



EESI

Environmental and
Energy Study Institute



The Business Council
for Sustainable Energy®

Materials will be available at:
www.eesi.org/031221factbook

Tweet about the briefing:
[#eesitalk](#) [@eesionline](#)

2021 Sustainable Energy in America Factbook

Friday, March 12, 2021

About EESI...



NON-PROFIT

Founded in 1984 by a bipartisan Congressional caucus as an independent (i.e., not federally-funded) non-profit organization



NON-PARTISAN

Source of non-partisan information on environmental, energy, and climate policies



DIRECT ASSISTANCE

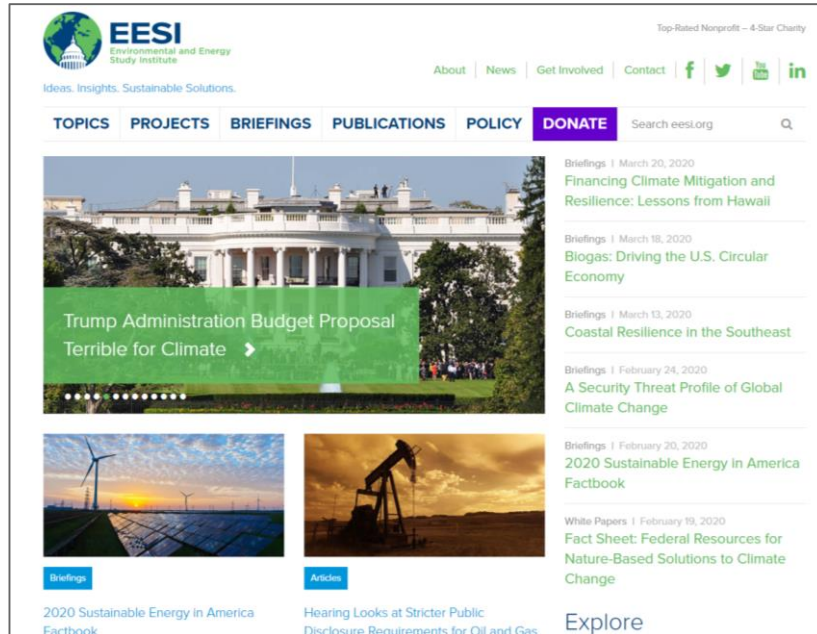
In addition to a full portfolio of federal policy work, EESI provides direct assistance to utilities to develop “on-bill financing” programs



SUSTAINABLE SOCIETIES

Focused on win-win solutions to make our energy, buildings, and transportation sectors sustainable, resilient, and more equitable

...About EESI



HILL BRIEFINGS

Video recordings and written summaries of Congressional briefings



CLIMATE CHANGE SOLUTIONS

Bi-weekly newsletter with all you need to know including a legislation tracker



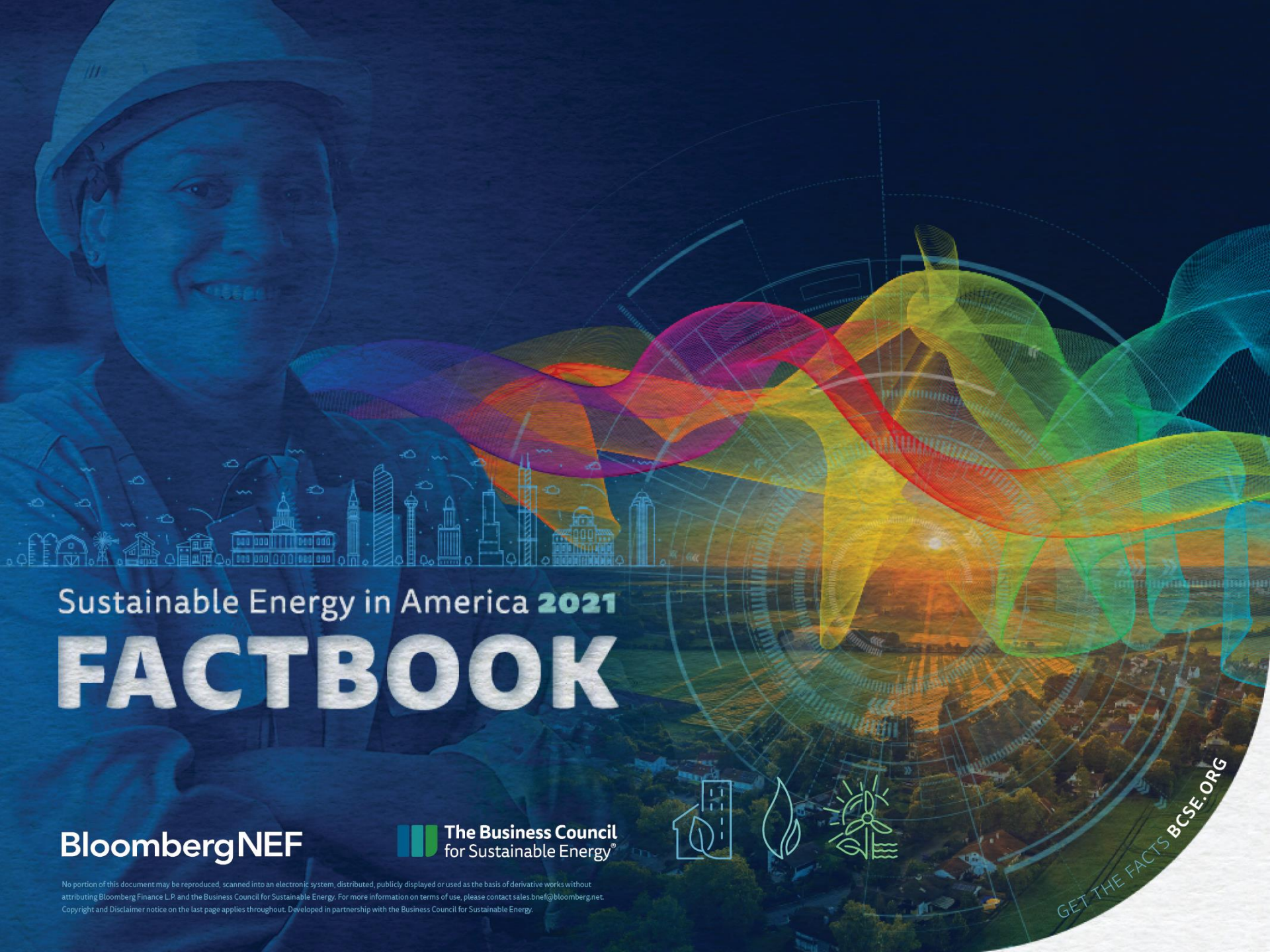
SOCIAL MEDIA (@EESIONLINE)

Follow us on Twitter, Facebook, LinkedIn, Instagram, and YouTube



FACT SHEETS

Timely, science-based coverage of climate and clean energy topics



Sustainable Energy in America **2021**

FACTBOOK

BloombergNEF

 **The Business Council**
for Sustainable Energy®

No portion of this document may be reproduced, scanned into an electronic system, distributed, publicly displayed or used as the basis of derivative works without attributing Bloomberg Finance L.P. and the Business Council for Sustainable Energy. For more information on terms of use, please contact sales.bnef@bloomberg.net. Copyright and Disclaimer notice on the last page applies throughout. Developed in partnership with the Business Council for Sustainable Energy.

GET THE FACTS [BCSE.ORG](https://www.bcsen.org)

Sustainable Energy in America **2021**
FACTBOOK

 The Business Council
for Sustainable Energy®

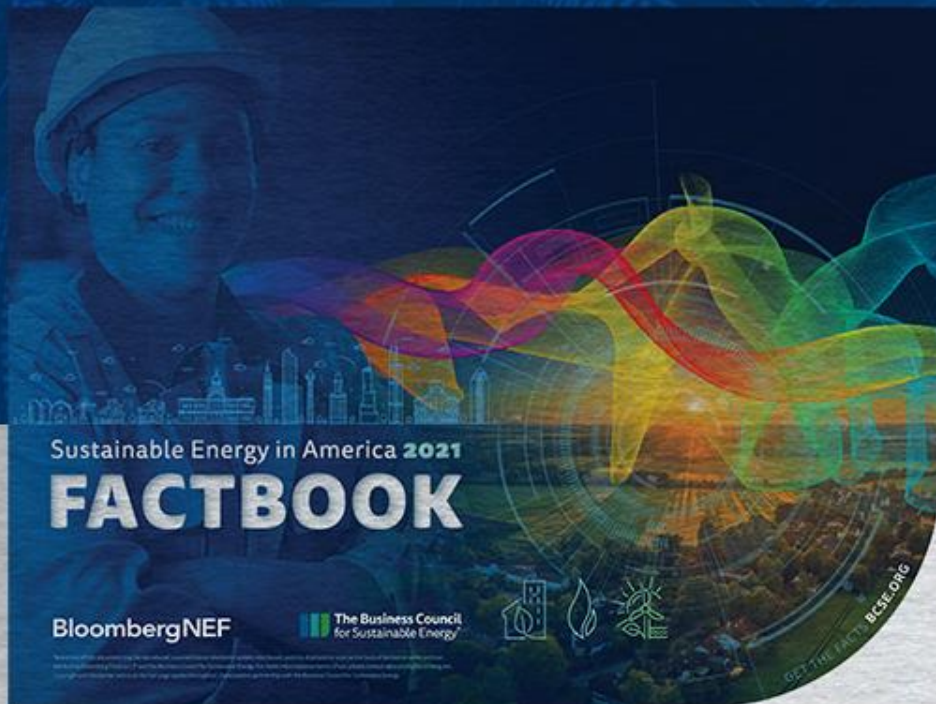


The 2021 Sustainable Energy in America Factbook is sponsored by:



JPMORGAN CHASE & Co.





