State Energy Data System 2022
Energy Indicators Technical Notes

Contents

Introduction to the technical notes

The U.S. Energy Information Administration (EIA) State Energy Data System (SEDS) provides Members of Congress, federal and state agencies, and the general public with comparable state-level data on energy production, consumption, prices, expenditures, and indicators. SEDS provides annual time series of various energy-related metrics by state to help users with state energy analysis and forecasts. Many EIA and non-EIA sources provide the state energy indicators data published in SEDS, and those sources may have more recent data updates not reflected in SEDS.

Purpose

Various EIA and non-EIA sources provide energy indicators data and publish the data in separate reports. However, most of these data are published only for the latest time period or for a shorter time series and do not include earlier historical data. SEDS provides a standardized set of state energy indicators data for comparisons over time and across fuels, sectors, and states.

Coverage

The state energy indicators data and sources published in SEDS are:

- Degree days (HDD and CDD) from the National Oceanic and Atmospheric Administration (NOAA)
- Electric capacity and usage factors from EIA surveys
- Electric net summer capacity from EIA surveys
- Electric vehicle charging infrastructure from the U.S. Department of Energy Alternative Fuels Data Center (AFDC)
- Electric vehicle electricity consumption (experimental) from EIA models
- Electric vehicle stocks from S&P Global Mobility and AFDC, estimated by SEDS
- GDP (current-dollar and real) from the U.S. Department of Commerce, Bureau of Economic Analysis (BEA)
- Population from U.S. Department of Commerce, Census Bureau

Comparability

To maintain consistency with other EIA and non-EIA reports, SEDS updates its energy indicators data a few times per year. However, SEDS energy indicators data may differ from original source data because of different data vintages and more updated releases.

Section 1. Energy indicators

This section describes how the U.S. Energy Information Administration (EIA) State Energy Data System (SEDS) produces state-level estimates of other energy indicators from external data sources for additional analysis, including:

- Capacity factors and usage factors
- Degree days (HDD and CDD)
- Electric net summer capacity
- Electric vehicle charging infrastructure
- Electric vehicle electricity consumption
- Electric vehicle stocks
- GDP (current-dollar and real)
- Population

Capacity factors and usage factors

Both capacity factors and usage factors measure the ratio of electrical energy produced by a generating unit for a given period of time to the electrical energy that could have been produced from continuous operation at net summer capacity during the same period. The difference between the two factors is that capacity factors measure electricity net generation, while usage factors measure electricity gross generation. Because energy storage applications such as hydroelectric pumped storage and battery storage generators often consume more electricity than they produce over the course of a month or year, gross generation is used to calculate usage factors for these technologies. All other technologies use net generation to calculate capacity factors.

A combination of efficiency, fuel cost dynamics, demand, and end-use application can drive differences in the capacity and usage factors of different generator types. For example, natural gas-fired combustion turbines typically have lower capacity factors than natural gas-fired combined cycle power systems, due largely to the higher efficiency of combined cycle power systems. Subbituminous and bituminous coal-fired power systems use generally the same technology and have variation in capacity factors due mostly to cost of the fuel. Conventional hydroelectric, solar, on-shore and off-shore wind facility capacity factors demonstrate seasonality and geographic variability due largely to resource availability. Generators at industrial sector facilities often have different capacity factors than those at electric sector facilities.

A small number of operating generators within a state can lead to volatile capacity factor values, including capacity factors that can exceed 100%. Plant operators determine their own net summer capacity for each generator using specific test conditions. Under environmental conditions that are less restrictive than capacity test conditions, generator output can exceed its tested capacity. If sustained, such operations can result in capacity factors over 100%. The State Energy Data System (SEDS) capacity factor and usage factor data are from utility-scale facilities (>1 megawatt nameplate capacity) for all sectors. The data are from the U.S. Energy Information Administration (EIA) surveys Form EIA-860 “Annual Electric Generator Report” and Form EIA-923 “Power Plant Operations Report.” Capacity factor data are for 2008 forward and usage factor data are for 2013 forward. Annual factors are based on a time-weighted average of monthly time-adjusted capacity. For plants that use multiple energy sources or technologies, capacity is assigned to the reported combination of predominant energy source and technology. See EIA’s *Electric Power Annual* technical notes for more details on each fuel category at http://www.eia.gov/electricity/annual/.

SEDS provides capacity and usage factor data for additional data analysis purposes. SEDS publishes capacity and usage factor estimates by state and for the United States. EIA’s *Monthly Energy Review* and *State Electricity Profiles* may incorporate more recent revisions to the data that are not in the SEDS estimates. SEDS incorporates historical revisions not included in EIA’s *Electric Power Annual*.

The SEDS variable names for individual fuel data, in percent units, are as follows (“ZZ” in the variable name represents the two-letter state code that differs for each state):

BMCASZZ = biomass generating units capacity factor;
BTCASZZ = battery storage generating units usage factor;
CLCASZZ = coal generating units capacity factor;
CYCASZZ = natural gas combined cycle generating units capacity factor;
GECASZZ = geothermal generating units capacity factor;

HPCASZZ	=	hydroelectric pumped storage generating units usage factor;
HVCASZZ	=	conventional hydroelectric generating units capacity factor;
NTCASZZ	=	natural gas turbine generating units capacity factor;
NUCASZZ	=	nuclear generating units capacity factor;
NYCASZZ	=	natural gas conventional steam generating units capacity factor;
PACASZZ	=	petroleum generating units capacity factor;
SHCASZZ	=	solar thermal generating units capacity factor;
SPCASZZ	=	solar photovoltaic generating units capacity factor; and
WYCASZZ	=	wind generating units capacity factor.

Data sources

Capacity factor data:

- 2008 forward: EIA, Form EIA-860 "Annual Electric Generator Report," http://www.eia.gov/electricity/data/eia860/, and Form EIA-923 "Power Plant Operations Report," http://www.eia.gov/electricity/data/eia923/.

Usage factor data:

- 2013 forward: EIA, Form EIA-860 "Annual Electric Generator Report," http://www.eia.gov/electricity/data/eia860/, and Form EIA-923 "Power Plant Operations Report," http://www.eia.gov/electricity/data/eia923/.

Degree days

Degree days are measures of how cold or warm a location is. A degree day compares the mean (the average of the high and low) outdoor temperatures recorded for a location compared to a standard 65° Fahrenheit (F) temperature. The more extreme the outside temperature, the higher the number of degree days. A high number of degree days generally results in higher levels of energy use for space heating or cooling.

Heating degree days (HDD) are a measure of how cold the temperature was on a given day or during a period of days. For example, a day with a mean temperature of 40°F has 25 HDD. Cooling degree days (CDD) are a measure of how hot the temperature was on a given day or during a period of days. A day with a mean temperature of 80°F has 15 CDD.

The National Oceanic and Atmospheric Administration (NOAA) provides temperature data by various geographies, including for individual weather stations, within-state climate divisions, states, Census regions, and the United States. At the state-level, for Alaska, the District of Columbia, and Hawaii, NOAA data sources vary by year. For 1960 through 1997, the Alaska, District of Columbia, and Hawaii data come from the National Climatic Data Center (NCDC) and for 1998 forward the data come from the Climate Prediction Center (CPC). For all other states, the data come from NCDC for all years. At the U.S.-level, SEDS uses data from EIA's *Monthly Energy Review* (MER), which publishes annual HDD and CDD data for the United States.

EIA's degree day data are population-weighted. For state-level data, NOAA uses within-state climate division populations as weights. For U.S.-level data, EIA's *Short-Term Energy Outlook* (STEO) applies annual state-level population weights from the U.S. Department of Commerce, Census Bureau. SEDS and the MER republish these STEO data. See the *Short-Term Energy Outlook Supplement: Change in Regional and U.S. Degree-Day Calculations* technical document for more information at http://www.eia.gov/outlooks/steo/special/pdf/2012_sp_04.pdf.

SEDS provides HDD and CDD data for additional data analysis purposes. SEDS also uses HDD data to estimate some of its energy consumption variables, such as residential wood for home heating. SEDS publishes annual HDD and CDD estimates by state and for the United States. STEO, MER, NOAA, and the U.S. Census Bureau may incorporate more recent revisions to the data that are not in the SEDS estimates.

Data sources

ZWCDPUS—Cooling degree days (CDD) for the United States.

- 1960 forward: EIA, *Monthly Energy Review*, Table 1.10. Using National Oceanic and Atmospheric Administration (NOAA) state-level CDD data, EIA calculates population-weighted U.S. degree day averages using state populations from the same year the degree days are measured. See methodology at http://www.eia.gov/forecasts/steo/special/pdf/2012_sp_04.pdf.

ZWCDPZZ—Cooling degree days (CDD) by state.

- 1960 through 1997: Alaska, District of Columbia, and Hawaii from the National Oceanic and Atmospheric Administration (NOAA) Climate Prediction Center (CPC) http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/cdus/degree_days/. All other states from NOAA National Climatic Data Center (NCDC) ftp://ftp.ncdc.noaa.gov/pub/data/cirs/climdiv/ (use Microsoft Edge "Internet Explorer mode").
- 1998 forward: all states from the National Oceanic and Atmospheric Administration (NOAA) National Climatic Data Center (NCDC) ftp://ftp.ncdc.noaa.gov/pub/data/cirs/climdiv/ (use Microsoft Edge "Internet Explorer mode").

ZWHDPUS—Heating degree days (HDD) for the United States.

- 1960 forward: EIA, *Monthly Energy Review*, Table 1.9. Using National Oceanic and Atmospheric Administration (NOAA) state-level HDD data, EIA calculates population-weighted U.S. degree day averages using state populations from the same year the degree days are measured. See methodology at http://www.eia.gov/forecasts/steo/special/pdf/2012_sp_04.pdf.

ZWHDPZZ—Heating degree days (HDD) by state.

- 1960 through 1997: Alaska, District of Columbia, and Hawaii from the National Oceanic and Atmospheric Administration (NOAA) Climate Prediction Center (CPC) http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/cdus/degree_days/. All other states from NOAA National Climatic Data Center (NCDC) ftp://ftp.ncdc.noaa.gov/pub/data/cirs/climdiv/ (use Microsoft Edge "Internet Explorer mode").
- 1998 forward: all states from the National Oceanic and Atmospheric Administration (NOAA) National Climatic Data Center (NCDC) ftp://ftp.ncdc.noaa.gov/pub/data/cirs/climdiv/ (use Microsoft Edge "Internet Explorer mode").

Electric net summer capacity

Net summer capacity measures the maximum level of electric power (electricity) that a power plant can supply to the grid during summer month peak demand (June 1 through September 30), as demonstrated by a multi-hour test. This output reflects a reduction in capacity due to electricity use for station service or auxiliaries, thermal limitations, or specific assumptions about fuel availability for intermittent resources.

Net summer capacity differs from nameplate capacity, which is determined by the generator's manufacturer, and net winter capacity because of temperature-related environmental factors. EIA reports electric generation capacity as net summer capacity in most of its electricity data reports because it represents a realistic capacity value for generators during the summer season, which is typically when the system peak demand occurs in the continental United States.

EIA's net summer capacity data are for utility-scale (>1 megawatt capacity) facilities only, and do not include small-scale (<1 megawatt capacity) generating systems such as residential rooftop solar. For plants that use multiple sources of energy for fuel, capacity is assigned to the energy source reported as the predominant one.

The SEDS net summer capacity data are a total for all sectors, including the electric power, commercial, and industrial sectors, and include any utility-scale combined-heat-and-power (CHP) units, as published in EIA's *State Electricity Profiles*. Each annual net summer capacity value is for the end of the year (December), in thousand kilowatts (equal to one megawatt). The "other" category for net summer capacity data includes chemicals, hydrogen, pitch, purchased steam, sulfur, miscellaneous technologies, flywheels, and, beginning in 2001, non-renewable waste (municipal solid waste from non-biogenic sources, and tire-derived fuels), which are not separately shown. See EIA's *State Electricity Profiles* and *Electric Power Annual* for more details on each fuel category.

SEDS provides net summer capacity data for additional data analysis purposes. SEDS publishes annual net summer capacity estimates by state and for the United States. EIA's *Monthly Energy Review* and *State Electricity Profiles* may incorporate more recent revisions to the data that are not in the SEDS estimates. SEDS incorporates historical revisions not included in EIA's *Electric Power Annual*.

The SEDS variable names for individual fuel data are as follows ("ZZ" in the variable name represents the two-letter state code that differs for each state):

BTGBPZZ = battery storage units net summer capacity in all sectors, in thousand kilowatts;
CLGBPZZ = coal generating units net summer capacity in all sectors, in thousand kilowatts;
GEGBPZZ = geothermal generating units net summer capacity in all sectors, in thousand kilowatts;
HPGBPZZ = hydroelectric pumped storage generating units net summer capacity in all sectors, in thousand kilowatts;
HVGBPZZ = conventional hydroelectric power generating units net summer capacity in all sectors, in thousand kilowatts;
NGGBPZZ = natural gas generating units net summer capacity in all sectors, in thousand kilowatts;
NUGBPZZ = nuclear generating units net summer capacity in all sectors, in thousand kilowatts;
OJGBPZZ = other gases generating units net summer capacity in all sectors, in thousand kilowatts;
OTGBPZZ = other generating units net summer capacity in all sectors, in thousand kilowatts;
PAGBPZZ = petroleum generating units net summer capacity in all sectors, in thousand kilowatts;
SOGBPZZ = solar generating units net summer capacity in all sectors, in thousand kilowatts;
WDGBPZZ = wood generating units net summer capacity in all sectors, in thousand kilowatts;
WSGBPZZ = waste generating units net summer capacity in all sectors, in thousand kilowatts; and
WYGBPZZ = wind generating units net summer capacity in all sectors, in thousand kilowatts.

