

For Immediate Release

February 21, 2024 12:01 am ET

New Study Shows Clean Energy Transition Thrives in 2023, Boosted by Federal Policies

Twelfth annual edition of the Sustainable Energy in America Factbook highlights national data on the U.S. energy transition in 2023

Washington, D.C. – U.S. clean energy sectors demonstrated their resiliency in 2023, with both mature and emerging decarbonization solutions seeing growth despite higher interest rates and supply chain difficulties. This strong performance by clean energy sectors is bolstered by a suite of federal policies that provide clear market signals to invest, according to the *2024 Sustainable Energy in America Factbook* published today by BloombergNEF (BNEF) and the Business Council for Sustainable Energy (BCSE).

This strength was seen across multiple sectors, with record-breaking deployments in 2023 of clean power resources, energy storage, electric vehicles, and emerging technologies like hydrogen and carbon capture and storage. The energy productivity of the U.S. economy increased, while national emissions declined for the first time since 2020, falling to levels comparable to 1987.

“The resiliency of sustainable energy sectors is clear and enduring,” said BCSE President Lisa Jacobson. “We know that the clean energy transition is already hard-wired into the U.S. economy, but recent federal policies have proven to be an important asset in accelerating technology deployment amid a turbulent market.”

Strong federal policies support growth of clean energy industries

Power and transportation, two sectors in which the energy transition is well underway, grew and set records. 42GW of new renewable power-generating capacity was added to the U.S. grid, primarily driven by robust solar additions. Renewable energy use also set new highs at 8.8% of total U.S. energy demand and 23% of electricity demand. Meanwhile, coal’s contribution to power generation slid to 15.8% in 2023 – its lowest ever – and was largely replaced by natural gas.

A record 7.5GW of battery storage was also added, helping to integrate renewable generation on the grid and to provide needed grid flexibility. This makes the United States the second largest energy storage market in the world.

Electric vehicle (EV) sales surged 50% to nearly 1.46 million vehicles sold in 2023. The surge in sales was driven by new federal EV incentives, price cuts, and more EV models released.

Moreover, emerging sectors of the low-carbon economy were jumpstarted. Interest in clean U.S. hydrogen grew, with approximately 437MWh of new electrolyzers shipped in 2023 and plans announced to add nearly three million metric tons of low carbon hydrogen capacity through the Department of

Energy's regional hydrogen hubs. Carbon capture and storage (CCS), renewable natural gas (RNG), and sustainable aviation fuel (SAF) also saw a jump in planned projects and fuel supply in 2023. Clean energy manufacturing, currently limited in the United States, saw a surge of interest with 104 domestic facilities planned at the end of 2023, representing \$123 billion in announced investments.

A record-shattering \$303.3 billion in energy transition financing was deployed in the United States for clean energy technologies, including renewables, EVs, and power grid investment.

"It has been another year of growing investment in the sector," said Tom Rowlands-Rees, Head of North America Research for BloombergNEF. "What is particularly interesting is that after the 2022 Inflation Reduction Act passed, there has been a wave of investment announced in clean tech manufacturing which has not been a U.S. focus for a while."

Remaining obstacles to deployment

This growth in clean energy investment and deployment in 2023 came even as the industry grappled with persistent issues. Higher interest rates boosted levelized costs of electricity (LCOE) for renewable energy technologies in 2022. The average wait time for a power plant to connect to various grids stretched out to seven years in some areas.

A key obstacle remaining for clean energy deployment is the slow pace at which infrastructure projects secure all necessary permits and move forward. By the end of 2023, over 1,100GW of projects are undergoing interconnection studies in the seven U.S. independent system operators, with solar representing 41% of this capacity. Reforms to federal permitting and siting regulations could help alleviate these difficulties and accelerate the pace of the U.S. clean energy transition. Emerging technology like CCS is also running into infrastructure challenges, with uncertainty in regulatory processes leading to cancellations and slowdowns in the transportation and storage of CO₂.

"The growth in clean energy sectors of the past year have shown the positive impacts of federal investments and the power of public-private partnerships," said BCSE President Lisa Jacobson. "Moving forward, the U.S. can capitalize upon this momentum through smart policy and regulatory reforms to further leverage private sector capital and drive emissions reductions."

Emissions fall even as economy grows

2023 showed a return to long-term trends of rising energy productivity and falling emissions. The U.S. economy achieved more economic output with less energy and emitted fewer greenhouse gases while doing so. Year on year, emissions dropped 1.8% from 2022 levels, falling in every sector except transport. Power is now the U.S. economy's third highest emitting sector, having been first as recently as 2016. At the end of 2023, power sector emissions were 40% below 2005 levels.

The U.S. economy expanded by 2.4% while primary energy consumption slowed down by 1.4% year on year. Taken together, U.S. energy productivity increased by 3.8% year on year. This resulted in the highest economic output achieved per unit of energy consumed – on average \$240 billion of GDP was generated per quadrillion Btu of energy consumed.

However, the current pace of emission reductions is not rapid enough to meet U.S. climate goals. Under the Paris Agreement, the U.S. committed to reducing emissions by 50-52% compared to 2005 levels. 2023 emissions were 16% below 2005 levels.

“If the whole U.S. energy system cut emissions as quickly as the power sector did, we would be within striking distance of our climate targets,” said Tara Narayanan, BloombergNEF Lead Analyst for U.S. Regional Trends. “The reality is that all sectors need to pick up the pace.”

Comprising more than 60 slides with data visualizations, the Factbook is a comprehensive resource that highlights the state of sustainable energy in the U.S. based on statistics and data inputs from the year before. In addition to highlighting the contributions of key energy sectors in 2023, the Factbook details important market and investment dynamics, technology trends, and policy developments.

Download the complete 2024 *Sustainable Energy in America Factbook* at bcse.org/factbook.

Media Contacts

Lizzie Stricklin
Business Council for Sustainable Energy
202.785.0507 x 1504
lstricklin@bcse.org

Oktavia Catsaros
BloombergNEF
702.666.1047
ocatsaros@bloomberg.net

###

About the *Factbook* Partners

[BloombergNEF](#) (BNEF) is a strategic research provider covering global commodity markets and the disruptive technologies driving the transition to a low-carbon economy. 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.

[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 membership also includes independent electric power producers, investor-owned utilities, public power, commercial end-users, and project developers and service providers for energy and environmental markets. Since 1992, BCSE has been a leading industry voice advocating for policies at the state, national, and international levels that increase the use of commercially available clean energy technologies, products, and services.