GET THE FACTS
[BCSE.org/Factbook](https://bcse.org/Factbook)



Faces Behind the Facts

Success Stories of the 2021 *Sustainable Energy in America Factbook*



Derek Sutherland
CT Fusion
Seattle, WA



Gina Wolf
Enel Green Power
Lenexa, KS | Andover, MA



Steve Anglin
WeSolar CSP
Princeton, NJ

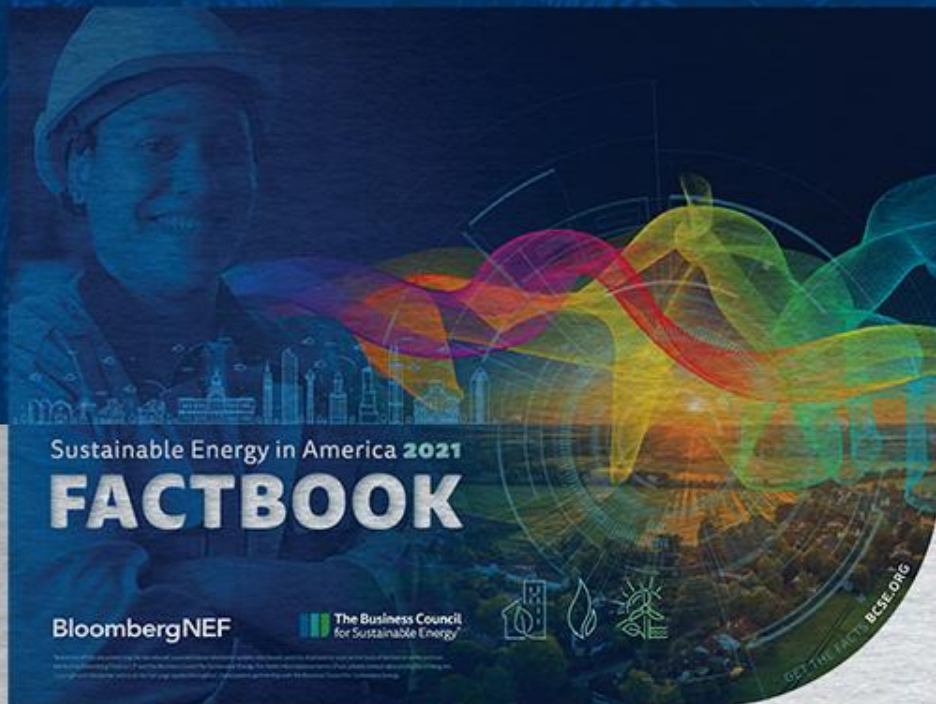


Karl Jantze
HySonic
West Lafayette, IN



Timothy Held
Echogen Power Systems
Akron, OH

<https://www.cebn.org/faces-behind-the-facts/>



GET THE FACTS
[BCSE.org/Factbook](https://bcse.org/Factbook)

