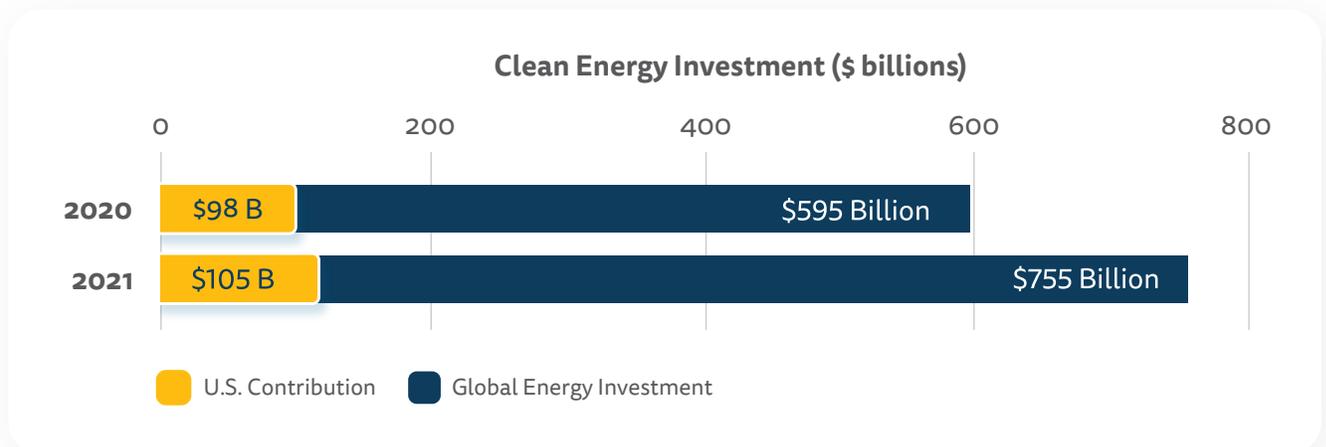


Top Five Trends

The [2022 Sustainable Energy in America Factbook](#), produced annually by [BloombergNEF](#) in partnership with the [Business Council for Sustainable Energy](#), tracks energy market and policy trends in the United States. The Factbook examines how clean energy sectors performed in 2021 and over the past decade.

Download the 2022 Factbook: bcse.org/factbook

1 Key market signals in 2021 point to even more clean energy on the horizon. Global private investment in the energy transition soared in 2021 to \$755 billion with the U.S. setting a record of \$105 billion.



FACTS

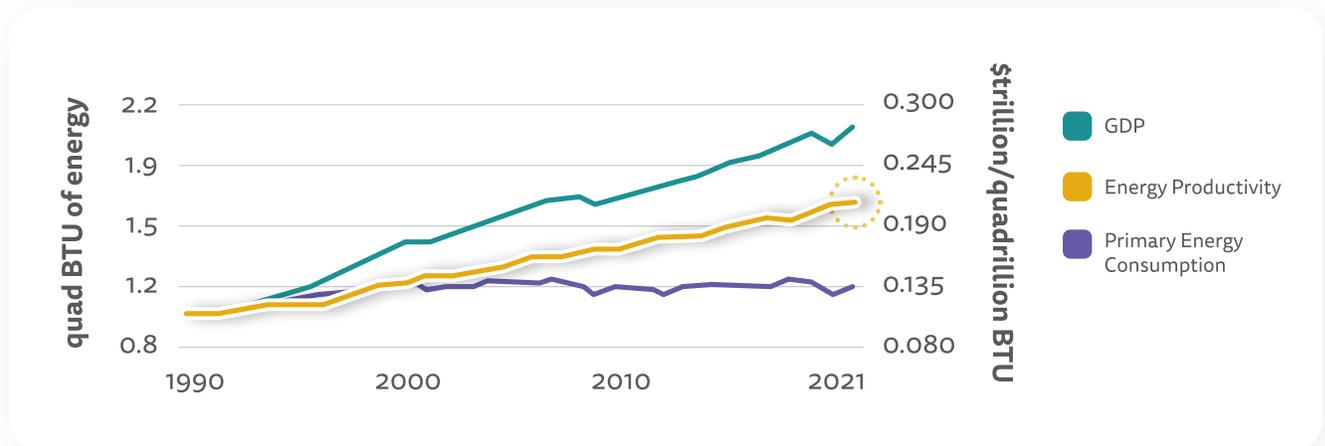
- The injection of \$105 billion in new private capital in the U.S. energy transition in 2021 is an 11 percent year-on-year increase, and a 70 percent increase over the past five years. The 2021 total included \$47 billion in renewable energy (45 percent), \$35 billion in electrified transport (34 percent) and a doubling of hydrogen investments to \$200 million in 2021.
- The U.S. federal government made an unprecedented \$80 billion pledge to support the energy transition with the enactment of the Infrastructure Investment and Jobs Act, which looks to leverage significant private sector investment.
- Large corporations continued to drive clean energy demand in the U.S., signing contracts to procure a record 17 gigawatts (GW) of renewable energy in 2021.