The SEDS variable names for aggregate fuel data are as follows ("ZZ" in the variable name represents the two-letter state code that differs for each state):

FFGBPZZ = fossil fuel total generating units net summer capacity in all sectors, in thousand kilowatts;
REGBPZZ = renewable energy total generating units net summer capacity in all sectors, in thousand kilowatts; and
ELGBPZZ = total (all fuels) electric generating units net summer capacity in all sectors, in thousand kilowatts.

Data sources

State-level data:

- 2008 forward: U.S. Energy Information Administration, *State Electricity Profiles*, http://www.eia.gov/electricity/state/.

U.S.-level data:

- 2008 forward, U.S. Energy Information Administration, *Monthly Energy Review* data for December of each year, http://www.eia.gov/totalenergy/data/monthly/.

Electric vehicle charging infrastructure

An electric vehicle (EV) charges its battery pack by connecting to an electric power source (port). The EV charging infrastructure data published in the State Energy Data System (SEDS) are for non-single-family residential EV charging locations only. Depending on who owns and operates the non-residential charging infrastructure, they can be private access or available to the general public. Similar to gasoline fueling stations with multiple fuel pumps, non-residential EV charging locations usually have multiple charging ports. Each charging port may offer various types of connectors to accommodate different EV models.

There are three main types of EV charging—Level 1, Level 2, and DC fast charging. Level 1 chargers use a standard 120-volt AC (alternating current) outlet, and they usually take at least 20 hours to fully charge an EV depending on the model, battery, and other environmental conditions. Level 2 chargers use a 240-volt AC outlet and can fully charge an EV in about 5—6 hours. Most U.S. non-residential charging ports are Level 2 chargers located at gasoline stations, workplaces, restaurants, shopping centers, sporting facilities, and hotels. DC (direct current) fast chargers are the fastest chargers available and are typically located along interstates to increase the ability of EVs to travel long distances. Using a DC fast charger electric vehicles can reach 80% charged in 20 minutes to an hour.

Non-residential charging ports are either networked or non-networked. Networked ports are connected to the internet, can communicate with their EV service provider, and have dedicated web platforms that allow users to find chargers and pay to use them. Networked service providers manage who can access the station and the cost of charging. Non-networked ports are not connected to the internet and provide only basic charging capabilities. Some EV charging stations have both networked and non-networked ports at the same location.

The U.S. Energy Information Administration (EIA) receives administrative electric vehicle (EV) charging infrastructure data from the U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy Alternative Fuels Data Center (AFDC). EIA received historical data back to 2015 from the National Renewable Energy Laboratory (NREL), which manages the AFDC, to fill in data before 2022. AFDC collects and publishes location-level charging infrastructure data that allows vehicle owners to find stations near them or along a route. AFDC receives regular, often daily, updates from many of the networked providers, and continuously updates the data on their webpage.

EIA aggregates, imputes, and cleans the AFDC data using the methods described in the *Monthly Energy Review* (MER) Appendix F. SEDS publishes annual data twice per year following the release of the May and October MERs to incorporate data revisions. For the most recent data available at EIA, see the monthly state data and detailed microdata files published in MER Appendix F.

The SEDS variable names for EV charging location data are as follows ("ZZ" in the variable name represents the two-letter state code that differs for each state):

EVPUPZZ	=	electric vehicle charging locations with public ports only;
EVPVPZZ	=	electric vehicle charging locations with private ports only;
EVPPPZZ	=	electric vehicle charging locations with both public and private ports;
EVNTPZZ	=	electric vehicle charging locations with networked ports only;
EVNOPZZ	=	electric vehicle charging locations with non-networked ports only;
EVNNPZZ	=	electric vehicle charging locations with both networked and non-networked ports; and
EVCHPZZ	=	total electric vehicle charging locations.

The SEDS variable names for EV ports data are as follows ("ZZ" in the variable name represents the two-letter state code that differs for each state):

EVDCNZZ	=	DC fast charging ports for electric vehicles;
EV2CNZZ	=	Level 2 charging ports for electric vehicles;
EV1CNZZ	=	Level 1 charging ports for electric vehicles;
EV0CNZZ	=	legacy charging ports for electric vehicles;
EVCHNZZ	=	total charging ports for electric vehicles;
EVDCRZZ	=	DC fast charging ports per location; and
EV2CRZZ	=	Level 2 charging ports per location.

EIA calculates the DC fast charging ports per electric vehicle charging location (EVDCR) as the total number of DC fast charging ports divided by the total number of locations with DC fast charging ports (available in the microdata file).

EIA calculates the Level 2 charging ports per location (EV2CR) as the total number of Level 2 charging ports divided by the total number of locations with Level 2 charging ports (available in the microdata file).

Data sources

All EV charging infrastructure data:

- 2015 through 2021: National Renewable Energy Laboratory (NREL), which manages the Alternative Fuels Data Center (AFDC), aggregated, imputed, and cleaned by EIA: http://www.nrel.gov/
  - See EIA's *Monthly Energy Review* Appendix F for data cleaning methodology: http://www.eia.gov/totalenergy/data/monthly/#appendices
- 2022 forward: U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy Alternative Fuels Data Center (AFDC): http://afdc.energy.gov/
  - Latest available data from AFDC, updated daily: http://afdc.energy.gov/stations/#/find/nearest?fuel=ELEC&ev_levels=all
  - Latest available data re-published by EIA, in *Monthly Energy Review*, Appendix F: http://www.eia.gov/totalenergy/data/monthly/#appendices
    - MER Appendix F, monthly state file: http://www.eia.gov/totalenergy/data/monthly/State_data_MER.xlsx
    - MER Appendix F, monthly microdata file: http://www.eia.gov/totalenergy/data/monthly/full_data_MER.zip

Electric vehicle electricity consumption

The U.S. Energy Information Administration (EIA) *Electric Power Monthly* (EPM) estimates experimental electric vehicle (EV) electricity consumption used to operate and move on-road light-duty EVs (less than or equal to 8,500 pounds). These experimental estimates are based on models and subject to model error. Electric utilities do not separate light-duty EV electricity sales from other electricity sales. Instead, electric utilities account for electricity consumption by light-duty EVs based on the location of where the vehicle charges and report EV electricity sales as part of total electricity sales to ultimate customers in the residential, commercial, and industrial sectors (also called end-use electricity consumption in SEDS, see Section 6, "Electricity" at http://www.eia.gov/state/seds/seds-technical-notes-complete.php). EIA does not estimate EV electricity sales by sector.

The State Energy Data System (SEDS) publishes state-level electricity consumption estimates for two kinds of on-road light-duty EVs: *battery electric vehicles* (BEVs) and *plug-in hybrid electric vehicles* (PHEVs). The data exclude PHEV motor gasoline consumption, on-road medium- and heavy-duty EVs, and off-road EVs such as golf carts and forklifts. SEDS uses unpublished state-level EPM data directly, which are estimated based on the number of EVs, average number of miles driven, fuel economy, and other assumptions. For more information, see the EPM technical documentation at http://www.eia.gov/electricity/monthly/pdf/technotes-appendix-d.pdf.

The SEDS variable names for EV electricity consumption data are as follows ("ZZ" in the variable name represents the two-letter state code that differs for each state):

BTVHPZZ	=	electricity consumed for battery electric vehicle (BEV) use, in million kilowatthours;
PHVHPZZ	=	electricity consumed for plug-in hybrid electric vehicle (PHEV) use, in million kilowatthours; and
ESVHPZZ	=	electricity consumed for electric vehicle (EV) use, in million kilowatthours.

EIA calculates total EV light-duty electricity consumption by state as the sum of BEVs and PHEVs:

ESVHPZZ = BTVHPZZ + PHVHPZZ

The U.S.-level data are the sum of the states:

BTVHPUS = ΣBTVHPZZ
PHVHPUS = ΣPHVHPZZ
ESVHPUS = ΣESVHPZZ

Data sources

- 2018 forward: Unpublished state-level data from the U.S. Energy Information Administration, *Electric Power Monthly*, Appendix D, http://www.eia.gov/electricity/monthly/.

Electric vehicle stocks

Electric vehicles (EVs) are vehicles that use an electric motor to move the vehicle. An on-board battery pack powers the electric motor. There are two kinds of EVs: *battery electric vehicles* (BEVs) and *plug-in hybrid electric vehicles* (PHEVs). BEVs use stored electrical energy in a battery pack to fully operate and move the vehicle. PHEVs can use either an electric motor powered by an on-board battery pack or an internal combustion engine that uses fuel stored in on-board tanks to operate and move the vehicle. The internal combustion engine can use gasoline, diesel, natural gas, propane, or biofuels, however, PHEVs available in the United States use gasoline.

The U.S. Energy Information Administration (EIA) receives U.S.-level data for the number of registered light-duty vehicles (stocks) from S&P Global Mobility Vehicles in Operation, as of calendar year end figures. All of the vehicle stocks data in the State Energy Data System (SEDS) are for light-duty vehicles only. EIA defines light-duty vehicles as on-road cars and light-trucks that are less than equal to 8,500 pounds in weight. EIA received data for 2016 and 2018 forward. EIA estimated data for 2017 via interpolation.

To estimate the states, SEDS uses annual vehicle registration counts data from the U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy Alternative Fuels Data Center (AFDC) as state-level allocators applied to the U.S.-level S&P Global stocks data. SEDS uses AFDC's "Electric (EV)" category to allocate BEVs and AFDC's "Plug-In Hybrid Electric (PHEV)" category to allocate PHEVs. SEDS sums all of the AFDC fuel types by state and applies those shares to the S&P Global U.S.-level total stocks for all light-duty vehicles to estimate total (all fuels) light-duty vehicles by state.

The SEDS variable names for EV stocks data are as follows ("ZZ" in the variable name represents the two-letter state code that differs for each state):

BTVHNZZ = battery electric vehicle (BEV) light-duty stocks, in thousands of registered vehicles;
PHVHNZZ = plug-in hybrid electric vehicle (PHEV) light-duty stocks, in thousands of registered vehicles;
ELVHNZZ = total electric vehicle (EV) light-duty stocks, in thousands of registered vehicles;
LDVHNZZ = total (all fuels) vehicle light-duty stocks, in thousands of registered vehicles; and
ELVHSZZ = electric vehicle (EV) share of total light-duty vehicles, percent.

EIA calculates total EV light-duty stocks as the sum of BEVs and PHEVs:

ELVHNZZ = BTVHNZZ + PHVHNZZ

EIA calculates the EV percent share of all light-duty vehicle stocks as total EVs divided by all light-duty vehicles:

ELVHSZZ = ELVHNZZ / LDVHNZZ * 100

Data sources

U.S.-level data:

- 2016 forward: S&P Global Mobility Vehicles in Operation, as of calendar year end figures http://www.spglobal.com/mobility/en/products/polk-automotive-solutions.html. Data for 2017 are estimates interpolated by EIA, as re-published in EIA's *Monthly Energy Review* Table 1.9 http://www.eia.gov/totalenergy/data/monthly/.

State-level data:

- 2016 forward: U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy Alternative Fuels Data Center (AFDC), vehicle registration counts by state http://afdc.energy.gov/vehicle-registration.

Gross domestic product (GDP)

Current-dollar GDP

Current-dollar gross domestic product (GDP) data are not adjusted for inflation. The current-dollar GDP data used in the U.S. Energy Information Administration (EIA) State Energy Data System (SEDS) to calculate total energy expenditures as a percent of current-dollar GDP (TEGDS) are in Tables TN8.1 and TN8.2. The GDP data are from the U.S. Department of Commerce, Bureau of Economic Analysis (BEA), current-dollar GDP estimates by state, for 1997 forward.

BEA publishes both the national-level and state-level current-dollar GDP data in the "Regional Economic Accounts" dataset. However, there is a difference in the coverage between the two series. The difference between the sum of the states GDP and the U.S-level GDP reflects federal military and civilian activity located overseas. For details, see BEA's Regional Economic Accounts: Methodologies, http://www.bea.gov/regional/methods.cfm.

Additional note

BEA reports current-dollar GDP for 1997 forward based on the North American Industry Classification System (NAICS) and current-dollar GDP. Before 1997, the data are based on the Standard Industrial Classification (SIC). Through the 2012 data cycle, SEDS published current-dollar GDP by state from 1970 forward. In 2014, BEA completed a comprehensive revision of the state GDP and only revised the data for 1997 forward. Because of the incompatibility between the two sets of data, SEDS removed the state GDP data before 1997. In May 2024, BEA completed another comprehensive revision for all GDP data for 1997 forward and SEDS incorporated the new data during the 2022 SEDS data cycle.

Data sources

GDPRVZZ — Current-dollar gross domestic product by state and the United States, in millions of dollars.

- 1997 forward: U.S. Department of Commerce, Bureau of Economic Analysis, Regional Economic Accounts, http://apps.bea.gov/itable/iTable.cfm?ReqID=70&step=1, select Annual Gross Domestic Product by State, GDP in current dollars (SAGDP2), NAICS (1997-forward), All Areas, and All industry total.

Real GDP

Real gross domestic product (GDP) data are adjusted for inflation. The real GDP data used in the U.S. Energy Information Administration (EIA) State Energy Data System (SEDS) to calculate total energy consumption per dollar of real GDP (TETGR) are in Tables TN8.3 and TN8.4. The data are from the U.S. Department of Commerce, Bureau of Economic Analysis (BEA), real GDP estimates by state, beginning in 1997.