The 2021 Sustainable Energy in America Factbook

EESI event

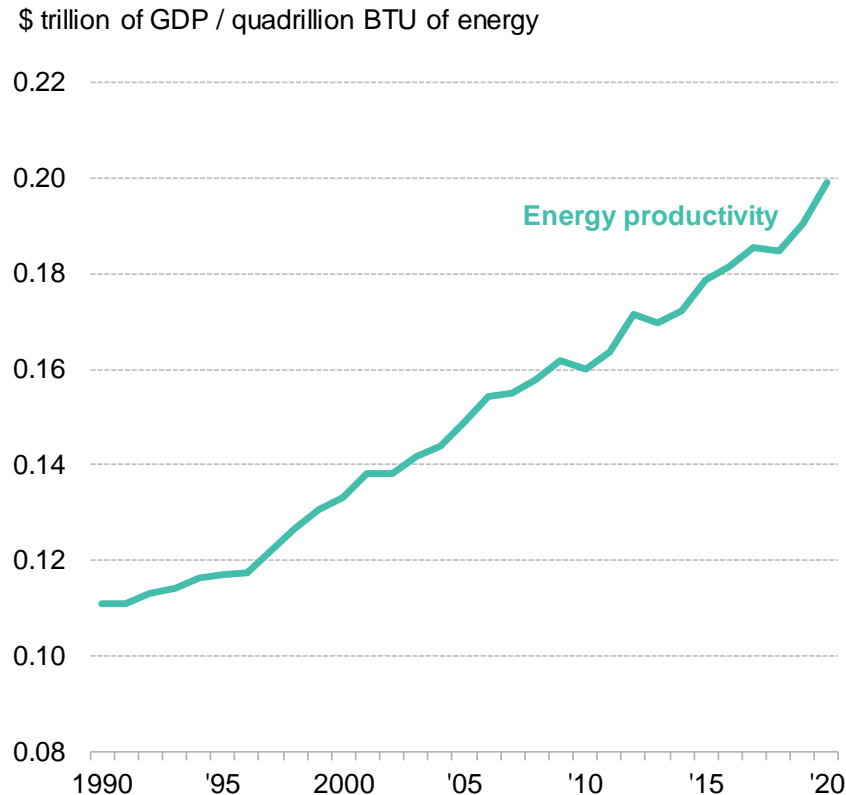
Melina Bartels

March 12, 2021

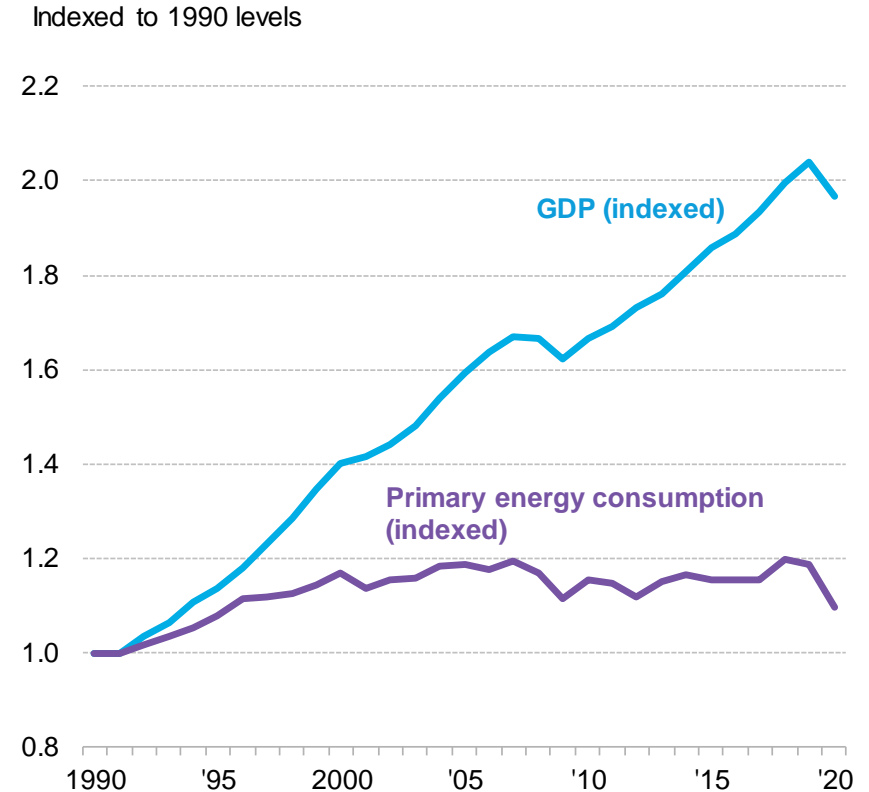
BloombergNEF

U.S. 2020 energy productivity rose, but Americans suffered

U.S. GDP and primary energy consumption



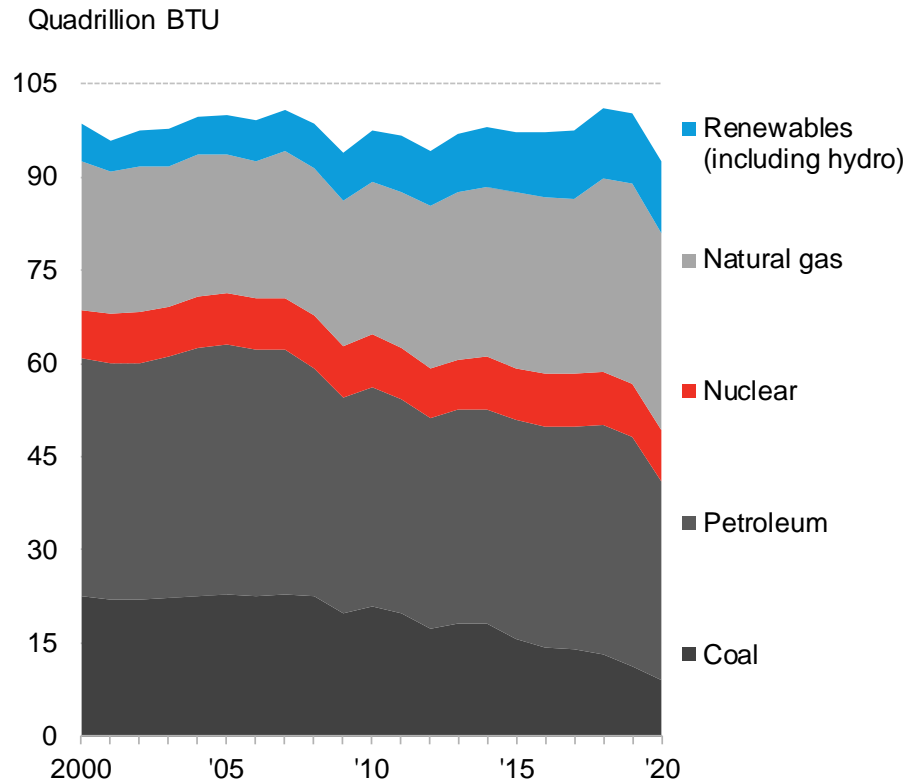
U.S. energy productivity



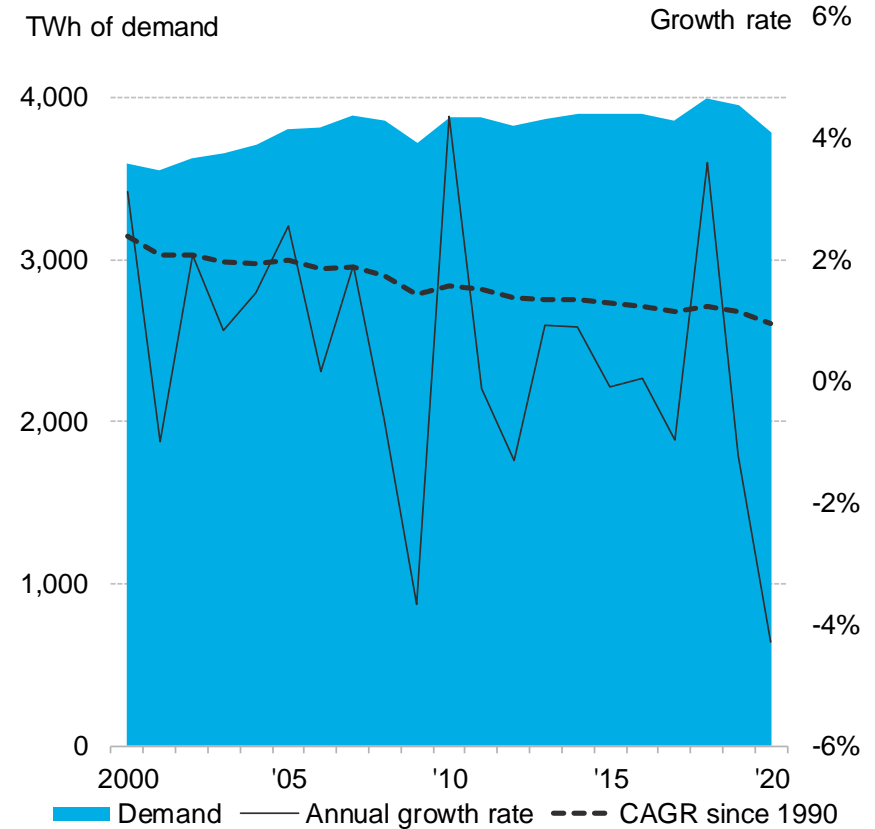
Source: Bureau of Economic Analysis, EIA, BloombergNEF. Notes: Values for 2019 are projected, accounting for seasonality, based on latest monthly values from EIA (data available through September 2020). 2020 GDP estimate is a projection from economists compiled at ECFC <GO> on the Bloomberg Terminal.

Fossil fuel use dropped very sharply, electricity demand also fell but by less

U.S. primary energy consumption, by fuel type



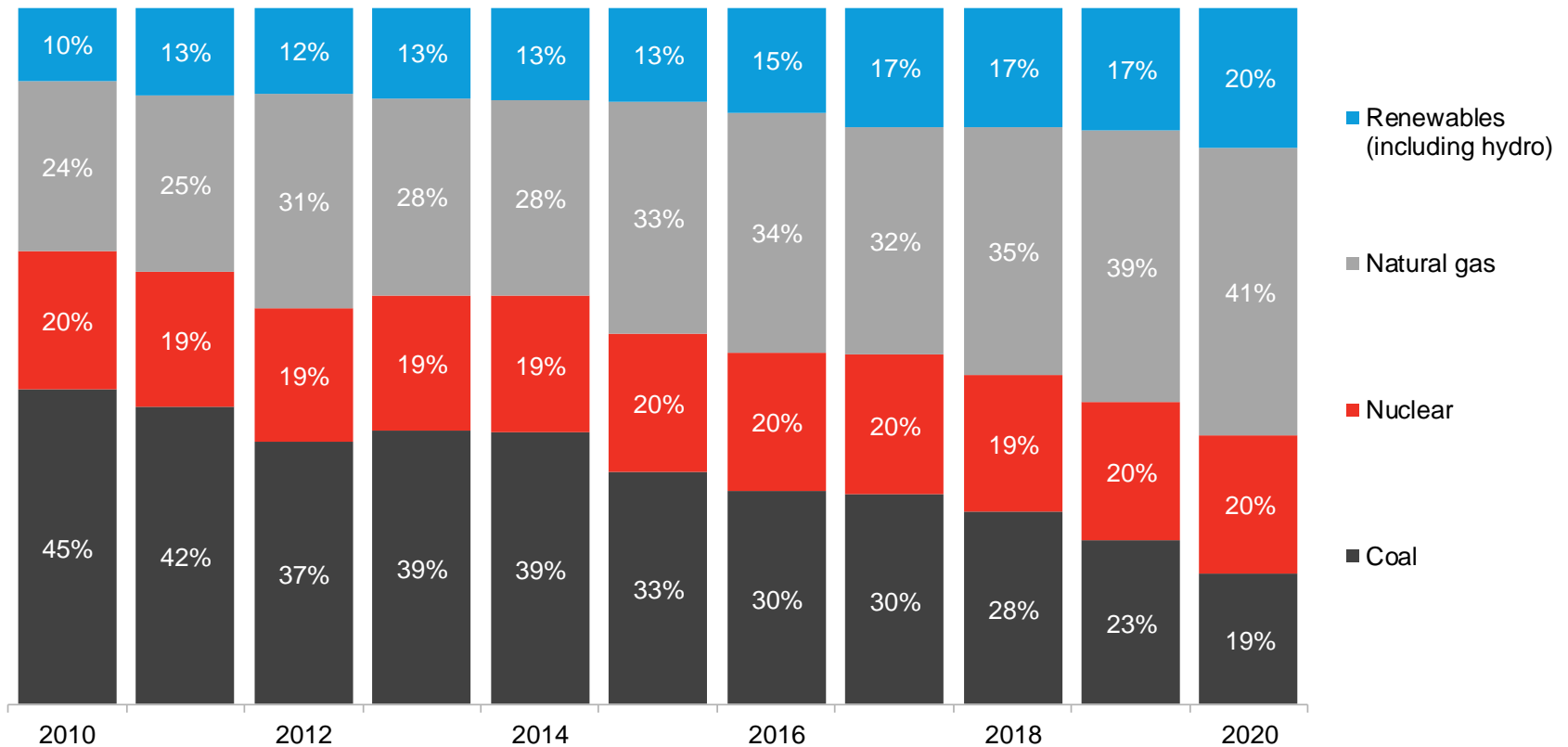
U.S. electricity demand



Source: EIA, BloombergNEF Notes: "CAGR" on the right hand side graph is compound annual growth rate. Values for 2020 are projected, accounting for seasonality, based on the latest monthly values from EIA (data available through September 2020). BTU stands for British thermal units.

Lower-carbon sources now predominate in U.S. power

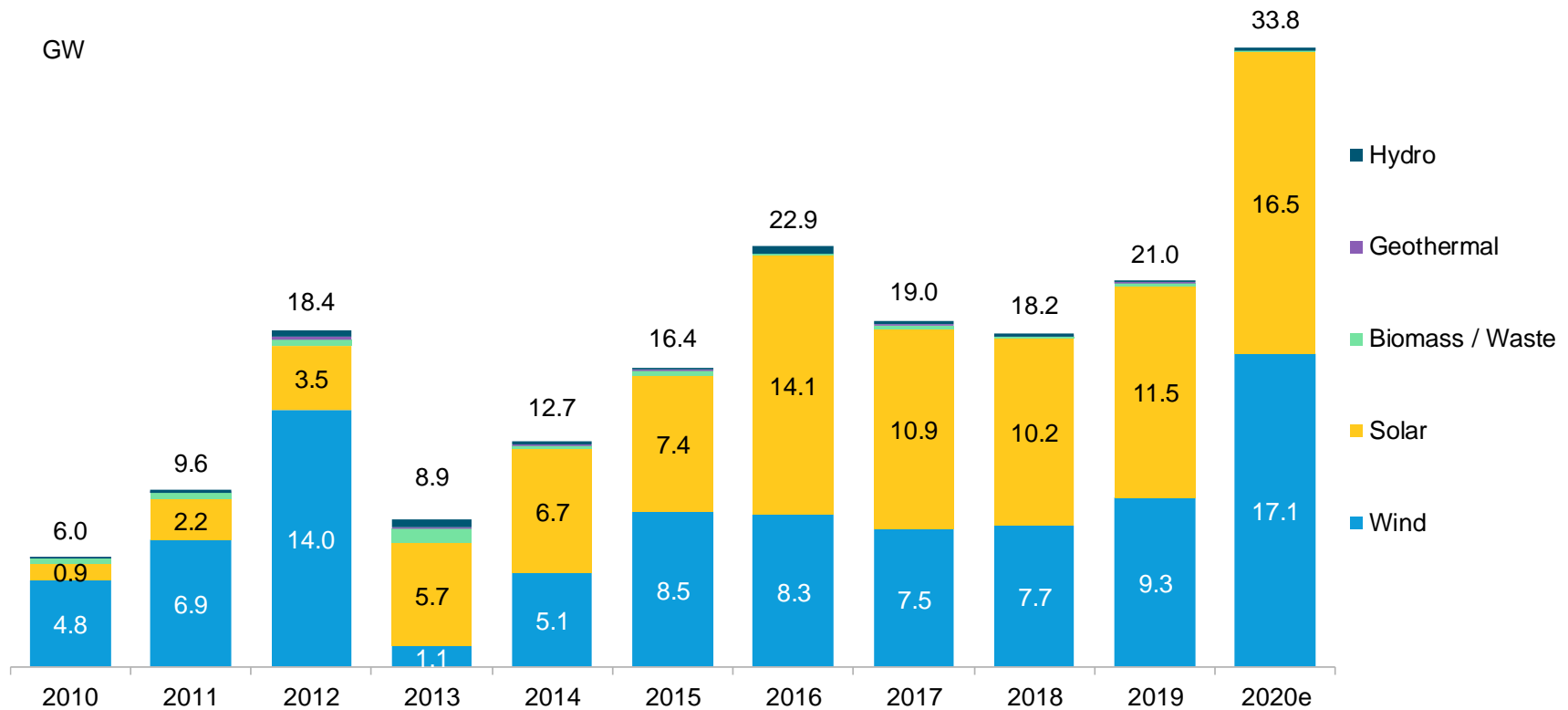
U.S. electricity generation, by fuel type