WHY IT MATTERS

Clean energy is thriving. The record levels of public and private sector investment in both the U.S. and around the world in 2021 point to the durability of the energy transition, despite Covid-19 business conditions. Corporate demand, coupled with public sector injection of capital into U.S. infrastructure, will accelerate the expansion of the clean energy transition, which is rooted in a diversified portfolio of energy efficiency and clean energy.

2

U.S. energy productivity improved 1.3 percent in 2021, making the case for scaling up investment in energy efficiency technologies. Natural gas and renewable energy helped to meet increased energy demand as the U.S. economy rebounded.



FACTS

- The energy productivity of the U.S. economy improved 1.3 percent in 2021, as the economy grew 5.6 percent and primary energy consumption increased only 4.4 percent year-on-year. Since 1990, the energy productivity of the U.S. economy has improved 80 percent.
- Energy consumption contributions from non-hydro renewables (wind and solar, primarily but also biomass, waste-to-energy and geothermal) rose 8.6 percent in the wake of strong capacity additions in 2021. Hydropower consumption was lower in 2021 due to droughts, but provided critical power at peak times in California.
- While overall consumption of natural gas fell slightly in 2021 (0.4 percent), total demand for U.S. natural gas increased 9.4 percent in 2021, a rebound from the minimal growth in 2020 due to the Covid-19 pandemic. Industrial, residential and commercial heating demand increased 0.4 percent, 4.7 percent and 1.9 percent, respectively, driven by weather and the economy. The increase in residential gas customers was the largest since 2006, with 900,000 more customer hook-ups in 2020.

WHY IT MATTERS

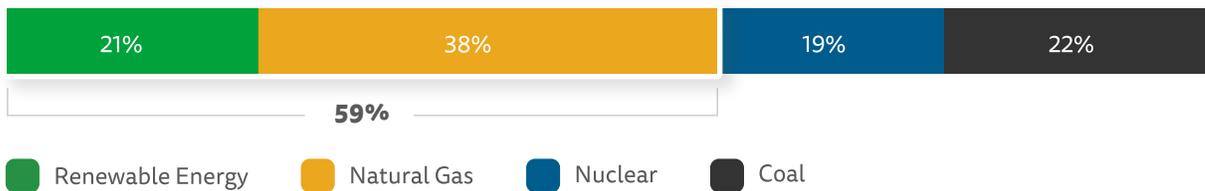
Energy productivity – the ratio of energy consumed in the U.S. compared to the economy’s overall gross domestic product – is an essential metric to grade our country’s competitiveness compared to other Group of Seven nations. Remarkably, in both 2020, when the economy dramatically contracted, and 2021, when it dramatically expanded, U.S. energy productivity improved. This signals that investing more in energy efficiency is a solution that will deliver on our nation’s productivity and emission reduction goals.

In terms of natural gas demand growth in the residential sector, the average residential customer efficiency continues to improve, offsetting sectoral demand growth that would result from new customers.

3

The share of U.S. electricity demand met by natural gas and renewable energy increased to 59 percent in 2021. New renewable energy generation build also reached new heights, adding 37 GW.

US electricity generation by fuel type (%)



FACTS

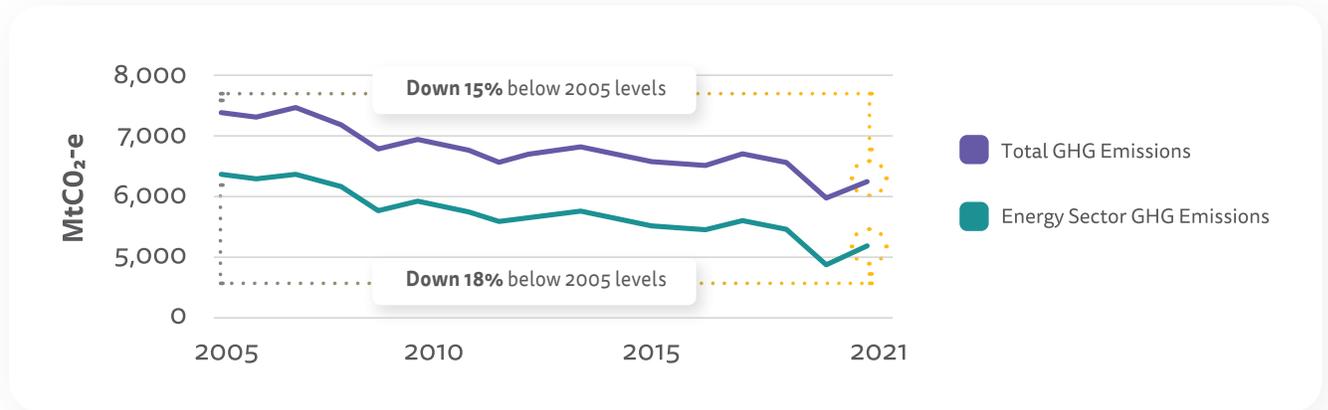
- Total U.S. power generation increased 3.1 percent in 2021. Natural gas is the largest source of U.S. electricity generation, providing 38 percent of the total. Renewable energy provided 21 percent, with wind and solar representing 14 percent of this. Hydropower output dropped 11 percent due to drought conditions in California and the Pacific Northwest, although it provided critical power at peak load times in California, representing at times 10% of generation. Coal-fired generation increased for the first time since 2014, offsetting natural gas generation, and nuclear power generation held steady at 19 percent.
- More than 45 GW of new power generation capacity was commissioned in 2021 – the largest capacity in nearly two decades. Renewable energy was the dominant source, adding 37 GW. Solar had its largest build year ever at 24.2 GW of new capacity, and wind followed at 13 GW, its third best year to date. Over the last decade, renewable energy and natural gas constituted 95 percent of all new generation build.