BEA publishes both the national-level and state-level real GDP data in the "Regional Economic Accounts" dataset. However, there is a difference in the coverage between the two series. The difference between the sum of the states GDP and the U.S-level GDP reflects federal military and civilian activity located overseas. For details, see BEA's Regional Economic Accounts: Methodologies, http://www.bea.gov/regional/methods.cfm.

Additional note

For 1997 forward, BEA reports real GDP using the North American Industry Classification System (NAICS). Before 1997, BEA reports real GDP using the Standard Industrial Classification (SIC). Through the 2012 data cycle, SEDS published real GDP by state for 1977 forward. In 2014, BEA completed a comprehensive revision of the state GDP and only revised the data for 1997 forward. Because of the incompatibility between the two sets of data, SEDS removed state GDP data before 1997. In May 2024, BEA completed another comprehensive revision for all GDP data for 1997 forward, including changing from 2012 chained dollars to 2017 chained dollars, and SEDS incorporated the new data during the 2022 SEDS data cycle.

Data sources

GDPRXZZ — Real gross domestic product by state and the United States in million chained (2017) dollars.

- 1997 forward: U.S. Department of Commerce, Bureau of Economic Analysis, Regional Economic Accounts, http://apps.bea.gov/itable/iTable.cfm?ReqID=70&step=1, select Annual Gross Domestic Product by State, Gross Domestic Product (GDP) summary (SAGDP1), All Areas, and Real GDP (millions of chained 2017 dollars).

Table TN8.1. Current-dollar gross domestic product by state, 1997-2007 (billion dollars)

State	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Alabama	R 105.4	R 110.8	R 116.5	R 120.5	R 123.5	R 128.4	R 135.2	R 148.4	R 158.7	R 166.0	R 172.2
Alaska	R 25.9	R 24.4	R 24.9	R 26.9	R 28.7	R 29.9	R 32.1	R 35.4	R 40.5	R 45.0	R 49.5
Arizona	R 132.7	R 144.4	R 156.4	R 165.7	R 172.9	R 180.8	R 194.3	R 207.2	R 228.0	R 246.1	R 261.2
Arkansas	R 59.9	R 62.9	R 67.3	R 69.2	R 71.1	R 74.5	R 79.0	R 85.9	R 91.1	R 96.1	R 98.3
California	R 1,068.0	R 1,143.7	R 1,239.8	R 1,354.8	R 1,373.3	R 1,419.3	R 1,498.6	R 1,585.1	R 1,698.9	1,812.2	R 1,900.2
Colorado	R 136.6	R 149.7	R 162.4	R 179.3	R 185.8	R 189.6	R 195.1	R 203.7	220.8	R 232.9	R 248.6
Connecticut	R 138.5	R 145.3	R 152.1	R 165.5	R 171.1	R 172.9	R 177.8	R 194.7	R 204.5	219.8	R 232.6
Delaware	R 33.3	R 37.2	R 40.4	R 43.6	R 46.4	R 45.9	R 47.8	R 51.7	R 52.0	R 55.6	R 56.7
District of Columbia	R 52.6	R 54.9	R 58.9	R 61.3	R 65.6	R 70.1	74.0	R 80.6	R 85.4	R 88.4	R 94.0
Florida	R 401.7	R 428.6	R 457.6	R 490.1	519.1	R 553.4	R 590.3	R 647.0	R 704.9	R 749.9	R 781.9
Georgia	R 242.4	R 265.1	R 289.0	R 305.3	R 316.9	R 326.0	R 339.5	R 364.5	R 388.7	R 405.7	R 419.4
Hawaii	37.7	R 37.5	39.0	41.1	R 42.5	R 44.9	R 48.4	R 52.6	R 57.2	60.8	R 64.1
Idaho	R 29.7	R 31.4	R 34.5	R 38.3	R 37.7	R 39.0	R 40.8	R 44.7	R 48.8	51.1	R 53.7
Illinois	R 416.0	R 436.5	R 460.0	R 486.1	R 499.6	R 511.5	R 528.6	R 560.1	R 589.2	R 624.1	R 649.3
Indiana	R 170.9	R 185.3	R 193.7	R 204.1	R 205.3	R 213.4	R 225.3	R 239.3	R 247.4	R 259.0	R 273.3
Iowa	R 82.8	84.6	87.8	93.1	R 94.9	R 98.7	R 105.3	R 117.1	R 122.9	R 127.7	R 137.6
Kansas	R 74.6	R 78.2	R 81.6	R 86.0	88.9	R 91.4	R 95.2	R 98.9	R 105.3	R 113.8	R 123.6
Kentucky	R 104.9	R 110.0	R 115.6	R 114.5	R 117.8	R 122.7	R 128.3	R 135.7	R 144.9	R 153.0	R 156.9
Louisiana	R 116.4	120.2	R 125.7	R 132.4	R 138.2	R 140.1	R 155.2	171.0	R 199.3	R 207.2	R 203.8
Maine	30.6	R 32.4	R 34.7	R 37.2	R 38.9	R 40.7	R 42.5	45.2	R 47.0	R 48.9	R 50.3
Maryland	R 159.2	R 169.4	R 179.8	R 191.4	R 205.3	R 217.0	R 226.8	R 243.4	R 261.8	R 273.8	R 282.6
Massachusetts	R 236.4	R 247.7	R 262.9	R 287.1	R 294.9	R 299.9	R 309.7	R 324.9	R 340.6	R 358.4	R 378.0
Michigan	299.8	R 311.1	R 337.2	R 351.9	R 349.1	R 363.4	R 376.1	R 388.8	R 402.8	R 402.5	R 410.6
Minnesota	R 157.3	R 167.9	R 176.8	R 192.4	R 196.9	R 204.1	R 216.0	R 231.9	R 244.6	R 252.4	R 261.3
Mississippi	R 58.5	R 61.3	R 64.3	R 66.1	R 67.8	R 69.7	R 74.4	R 78.7	R 83.0	R 87.6	R 91.9
Missouri	R 163.1	R 170.1	R 178.2	R 187.0	R 190.4	R 197.4	R 206.0	R 217.0	R 227.6	R 235.8	R 244.1
Montana	19.3	20.4	20.8	21.9	22.8	23.9	R 25.8	R 28.1	R 30.8	R 33.1	R 36.1
Nebraska	R 49.9	51.8	53.7	R 56.6	59.6	R 61.6	R 66.5	R 70.4	R 74.9	R 79.3	R 84.3
Nevada	60.3	R 65.3	R 71.8	R 77.2	R 81.0	R 85.5	R 91.4	R 104.1	R 117.2	R 126.6	R 132.0
New Hampshire	R 38.1	R 40.7	R 42.3	R 45.6	R 47.0	49.1	51.6	R 54.5	R 56.9	R 60.2	R 62.0
New Jersey	R 307.1	R 318.1	R 335.0	R 360.5	R 372.8	R 385.0	R 400.0	R 415.5	R 436.1	R 457.7	R 474.5
New Mexico	R 52.6	R 50.6	R 52.8	R 55.0	R 55.7	R 57.7	R 62.9	R 70.6	R 74.1	R 78.0	R 81.1
New York	R 716.1	R 745.0	R 794.0	R 839.9	R 876.3	R 885.4	R 908.5	R 958.6	R 1,009.9	R 1,072.3	R 1,116.3
North Carolina	R 234.6	R 246.7	R 264.9	R 277.6	R 287.3	R 297.7	R 310.2	R 329.0	R 354.8	R 388.0	R 402.2
North Dakota	15.8	16.8	17.1	18.1	R 19.0	20.2	22.1	R 23.2	R 24.6	R 26.4	R 29.0
Ohio	R 343.5	R 361.5	R 375.8	R 391.0	R 395.9	R 411.2	R 425.5	R 447.8	R 470.2	R 482.9	R 497.6
Oklahoma	R 79.3	R 81.8	R 84.8	R 91.6	R 97.5	R 99.9	R 106.2	R 114.2	R 126.0	R 138.4	R 146.6
Oregon	R 101.4	R 105.0	R 107.5	R 117.1	117.0	R 120.6	R 126.8	R 136.5	R 143.6	R 153.8	R 159.7
Pennsylvania	R 357.5	R 373.5	R 391.1	R 409.3	R 428.5	R 440.9	R 460.5	R 486.4	R 510.8	R 528.8	R 563.2
Rhode Island	R 29.0	30.8	32.3	R 34.6	35.9	R 37.9	R 39.8	R 42.6	44.4	47.2	R 47.5
South Carolina	R 97.5	R 103.7	R 110.3	115.3	R 119.4	R 124.8	R 131.5	R 136.7	R 145.2	R 153.5	R 162.5
South Dakota	R 19.1	R 20.3	R 21.2	R 22.9	R 23.6	26.3	R 27.3	R 29.4	R 31.1	R 32.6	R 35.3
Tennessee	R 154.9	R 167.8	R 176.5	182.2	R 185.9	R 195.4	R 204.7	R 219.9	R 231.3	R 243.1	R 248.3
Texas	R 610.7	R 648.2	R 683.3	R 742.2	R 780.2	R 796.4	R 840.9	R 921.2	R 1,003.7	R 1,108.2	R 1,198.6
Utah	R 57.8	R 62.1	R 65.8	R 70.1	R 73.0	R 76.3	R 79.5	R 86.8	R 95.5	R 106.8	R 115.2
Vermont	R 15.4	R 16.2	R 17.3	R 18.5	R 19.5	R 20.4	R 21.4	R 23.0	R 23.8	R 24.5	R 25.0
Virginia	R 215.4	R 232.6	R 250.2	R 268.6	R 285.7	R 294.9	R 311.1	R 331.8	R 357.4	R 376.4	R 391.6
Washington	193.8	R 209.2	R 229.7	R 237.6	R 238.0	R 245.6	R 254.7	R 267.4	R 293.4	R 314.2	R 341.7
West Virginia	38.8	R 40.3	R 41.9	R 42.6	R 44.1	45.6	R 47.2	R 49.9	R 53.8	R 57.2	R 59.5
Wisconsin	R 153.5	R 163.0	R 172.9	R 180.9	R 188.7	R 195.5	R 203.8	R 216.4	R 226.9	237.6	245.8
Wyoming	14.7	14.8	15.7	17.2	18.7	19.2	21.2	23.4	R 27.5	32.7	R 36.9
United States	8,577.6	9,062.8	9,631.2	10,251.0	10,581.9	10,929.1	11,456.4	12,217.2	13,039.2	13,815.6	14,474.2

Where shown, R = Revised data.
Data Source: U.S. Department of Commerce, Bureau of Economic Analysis, Regional Economic Accounts.

Table TN8.2. Current-dollar gross domestic product by state, 2008-2022 (billion dollars)