Source: EIA, BloombergNEF Note: Values for 2020 are projected, accounting for seasonality, based on latest monthly values from EIA (data available through October 2020)

Renewables had a blockbuster year, despite challenges

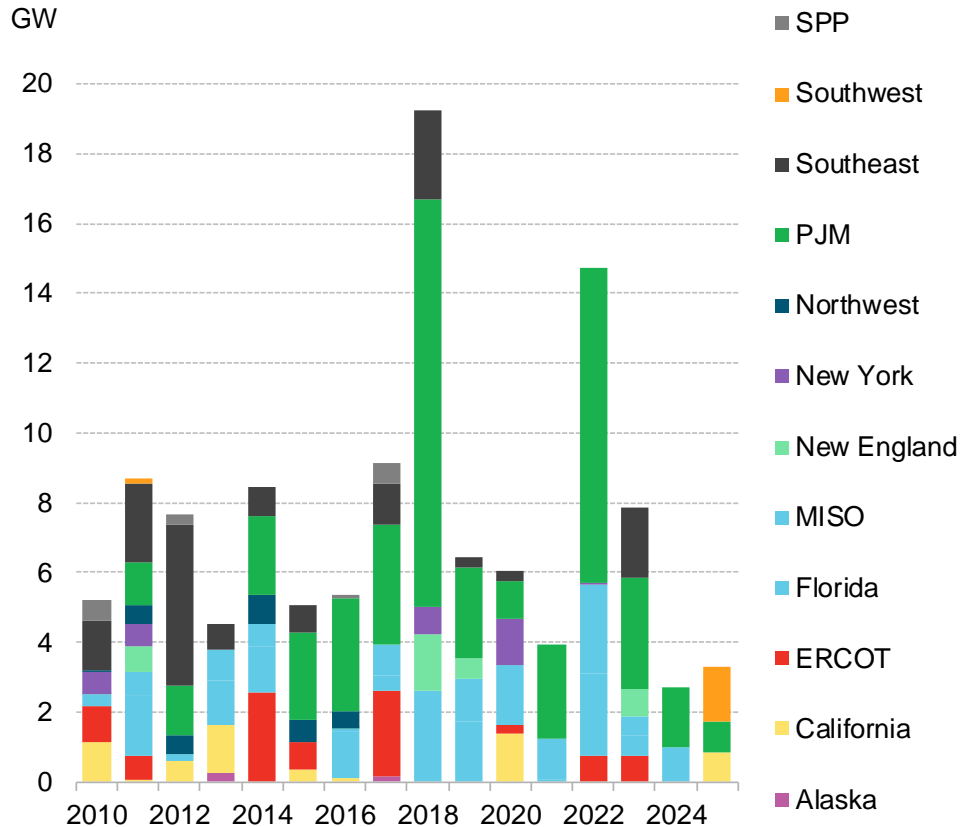
U.S. new renewable energy capacity build (GW)



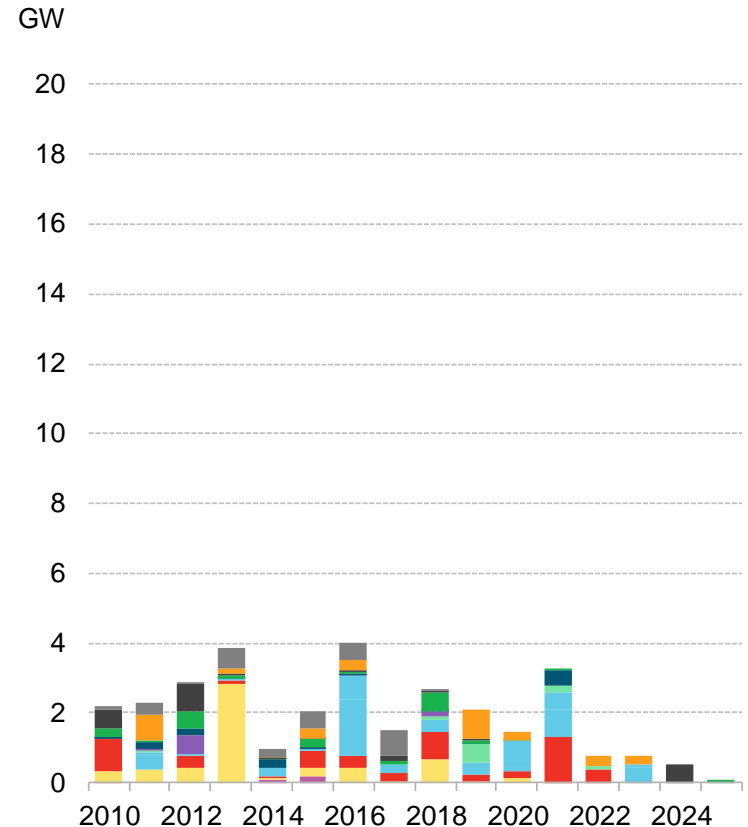
Source: BloombergNEF, EIA Notes: All values are shown in AC except solar, which is included as DC capacity. Numbers include utility-scale (>1MW) projects of all types, rooftop solar, and small- and medium-sized wind. Includes installations or planned installations reported to the EIA through October 2020, as well as BloombergNEF projections.

Substantial additional gas-fired power plants are due online...

Combined cycle build



Open cycle build



Source: EIA, BNEF

... and some will be paired with hydrogen

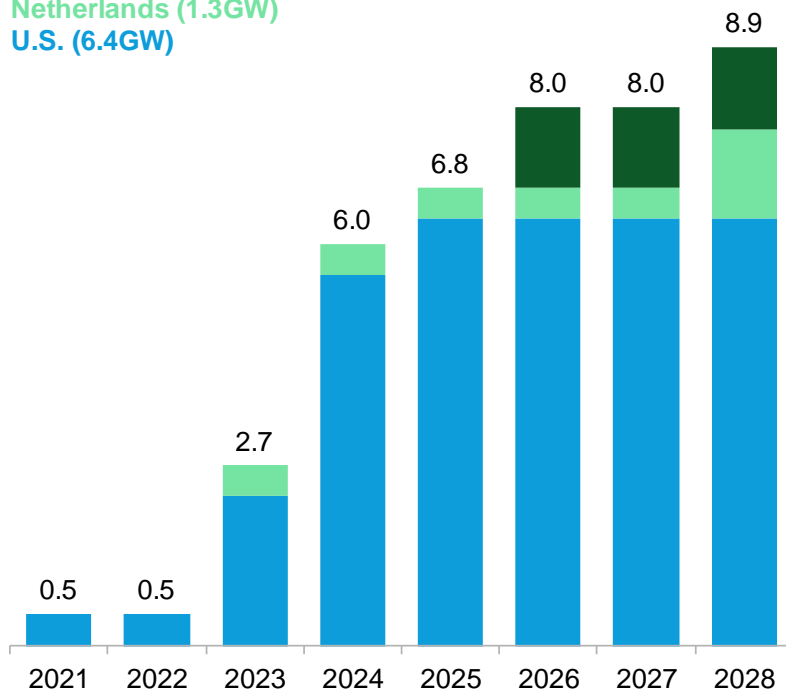
Announced capacity of H2-ready projects, by country

Capacity (GW)

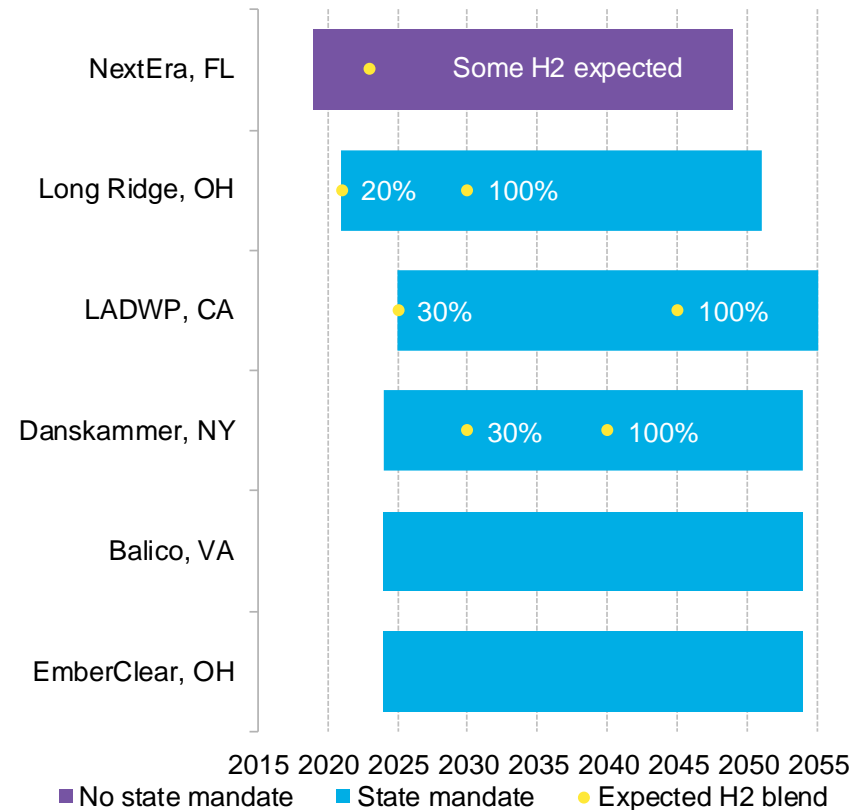
U.K. (1.2GW)

