

2020

Sustainable Energy in America

FACTBOOK

Understanding the U.S. Energy Transformation

Over the past 10 extraordinary years, the United States has fundamentally overhauled how it produces, delivers, and consumes energy with Sustainable Energy.

GET THE FACTS AT

[BCE.ORG/FACTBOOK](https://www.bce.org/factbook)

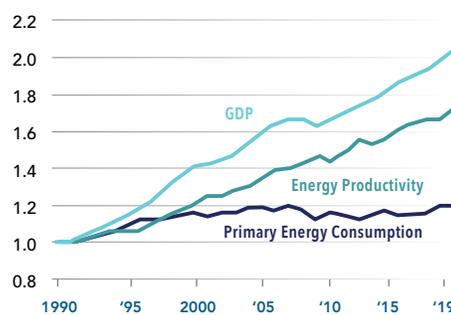
2010s Deliver the Decade of Sustainable Energy

An era of economic growth, reduced greenhouse gas emissions, and sharply falling energy costs for consumers.

U.S. ENERGY PRODUCTIVITY TRENDS

During the 2010s, America's gross domestic product (GDP) climbed 25% while primary energy consumption grew only 6.6%. In other words, the energy productivity of the U.S. economy – the ratio of U.S. GDP to energy consumed – grew 17.6% over the decade. In these 10 years of consecutive economic growth, energy usage shrank year-on-year five times. Advancements in energy efficiency through technology innovation, economies of scale, and policymaking have enabled this energy-smart growth.

U.S. PRIMARY ENERGY CONSUMPTION AND GDP

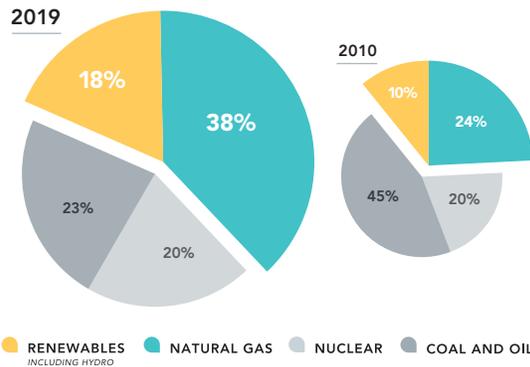


Indexed to 1990 levels

U.S. ELECTRICITY MIX

Over the past decade, the U.S. power sector has made large strides toward a decarbonized grid. Natural gas' share of electricity generation increased from 24% to 38%, and renewable energy's share climbed from 10% to 18%.

CLEAN ENERGY SECTOR EXPANDS



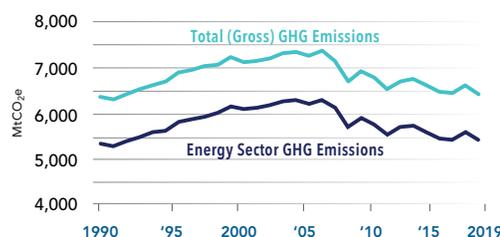
Note: The graph shares do not add up to 100% due to rounding.

NATURAL GAS AND RENEWABLE ENERGY ACCOUNTED FOR 56% OF ALL ELECTRICITY GENERATION IN 2019, UP FROM 34% IN 2010.

U.S. GREENHOUSE GAS EMISSIONS

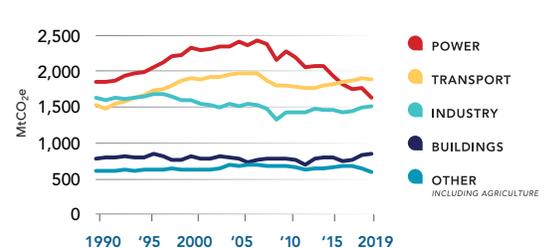
Total U.S. greenhouse gas (GHG) emissions have fallen 4.1% over the past decade and are now roughly 12% below 2005 levels. From 2010 to 2019, power sector emissions fell nearly 25% while transportation emissions rose 5% to become the largest emissions by sector.

ECONOMY-WIDE & ENERGY SECTOR EMISSIONS



Metric tons of carbon dioxide equivalent (MtCO₂e)

EMISSIONS BY SECTOR



QUICK FACTS ABOUT 2019

- Energy productivity increased 3.3% year-on-year, as energy consumption also fell 1% while the economy grew 2.3%.
- Natural gas-fired generation increased from 36% to 38% and renewable power generation rose from 17% to 18% in 2018. Combined heat and power (CHP) contributed 7% of power generation in 2018.
- Overall U.S. GHG emissions fell 2.7%, while power sector emissions fell 7.8%, due to lower overall demand and a cleaner power mix.
- New U.S. investment in clean energy assets surged 28% to \$55.5 billion, second only to China.