State	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Alabama	R 174.7	170.9	R 177.5	R 182.9	R 188.3	R 194.0	R 197.1	R 203.1	R 208.8	R 216.6	R 226.3	R 234.5	R 235.1	R 258.0	281.6
Alaska	R 55.2	R 50.2	R 53.7	56.9	58.3	R 57.5	R 56.6	R 51.6	R 51.1	R 53.6	R 54.8	R 54.5	R 51.3	R 58.6	65.7
Arizona	R 261.0	R 244.9	R 250.5	R 261.7	R 272.7	R 278.7	R 286.7	R 298.9	R 313.8	R 333.1	R 353.7	R 375.5	R 386.4	R 432.3	475.7
Arkansas	R 100.2	R 97.8	R 101.7	R 105.7	R 108.8	R 114.0	R 117.4	R 118.6	R 121.0	R 123.9	R 129.2	R 132.6	R 135.9	R 151.9	166.0
California	R 1,946.2	R 1,879.8	R 1,938.6	R 2,014.1	R 2,108.9	R 2,223.3	R 2,342.2	R 2,487.2	R 2,586.5	R 2,740.6	R 2,899.5	R 3,062.2	R 3,068.8	R 3,416.9	3,641.6
Colorado	R 257.6	R 249.8	R 256.8	R 266.1	R 274.7	R 291.3	R 309.2	R 320.9	R 330.6	R 350.2	R 373.9	R 397.7	R 397.6	R 447.1	491.3
Connecticut	R 236.1	R 231.6	R 234.0	R 233.1	R 239.9	R 240.5	R 247.1	R 260.6	R 264.8	R 273.9	R 280.5	R 285.5	R 275.8	R 295.9	319.3
Delaware	R 55.3	R 57.7	R 58.1	61.4	R 62.3	R 62.1	R 68.6	R 72.4	R 70.0	R 69.6	R 73.4	R 78.7	R 77.6	R 83.0	90.2
District of Columbia	R 99.2	100.4	106.1	R 110.0	R 112.5	R 114.8	R 120.0	R 124.8	R 129.9	R 134.3	R 141.2	R 145.2	R 146.9	R 156.1	165.1
Florida	R 767.4	R 739.3	R 753.0	R 761.0	R 784.5	R 819.7	R 860.1	R 918.5	R 964.5	R 1,014.9	R 1,072.1	R 1,128.0	R 1,140.1	R 1,292.4	1,439.1
Georgia	R 416.3	R 409.9	R 419.0	R 433.1	R 449.4	R 467.6	R 493.4	R 525.5	R 554.9	R 583.5	R 612.8	R 646.9	R 637.9	R 701.6	767.4
Hawaii	R 65.5	64.5	R 66.7	R 68.8	R 71.6	74.6	R 77.0	R 81.4	R 84.3	R 87.4	R 90.9	R 93.4	R 84.6	R 93.1	101.1
Idaho	56.2	R 54.5	R 56.1	R 57.4	R 57.9	R 61.7	R 64.5	R 66.1	R 69.2	R 72.9	R 79.1	R 84.6	R 88.2	R 98.8	110.9
Illinois	R 649.7	R 645.8	R 663.9	R 691.8	R 725.5	R 742.9	R 772.3	R 802.6	R 813.6	R 832.8	R 871.0	R 895.8	R 860.7	R 944.0	1,025.7
Indiana	R 277.8	R 264.9	R 284.7	R 292.4	R 301.3	R 313.5	R 329.4	R 333.2	R 342.7	R 357.5	R 377.4	R 385.4	R 377.9	R 423.0	470.3
Iowa	R 137.7	R 137.1	R 142.5	R 149.0	R 158.6	R 162.4	R 173.7	R 181.5	R 183.8	R 187.1	R 193.2	R 196.1	R 199.4	R 220.8	238.3
Kansas	R 129.2	R 126.0	R 129.2	R 136.7	141.8	R 145.0	R 150.3	R 155.7	R 162.1	R 166.3	R 173.4	R 176.9	R 177.7	R 191.8	209.3
Kentucky	R 160.7	R 157.4	R 166.7	R 171.2	R 178.4	R 184.9	R 188.3	R 194.6	R 197.9	R 203.6	R 210.5	R 220.7	R 218.8	R 237.9	259.0
Louisiana	R 213.8	R 206.1	R 226.6	R 230.5	R 236.0	R 231.7	R 241.0	R 234.3	R 227.4	R 239.8	R 256.4	R 257.1	R 236.1	R 263.2	292.0
Maine	R 51.0	R 51.5	R 52.8	R 53.1	R 54.0	R 54.9	R 56.5	R 58.8	R 61.1	R 63.0	R 66.2	R 69.3	R 72.1	R 78.9	85.8
Maryland	R 292.9	R 298.3	R 313.9	R 324.9	R 331.9	R 339.9	R 351.7	R 367.3	R 386.5	R 399.7	410.8	R 419.4	R 413.4	R 446.9	480.1
Massachusetts	R 387.9	R 389.0	R 409.3	R 423.7	R 441.4	R 452.6	R 469.8	R 497.8	R 514.1	R 530.1	R 559.6	R 588.6	R 589.0	R 645.4	691.5
Michigan	R 391.6	R 371.7	R 393.2	R 408.4	R 426.1	R 441.5	R 456.1	R 479.2	R 494.8	R 505.1	R 525.2	R 537.0	R 530.2	R 576.5	622.6
Minnesota	R 268.8	R 262.6	R 274.6	R 287.1	R 298.6	R 311.8	R 324.7	R 336.8	R 345.2	R 354.7	R 372.4	384.0	R 379.4	R 413.1	448.0
Mississippi	R 95.2	R 92.4	R 94.8	R 96.8	R 100.9	R 103.0	R 105.2	R 106.6	R 107.8	R 110.3	R 113.2	R 115.4	R 116.2	R 128.4	140.0
Missouri	R 256.4	R 254.3	R 262.0	R 263.3	R 272.5	R 282.7	R 289.3	R 299.6	R 304.1	R 311.3	R 320.5	R 334.4	R 335.3	R 365.1	396.9
Montana	R 37.0	R 35.9	R 38.1	R 40.6	R 42.2	R 43.6	45.2	R 46.5	R 45.9	48.5	R 51.2	R 52.8	R 53.1	R 60.0	67.1
Nebraska	R 86.1	R 87.3	R 91.9	R 100.5	R 102.9	R 107.2	R 112.8	R 117.4	R 119.4	R 123.2	R 128.0	R 132.7	R 135.3	R 149.4	164.9
Nevada	130.6	R 122.5	R 125.1	R 128.6	R 130.2	R 133.6	R 136.9	R 145.8	R 153.3	R 163.2	R 172.5	R 184.3	R 176.0	R 200.1	222.9
New Hampshire	R 62.1	R 63.1	R 65.3	R 66.6	R 68.4	R 70.9	R 73.5	R 77.4	R 79.8	R 81.2	83.9	R 87.5	R 88.6	R 99.1	105.0
New Jersey	R 493.3	R 481.5	R 491.2	R 494.3	R 516.1	534.2	R 543.8	R 565.8	R 578.7	R 590.1	R 619.3	R 641.9	R 630.2	R 692.2	754.9
New Mexico	R 84.3	R 82.6	R 84.9	87.1	R 87.7	88.8	R 92.5	R 90.8	R 90.5	R 93.2	R 98.8	R 103.9	R 100.4	R 111.7	125.5
New York	R 1,107.9	R 1,155.5	R 1,217.7	R 1,245.8	R 1,324.5	R 1,364.6	R 1,434.6	R 1,498.5	R 1,556.8	R 1,624.8	R 1,710.7	R 1,793.3	R 1,766.9	R 1,911.3	2,048.4
North Carolina	R 420.7	R 413.1	R 422.3	R 430.0	R 444.1	R 460.9	R 482.3	R 508.7	R 528.3	R 546.8	R 568.0	R 593.1	R 601.1	R 659.5	716.0
North Dakota	R 32.0	R 32.3	35.7	41.6	R 52.1	R 54.9	R 61.1	R 57.0	R 52.7	R 56.5	R 60.4	R 60.5	R 55.3	R 63.2	72.7
Ohio	R 500.9	R 484.4	R 500.3	R 525.5	R 543.0	R 566.4	R 597.2	R 615.3	R 627.3	R 652.2	R 672.5	R 703.1	R 692.1	R 759.6	826.0
Oklahoma	R 161.6	R 147.3	R 155.3	R 167.2	R 175.4	R 184.1	R 197.1	R 187.4	R 182.2	R 192.5	R 204.2	R 205.3	R 191.7	R 217.7	242.7
Oregon	R 164.1	R 159.3	R 163.2	R 169.7	R 173.9	R 179.0	R 187.8	R 200.6	R 211.8	R 225.5	R 238.5	R 248.9	R 251.9	R 275.4	297.3
Pennsylvania	R 586.9	R 581.2	R 604.6	R 623.8	R 646.4	R 670.8	R 695.5	R 716.5	R 733.2	R 754.3	R 780.6	R 803.1	R 777.4	R 844.4	911.8
Rhode Island	R 47.1	R 47.6	R 49.4	R 50.1	R 51.5	53.0	54.6	R 56.6	R 57.7	R 58.8	R 60.1	R 62.5	R 62.1	R 67.2	72.8
South Carolina	R 164.5	R 162.4	R 166.8	R 172.8	R 178.5	R 186.3	R 195.7	R 207.5	R 217.6	R 224.9	R 236.6	R 248.0	R 249.5	R 271.5	297.5
South Dakota	R 36.9	R 36.7	R 38.2	R 42.1	R 44.1	R 45.5	R 47.2	R 48.7	R 49.8	R 51.6	R 53.3	R 55.0	R 56.2	R 62.6	68.8
Tennessee	R 255.5	R 252.9	R 258.7	R 270.1	R 285.9	R 296.8	R 307.4	R 326.4	R 339.4	R 355.4	R 369.7	R 385.8	R 390.2	R 438.2	485.7
Texas	R 1,253.1	R 1,179.2	R 1,255.7	R 1,351.8	R 1,429.6	R 1,526.8	R 1,592.2	R 1,586.0	R 1,583.0	R 1,667.3	R 1,808.0	R 1,860.1	R 1,798.6	R 2,087.5	2,402.1
Utah	R 116.9	R 113.8	R 118.3	R 125.1	R 129.4	R 135.3	R 142.6	R 149.8	R 159.3	R 172.1	R 186.8	R 201.3	R 205.7	R 232.1	256.4
Vermont	R 26.1	R 26.2	R 27.5	R 28.6	R 29.3	R 29.5	R 30.4	R 31.2	R 31.8	R 32.6	R 33.5	R 34.6	R 34.5	R 37.6	40.8
Virginia	R 402.2	R 409.9	R 425.5	R 433.7	R 445.0	R 456.9	R 465.6	R 485.5	R 499.0	R 515.2	R 537.2	R 562.0	R 565.1	R 613.9	663.1
Washington	R 352.5	R 349.9	R 363.5	R 377.5	R 398.4	R 416.9	R 439.9	R 467.6	R 489.8	R 527.2	R 570.3	R 609.0	R 621.5	R 688.6	738.1
West Virginia	R 63.0	R 64.0	R 66.2	R 69.4	70.3	R 71.8	R 73.0	R 71.7	R 71.2	R 75.2	R 79.8	R 79.9	R 77.0	R 86.5	97.4
Wisconsin	R 246.5	R 246.3	R 256.2	R 265.4	R 276.3	R 283.8	R 296.2	R 308.3	R 315.4	R 321.9	R 335.1	R 347.4	R 343.8	R 369.0	396.2
Wyoming	R 42.7	36.3	R 37.6	R 39.6	R 38.7	R 39.4	R 40.6	R 38.6	R 36.1	R 37.6	R 39.6	R 40.0	R 36.7	R 42.2	49.1
United States	14,769.9	14,478.1	15,049.0	15,599.7	16,254.0	R 16,880.7	R 17,608.1	R 18,295.0	R 18,804.9	R 19,612.1	R 20,656.5	R 21,521.4	R 21,323.0	R 23,594.0	25,744.1

Where shown, R = Revised data.
Data Source: U.S. Department of Commerce, Bureau of Economic Analysis, Regional Economic Accounts.

Table TN8.3. Real gross domestic product by state, 1997-2007 (billion chained (2017) dollars)

