vehicle sales



Source: BloombergNEF, Marklines, US Department of Energy.

BloombergNEF

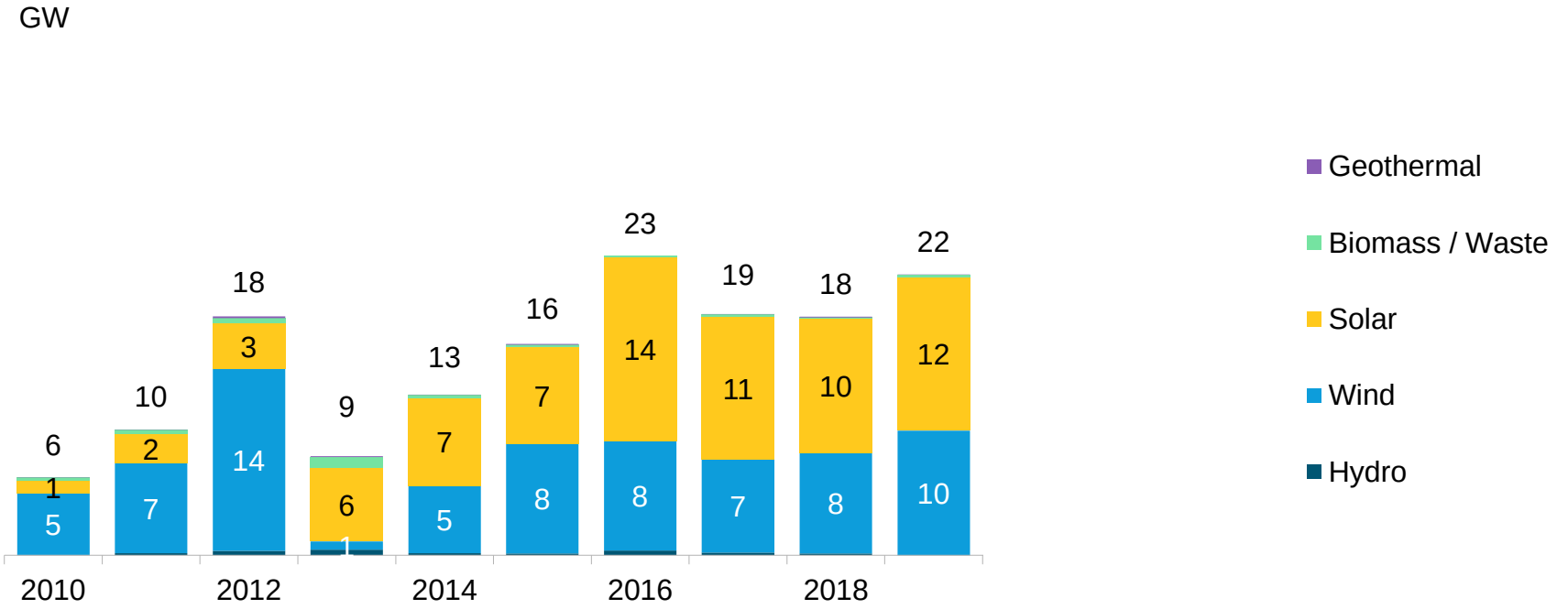
Economics: US levelized costs of electricity, 2014-22



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.

BloombergNEF

US energy overview: Renewable energy capacity build by technology



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.

BloombergNEF

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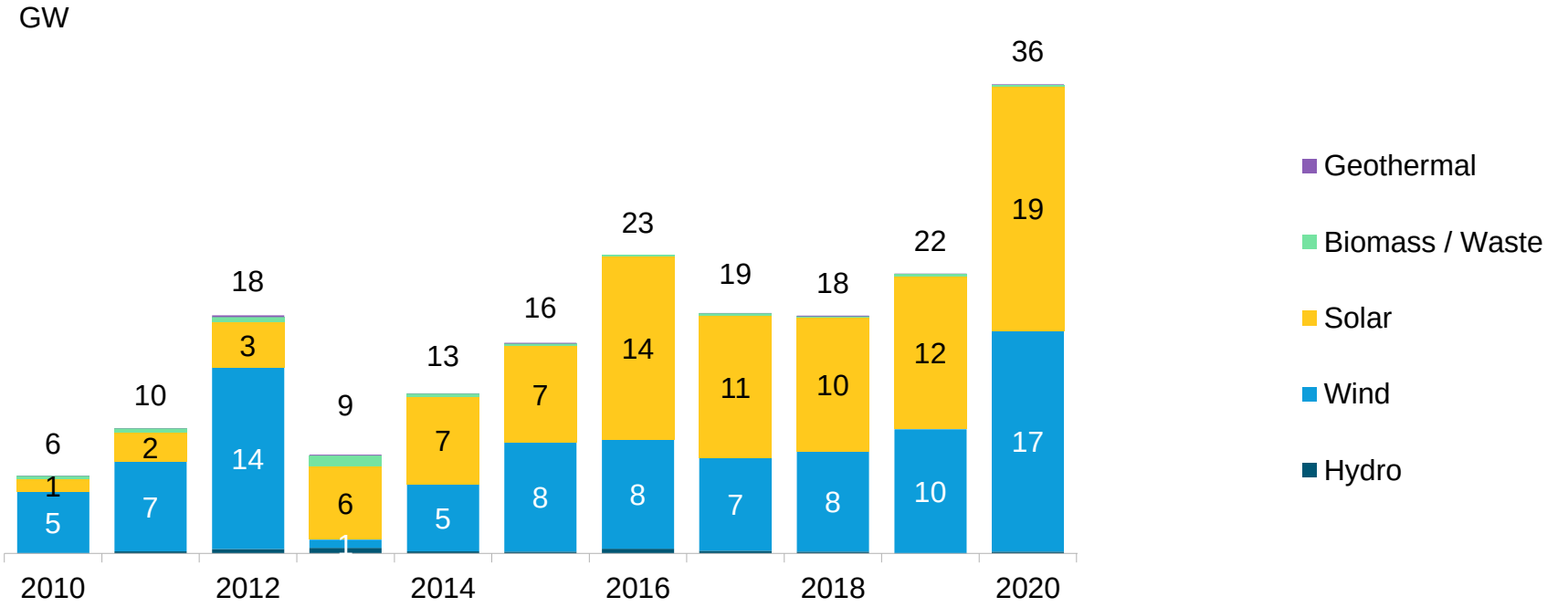

Source: BloombergNEF, EIA Notes: All values are shown in AC except solar, which is included as DC capacity. Numbers include utility-scale (>1MW) projects of all types, rooftop solar, and small- and medium-sized wind. Includes installations or planned installations reported to the EIA through October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