U.S. CONSUMERS ARE BENEFITING FROM MORE CHOICE AND LOW PRICES

Consumers today have unprecedented ability to manage energy decisions. Technology-enabled products and services help consumers lower their energy use, choose where their energy comes from, and maximize the timing of their energy use to help with peak-reduction strategies. As clean energy has gone mainstream, the total share of household spending dedicated to energy costs is now less than 4% of average monthly income, down from 5.1% a decade ago.

U.S. CLEAN ENERGY INVESTMENT EXPANDS

New investment in clean energy assets in the U.S. totaled \$390 billion in the past decade, an average of \$39 billion per year.

U.S. ECONOMY STRENGTHENED WITH COMPETITIVE ENERGY COSTS

Over the 2010s, the U.S. has consistently been one of the most attractive markets in the world for companies whose operations entail significant energy-related costs, beating out other major economies such as China, Japan, and India, with a lower price for electricity for the industrial sector.

GET THE FACTS

INDUSTRY HIGHLIGHTS

Energy Efficiency

- 76% of Americans live in a state with a building energy code that promotes energy efficiency.
- Total U.S. spending on energy efficiency through formal frameworks – such as utilities, ESPCs, and PACE – reached \$14.2 billion in 2018, up from \$9.4 billion in 2010.
- Local benchmarking and disclosure policies for energy use in buildings jumped from 5% of commercial floor space in 2010 to 13% in 2019.
- Over 85 million “smart meters” have been installed in U.S. homes and businesses, up from 9.6 million a decade ago.
- Use of the light-emitting diode (LED) lightbulb has grown from virtually zero in 2010 to 1.1 billion units as of 2018.

Natural Gas

- Natural gas is the number one source of power in the U.S., contributing 38% of the electricity mix in 2019, equivalent to nearly 1,588 terawatt-hours, a 7.1% increase over 2018.
- Total U.S. annual natural gas demand has grown 49% in the past decade and 5% in the last year alone, to a record-setting 86.5 billion cubic feet per day in 2019.
- The U.S. transitioned from being a natural gas importer in 2010 to a natural gas exporter in 2019.
- Five states have voluntary tariffs to offer renewable natural gas (RNG) to homes and businesses.

Renewable Energy

- Renewable power generation grew 5.1% year-on-year in 2019, accounting for 18% of total U.S. generation – a 77% increase from its share a decade ago.
- The U.S. has more than twice the renewable power generating capacity compared to 2010.
- Wind and solar capacity have quintupled since the start of 2010 (from 36 GW to 183 GW).
- Hydropower pumped storage, representing 93% of energy storage in the U.S., is growing. The 393 MW Swan Lake Pumped Storage Hydropower Project received a license to construct in 2019.
- Biogas, biomass, geothermal, and waste-to-energy represented 17 GW of U.S. capacity in 2019. While these technologies can provide renewable, around-the-clock power, they have lacked access to the same incentives as the fast-growing sectors.



JOBS IN THE U.S.

Energy efficiency, natural gas, and renewable energy industries support 3.2 million jobs in the United States.

Sustainable Transportation

- Since 2010, the number of electric vehicles has exploded from virtually zero to 79 model choices in North America.
- During the 2010s, Americans purchased or leased 1.4 million battery-electric and plug-in hybrid electric vehicles, with 71,000 charging points available nationwide by the end of 2019.
- Since 2010, natural gas use in vehicles has experienced a 7.5% compound annual growth rate, and natural gas now provides 3% of transportation fuel in the U.S.
- Fuel cell vehicle (FCV) sales hit 2,090 in 2019, increasing the number of FCVs on the road by 35% year-on-year to a total of 7,994.

MODERN AND RESILIENT INFRASTRUCTURE

The extensive power grid and natural gas system in the U.S. is fueling the nation's economic growth and is supporting its global competitiveness. Further, clean energy technologies in the energy, buildings, and transportation sectors are helping to ensure that the U.S. has modern and resilient infrastructure.

Electric utility investment continues to grow, reaching a record-breaking estimated \$25 billion in 2019, and gas utility construction expenditures totaled \$34.2 billion in 2018. More investment is needed in certain areas of the country to bring clean energy and natural gas to customers.

Additional electric transmission is needed to send clean power to regional demand centers. New pipelines can ease capacity constraints and move natural gas from supply basins to demand centers, especially in the Northeast.

LEADING THE ACTION

BUSINESSES, CITIES, AND STATES

Large U.S. corporations, across many industry sectors, contracted for a new record high of 13.6 GW of renewable energy capacity in 2019 alone, and companies are making pledges to increase their energy efficiency and to green their fleets. Eighteen regulated utilities offer a green tariff for customers to choose cleaner electricity, and five states have put in place voluntary tariffs to offer renewable natural gas to homes and businesses.

Corporations Drive Demand NEW POWER PURCHASE AGREEMENTS FOR RENEWABLE ENERGY



GET THE FACTS

To view the 2020 Sustainable Energy in America Factbook, visit

 www.bcse.org/factbook

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