State	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Alabama	R 154.7	R 160.4	R 166.5	R 168.7	R 168.4	R 172.4	R 178.0	R 189.9	R 197.2	R 199.9	R 202.0
Alaska	R 41.1	R 40.3	R 39.8	R 38.4	R 40.0	R 41.9	R 41.2	R 42.9	R 44.4	R 47.5	R 50.1
Arizona	R 180.3	R 197.5	R 214.3	R 224.7	R 230.9	R 238.3	R 253.7	R 265.0	R 283.8	R 296.4	R 306.6
Arkansas	R 87.2	R 89.9	R 94.8	R 95.5	R 95.5	R 98.6	R 102.9	R 108.6	R 112.5	R 114.9	R 114.0
California	R 1,441.2	R 1,538.6	R 1,655.4	R 1,784.3	R 1,784.6	R 1,821.5	R 1,895.3	R 1,956.7	R 2,042.1	R 2,120.4	R 2,168.9
Colorado	R 189.4	R 206.4	R 221.0	R 238.7	R 242.7	R 243.7	R 246.0	R 250.1	R 262.0	R 268.2	R 278.7
Connecticut	R 206.0	R 212.3	R 218.9	R 233.9	R 236.3	R 234.3	R 236.7	R 252.7	R 258.2	R 269.5	R 278.5
Delaware	R 51.3	R 56.5	R 60.9	R 63.4	R 65.7	R 63.7	R 64.3	R 67.7	R 66.4	R 68.4	R 68.1
District of Columbia	R 86.5	R 88.1	R 92.1	R 92.8	R 96.2	R 99.0	R 101.0	R 106.5	R 108.9	R 108.8	R 112.3
Florida	R 604.0	R 634.0	R 664.2	R 693.8	R 714.6	R 746.3	R 781.8	R 833.9	R 883.2	R 909.3	R 922.3
Georgia	R 351.2	R 377.7	R 404.5	R 417.7	R 422.7	R 427.3	R 439.1	R 461.2	R 480.8	R 487.5	R 492.2
Hawaii	R 60.6	R 58.9	R 59.6	R 60.7	R 60.4	R 62.4	R 65.6	R 69.3	R 72.9	R 74.9	R 76.4
Idaho	R 38.8	R 40.9	R 44.8	R 49.8	R 48.7	R 49.8	R 51.5	R 55.1	R 59.3	R 60.7	R 61.8
Illinois	R 619.3	R 639.6	R 663.9	R 687.1	R 688.4	R 692.4	R 703.5	R 726.1	R 741.2	R 759.8	R 769.6
Indiana	R 244.8	R 260.5	R 268.9	R 279.0	R 273.9	R 280.7	R 293.0	R 303.8	R 306.3	R 312.5	R 322.7
Iowa	R 120.2	R 121.0	R 123.7	R 129.3	R 128.1	R 131.0	R 137.5	R 149.1	R 153.6	R 155.7	R 162.8
Kansas	R 108.8	R 112.6	R 115.5	R 118.8	R 119.5	R 121.1	R 123.5	R 124.8	R 129.6	R 136.1	R 143.6
Kentucky	R 155.8	R 160.8	R 165.8	R 161.1	R 161.3	R 165.4	R 170.5	R 175.3	R 182.0	R 186.3	R 185.8
Louisiana	R 202.4	R 209.4	R 213.5	R 206.6	R 210.5	R 214.9	R 223.6	R 234.6	R 249.6	R 247.1	R 234.2
Maine	R 46.3	R 48.1	R 50.6	R 53.0	R 54.1	R 55.4	R 56.9	R 58.9	R 59.6	R 60.0	R 60.0
Maryland	R 237.6	R 248.7	R 258.9	R 269.3	R 281.1	R 290.4	R 297.7	R 311.5	R 325.6	R 329.9	R 331.8
Massachusetts	R 322.4	R 335.5	R 353.8	R 382.6	R 388.2	R 388.5	R 397.1	R 407.9	R 417.1	R 426.9	R 440.4
Michigan	R 423.5	R 431.3	R 457.6	R 467.7	R 453.3	R 465.8	R 477.1	R 485.1	R 493.8	R 483.8	R 482.9
Minnesota	R 225.5	R 237.7	R 247.0	R 263.3	R 263.5	R 269.0	R 280.8	R 293.8	R 301.8	R 302.3	R 304.2
Mississippi	R 88.4	R 91.0	R 93.6	R 94.0	R 93.5	R 94.6	R 98.8	R 101.4	R 103.7	R 105.9	R 107.7
Missouri	R 243.7	R 249.2	R 256.3	R 262.7	R 260.4	R 265.0	R 272.0	R 279.1	R 285.3	R 286.6	R 288.3
Montana	R 30.1	R 31.5	R 31.6	R 32.5	R 32.7	R 33.7	R 35.2	R 36.9	R 38.8	R 40.1	R 42.1
Nebraska	R 74.0	R 75.8	R 77.4	R 80.3	R 82.3	R 83.4	R 88.3	R 90.6	R 94.6	R 97.3	R 99.8
Nevada	R 97.2	R 102.8	R 110.1	R 114.8	R 116.3	R 120.2	R 125.9	R 139.4	R 150.7	R 156.3	R 157.7
New Hampshire	R 51.0	R 55.0	R 56.9	R 60.7	R 61.7	R 63.5	R 66.1	R 68.4	R 69.6	R 71.4	R 71.9
New Jersey	R 454.1	R 461.2	R 477.8	R 503.9	R 509.6	R 517.8	R 529.8	R 536.2	R 546.4	R 555.2	R 560.8
New Mexico	R 68.0	R 67.7	R 71.4	R 72.7	R 73.0	R 75.3	R 78.8	R 85.8	R 86.3	R 88.6	R 89.4
New York	R 1,085.9	R 1,112.3	R 1,172.1	R 1,217.0	R 1,240.8	R 1,228.6	R 1,236.6	R 1,269.4	R 1,301.4	R 1,339.6	R 1,353.8
North Carolina	R 340.6	R 352.0	R 372.0	R 384.1	R 387.4	R 393.7	R 404.6	R 420.6	R 442.3	R 470.7	R 477.9
North Dakota	R 22.7	R 24.0	R 24.1	R 25.0	R 25.3	R 26.6	R 28.3	R 28.6	R 29.6	R 30.9	R 32.5
Ohio	R 501.2	R 518.6	R 530.7	R 541.0	R 534.6	R 546.7	R 557.0	R 572.3	R 584.9	R 582.6	R 585.4
Oklahoma	R 111.9	R 114.9	R 117.0	R 121.2	R 125.7	R 127.9	R 130.1	R 134.6	R 140.4	R 149.4	R 152.9
Oregon	R 124.8	R 130.4	R 133.8	R 145.1	R 144.5	R 147.4	R 154.4	R 163.0	R 168.7	R 177.2	R 180.7
Pennsylvania	R 521.7	R 534.9	R 552.2	R 566.3	R 577.7	R 583.5	R 598.8	R 615.0	R 626.3	R 626.6	R 649.6
Rhode Island	R 43.4	R 45.4	R 46.8	R 49.1	R 49.7	R 51.3	R 52.9	R 55.2	R 55.9	R 57.4	R 56.2
South Carolina	R 145.0	R 150.7	R 157.6	R 161.9	R 162.8	R 167.3	R 174.3	R 177.2	R 183.3	R 187.4	R 193.4
South Dakota	R 27.1	R 28.8	R 30.0	R 32.1	R 32.4	R 35.8	R 36.1	R 37.6	R 39.3	R 40.0	R 41.6
Tennessee	R 226.8	R 241.0	R 248.5	R 251.0	R 250.3	R 258.5	R 267.6	R 281.6	R 289.1	R 295.7	R 294.8
Texas	R 860.0	R 920.1	R 957.2	R 989.9	1,020.5	R 1,042.6	R 1,052.1	R 1,111.2	R 1,143.4	R 1,225.1	R 1,288.8
Utah	R 86.3	R 91.3	R 95.2	R 98.6	R 100.2	R 102.8	R 104.8	R 111.3	R 118.4	R 127.5	R 133.8
Vermont	R 21.4	R 22.3	R 23.6	R 24.8	R 25.7	R 26.5	R 27.5	R 29.0	R 29.3	R 29.4	R 29.3
Virginia	R 320.0	R 338.9	R 356.4	R 372.9	R 386.4	R 390.2	R 404.5	R 421.7	R 442.1	R 451.3	R 457.6
Washington	R 281.5	R 299.8	R 322.7	R 325.9	R 317.9	R 322.0	R 327.6	R 335.4	R 358.4	R 372.1	R 394.2
West Virginia	R 60.4	R 61.7	R 63.7	R 63.4	R 63.6	R 64.5	R 65.1	R 66.1	R 67.9	R 68.9	R 69.4
Wisconsin	R 223.0	R 232.1	R 242.0	R 248.6	R 252.9	R 258.0	R 265.7	R 275.4	R 282.1	R 287.1	R 289.9
Wyoming	R 24.3	R 24.8	R 25.9	R 26.6	R 28.3	R 28.9	R 29.8	R 30.8	R 32.5	R 36.7	R 39.5
United States	R 12,370.3	R 12,924.9	R 13,543.8	R 14,096.0	R 14,230.7	R 14,472.7	R 14,877.3	R 15,449.8	R 15,988.0	R 16,433.1	R 16,762.4

Where shown, R = Revised data.
Data Source: U.S. Department of Commerce, Bureau of Economic Analysis, Regional Economic Accounts.

Table TN8.4. Real gross domestic product by state, 2008-2022 (billion chained (2017) dollars)

State	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Alabama	R 201.0	R 194.2	R 199.5	R 201.4	R 203.7	R 207.0	R 206.1	R 209.0	R 212.9	R 216.6	R 220.8	R 224.9	R 222.1	R 231.9	235.8
Alaska	R 49.9	R 55.0	R 53.7	R 54.0	R 57.1	R 54.6	R 53.3	R 53.7	R 53.5	R 53.6	R 52.5	R 52.3	R 50.3	R 51.0	50.3
Arizona	R 302.3	R 277.4	R 282.3	R 290.4	R 297.1	R 298.9	R 301.7	R 308.6	R 319.0	R 333.1	R 346.4	R 359.6	R 362.6	R 390.8	403.5
Arkansas	R 113.6	R 109.8	R 113.0	R 115.2	R 116.6	R 119.8	R 121.4	R 121.5	R 123.0	R 123.9	R 126.4	R 127.2	R 128.1	R 135.6	137.4
California	R 2,192.3	R 2,110.7	R 2,153.9	R 2,192.9	R 2,255.4	R 2,340.3	R 2,428.7	R 2,546.0	R 2,623.7	R 2,740.6	R 2,851.0	R 2,962.8	R 2,925.1	R 3,146.2	3,167.5
Colorado	R 281.8	R 275.7	R 279.4	R 284.0	R 289.3	R 301.5	R 315.4	R 330.5	R 337.7	R 350.2	R 365.2	R 383.6	R 380.9	R 407.0	416.1
Connecticut	R 277.8	R 265.5	R 266.8	R 261.6	R 263.6	R 258.9	R 260.6	R 268.9	R 268.2	R 273.9	R 274.6	R 274.2	R 258.6	R 268.8	276.7
Delaware	R 65.8	R 69.2	R 68.3	R 71.1	R 70.6	R 68.7	R 74.0	R 76.2	R 71.9	R 69.6	R 70.9	R 74.6	R 72.6	R 74.4	75.2
District of Columbia	R 116.2	R 115.6	R 120.4	R 122.6	R 123.6	R 124.1	R 126.9	R 129.1	R 132.2	R 134.3	R 138.1	R 138.9	R 137.8	R 142.7	144.0
Florida	R 891.8	R 840.5	R 852.0	R 849.4	R 857.9	R 880.2	R 905.6	R 945.9	R 979.0	R 1,014.9	R 1,050.4	R 1,079.3	R 1,068.4	R 1,164.8	1,218.4
Georgia	R 481.9	R 464.0	R 471.6	R 481.2	R 489.0	R 499.9	R 517.5	R 540.1	R 561.7	R 583.5	R 600.9	R 620.8	R 602.3	R 639.2	655.8
Hawaii	R 76.8	R 74.1	R 76.1	R 77.2	R 78.7	R 80.5	R 81.3	R 83.9	R 85.7	R 87.4	R 88.8	R 88.9	R 79.6	R 84.1	85.2
Idaho	R 63.9	R 61.3	R 62.6	R 62.7	R 62.0	R 64.8	R 66.8	R 67.8	R 70.4	R 72.9	R 77.7	R 81.3	R 82.8	R 88.0	91.7
Illinois	R 759.1	R 740.8	R 755.4	R 772.2	R 790.7	R 795.4	R 811.5	R 825.4	R 826.4	R 832.8	R 851.5	R 858.0	R 810.2	R 852.7	864.2
Indiana	R 322.4	R 299.8	R 320.7	R 321.5	R 323.9	R 333.2	R 343.8	R 341.2	R 348.4	R 357.5	R 368.8	R 371.0	R 359.2	R 384.1	396.0
Iowa	R 160.5	R 156.7	R 161.6	R 164.6	R 170.9	R 171.1	R 180.3	R 186.0	R 186.7	R 187.1	R 189.2	R 188.3	R 187.1	R 198.5	197.8
Kansas	R 147.3	R 141.9	R 143.9	R 147.8	R 150.1	R 150.7	R 154.1	R 158.6	R 164.6	R 166.3	R 169.8	R 170.4	R 168.5	R 172.8	174.8
Kentucky	R 186.5	R 178.1	R 186.7	R 188.4	R 192.1	R 196.7	R 196.8	R 199.5	R 201.0	R 203.6	R 205.9	R 211.7	R 206.3	R 214.6	217.6
Louisiana	R 237.1	R 241.9	R 253.5	R 241.2	R 242.4	R 236.5	R 243.0	R 239.6	R 235.6	R 239.8	R 245.2	R 246.4	R 228.8	R 234.0	231.3
Maine	R 59.8	R 58.8	R 60.0	R 59.4	R 59.2	R 59.0	R 59.6	R 60.6	R 62.0	R 63.0	R 64.8	R 66.4	R 67.4	R 70.9	72.4
Maryland	R 338.2	R 336.3	R 352.6	R 360.2	R 361.6	R 364.6	R 370.3	R 378.7	R 392.0	R 399.7	R 402.5	R 402.3	R 388.5	R 405.9	412.3
Massachusetts	R 447.5	R 441.3	R 462.3	R 472.7	R 483.3	R 487.0	R 496.3	R 514.4	R 521.7	R 530.1	R 549.3	R 566.7	R 556.2	R 591.9	604.4
Michigan	R 455.3	R 416.3	R 441.3	R 454.0	R 463.3	R 472.8	R 479.5	R 490.6	R 500.2	R 505.1	R 516.8	R 517.8	R 502.5	R 531.5	539.9
Minnesota	R 309.3	R 296.9	R 308.1	R 315.2	R 321.1	R 329.8	R 338.6	R 345.5	R 350.6	R 354.7	R 364.8	R 368.7	R 358.1	R 374.7	379.1
Mississippi	R 109.4	R 105.4	R 106.7	R 106.5	R 108.6	R 109.0	R 109.3	R 109.4	R 109.9	R 110.3	R 110.2	R 110.5	R 109.9	R 114.2	114.2
Missouri	R 297.9	R 289.6	R 296.0	R 293.0	R 296.5	R 302.0	R 303.6	R 308.0	R 308.4	R 311.3	R 314.2	R 320.9	R 315.3	R 330.1	336.6
Montana	R 42.0	R 40.9	R 42.5	R 43.5	R 44.3	R 45.1	R 46.2	R 47.8	R 47.2	R 48.5	R 49.5	R 50.3	R 50.2	R 53.0	54.0
Nebraska	R 99.9	R 100.0	R 103.9	R 109.7	R 109.7	R 111.4	R 115.7	R 119.6	R 121.3	R 123.2	R 125.5	R 127.5	R 126.9	R 133.5	137.1
Nevada	R 152.7	R 140.3	R 142.6	R 144.3	R 143.0	R 144.5	R 145.3	R 151.1	R 156.0	R 163.2	R 168.6	R 175.8	R 165.8	R 181.1	187.2
New Hampshire	R 71.2	R 70.5	R 73.0	R 73.5	R 74.1	R 75.5	R 76.8	R 79.3	R 80.7	R 81.2	R 82.3	R 84.0	R 83.2	R 89.9	90.2
New Jersey	R 573.2	R 546.4	R 554.8	R 548.5	R 560.7	R 571.0	R 570.7	R 581.4	R 587.0	R 590.1	R 606.9	R 617.1	R 596.0	R 629.0	646.7
New Mexico	R 89.0	R 90.8	R 90.7	R 90.6	R 90.8	R 90.1	R 92.6	R 93.5	R 93.0	R 93.2	R 96.1	R 100.4	R 97.5	R 99.6	101.3
New York	R 1,328.1	R 1,379.5	R 1,431.6	R 1,440.3	R 1,496.3	R 1,501.8	R 1,535.4	R 1,565.8	R 1,590.6	R 1,624.8	R 1,665.2	R 1,709.8	R 1,650.6	R 1,724.5	1,763.5
North Carolina	R 492.7	R 473.6	R 482.0	R 484.2	R 488.1	R 497.5	R 509.8	R 525.2	R 536.3	R 546.8	R 556.6	R 568.5	R 564.8	R 597.3	609.1
North Dakota	R 35.0	R 36.0	R 38.7	R 43.3	R 53.3	R 54.7	R 60.2	R 58.7	R 54.8	R 56.5	R 58.5	R 59.1	R 55.7	R 55.4	54.8
Ohio	R 580.4	R 551.0	R 563.8	R 580.3	R 586.5	R 603.1	R 625.0	R 633.3	R 638.2	R 652.2	R 656.2	R 674.1	R 654.6	R 686.2	689.7
Oklahoma	R 159.0	R 156.9	R 158.1	R 163.9	R 172.0	R 176.1	R 186.6	R 193.8	R 190.1	R 192.5	R 196.0	R 199.5	R 190.8	R 193.5	191.6
Oregon	R 184.8	R 177.0	R 180.7	R 186.0	R 187.4	R 189.6	R 195.8	R 205.6	R 214.8	R 225.5	R 234.3	R 239.9	R 237.7	R 250.1	254.7
Pennsylvania	R 665.1	R 645.2	R 666.8	R 676.5	R 689.0	R 704.2	R 718.7	R 734.1	R 744.8	R 754.3	R 763.9	R 772.5	R 736.5	R 764.6	772.3
Rhode Island	R 55.0	R 54.5	R 56.1	R 56.0	R 56.5	R 57.0	R 57.6	R 58.4	R 58.6	R 58.8	R 58.7	R 59.9	R 58.2	R 60.8	62.2
South Carolina	R 192.5	R 184.1	R 188.8	R 193.2	R 195.4	R 200.1	R 206.1	R 213.2	R 220.6	R 224.9	R 231.7	R 237.5	R 233.7	R 244.9	250.9
South Dakota	R 43.3	R 44.3	R 44.8	R 47.6	R 48.7	R 48.6	R 49.6	R 50.9	R 51.3	R 51.6	R 51.9	R 52.4	R 52.7	R 55.1	55.0
Tennessee	R 298.5	R 287.3	R 292.7	R 301.5	R 311.8	R 318.3	R 323.9	R 335.5	R 343.5	R 355.4	R 362.4	R 370.1	R 366.6	R 396.6	412.1
Texas	R 1,287.2	R 1,285.6	R 1,323.1	R 1,370.2	R 1,438.4	R 1,511.8	R 1,559.6	R 1,634.1	R 1,633.9	R 1,667.3	R 1,746.5	R 1,802.9	R 1,772.2	R 1,873.5	1,924.0
Utah	R 133.7	R 131.0	R 133.7	R 138.3	R 140.6	R 145.0	R 150.1	R 155.4	R 162.5	R 172.1	R 182.1	R 192.7	R 194.8	R 210.0	213.9
Vermont	R 30.2	R 29.6	R 30.9	R 31.7	R 31.9	R 31.5	R 31.8	R 32.0	R 32.3	R 32.6	R 32.8	R 33.2	R 32.3	R 33.9	34.6
Virginia	R 462.0	R 460.1	R 475.7	R 479.6	R 483.0	R 488.7	R 488.9	R 498.9	R 505.1	R 515.2	R 527.8	R 541.1	R 533.8	R 562.9	577.0
Washington	R 401.1	R 390.8	R 403.5	R 411.6	R 426.4	R 439.5	R 456.2	R 476.7	R 495.7	R 527.2	R 561.8	R 588.9	R 590.4	R 630.8	641.1
West Virginia	R 71.0	R 70.9	R 71.8	R 73.2	R 73.1	R 73.9	R 74.1	R 74.3	R 73.5	R 75.2	R 77.4	R 76.8	R 74.0	R 75.5	76.5
Wisconsin	R 286.2	R 277.3	R 287.7	R 293.7	R 299.0	R 301.6	R 309.4	R 315.7	R 319.3	R 321.9	R 328.8	R 333.7	R 323.0	R 334.5	335.7
Wyoming	R 41.6	R 40.6	R 39.1	R 38.9	R 38.1	R 38.4	R 39.3	R 40.1	R 37.9	R 37.6	R 38.0	R 38.6	R 36.2	R 36.9	37.3
United States	R 16,781.5	R 16,349.1	R 16,789.8	R 17,052.4	R 17,442.8	R 17,812.2	R 18,261.7	R 18,799.6	R 19,141.7	R 19,612.1	R 20,193.9	R 20,692.1	R 20,234.1	R 21,407.7	21,822.0