BloombergNEF

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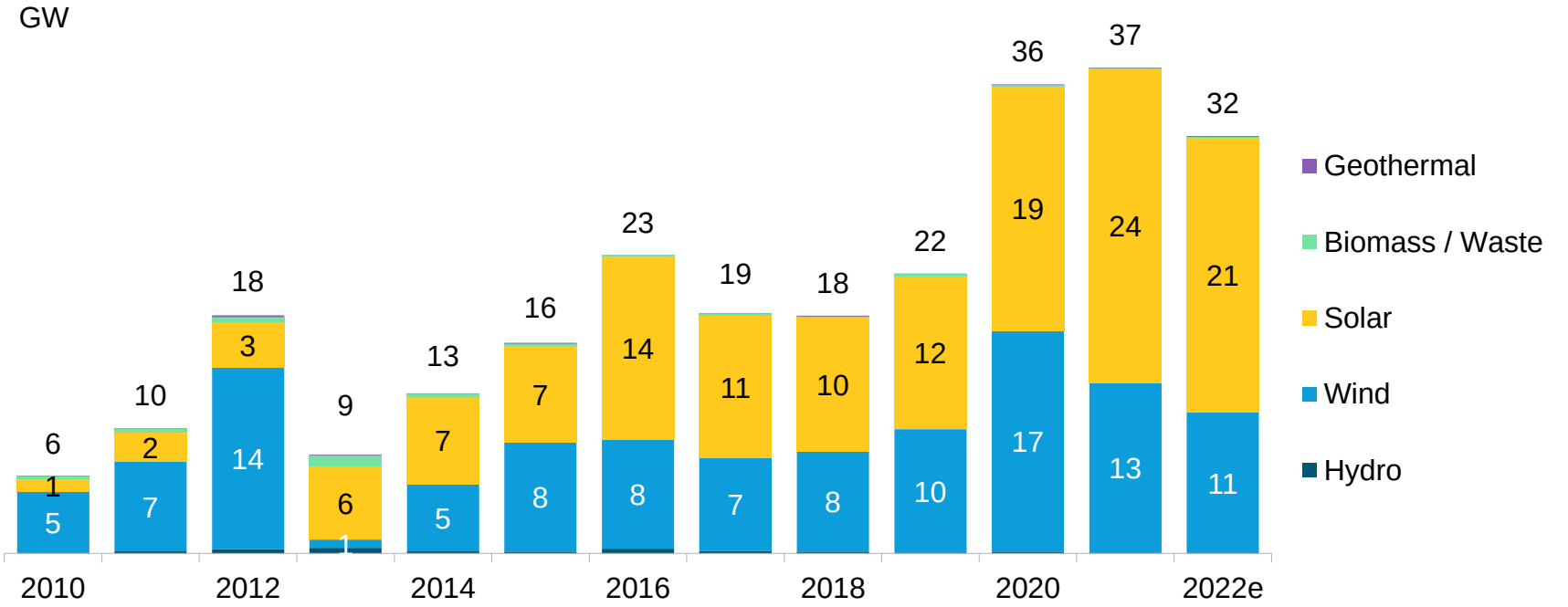
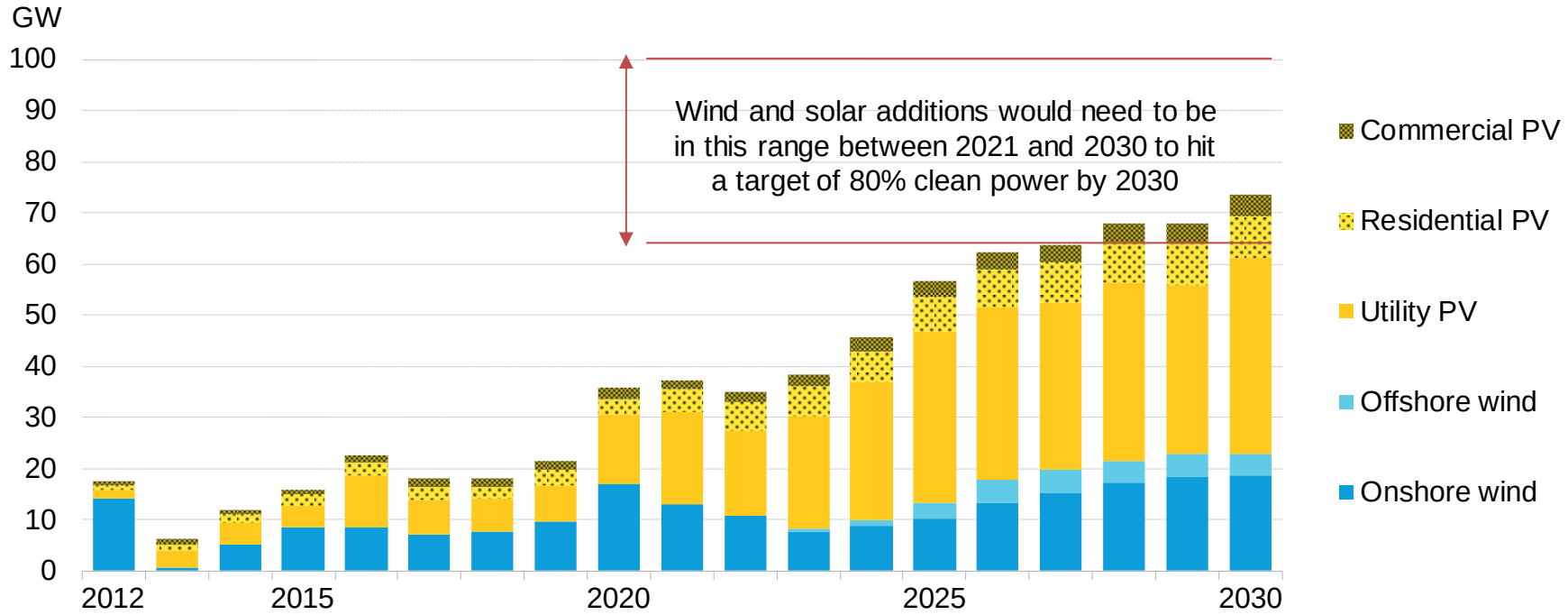


Source: BloombergNEF, EIA Notes: All values are shown in AC except solar, which is included as DC capacity. Numbers include utility-scale (>1MW) projects of all types, rooftop solar, and small- and medium-sized wind. Includes installations or planned installations reported to the EIA through October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

BloombergNEF

Projected annual US wind and solar capacity additions

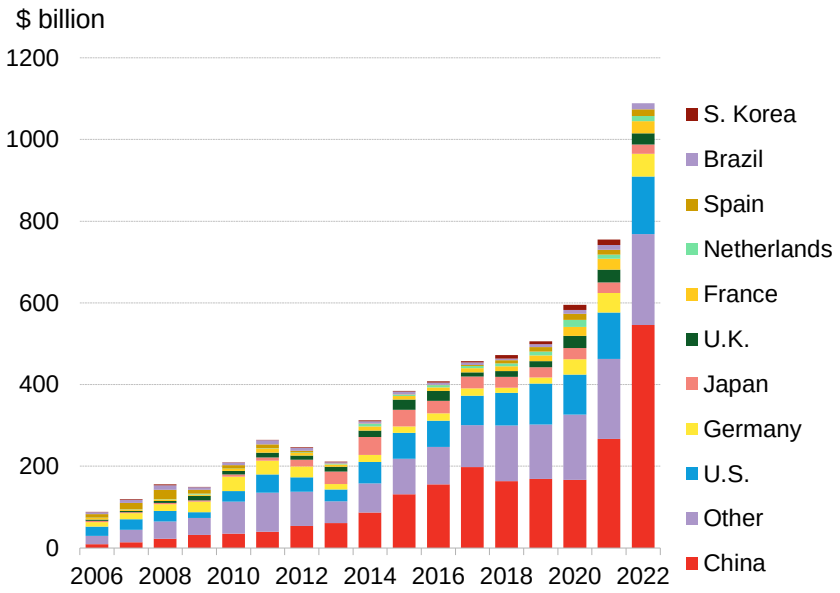


Source: BloombergNEF

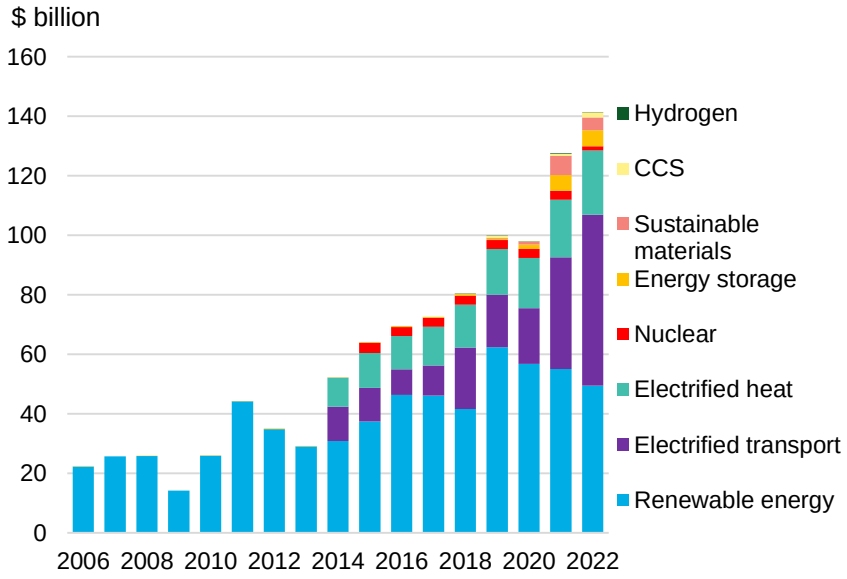
BloombergNEF

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.