Netherlands (1.3GW)

U.S. (6.4GW)



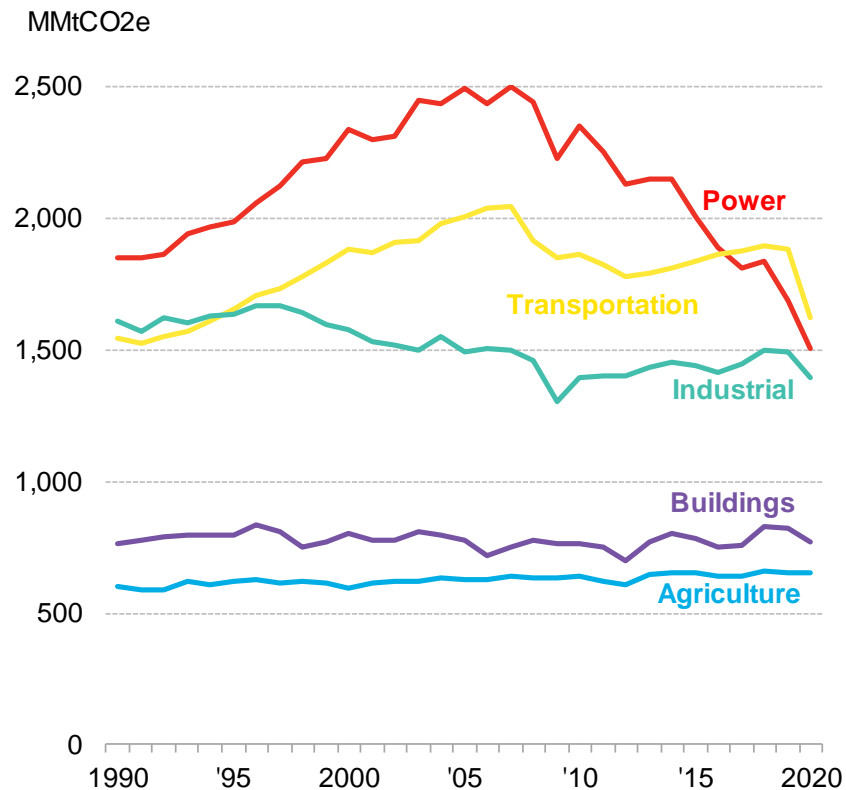
U.S. projects' H2 blending targets



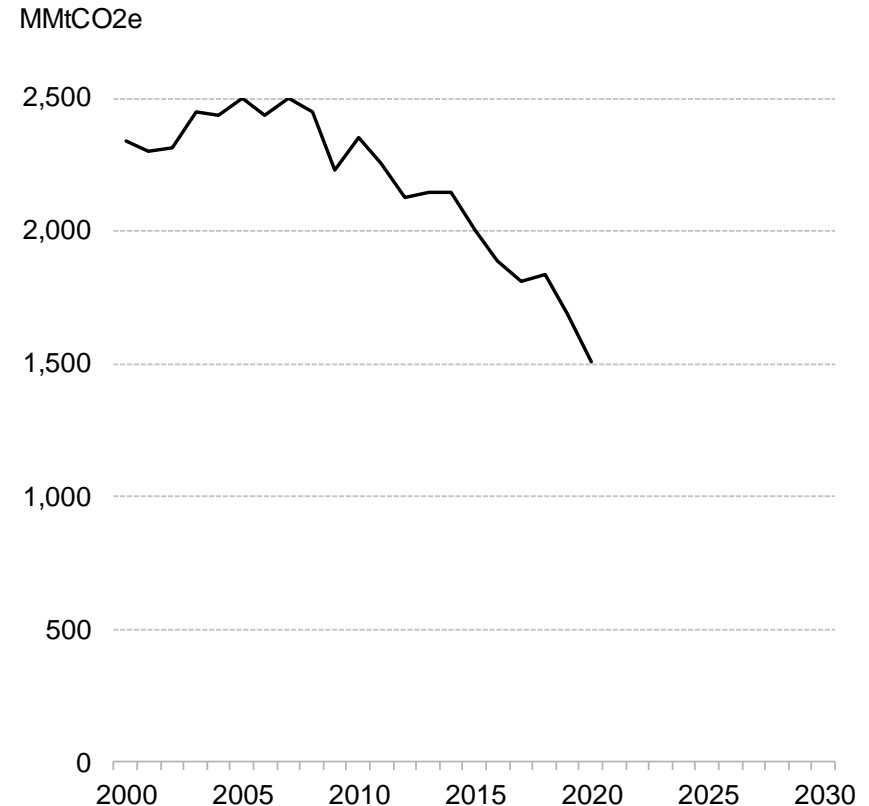
Source: BloombergNEF. Note: Left chart reflects announced and financed commercial projects. On right chart, Dashed = No announced hydrogen blend timeline. LADWP = Los Angeles Department of Water and Power. Bars begin at expected commercial operation date. 30-year asset lifetime assumed. State mandate means there is a state-level clean energy target.

Power emissions are down, at least for now

U.S. greenhouse gas emissions by sector



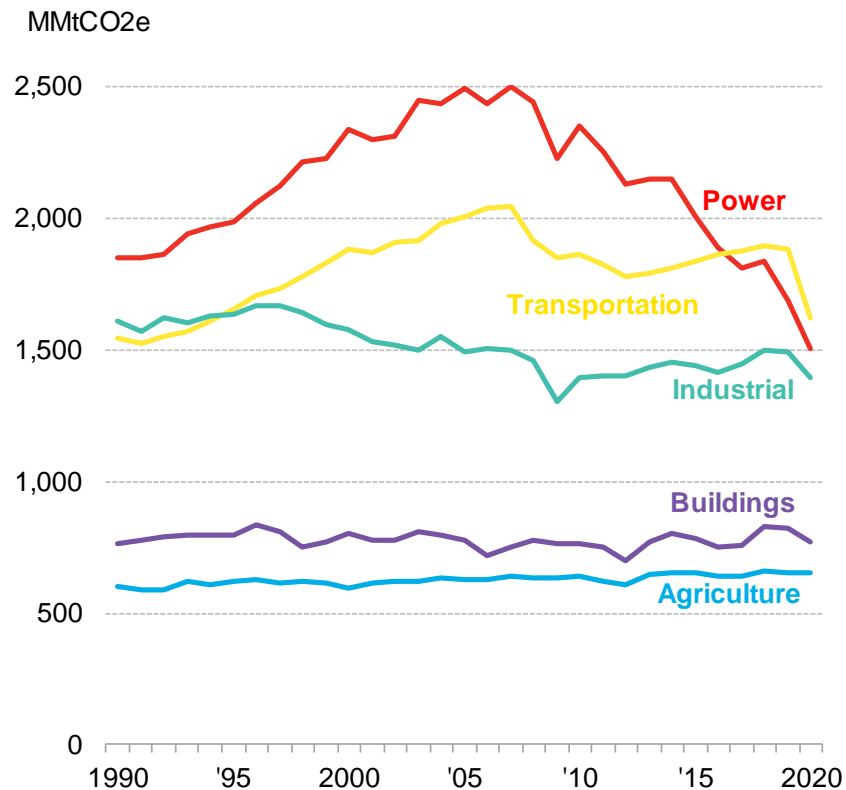
Power emissions goals



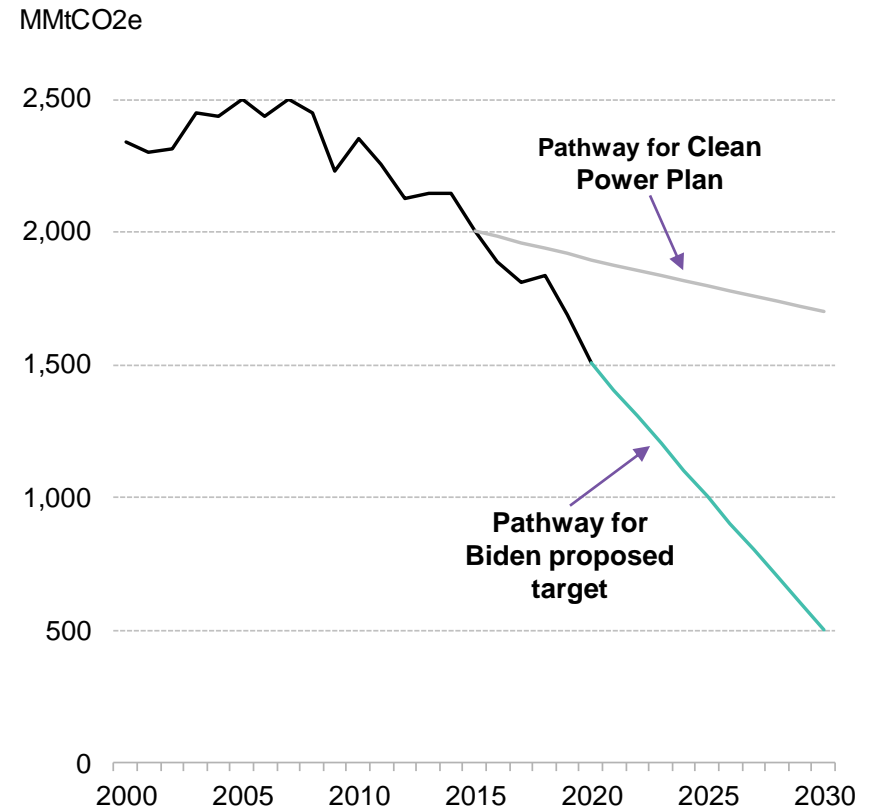
Source: BloombergNEF, EIA, EPA Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2016 Notes: "Sinks" refer to forests and green areas which absorb carbon dioxide. Values for 2020 are projected, accounting for seasonality, based on monthly values from EIA available through September 2020 and BNEF projections.