Where shown, R = Revised data.
Data Source: U.S. Department of Commerce, Bureau of Economic Analysis, Regional Economic Accounts.

Resident population

The population data used in the U.S. Energy Information Administration (EIA) State Energy Data System (SEDS) to calculate per capita consumption are in Tables TN8.5 through TN8.10. The data are the U.S. Department of Commerce, Census Bureau, resident population estimates by state. The reference date for the estimates is July 1 of each year.

Before 1980, the sum of the state estimates may not match the U.S. estimates. The U.S. Census Bureau may incorporate more recent revisions to the U.S. estimates that are not in the SEDS state estimates.

Data sources

TPOPPUS — Resident population estimates of the United States.

- 1960 through 2009: U.S. Department of Commerce, Census Bureau, National Intercensal Tables, http://www.census.gov/programs-surveys/popest/data/tables.All.html.
- 2010 forward: U.S. Department of Commerce, Census Bureau, National Population Totals, http://www.census.gov/programs-surveys/popest/data/tables.All.html.

TPOPPZZ — Resident population estimates by state.

- 1960 through 2009: U.S. Department of Commerce, Census Bureau, State Intercensal Tables, http://www.census.gov/programs-surveys/popest/data/tables.All.html.
- 2010 forward: U.S. Department of Commerce, Census Bureau, State Population Totals, http://www.census.gov/programs-surveys/popest/data/tables.All.html.

Table TN8.5. Resident population estimates by state, 1960-1969 (thousand people)

State	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969
Alabama	3,274	3,316	3,323	3,358	3,395	3,443	3,464	3,458	3,446	3,440
Alaska	229	238	246	256	263	271	271	278	285	296
Arizona	1,321	1,407	1,471	1,521	1,556	1,584	1,614	1,646	1,682	1,737
Arkansas	1,789	1,806	1,853	1,875	1,897	1,894	1,899	1,901	1,902	1,913
California	15,870	16,497	17,072	17,668	18,151	18,585	18,858	19,176	19,394	19,711
Colorado	1,769	1,844	1,899	1,936	1,970	1,985	2,007	2,053	2,120	2,166
Connecticut	2,544	2,586	2,647	2,727	2,798	2,857	2,903	2,935	2,964	3,000
Delaware	449	461	469	483	497	507	516	525	534	540
District of Columbia	765	778	788	798	798	797	791	791	778	762
Florida	5,004	5,243	5,458	5,628	5,781	5,954	6,104	6,242	6,433	6,641
Georgia	3,956	4,015	4,086	4,172	4,258	4,332	4,379	4,408	4,482	4,551
Hawaii	642	659	684	682	700	704	710	723	734	750
Idaho	671	684	692	683	680	686	689	688	695	707
Illinois	10,086	10,130	10,280	10,402	10,580	10,693	10,836	10,947	10,995	11,039
Indiana	4,674	4,730	4,736	4,799	4,856	4,922	4,999	5,053	5,093	5,143
Iowa	2,756	2,756	2,750	2,747	2,746	2,742	2,762	2,793	2,803	2,805
Kansas	2,183	2,215	2,231	2,217	2,209	2,206	2,200	2,197	2,216	2,236
Kentucky	3,041	3,054	3,079	3,096	3,129	3,140	3,147	3,172	3,195	3,198
Louisiana	3,260	3,287	3,345	3,377	3,446	3,496	3,550	3,581	3,603	3,619
Maine	975	995	994	993	993	997	999	1,004	994	992
Maryland	3,113	3,176	3,263	3,386	3,492	3,600	3,695	3,757	3,815	3,868
Massachusetts	5,160	5,219	5,263	5,344	5,448	5,502	5,535	5,594	5,618	5,650
Michigan	7,834	7,893	7,933	8,058	8,187	8,357	8,512	8,630	8,696	8,781
Minnesota	3,425	3,470	3,513	3,531	3,558	3,592	3,617	3,659	3,703	3,758
Mississippi	2,182	2,206	2,243	2,244	2,241	2,246	2,245	2,228	2,219	2,220
Missouri	4,326	4,349	4,357	4,392	4,442	4,467	4,523	4,539	4,568	4,640
Montana	679	696	698	703	706	706	707	701	700	694
Nebraska	1,417	1,446	1,464	1,476	1,482	1,471	1,456	1,457	1,467	1,474
Nevada	291	315	352	397	426	444	446	449	464	480
New Hampshire	609	618	632	649	663	676	681	697	709	724
New Jersey	6,103	6,265	6,376	6,531	6,660	6,767	6,851	6,928	7,005	7,095
New Mexico	954	965	979	989	1,006	1,012	1,007	1,000	994	1,011
New York	16,838	17,061	17,301	17,461	17,589	17,734	17,843	17,935	18,051	18,105
North Carolina	4,573	4,663	4,707	4,742	4,802	4,863	4,896	4,952	5,004	5,031
North Dakota	634	641	637	644	649	649	647	626	621	621
Ohio	9,734	9,854	9,929	9,986	10,080	10,201	10,330	10,414	10,516	10,563
Oklahoma	2,336	2,380	2,427	2,439	2,446	2,440	2,454	2,489	2,503	2,535
Oregon	1,772	1,787	1,818	1,853	1,888	1,937	1,969	1,979	2,004	2,062
Pennsylvania	11,329	11,392	11,355	11,424	11,519	11,620	11,664	11,681	11,741	11,741
Rhode Island	855	858	871	876	885	893	899	909	922	932
South Carolina	2,392	2,409	2,423	2,460	2,475	2,494	2,520	2,533	2,559	2,570
South Dakota	683	693	705	708	701	692	683	671	669	668
Tennessee	3,575	3,622	3,673	3,718	3,771	3,798	3,822	3,859	3,878	3,897
Texas	9,624	9,820	10,053	10,159	10,270	10,378	10,492	10,599	10,819	11,045
Utah	900	936	958	974	978	991	1,009	1,019	1,029	1,047
Vermont	389	390	393	397	399	404	413	423	430	437
Virginia	3,986	4,095	4,180	4,276	4,357	4,411	4,456	4,508	4,558	4,614
Washington	2,855	2,882	2,942	2,955	2,961	2,967	3,057	3,174	3,270	3,343
West Virginia	1,853	1,828	1,809	1,796	1,797	1,786	1,775	1,769	1,763	1,746
Wisconsin	3,962	4,009	4,049	4,112	4,165	4,232	4,274	4,303	4,345	4,378
Wyoming	331	337	333	336	339	332	323	322	324	329
United States	180,671	183,691	186,538	189,242	191,889	194,303	196,560	198,712	200,706	202,677

Where shown, R = Revised data.
Data Source: U.S. Department of Commerce, Census Bureau.

Table TN8.6. Resident population estimates by state, 1970-1979 (thousand people)

State	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
Alabama	3,451	3,497	3,539	3,580	3,626	3,679	3,735	3,780	3,832	3,866
Alaska	304	316	324	331	341	376	401	403	405	403
Arizona	1,792	1,896	2,008	2,124	2,223	2,285	2,346	2,425	2,515	2,636
Arkansas	1,932	1,972	2,019	2,059	2,101	2,160	2,170	2,209	2,243	2,271
California	20,007	20,346	20,585	20,869	21,174	21,538	21,936	22,352	22,836	23,257
Colorado	2,223	2,304	2,405	2,496	2,541	2,586	2,632	2,696	2,767	2,849
Connecticut	3,041	3,061	3,069	3,068	3,074	3,082	3,083	3,086	3,092	3,096
Delaware	551	565	573	578	581	587	590	592	595	595
District of Columbia	756	750	742	731	718	707	692	677	665	650
Florida	6,848	7,158	7,511	7,914	8,299	8,518	8,667	8,856	9,102	9,426
Georgia	4,607	4,712	4,809	4,910	4,999	5,064	5,133	5,220	5,296	5,401
Hawaii	774	802	828	852	868	886	904	918	932	953
Idaho	718	739	763	782	808	832	857	883	911	933
Illinois	11,128	11,202	11,252	11,251	11,262	11,292	11,343	11,386	11,413	11,397
Indiana	5,202	5,253	5,302	5,338	5,362	5,366	5,389	5,426	5,470	5,501
Iowa	2,832	2,852	2,860	2,864	2,868	2,881	2,903	2,914	2,918	2,916
Kansas	2,249	2,247	2,256	2,266	2,269	2,281	2,301	2,321	2,336	2,351
Kentucky	3,231	3,298	3,336	3,371	3,416	3,468	3,529	3,574	3,610	3,642
Louisiana	3,652	3,710	3,762	3,788	3,820	3,886	3,951	4,014	4,069	4,138
Maine	997	1,015	1,034	1,046	1,059	1,072	1,088	1,104	1,114	1,123
Maryland	3,938	4,018	4,073	4,098	4,119	4,139	4,151	4,170	4,184	4,191
Massachusetts	5,706	5,738	5,760	5,781	5,774	5,758	5,744	5,738	5,736	5,738
Michigan	8,890	8,974	9,029	9,078	9,118	9,118	9,129	9,171	9,218	9,266
Minnesota	3,815	3,853	3,870	3,889	3,904	3,933	3,965	3,989	4,015	4,050
Mississippi	2,220	2,265	2,307	2,350	2,378	2,399	2,430	2,459	2,488	2,507
Missouri	4,688	4,726	4,759	4,783	4,796	4,808	4,839	4,863	4,889	4,912
Montana	698	711	719	727	736	748	757	770	782	787
Nebraska	1,488	1,505	1,519	1,530	1,539	1,543	1,551	1,557	1,564	1,567
Nevada	493	520	547	569	597	620	647	678	719	765
New Hampshire	742	762	781	801	816	829	845	870	892	909
New Jersey	7,193	7,281	7,335	7,333	7,332	7,338	7,340	7,337	7,351	7,367
New Mexico	1,023	1,054	1,079	1,106	1,131	1,160	1,189	1,216	1,238	1,285
New York	18,268	18,358	18,339	18,177	18,050	18,003	17,941	17,813	17,681	17,584
North Carolina	5,098	5,204	5,301	5,390	5,471	5,547	5,608	5,686	5,759	5,823
North Dakota	620	627	631	633	635	639	646	650	651	653
Ohio	10,664	10,735	10,747	10,767	10,766	10,770	10,753	10,771	10,796	10,798
Oklahoma	2,567	2,619	2,659	2,696	2,735	2,775	2,827	2,870	2,917	2,975
Oregon	2,101	2,151	2,197	2,242	2,285	2,330	2,378	2,447	2,518	2,588
Pennsylvania	11,813	11,886	11,908	11,891	11,871	11,906	11,897	11,894	11,879	11,888
Rhode Island	951	963	975	976	951	943	946	950	952	950
South Carolina	2,597	2,662	2,719	2,777	2,845	2,902	2,944	2,992	3,044	3,090
South Dakota	668	671	677	679	680	681	686	688	689	688
Tennessee	3,937	4,014	4,095	4,147	4,214	4,276	4,347	4,423	4,486	4,560
Texas	11,236	11,510	11,759	12,020	12,269	12,569	12,904	13,193	13,500	13,888
Utah	1,066	1,101	1,135	1,170	1,200	1,236	1,275	1,320	1,368	1,420
Vermont	446	454	463	468	473	480	485	492	498	505
Virginia	4,659	4,751	4,824	4,901	4,971	5,047	5,122	5,193	5,270	5,308
Washington	3,413	3,448	3,448	3,479	3,550	3,621	3,694	3,776	3,889	4,018
West Virginia	1,751	1,771	1,798	1,806	1,815	1,842	1,880	1,908	1,923	1,942
Wisconsin	4,429	4,462	4,502	4,524	4,546	4,579	4,596	4,627	4,646	4,683
Wyoming	334	340	347	354	366	382	397	413	433	454
United States	205,052	207,661	209,896	211,909	213,854	215,973	218,035	220,239	222,585	225,055

Where shown, R = Revised data.
Data Source: U.S. Department of Commerce, Census Bureau.