BloombergNEF

Finance: Energy transition investment

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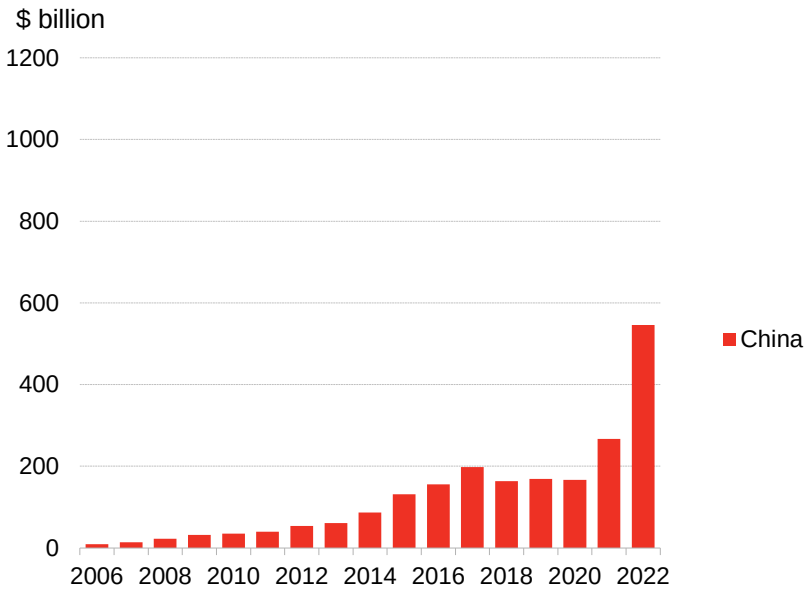

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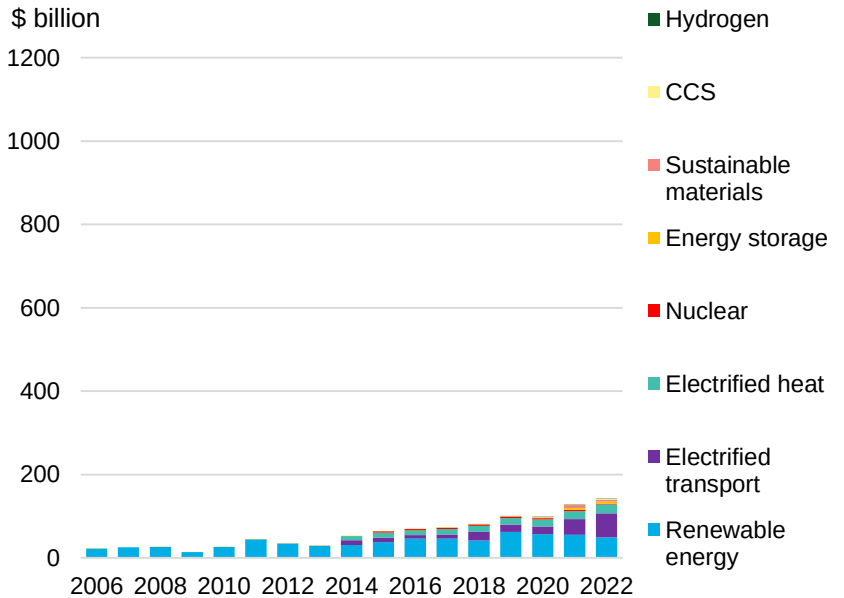
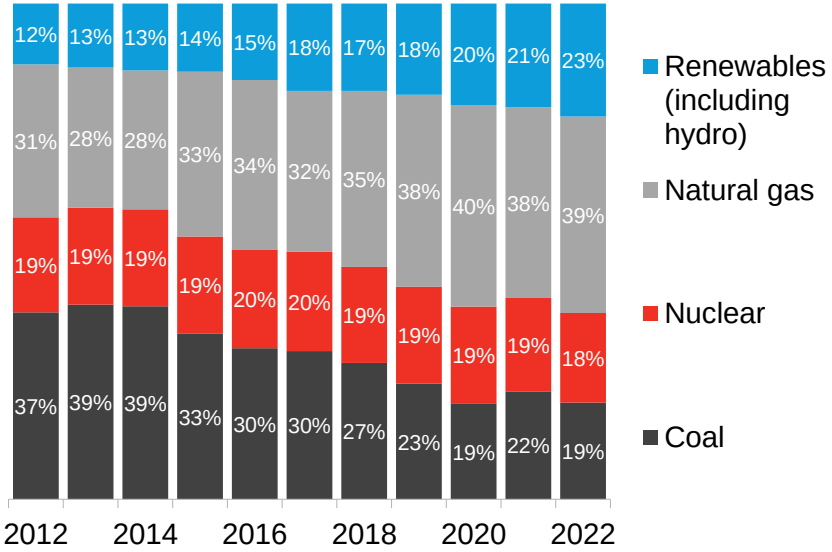


Source: BloombergNEF, "Energy Transition Investment Trends, 2022". Note: BNEF has updated and expanded its coverage of energy transition investment and slightly modified its methodology. For more see https://www.bnef.com/flagships/clean-energy-investment.