Power emissions are down, at least for now

U.S. greenhouse gas emissions by sector



Power emissions goals



Source: BloombergNEF, EIA, EPA Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2016 Notes: "Sinks" refer to forests and green areas which absorb carbon dioxide. Values for 2020 are projected, accounting for seasonality, based on monthly values from EIA available through September 2020 and BNEF projections.

Bloomberg NEF (BloombergNEF) is a leading provider of primary research on clean energy, advanced transport, digital industry, innovative materials, and commodities.

BloombergNEF's global team leverages the world's most sophisticated data sets to create clear perspectives and in-depth forecasts that frame the financial, economic and policy implications of industry-transforming trends and technologies.

BloombergNEF research and analysis is accessible via web and mobile platforms, as well as on the Bloomberg Terminal.

Coverage.

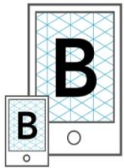
Clean energy

Advanced transport

Commodities

Digital industry

Get the app



On iOS + Android

about.bnef.com/mobile

BloombergNEF

Client enquiries:

Bloomberg Terminal: press <Help> key twice

Email: support.BloombergNEF@bloomberg.net

Learn more:

about.BloombergNEF.com | [@BloombergNEF](https://twitter.com/BloombergNEF)



The Bloomberg NEF ("BloombergNEF"), service/information is derived from selected public sources. Bloomberg Finance L.P. and its affiliates, in providing the service/information, believe that the information it uses comes from reliable sources, but do not guarantee the accuracy or completeness of this information, which is subject to change without notice, and nothing in this document shall be construed as such a guarantee. The statements in this service/document reflect the current judgment of the authors of the relevant articles or features, and do not necessarily reflect the opinion of Bloomberg Finance L.P., Bloomberg L.P. or any of their affiliates ("Bloomberg"). Bloomberg disclaims any liability arising from use of this document, its contents and/or this service. Nothing herein shall constitute or be construed as an offering of financial instruments or as investment advice or recommendations by Bloomberg of an investment or other strategy (e.g., whether or not to "buy", "sell", or "hold" an investment). The information available through this service is not based on consideration of a subscriber's individual circumstances and should not be considered as information sufficient upon which to base an investment decision. You should determine on your own whether you agree with the content. This service should not be construed as tax or accounting advice or as a service designed to facilitate any subscriber's compliance with its tax, accounting or other legal obligations. Employees involved in this service may hold positions in the companies mentioned in the services/information.

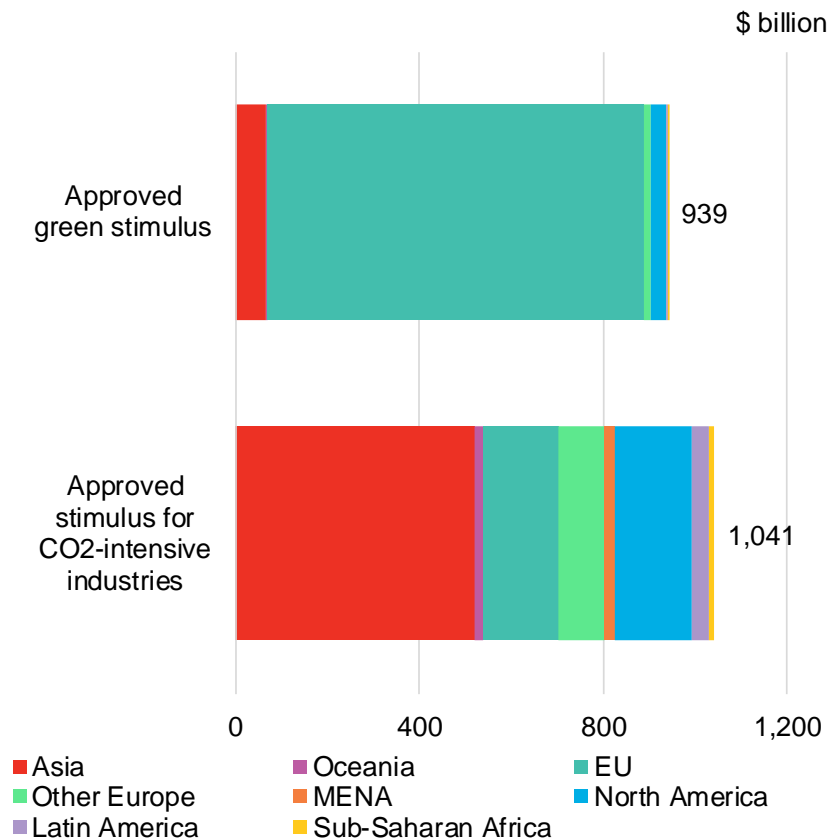
The data included in these materials are for illustrative purposes only. The BLOOMBERG TERMINAL service and Bloomberg data products (the "Services") are owned and distributed by Bloomberg Finance L.P. ("BFLP") except that Bloomberg L.P. and its subsidiaries ("BLP") distribute these products in Argentina, Australia and certain jurisdictions in the Pacific islands, Bermuda, China, India, Japan, Korea and New Zealand. BLP provides BFLP with global marketing and operational support. Certain features, functions, products and services are available only to sophisticated investors and only where permitted. BFLP, BLP and their affiliates do not guarantee the accuracy of prices or other information in the Services. Nothing in the Services shall constitute or be construed as an offering of financial instruments by BFLP, BLP or their affiliates, or as investment advice or recommendations by BFLP, BLP or their affiliates of an investment strategy or whether or not to "buy", "sell" or "hold" an investment. Information available via the Services should not be considered as information sufficient upon which to base an investment decision. The following are trademarks and service marks of BFLP, a Delaware limited partnership, or its subsidiaries: BLOOMBERG, BLOOMBERG ANYWHERE, BLOOMBERG MARKETS, BLOOMBERG NEWS, BLOOMBERG PROFESSIONAL, BLOOMBERG TERMINAL and BLOOMBERG.COM. Absence of any trademark or service mark from this list does not waive Bloomberg's intellectual property rights in that that name, mark or logo. All rights reserved. © 2021 Bloomberg.



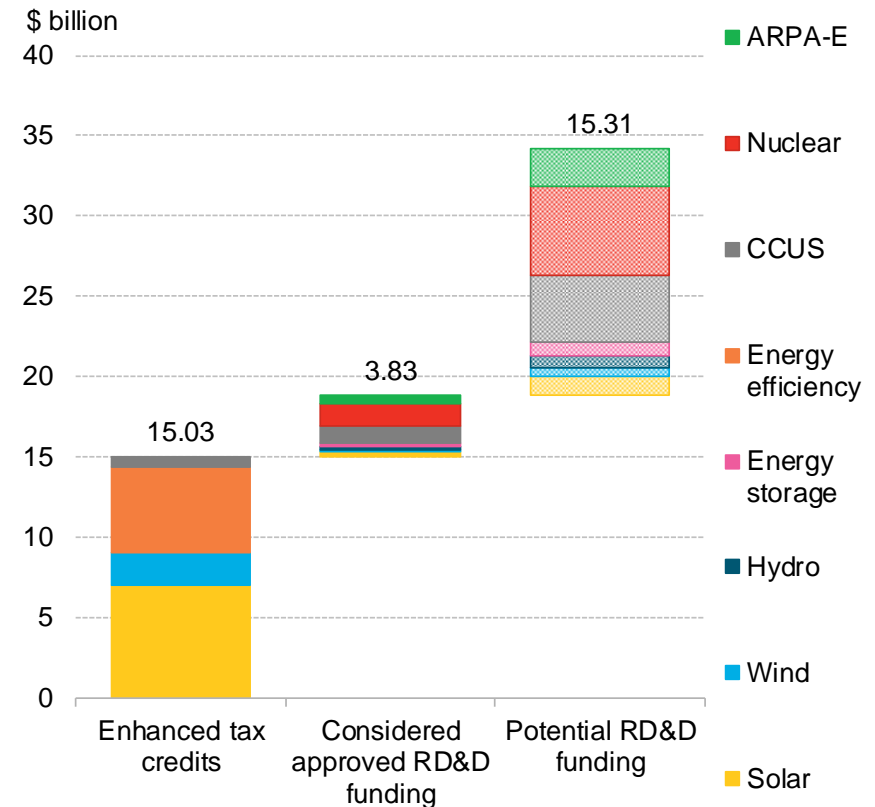
Charles Hernick
Vice President of Policy and Advocacy
Citizens for Responsible Energy Solutions