Table TN8.7. Resident population estimates by state, 1980-1989 (thousand people)

State	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
Alabama	3,900	3,919	3,925	3,934	3,952	3,973	3,992	4,015	4,024	4,030
Alaska	405	418	450	488	514	532	544	539	542	547
Arizona	2,738	2,810	2,890	2,969	3,067	3,184	3,308	3,437	3,535	3,622
Arkansas	2,289	2,293	2,294	2,306	2,320	2,327	2,332	2,342	2,343	2,346
California	23,801	24,286	24,820	25,360	25,844	26,441	27,102	27,777	28,464	29,218
Colorado	2,909	2,978	3,062	3,134	3,170	3,209	3,237	3,260	3,262	3,276
Connecticut	3,113	3,129	3,139	3,162	3,180	3,201	3,224	3,247	3,272	3,283
Delaware	595	596	599	605	612	618	628	637	648	658
District of Columbia	638	637	634	632	633	635	638	637	630	624
Florida	9,840	10,193	10,471	10,750	11,040	11,351	11,668	11,997	12,306	12,638
Georgia	5,486	5,568	5,650	5,728	5,835	5,963	6,085	6,208	6,316	6,411
Hawaii	968	978	994	1,013	1,028	1,040	1,052	1,068	1,080	1,095
Idaho	948	962	974	982	991	994	990	985	986	994
Illinois	11,435	11,443	11,423	11,409	11,412	11,400	11,387	11,391	11,390	11,410
Indiana	5,491	5,480	5,468	5,450	5,458	5,459	5,454	5,473	5,492	5,524
Iowa	2,914	2,908	2,888	2,871	2,859	2,830	2,792	2,767	2,768	2,771
Kansas	2,369	2,385	2,401	2,416	2,424	2,427	2,433	2,445	2,462	2,473
Kentucky	3,664	3,670	3,683	3,694	3,695	3,695	3,688	3,683	3,680	3,677
Louisiana	4,223	4,283	4,353	4,395	4,400	4,408	4,407	4,344	4,289	4,253
Maine	1,127	1,133	1,137	1,145	1,156	1,163	1,170	1,185	1,204	1,220
Maryland	4,228	4,262	4,283	4,313	4,365	4,413	4,487	4,566	4,658	4,727
Massachusetts	5,746	5,769	5,771	5,799	5,841	5,881	5,903	5,935	5,980	6,015
Michigan	9,256	9,209	9,115	9,048	9,049	9,076	9,128	9,187	9,218	9,253
Minnesota	4,085	4,112	4,131	4,141	4,158	4,184	4,205	4,235	4,296	4,338
Mississippi	2,525	2,539	2,557	2,568	2,578	2,588	2,594	2,589	2,580	2,574
Missouri	4,922	4,932	4,929	4,944	4,975	5,000	5,023	5,057	5,082	5,096
Montana	789	795	804	814	821	822	814	805	800	800
Nebraska	1,572	1,579	1,582	1,584	1,589	1,585	1,574	1,567	1,571	1,575
Nevada	810	848	882	902	925	951	981	1,023	1,075	1,137
New Hampshire	924	937	948	958	977	997	1,025	1,054	1,083	1,105
New Jersey	7,376	7,407	7,431	7,468	7,515	7,566	7,622	7,671	7,712	7,726
New Mexico	1,309	1,333	1,364	1,394	1,417	1,438	1,463	1,479	1,490	1,504
New York	17,567	17,568	17,590	17,687	17,746	17,792	17,833	17,869	17,941	17,983
North Carolina	5,899	5,957	6,019	6,077	6,164	6,254	6,322	6,404	6,481	6,565
North Dakota	654	660	669	677	680	677	670	661	655	646
Ohio	10,801	10,788	10,757	10,738	10,738	10,735	10,730	10,760	10,799	10,829
Oklahoma	3,041	3,096	3,206	3,290	3,286	3,271	3,253	3,210	3,167	3,150
Oregon	2,641	2,668	2,665	2,653	2,667	2,673	2,684	2,701	2,741	2,791
Pennsylvania	11,868	11,859	11,845	11,838	11,815	11,771	11,783	11,811	11,846	11,866
Rhode Island	949	953	954	956	962	969	977	990	996	1,001
South Carolina	3,135	3,179	3,208	3,234	3,272	3,303	3,343	3,381	3,412	3,457
South Dakota	691	690	691	693	697	698	696	696	698	697
Tennessee	4,600	4,628	4,646	4,660	4,687	4,715	4,739	4,783	4,822	4,854
Texas	14,338	14,746	15,331	15,752	16,007	16,273	16,561	16,622	16,667	16,807
Utah	1,473	1,515	1,558	1,595	1,622	1,643	1,663	1,678	1,689	1,706
Vermont	513	516	519	523	527	530	534	540	550	558
Virginia	5,368	5,444	5,493	5,565	5,644	5,715	5,812	5,932	6,037	6,120
Washington	4,155	4,236	4,277	4,300	4,344	4,400	4,453	4,532	4,640	4,746
West Virginia	1,951	1,954	1,950	1,945	1,928	1,907	1,882	1,858	1,830	1,807
Wisconsin	4,712	4,726	4,729	4,721	4,736	4,748	4,756	4,778	4,822	4,857
Wyoming	474	492	506	510	505	500	496	477	465	458
United States	227,225	229,466	231,664	233,792	235,825	237,924	240,133	242,289	244,499	246,819

Where shown, R = Revised data.
Data Source: U.S. Department of Commerce, Census Bureau.

Table TN8.8. Resident population estimates by state, 1990-1999 (thousand people)

State	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Alabama	4,050	4,099	4,154	4,214	4,260	4,297	4,331	4,368	4,405	4,430
Alaska	553	570	589	599	603	604	609	613	620	625
Arizona	3,684	3,789	3,916	4,065	4,245	4,432	4,587	4,737	4,883	5,024
Arkansas	2,357	2,383	2,416	2,456	2,494	2,535	2,572	2,601	2,626	2,652
California	29,960	30,471	30,975	31,275	31,484	31,697	32,019	32,486	32,988	33,499
Colorado	3,308	3,387	3,496	3,614	3,724	3,827	3,920	4,018	4,117	4,226
Connecticut	3,292	3,303	3,301	3,309	3,316	3,324	3,337	3,349	3,365	3,386
Delaware	670	683	695	706	718	730	741	751	763	775
District of Columbia	605	601	598	595	589	581	572	568	565	570
Florida	13,033	13,370	13,651	13,927	14,239	14,538	14,853	15,186	15,487	15,759
Georgia	6,513	6,653	6,817	6,978	7,157	7,328	7,501	7,685	7,864	8,046
Hawaii	1,113	1,137	1,159	1,173	1,188	1,197	1,204	1,212	1,215	1,210
Idaho	1,012	1,041	1,072	1,109	1,145	1,177	1,203	1,229	1,252	1,276
Illinois	11,453	11,569	11,694	11,810	11,913	12,008	12,102	12,186	12,272	12,359
Indiana	5,558	5,616	5,675	5,739	5,794	5,851	5,906	5,955	5,999	6,045
Iowa	2,781	2,798	2,818	2,837	2,851	2,867	2,880	2,891	2,903	2,918
Kansas	2,481	2,499	2,532	2,557	2,581	2,601	2,615	2,635	2,661	2,678
Kentucky	3,694	3,722	3,765	3,812	3,849	3,887	3,920	3,953	3,985	4,018
Louisiana	4,222	4,253	4,293	4,316	4,347	4,379	4,399	4,421	4,440	4,461
Maine	1,232	1,237	1,239	1,242	1,243	1,243	1,249	1,255	1,259	1,267
Maryland	4,800	4,868	4,923	4,972	5,023	5,070	5,112	5,157	5,204	5,255
Massachusetts	6,023	6,018	6,029	6,061	6,095	6,141	6,180	6,226	6,272	6,317
Michigan	9,311	9,400	9,479	9,540	9,598	9,676	9,759	9,809	9,848	9,897
Minnesota	4,390	4,441	4,496	4,556	4,610	4,660	4,713	4,763	4,813	4,873
Mississippi	2,579	2,599	2,624	2,655	2,689	2,723	2,748	2,777	2,805	2,828
Missouri	5,129	5,171	5,217	5,271	5,324	5,378	5,432	5,481	5,522	5,562
Montana	800	810	826	845	861	877	886	890	892	898
Nebraska	1,582	1,596	1,612	1,626	1,639	1,657	1,674	1,686	1,696	1,705
Nevada	1,221	1,296	1,351	1,411	1,499	1,582	1,666	1,764	1,853	1,935
New Hampshire	1,112	1,110	1,118	1,129	1,143	1,158	1,175	1,189	1,206	1,222
New Jersey	7,763	7,815	7,881	7,949	8,014	8,083	8,150	8,219	8,287	8,360
New Mexico	1,522	1,555	1,595	1,636	1,682	1,720	1,752	1,775	1,793	1,808
New York	18,021	18,123	18,247	18,375	18,459	18,524	18,588	18,657	18,756	18,883
North Carolina	6,664	6,784	6,897	7,043	7,187	7,345	7,501	7,657	7,809	7,949
North Dakota	638	636	638	641	645	648	650	650	648	644
Ohio	10,864	10,946	11,029	11,101	11,152	11,203	11,243	11,277	11,312	11,335
Oklahoma	3,149	3,175	3,221	3,252	3,281	3,308	3,340	3,373	3,405	3,437
Oregon	2,860	2,929	2,992	3,060	3,121	3,184	3,247	3,304	3,352	3,394
Pennsylvania	11,903	11,982	12,049	12,120	12,166	12,198	12,220	12,228	12,246	12,264
Rhode Island	1,006	1,011	1,013	1,015	1,016	1,017	1,021	1,025	1,031	1,040
South Carolina	3,501	3,570	3,620	3,663	3,705	3,749	3,796	3,860	3,919	3,975
South Dakota	697	704	713	722	731	738	742	744	746	750
Tennessee	4,894	4,967	5,050	5,138	5,231	5,327	5,417	5,499	5,570	5,639
Texas	17,057	17,398	17,760	18,162	18,564	18,959	19,340	19,740	20,158	20,558
Utah	1,731	1,780	1,837	1,898	1,960	2,014	2,068	2,120	2,166	2,203
Vermont	565	569	573	578	584	589	594	597	600	605
Virginia	6,217	6,301	6,414	6,510	6,593	6,671	6,751	6,829	6,901	7,000
Washington	4,903	5,026	5,161	5,279	5,375	5,481	5,570	5,675	5,770	5,843
West Virginia	1,793	1,799	1,806	1,818	1,820	1,824	1,823	1,819	1,816	1,812
Wisconsin	4,905	4,964	5,025	5,085	5,134	5,185	5,230	5,266	5,298	5,333
Wyoming	454	459	466	473	480	485	488	489	491	492
United States	249,623	252,981	256,514	259,919	263,126	266,278	269,394	272,647	275,854	279,040

Where shown, R = Revised data.
Data Source: U.S. Department of Commerce, Census Bureau.