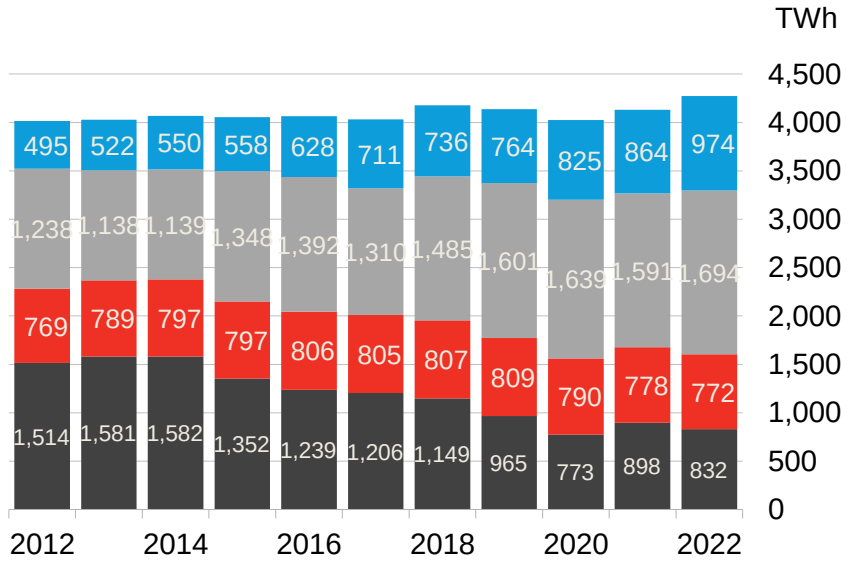
BloombergNEF

US energy overview: Electricity generation mix

US electricity generation, by fuel type



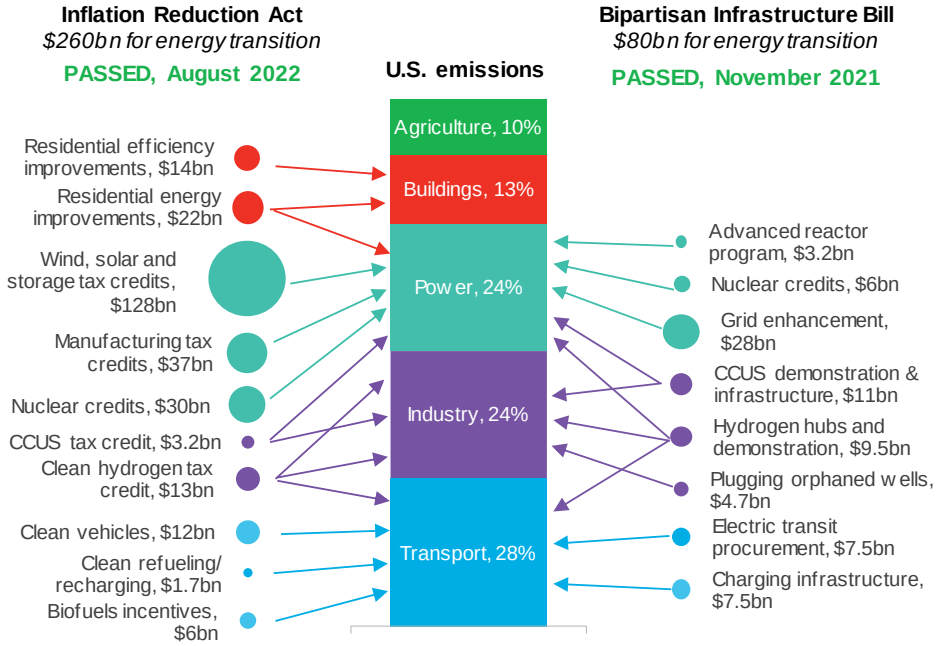
US electricity generation, by fuel type



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

BloombergNEF

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.

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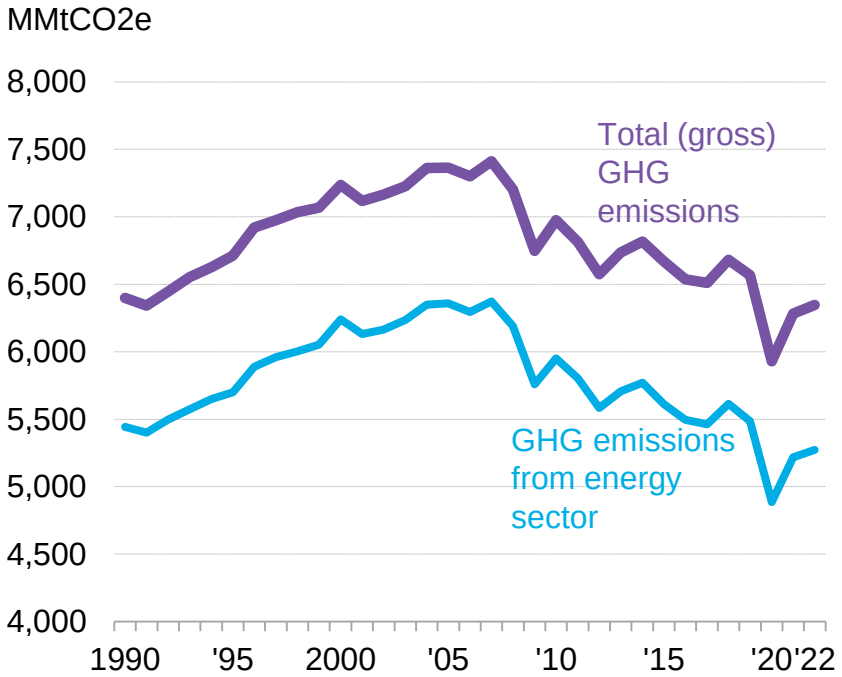
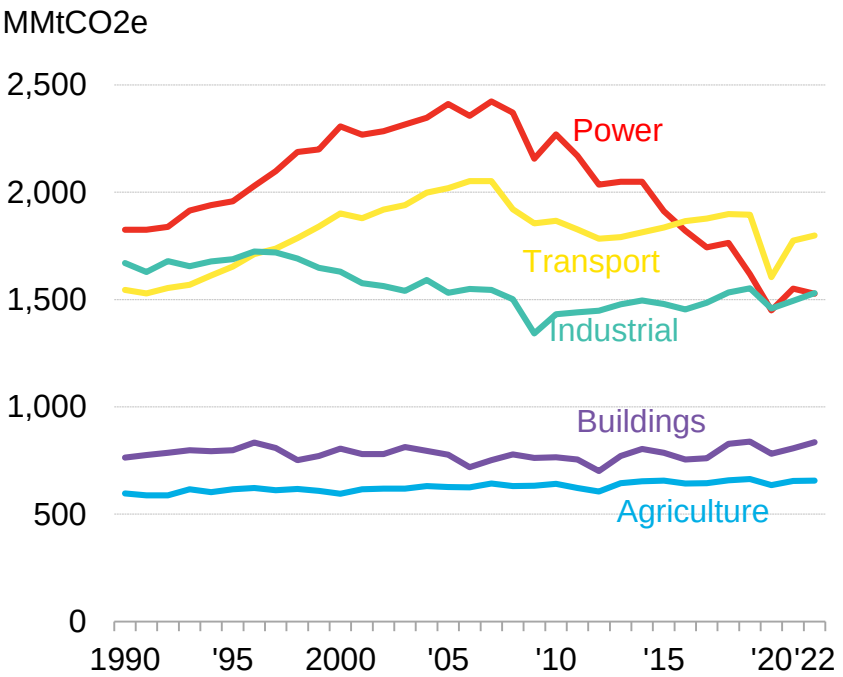
US energy overview: Greenhouse gas (GHG) emissions

Economy-wide and energy sector emissions



Emissions by sector



Source: BloombergNEF, EIA, EPA.

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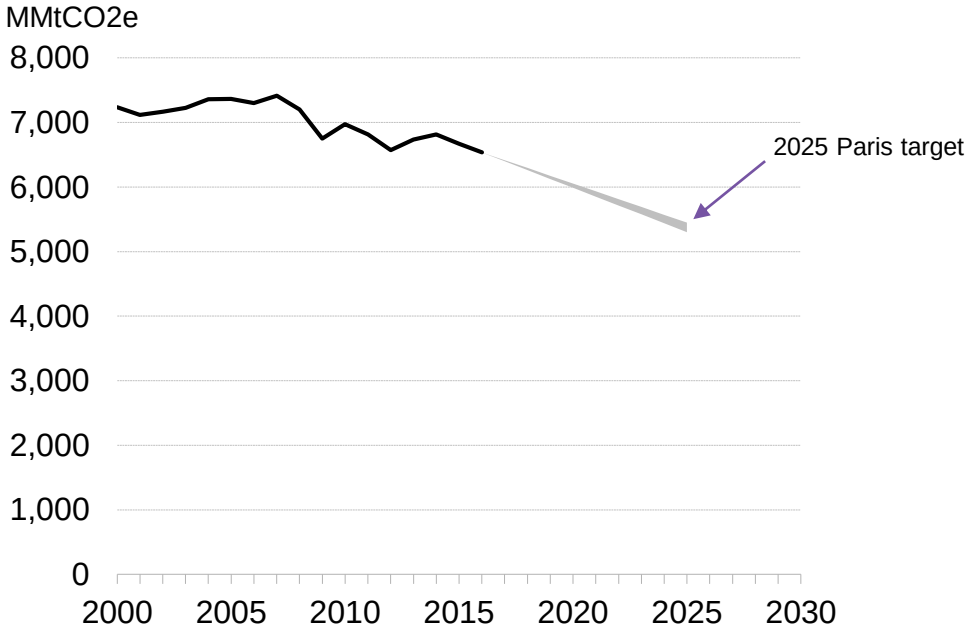
Policy: US progress toward emissions goals