Governments globally included de-carbonization in stimulus packages

Global Covid-19 stimulus approved as of January 2021



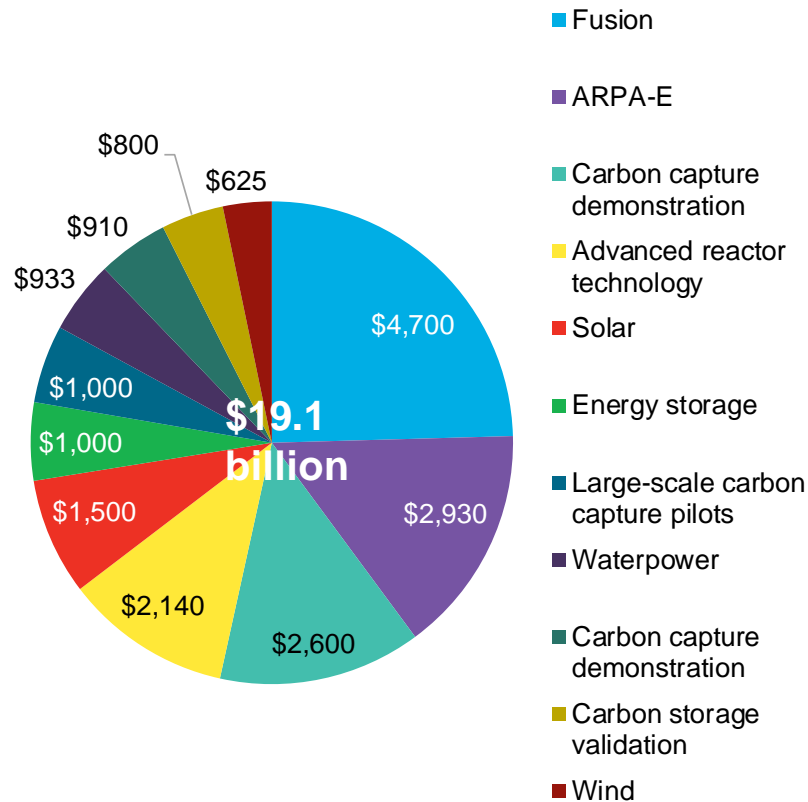
New U.S. green stimulus



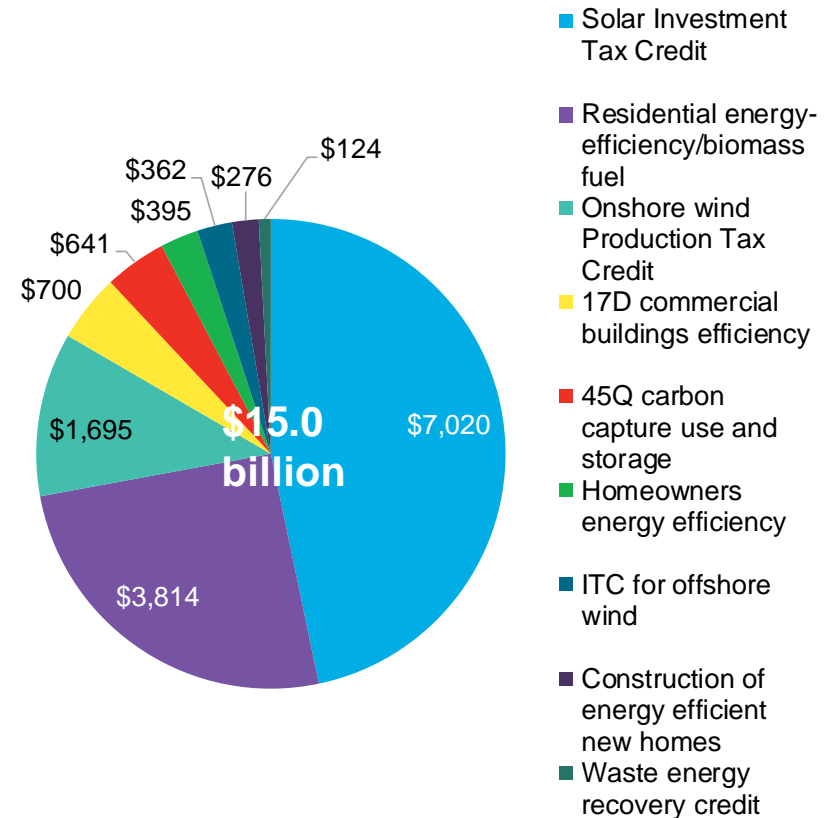
Source: Governments, media reports, BloombergNEF Note: 'Approved green stimulus' includes support to CO2-intensive sectors and companies with green conditions. Enhanced tax credit funding levels are based on U.S. Congress Joint Committee on Taxation estimate of new spending for those functions during 2021-30 fiscal years. Excludes extension of excise tax credits relating to alternative fuels because this includes support for fossil fuels and green fuels.

In the U.S., this meant RD&D and tax credits

Energy RD&D spending in U.S. stimulus bill (\$millions)



U.S. energy tax credit enhancements, 2021-2030 (\$millions)



Sources: BloombergNEF, U.S. Congress Joint Committee on Taxation

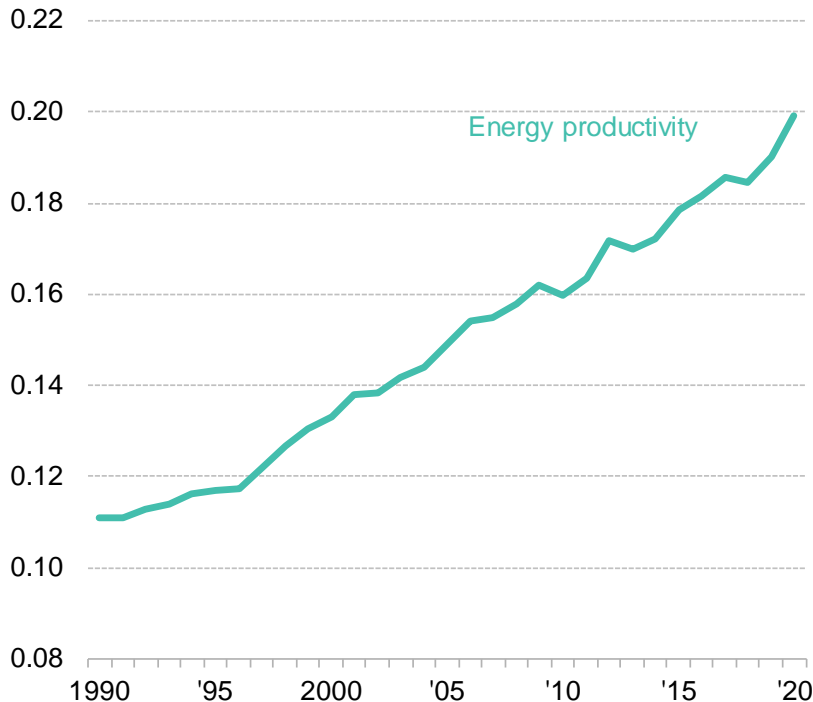


Ben Evans
Vice President, Public Affairs
Alliance to Save Energy

U.S. 2020 energy productivity rose, but Americans suffered

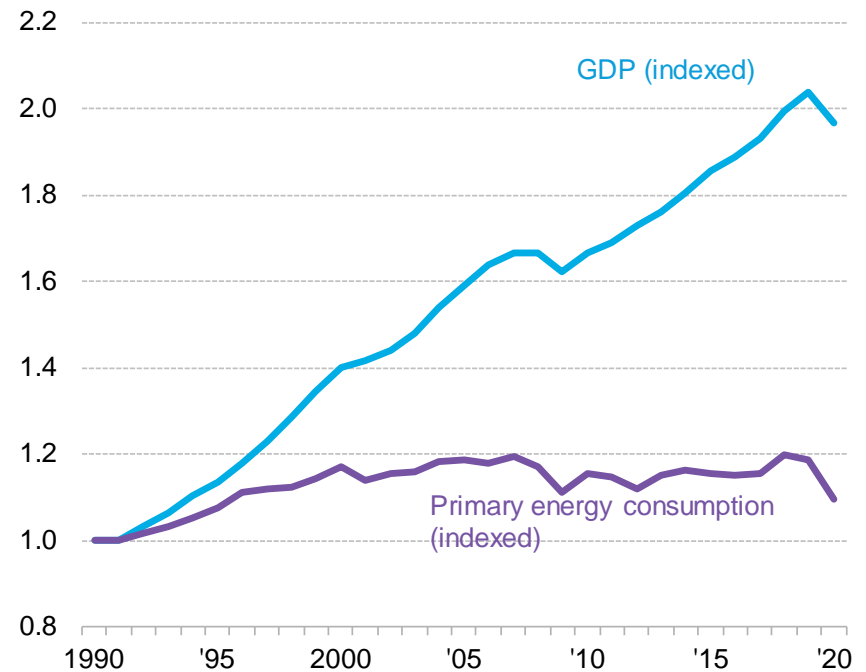
U.S. energy productivity

\$ trillion of GDP / quadrillion BTU of energy



U.S. GDP and primary energy consumption

Indexed to 1990 levels



Source: Bureau of Economic Analysis, EIA, BloombergNEF Notes: Values for 2019 are projected, accounting for seasonality, based on latest monthly values from EIA (data available through September 2020). 2020 GDP estimate is a projection from economists compiled at ECFC <GO> on the Bloomberg Terminal.



Bryn Baker
Director, Policy Innovation
Renewable Energy Buyers Alliance

Finance: Corporate sustainability targets

Key players: corporate clean energy procurement



Key players: corporate vehicle electrification



Key players: corporate energy efficiency

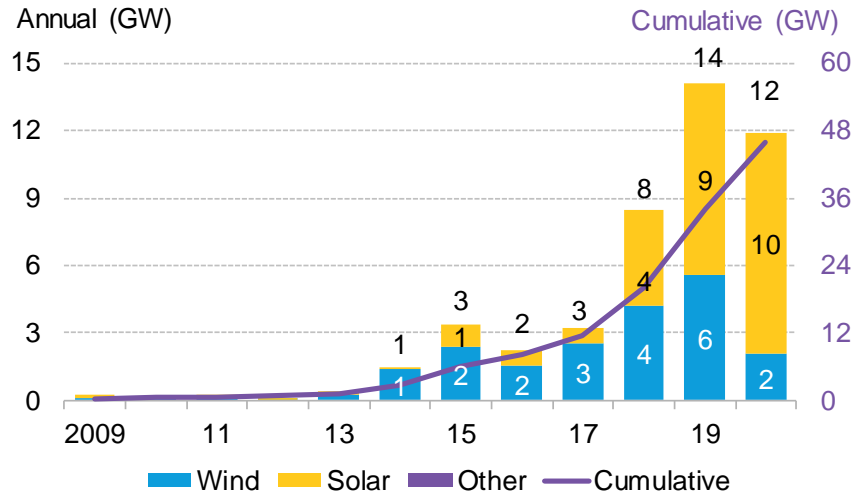


- The Climate Group's RE100 initiative, whose signatories pledge to offset 100% of their electricity consumption with renewables, had another record year of growth in 2020. Some 65 new companies joined, bringing the total number of signatories to 285. The U.S. holds onto its title as the most dominant market, with 79 (28%) of these companies. Technology (18) and Financials (18) are the most prominent sectors in the U.S.
- Through 2020, 123 companies have joined The Climate Group's EP100 campaign, which is nearly double the 64 that had joined at the end of 2019. Signatories pledge to double their energy productivity by 2030, while also cutting energy waste and owning and operating energy-smart buildings. Notable companies to join in 2020 include Lloyds Banking Group, Mitie and Derwent.
- The Climate Group's EV100 campaign, under which companies make a public commitment to integrate electric vehicles (EV) into their fleet or support EV charging infrastructure at their operations by 2030, is now up to 92 companies. Members such as DHL and EDF have already made significant progress in electrifying their vehicle fleets, purchasing 22,300 and 3,600 EVs, respectively.