WHY IT MATTERS

Despite business and policy uncertainties faced in 2021, the U.S. power sector’s transition to cleaner resources endured, showing strong demand by companies, communities and households.

4

The rise of U.S. greenhouse gas emissions in 2021 signals the need for public policy support that accelerates the speed and scale of the deployment of clean energy and energy efficiency solutions. This is essential to reduce emissions and enhance resilience.



FACTS

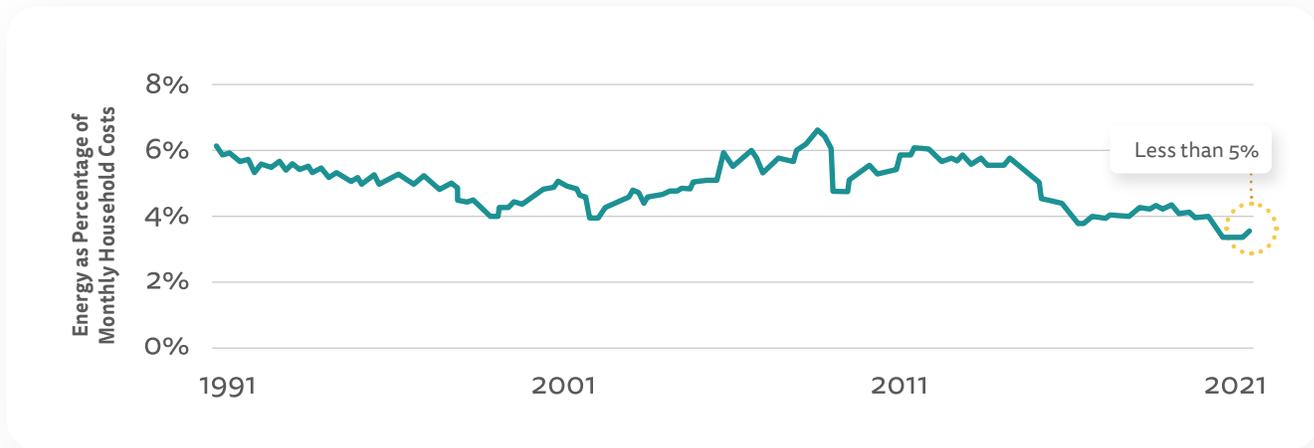
- U.S. economy-wide greenhouse gas emissions rose 5.8 percent in 2021 – after collapsing 9.6 percent in 2020 – but remained 15 percent below 2005 levels.
- Power sector emissions rose 8.6 percent in 2021 but remained 35 percent below 2005 levels.
- Transport sector emissions rose 10 percent in 2021, as Americans took to the roads and the air again.
- Climate-related disasters caused \$145 billion in damage in 2021, making it the third most costly year on record after 2005 and 2017. Twenty of these disaster events individually caused more than \$1 billion in damages.

WHY IT MATTERS

Power sector emissions rose year-on-year as coal-fired generation rose, offsetting natural gas generation. This change is expected to be short-lived due to the record levels of renewable build and clean energy and energy efficiency investments seen in 2021. However, the rise of emissions signals the need to enact policies that will help reduce emissions and protect communities from the worst impacts of climate change, including the increasing severity and cost of extreme weather events as experienced in 2021.

Of note, during the cold event in February 2021, U.S. weekly natural gas storage withdrawals set their second highest record. This shows that natural gas storage remains key for balancing energy supplies on a seasonal and an annual basis and plays a critical role in helping to meet peak demand requirements.

5 Relative energy costs of U.S. households remained historically low in 2021, even as consumers faced price increases due to supply chain disruptions and inflation.



FACTS

- Energy spending accounted for 3.9 percent of total U.S. personal consumption expenditures in 2021, up 0.4 percentage points from 2020 levels as overall energy consumption increased.
- Nationwide, 1.65 percent of household expenditures went to electricity and natural gas in 2021, down only slightly from the 2020 level of 1.71 percent. This downtick contrasted with the steep increase in motor fuel spending, which reflects the rebound in transportation energy consumption from 1.6 percent of household spending in 2020 to 2.1 percent in 2021.

WHY IT MATTERS

Total consumer spending, including energy goods and services, increased significantly in 2021. Yet the monthly cost of energy to an American household, as compared to other expenses, remained below 5 percent in 2021. Even as the U.S. energy economy has transformed over time to embrace cleaner resources and has become more efficient, the energy costs of U.S. consumers have remained relatively low and stable.