US economy-wide emissions



Source: EIA, EPA, BloombergNEF

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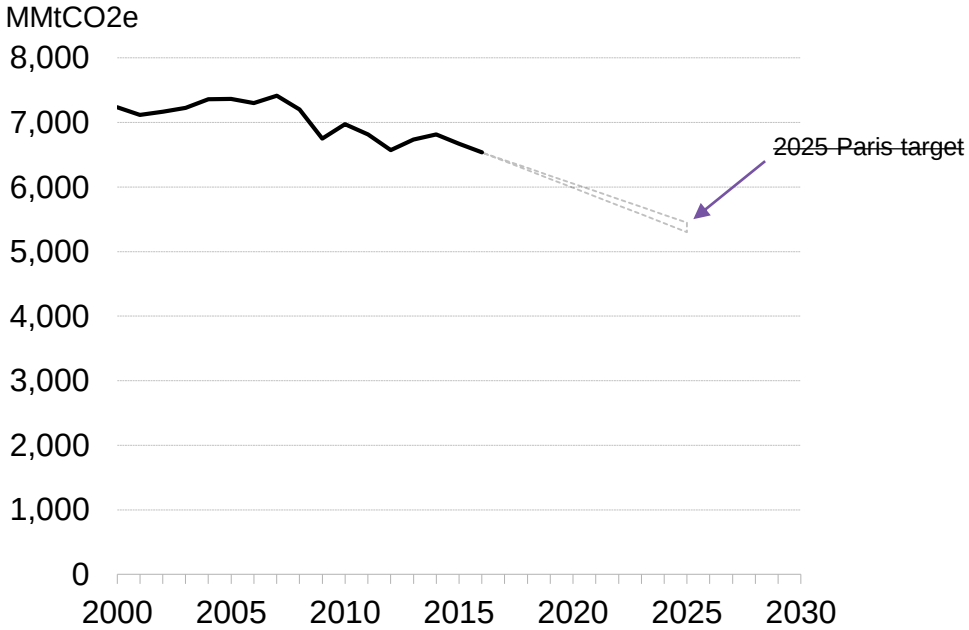
Policy: US progress toward emissions goals