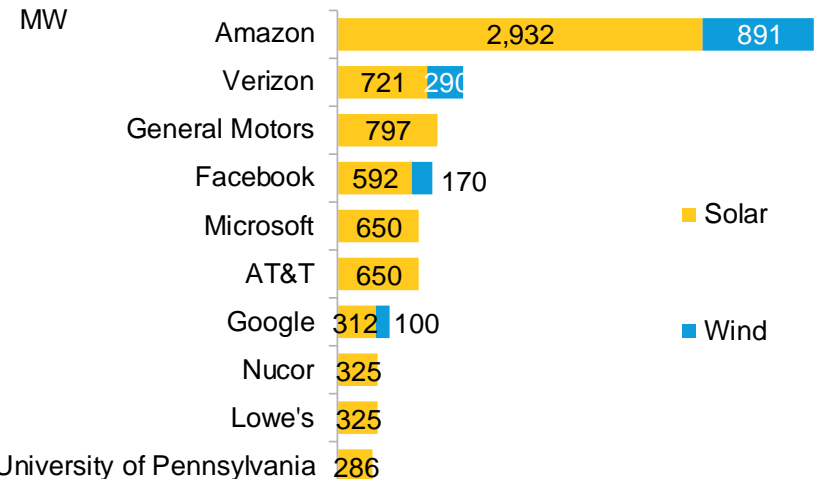
Source: BloombergNEF, The Climate Group, company announcements Note: Chart is a list of companies that have either joined a respective campaign or made other efforts in these sectors.

Finance: Corporate procurement of clean energy in the U.S.

Renewable capacity contracted by corporations, by technology



Largest corporate offtakers, 2020



- Corporate power purchase agreements (PPAs) for clean energy totaled 11.9GW in 2020. This is down from 14.1GW in 2019, and is the first drop in annual corporate PPA volumes since 2016. Covid-19 was the biggest factor in the drop – just 4.3GW of deals were announced in the first half of the year as companies tightened budgets and shifted priorities internally in response to the pandemic. Some 7.6GW of deals were announced in the second half of the year, signaling that companies will be better prepared to carry on sustainability initiative during any future disruptions.
- Solar has become the dominant clean energy technology sought by corporations. This is emblematic of a growing power markets expertise among buyers, who are trying to capture peak power pricing, which solar tends to capture better than wind. Additionally, many wind projects in popular markets like ERCOT and SPP have seen their revenues erode as more zero marginal cost clean energy is built, which depresses prices. This has prompted companies to instead seek solar contracts in these markets.
- Amazon was by far the largest corporate buyer of clean energy in 2020, at 3.8GW. The company announced 21 individual clean energy PPAs in the U.S., with most projects cited in Virginia and Ohio. Verizon (1GW) and General Motors (797MW) were the next largest buyers. A slew of first-time buyers also entered the market in 2020, including Applied Materials, Henkel and Nucor.

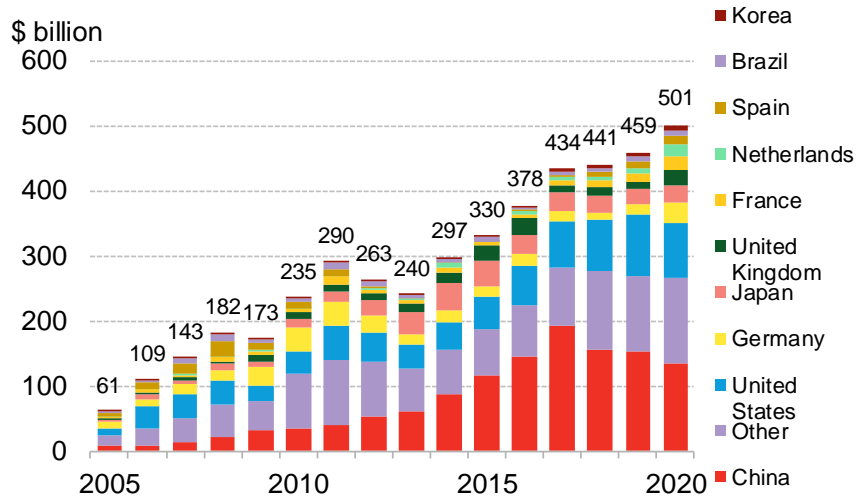
Source: BloombergNEF Note: Charts show offsite PPAs only



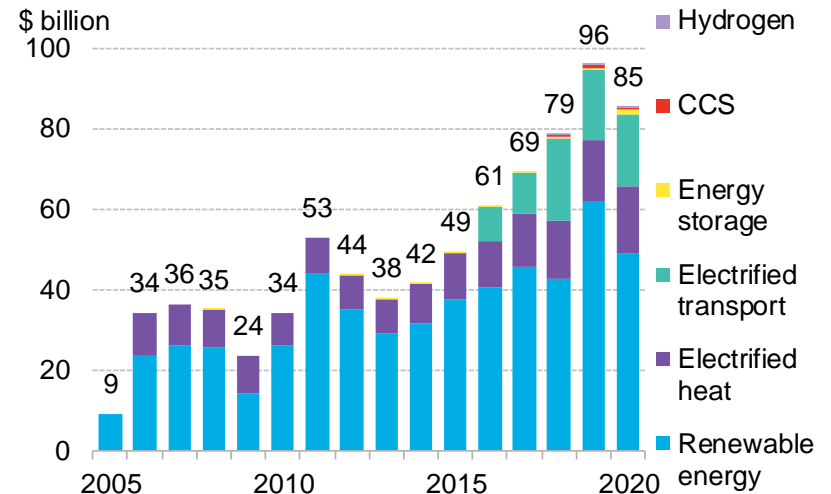
Allison Hull
Director, Federal Government Affairs
Sempra Energy

Finance: Total new clean energy transition investment

Global economy-wide investment, by country

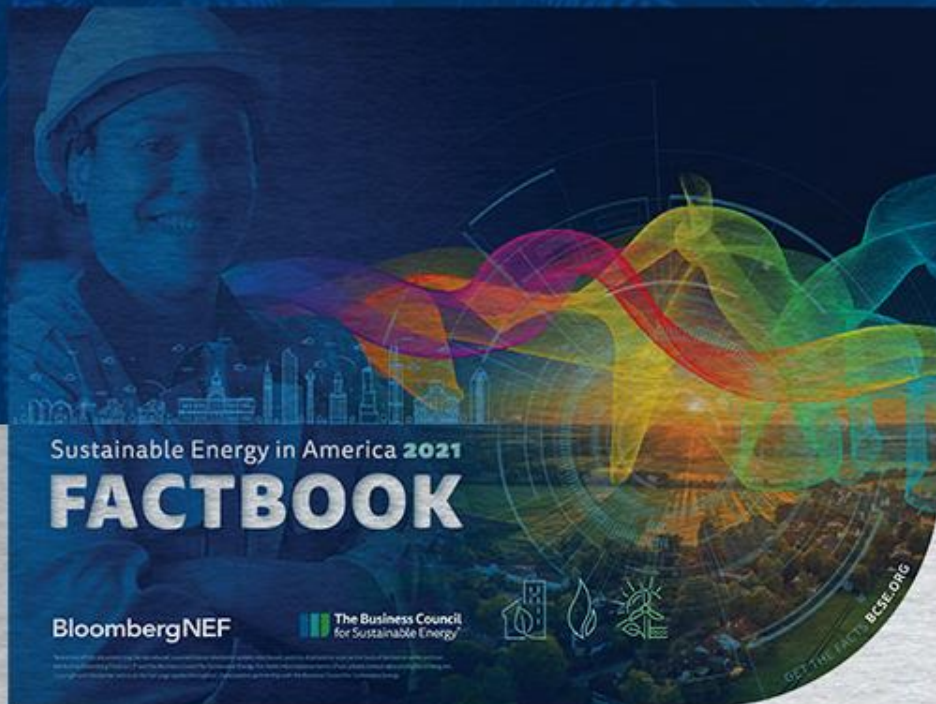


U.S. economy-wide investment, by sector



- Global energy transition investment hit \$500 billion for the first time in 2020 – a 9% increase over 2019 – marking the largest growth since 2016-2017.
- The U.S. accounted for \$85 billion (or nearly 20% of this global investment), but decreased 11% below 2019. The nation continues to spend the lion's share of its energy transition capital on renewable energy (58% of total spend) while transport remained a strong growth area (a 42% investment increase in the last 5 years, relative to power's 31%). Notably, the U.S. now invests roughly \$100 million/year in hydrogen, the vast majority of which is tied to fuel cell vehicle sales.
- U.S. renewable energy was not immune to the multi-sector investment dip in 2020. Last year, \$12 billion less was invested in renewable technologies (a 20% decrease) than in 2019. Solar and wind continued to pull the majority of the capital, accounting for 99% of all renewable energy investment.

Source: BloombergNEF, "Energy Transition Investment Trends, 2021"



GET THE FACTS
[BCSE.org/Factbook](https://bcse.org/Factbook)



What did you think of the briefing?

Please take 2 minutes to let us know at:
www.eesi.org/survey

Materials will be available at:
www.eesi.org/031221factbook

Tweet about the briefing:
[#eesitalk](#) [@eesionline](#)

Friday, March 12, 2021