US economy-wide emissions

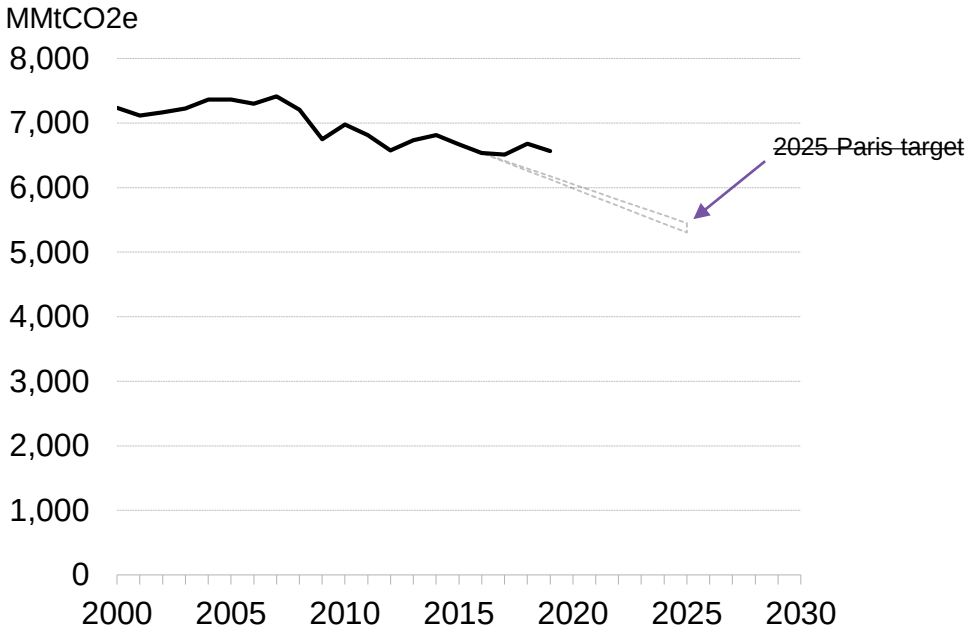


Source: EIA, EPA, BloombergNEF

BloombergNEF

Policy: US progress toward emissions goals

US economy-wide emissions

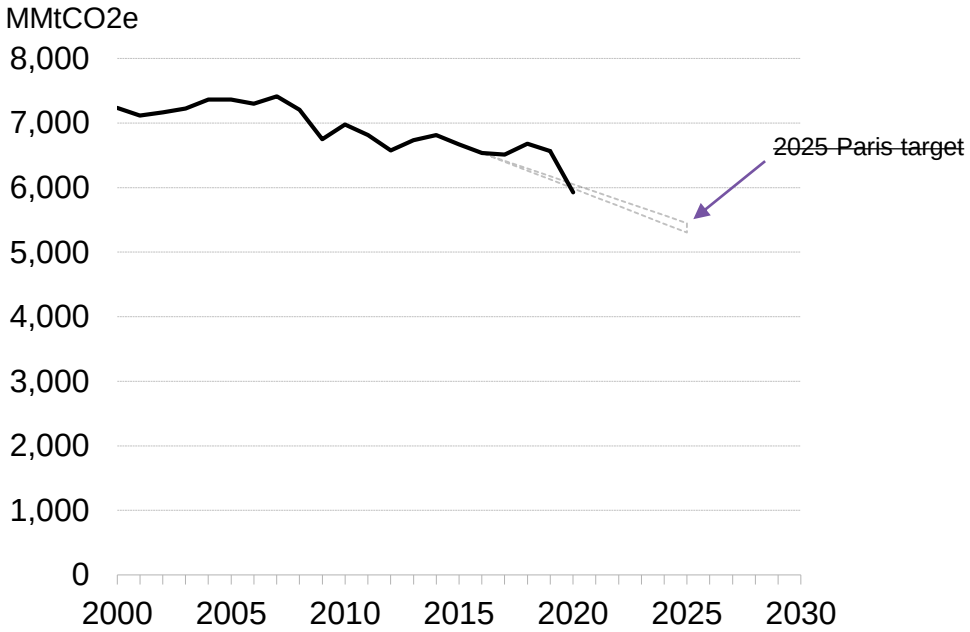


Source: EIA, EPA, BloombergNEF

BloombergNEF

Policy: US progress toward emissions goals

US economy-wide emissions

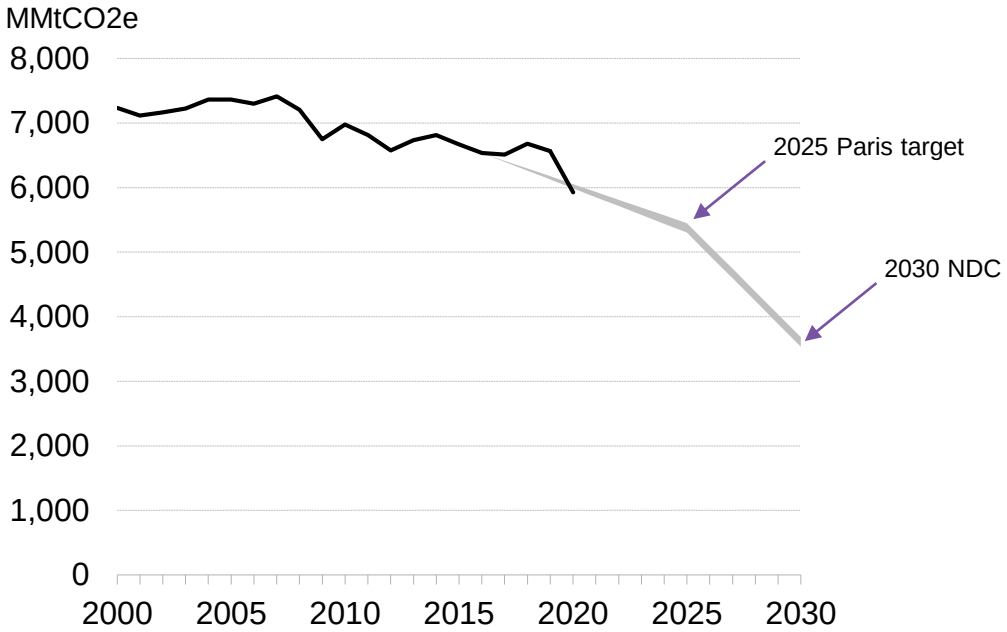


Source: EIA, EPA, BloombergNEF

BloombergNEF

Policy: US progress toward emissions goals

US economy-wide emissions



Source: EIA, EPA, BloombergNEF

Policy: US progress toward emissions goals

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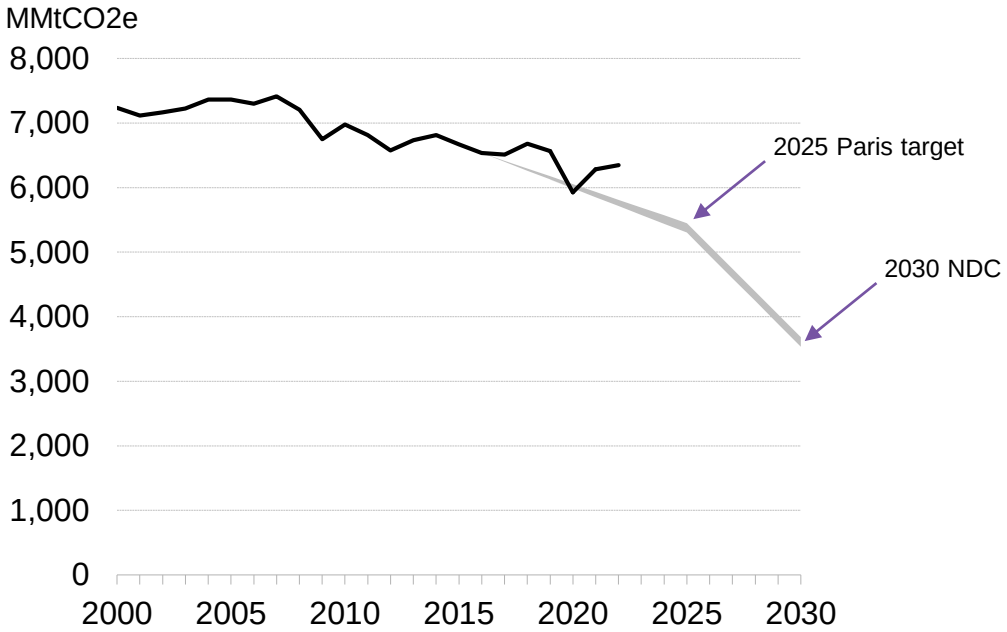

Source: EIA, EPA, BloombergNEF

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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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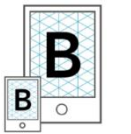

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Sustainable Energy in America **2023 Factbook**

Tracking Market & Policy Trends

BloombergNEF

The Business Council for Sustainable Energy®

The Business Council for Sustainable Energy®

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.

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TRANE TECHNOLOGIES

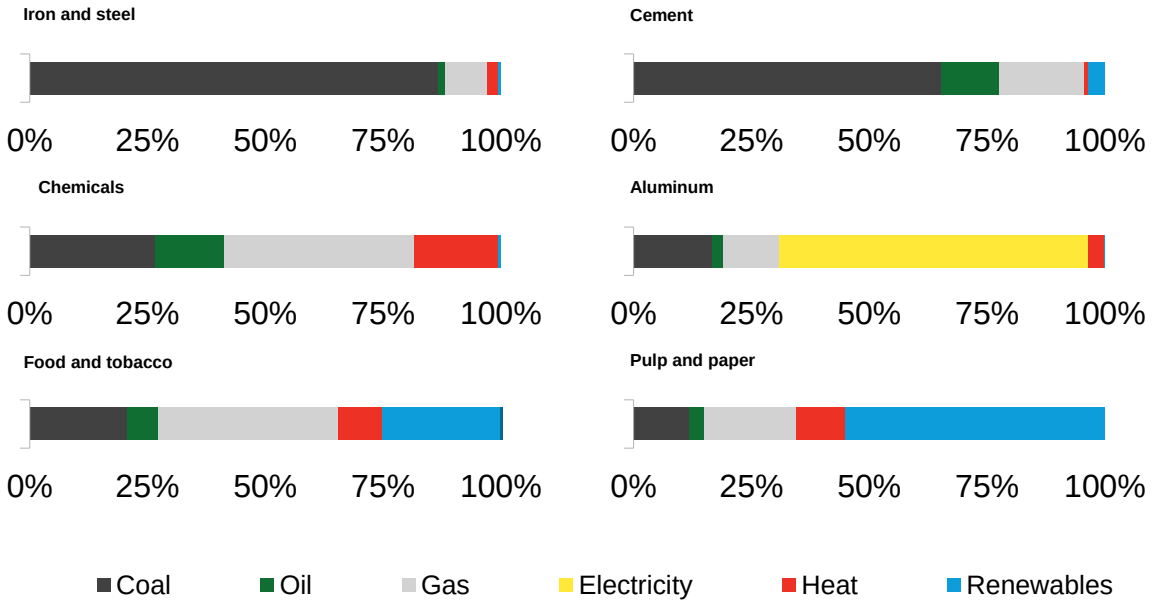
Washington Gas

Amy Farrell

Senior Vice President, Government and Public Affairs
CRES Forum

Deployment: The role of heat in industrial processes

Share of energy supply for industrial process heat, 2018



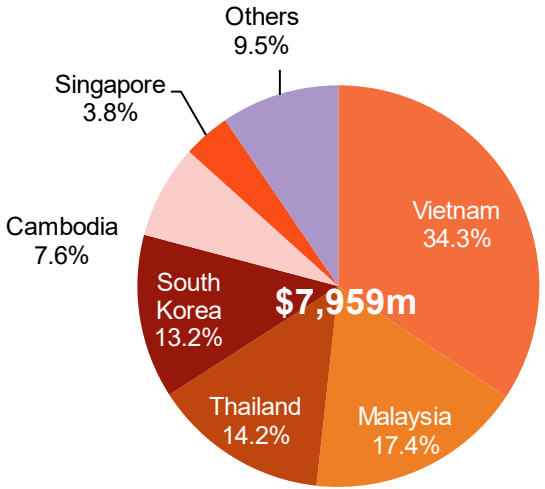
Source: BloombergNEF, Marklines, US Department of Energy.

Charles Bolden

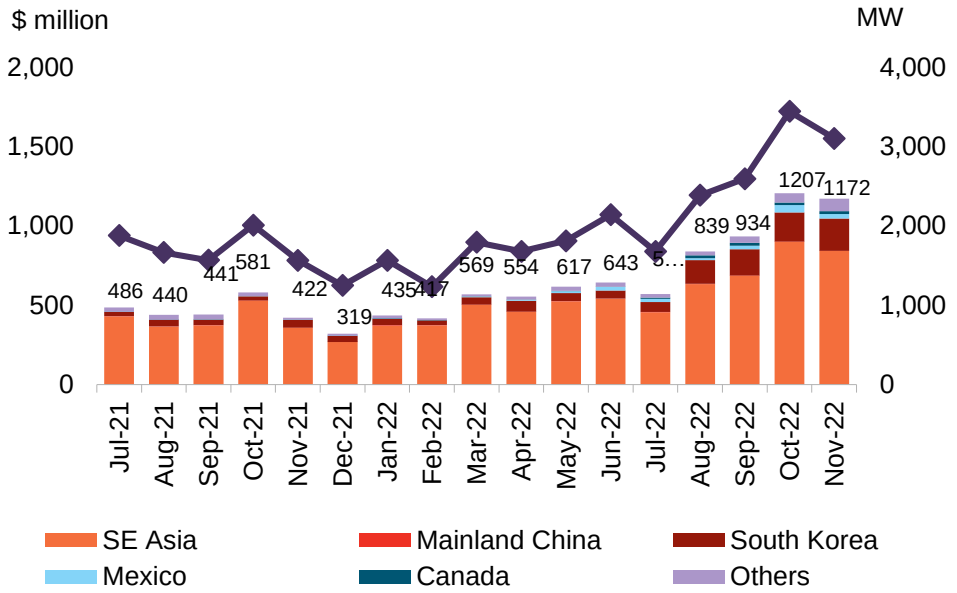
Senior Director, Congressional Affairs
Solar Energy Industries Association

Deployment: Solar imports

US imports of PV modules by origin, January to November 2022



US imports of PV modules, by month and origin



Source: BloombergNEF, Sinoimex. Note: Storage capacity uses two metrics: MW which signifies power output (based on the inverter capacity) and the MWh which specifies the energy storage capacity and relates to the duration the input/output can be sustained for (ie, a 10MW/40MWh system can sustain 10MW for 4 hours). The ITC is the federal investment tax credit.

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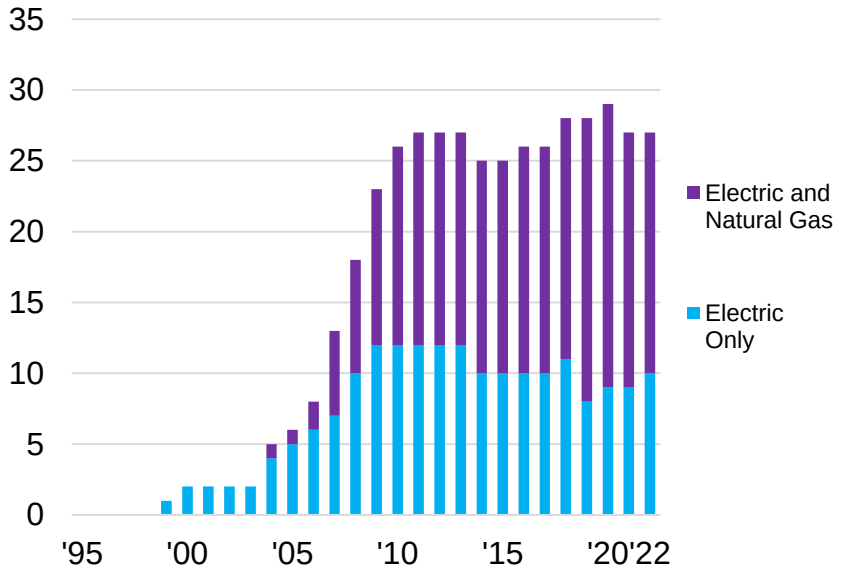
Vincent Barnes

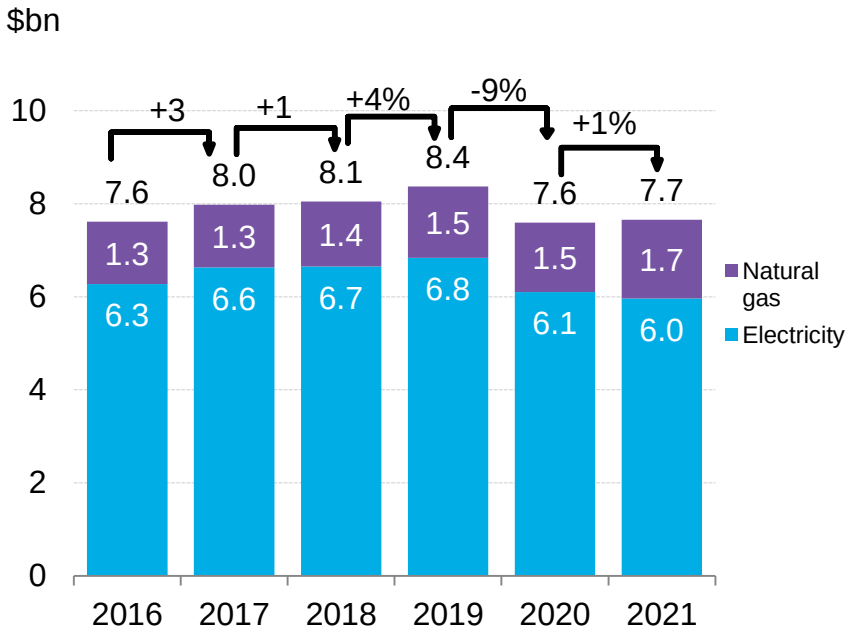
Senior Vice President, Policy and Research
Alliance to Save Energy

US energy overview: Energy efficiency

US states with Energy Efficiency Resource Standards (EERS)



Utility energy efficiency spending



Source: American Council for an Energy Efficient Economy (ACEEE) State Energy Efficiency Scorecard: 2022 Progress Report

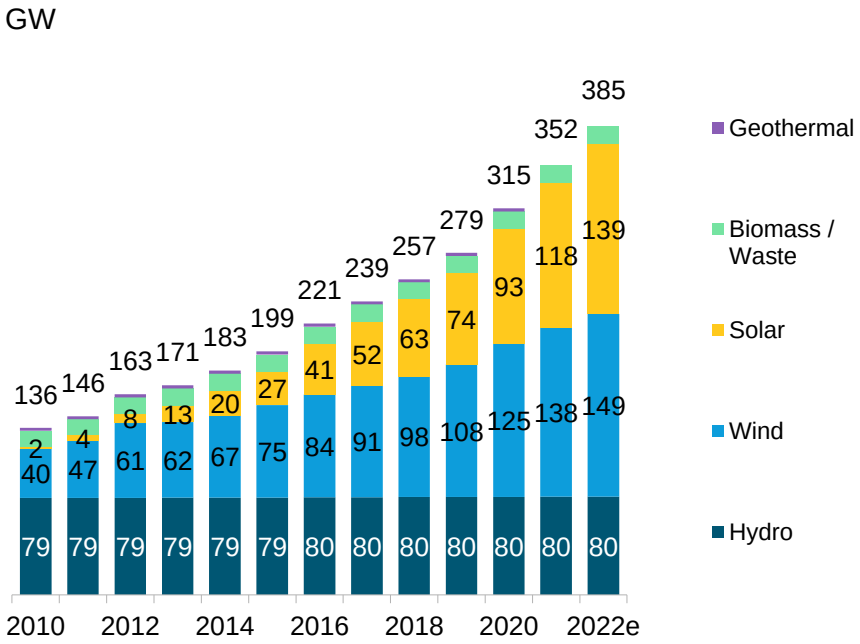
BloombergNEF

Billie Kaumaya

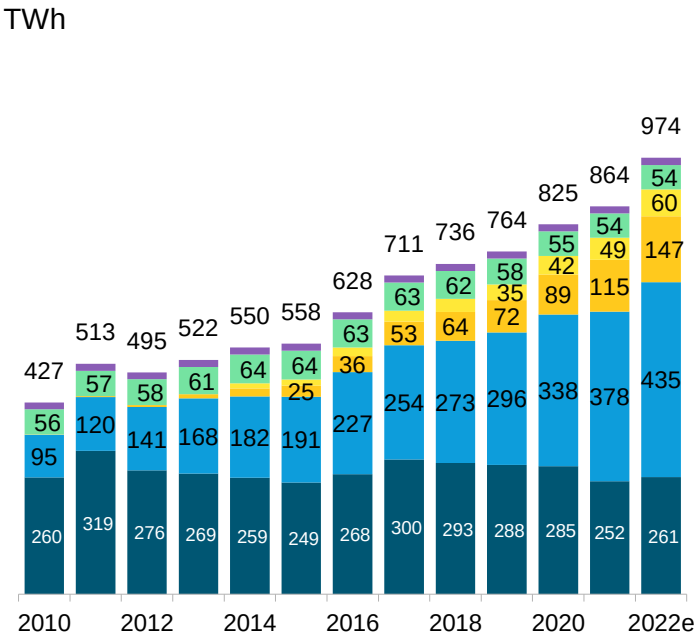
Head of Federal Affairs
American Clean Power Association

US energy overview: Cumulative renewable energy

US cumulative renewable capacity



US renewable generation by technology



Source: BloombergNEF, EIA Notes: All values are shown in AC except solar, which is included as DC capacity. Hydropower capacity and generation exclude pumped storage facilities (unlike in past Factbooks). Totals may not sum due to rounding. Values for 2021 are projected, accounting for seasonality, based on latest monthly values from EIA (data available through October 2021)

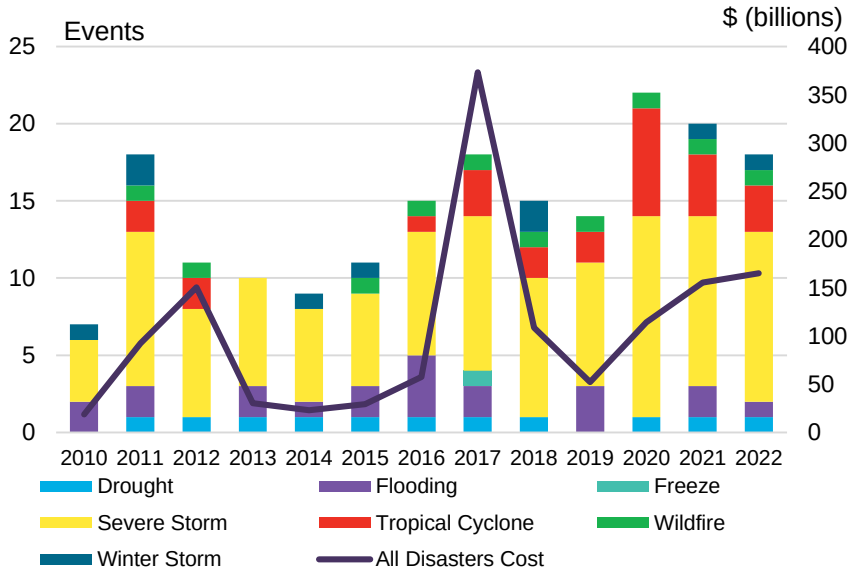
BloombergNEF

Yvonne McIntyre

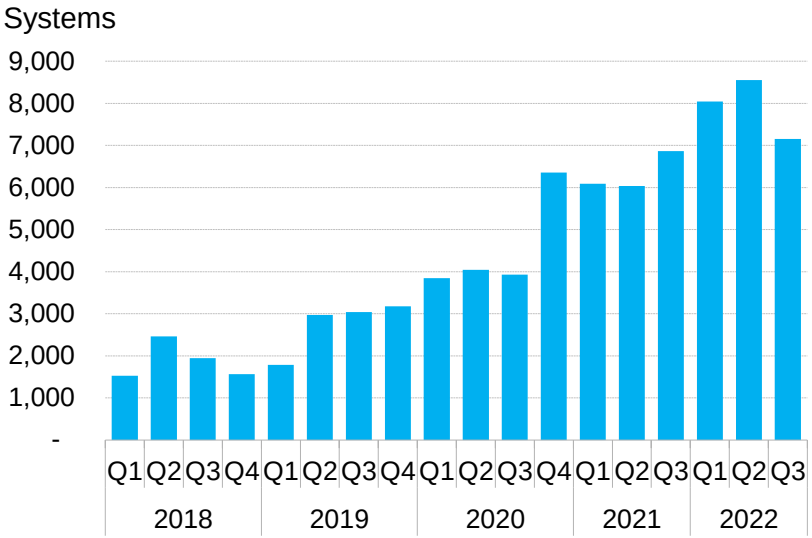
Vice President, Federal Affairs
Pacific Gas & Electric

Policy: Infrastructure and resilience

US billion-dollar weather and climate disasters



Quarterly residential energy storage systems installed in California



Source: National Oceanic and Atmospheric Administration, BloombergNEF. Note: Portrays annual counts of drought, flooding, freeze, severe storm, tropical cyclone, wildfire and winter storm events in the US with losses of more than $1 billion each.

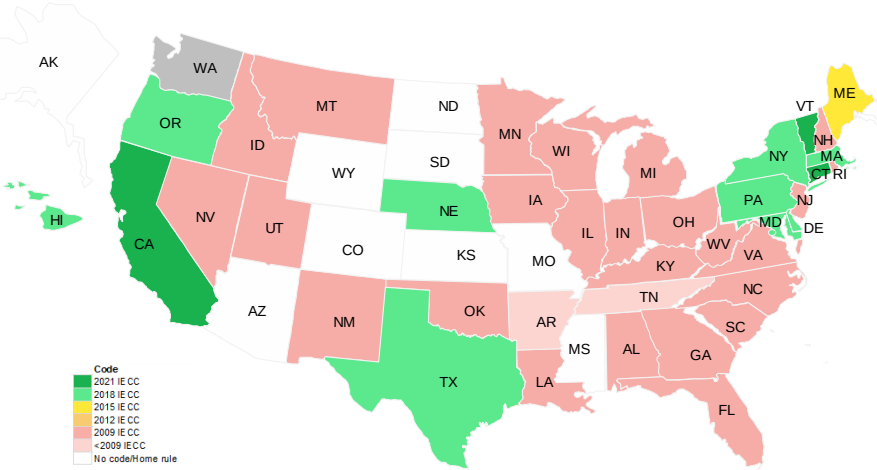
BloombergNEF

Jennifer Kane

Energy Policy Leader
Trane Technologies

Deployment: Statewide energy code adoption

Residential



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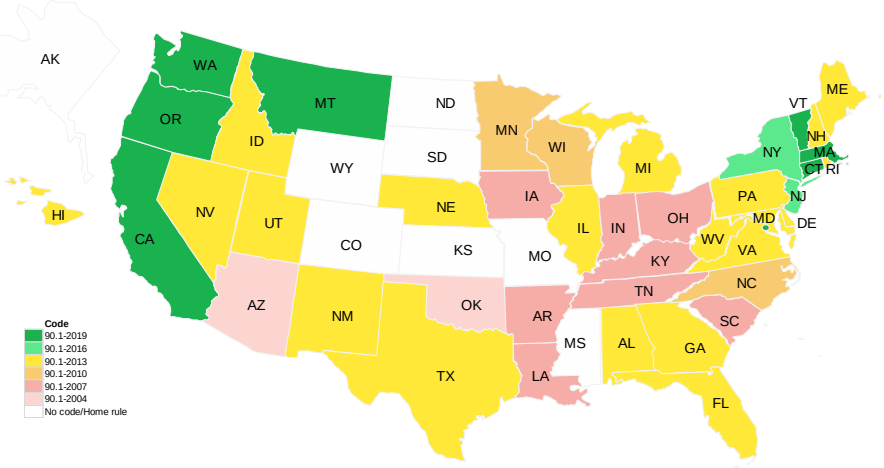

Source: EERE, ACEEE, BloombergNEF. Note: The maps represent EERE analysis of energy savings impacts from state code adoptions. Any code for which the Energy Index is not more than 1% higher than that of an IECC or Standard 90.1 edition is considered equivalent to that code edition. For more on the EERE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

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