Table TN8.9. Resident population estimates by state, 2000-2009 (thousand people)

State	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Alabama	4,452	4,468	4,480	4,503	4,531	4,570	4,629	4,673	4,718	4,758
Alaska	628	634	642	648	659	667	675	680	687	699
Arizona	5,161	5,273	5,396	5,510	5,652	5,839	6,029	6,168	6,280	6,343
Arkansas	2,679	2,692	2,706	2,725	2,750	2,781	2,822	2,849	2,875	2,897
California	33,988	34,479	34,872	35,253	35,575	35,828	36,021	36,250	36,604	36,961
Colorado	4,327	4,426	4,490	4,529	4,575	4,632	4,720	4,804	4,890	4,972
Connecticut	3,412	3,433	3,459	3,484	3,496	3,507	3,517	3,527	3,546	3,562
Delaware	786	796	806	818	831	845	859	872	884	892
District of Columbia	572	575	573	569	568	567	571	574	580	592
Florida	16,048	16,357	16,689	17,004	17,415	17,842	18,167	18,368	18,527	18,653
Georgia	8,227	8,377	8,508	8,623	8,769	8,926	9,156	9,350	9,505	9,621
Hawaii	1,214	1,226	1,240	1,251	1,274	1,293	1,310	1,316	1,332	1,347
Idaho	1,299	1,320	1,340	1,363	1,392	1,428	1,469	1,505	1,534	1,554
Illinois	12,434	12,488	12,526	12,556	12,590	12,610	12,644	12,696	12,747	12,797
Indiana	6,092	6,128	6,156	6,197	6,233	6,279	6,333	6,380	6,425	6,459
Iowa	2,929	2,932	2,934	2,942	2,954	2,964	2,983	2,999	3,017	3,033
Kansas	2,694	2,702	2,714	2,723	2,734	2,745	2,763	2,784	2,808	2,833
Kentucky	4,049	4,068	4,090	4,117	4,146	4,183	4,219	4,257	4,290	4,317
Louisiana	4,472	4,478	4,497	4,521	4,552	4,577	4,303	4,376	4,436	4,492
Maine	1,277	1,286	1,296	1,307	1,314	1,319	1,324	1,327	1,331	1,330
Maryland	5,311	5,375	5,440	5,496	5,547	5,592	5,627	5,653	5,685	5,730
Massachusetts	6,361	6,398	6,417	6,423	6,412	6,403	6,410	6,432	6,469	6,518
Michigan	9,952	9,991	10,016	10,041	10,055	10,051	10,036	10,001	9,947	9,902
Minnesota	4,934	4,983	5,019	5,054	5,088	5,120	5,164	5,207	5,247	5,281
Mississippi	2,848	2,853	2,859	2,868	2,889	2,906	2,905	2,928	2,948	2,959
Missouri	5,607	5,641	5,675	5,709	5,748	5,790	5,843	5,888	5,924	5,961
Montana	904	907	912	920	930	940	953	965	976	984
Nebraska	1,714	1,720	1,728	1,739	1,749	1,761	1,773	1,783	1,796	1,813
Nevada	2,019	2,098	2,174	2,249	2,346	2,432	2,523	2,601	2,654	2,685
New Hampshire	1,240	1,256	1,269	1,280	1,290	1,298	1,308	1,313	1,316	1,316
New Jersey	8,431	8,493	8,553	8,601	8,635	8,652	8,662	8,678	8,711	8,756
New Mexico	1,821	1,832	1,855	1,878	1,904	1,932	1,962	1,990	2,011	2,037
New York	19,002	19,083	19,138	19,176	19,172	19,133	19,105	19,132	19,212	19,307
North Carolina	8,082	8,210	8,326	8,423	8,553	8,705	8,917	9,118	9,309	9,450
North Dakota	642	639	638	639	645	646	649	653	658	665
Ohio	11,364	11,387	11,408	11,435	11,452	11,463	11,481	11,500	11,515	11,529
Oklahoma	3,454	3,467	3,489	3,505	3,525	3,549	3,594	3,634	3,669	3,718
Oregon	3,430	3,468	3,513	3,547	3,569	3,613	3,671	3,722	3,769	3,809
Pennsylvania	12,284	12,299	12,331	12,375	12,411	12,450	12,511	12,564	12,612	12,667
Rhode Island	1,050	1,057	1,066	1,071	1,075	1,068	1,063	1,057	1,055	1,054
South Carolina	4,024	4,065	4,108	4,150	4,211	4,270	4,358	4,444	4,529	4,590
South Dakota	756	758	760	764	770	775	783	792	799	807
Tennessee	5,704	5,751	5,796	5,848	5,911	5,991	6,089	6,176	6,247	6,306
Texas	20,944	21,320	21,690	22,031	22,394	22,778	23,360	23,832	24,309	24,802
Utah	2,245	2,284	2,325	2,360	2,402	2,458	2,526	2,598	2,663	2,723
Vermont	610	612	615	618	620	621	623	623	624	625
Virginia	7,106	7,198	7,287	7,367	7,476	7,577	7,674	7,751	7,833	7,926
Washington	5,911	5,986	6,052	6,104	6,179	6,257	6,371	6,462	6,562	6,667
West Virginia	1,807	1,801	1,805	1,812	1,816	1,820	1,828	1,834	1,840	1,848
Wisconsin	5,374	5,407	5,445	5,479	5,514	5,546	5,578	5,611	5,641	5,669
Wyoming	494	495	500	503	509	514	523	535	546	560
United States	282,162	284,969	287,625	290,108	292,805	295,517	298,380	301,231	304,094	306,772

Where shown, R = Revised data.
Data Source: U.S. Department of Commerce, Census Bureau.

Table TN8.10. Resident population estimates by state, 2010-2022 (thousand people)

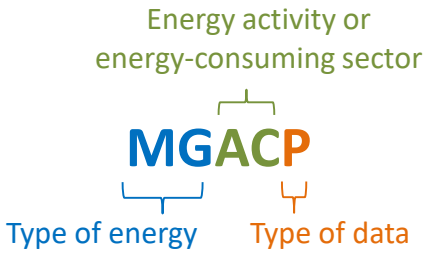
State	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Alabama	4,786	4,800	4,817	4,832	4,844	4,855	4,867	4,878	4,892	4,908	5,032	5,050	5,074
Alaska	714	722	731	738	737	738	743	741	737	734	733	735	733
Arizona	6,407	6,473	6,556	6,635	6,733	6,833	6,945	7,048	7,164	7,292	7,187	7,272	7,366
Arkansas	2,922	2,941	2,953	2,960	2,969	2,980	2,992	3,004	3,012	3,021	3,014	3,028	3,046
California	37,320	37,636	37,945	38,254	38,587	38,904	39,149	39,338	39,437	39,438	39,503	39,145	39,041
Colorado	5,048	5,122	5,194	5,271	5,353	5,454	5,544	5,617	5,697	5,758	5,785	5,812	5,841
Connecticut	3,579	3,589	3,595	3,596	3,596	3,589	3,580	3,575	3,575	3,566	3,578	3,604	3,609
Delaware	900	908	916	924	933	942	950	958	967	977	992	1,005	1,019
District of Columbia	605	620	636	652	664	677	688	697	704	708	671	669	671
Florida	18,846	19,056	19,302	19,552	19,854	20,219	20,627	20,977	21,255	21,492	21,591	21,831	22,246
Georgia	9,712	9,804	9,904	9,976	10,071	10,183	10,308	10,417	10,519	10,628	10,732	10,790	10,913
Hawaii	1,364	1,380	1,395	1,409	1,415	1,423	1,429	1,426	1,423	1,416	1,451	1,447	1,439
Idaho	1,571	1,584	1,596	1,612	1,632	1,652	1,684	1,720	1,752	1,789	1,849	1,905	1,939
Illinois	12,841	12,868	12,883	12,896	12,885	12,860	12,822	12,780	12,725	12,667	12,790	12,690	12,583
Indiana	6,491	6,517	6,539	6,571	6,596	6,611	6,638	6,662	6,698	6,731	6,789	6,814	6,832
Iowa	3,051	3,067	3,077	3,094	3,111	3,123	3,133	3,144	3,150	3,160	3,191	3,198	3,200
Kansas	2,858	2,870	2,886	2,894	2,902	2,911	2,913	2,911	2,913	2,913	2,938	2,938	2,937
Kentucky	4,348	4,371	4,388	4,407	4,417	4,429	4,440	4,456	4,464	4,472	4,508	4,508	4,512
Louisiana	4,545	4,576	4,602	4,626	4,646	4,667	4,681	4,674	4,664	4,658	4,652	4,627	4,588
Maine	1,328	1,328	1,328	1,329	1,331	1,329	1,332	1,336	1,340	1,346	1,365	1,379	1,389
Maryland	5,789	5,840	5,888	5,925	5,960	5,989	6,007	6,028	6,042	6,055	6,174	6,175	6,164
Massachusetts	6,566	6,614	6,664	6,715	6,765	6,797	6,827	6,864	6,886	6,895	6,998	6,992	6,983
Michigan	9,878	9,883	9,898	9,915	9,932	9,934	9,954	9,977	9,987	9,985	10,071	10,038	10,033
Minnesota	5,311	5,347	5,378	5,415	5,453	5,484	5,525	5,569	5,609	5,640	5,711	5,718	5,714
Mississippi	2,971	2,979	2,985	2,990	2,992	2,990	2,991	2,991	2,983	2,978	2,958	2,950	2,939
Missouri	5,996	6,011	6,026	6,043	6,059	6,075	6,091	6,111	6,126	6,140	6,154	6,170	6,177
Montana	991	998	1,004	1,014	1,023	1,031	1,042	1,054	1,062	1,070	1,087	1,106	1,123
Nebraska	1,830	1,841	1,854	1,866	1,880	1,892	1,906	1,917	1,926	1,933	1,963	1,964	1,968
Nevada	2,702	2,713	2,745	2,777	2,819	2,869	2,920	2,972	3,031	3,091	3,116	3,147	3,177
New Hampshire	1,317	1,320	1,325	1,327	1,334	1,337	1,344	1,350	1,355	1,361	1,379	1,387	1,399
New Jersey	8,799	8,829	8,846	8,858	8,867	8,870	8,874	8,888	8,892	8,891	9,272	9,269	9,261
New Mexico	2,065	2,081	2,088	2,093	2,090	2,090	2,093	2,093	2,094	2,100	2,118	2,117	2,113
New York	19,400	19,500	19,574	19,626	19,653	19,657	19,636	19,594	19,544	19,463	20,105	19,855	19,673
North Carolina	9,575	9,659	9,752	9,847	9,937	10,037	10,162	10,276	10,391	10,501	10,454	10,567	10,696
North Dakota	675	686	702	723	739	756	756	757	760	764	780	778	779
Ohio	11,539	11,546	11,551	11,580	11,607	11,622	11,640	11,666	11,681	11,697	11,798	11,765	11,760
Oklahoma	3,760	3,789	3,819	3,854	3,879	3,911	3,928	3,934	3,943	3,961	3,965	3,992	4,019
Oregon	3,838	3,873	3,900	3,924	3,965	4,019	4,093	4,147	4,184	4,216	4,245	4,256	4,239
Pennsylvania	12,711	12,747	12,769	12,780	12,792	12,790	12,788	12,795	12,809	12,799	12,995	13,014	12,972
Rhode Island	1,054	1,054	1,055	1,056	1,057	1,057	1,058	1,057	1,059	1,058	1,096	1,097	1,094
South Carolina	4,636	4,673	4,719	4,766	4,827	4,896	4,963	5,027	5,092	5,158	5,132	5,194	5,283
South Dakota	816	824	834	843	850	855	864	874	879	887	888	896	910
Tennessee	6,356	6,400	6,456	6,497	6,545	6,595	6,651	6,715	6,778	6,830	6,926	6,964	7,049
Texas	25,242	25,646	26,084	26,480	26,963	27,469	27,914	28,291	28,625	28,987	29,234	29,561	30,030
Utah	2,775	2,815	2,854	2,899	2,938	2,984	3,044	3,104	3,155	3,203	3,284	3,339	3,381
Vermont	626	627	626	627	626	626	624	625	625	624	643	647	647
Virginia	8,024	8,102	8,187	8,256	8,315	8,367	8,418	8,471	8,511	8,557	8,637	8,657	8,679
Washington	6,743	6,827	6,899	6,966	7,058	7,167	7,300	7,428	7,527	7,614	7,725	7,741	7,784
West Virginia	1,854	1,857	1,857	1,855	1,851	1,843	1,832	1,819	1,806	1,795	1,792	1,785	1,774
Wisconsin	5,691	5,706	5,721	5,738	5,753	5,763	5,775	5,793	5,809	5,825	5,897	5,880	5,891
Wyoming	565	567	577	583	583	586	585	580	579	580	578	580	582
United States	309,327	311,583	313,878	316,060	318,386	320,739	323,072	325,122	326,838	328,330	331,527	332,049	333,271

Where shown, R = Revised data.
Data Source: U.S. Department of Commerce, Census Bureau.

Appendix A. Mnemonic series names (MSN)

This appendix contains an alphabetical listing of the State Energy Data System (SEDS) energy indicators variables, called MSNs. For each variable, SEDS provides: a brief description; unit of measure; and the formulas used to create the variable. Variables that are entered directly from other sources, but not calculated by SEDS, are independent variables. Formulas for the state calculations have "ZZ" following the variable name, where "ZZ" represents the two-letter state code. The formulas for the United States have "US" following the variable name. If the formula for the states and the United States are the same, only one formula is shown.

The SEDS MSN variables have five-character names that generally consist of the following components:



See Section 1 of the SEDS consumption technical notes for explanation of the five-character MSN code descriptions.

APPENDIX A

Table A1. Energy indicators variables

MSN	Description	Unit	Formula
BMCAS	Biomass generating units capacity factor.	Percent	BMCASZZ is independent. BMCASUS is independent.
BTCAS	Battery storage generating units usage factor.	Percent	BTCASZZ is independent. BTCASUS is independent.
BTGBP	Battery storage units net summer capacity in all sectors.	Thousand kilowatts	BTGBPZZ is independent. BTGBPUS is independent.
BTVHN	Battery electric vehicle (BEV) light-duty stocks.	Thousands of registered vehicles	BTVHNZZ is independent. BTVHNUS = ΣBTVHNZZ
BTVHP	Electricity consumed for battery electric vehicle (BEV) use.	Million kilowatthours	BTVHPZZ is independent. BTVHPUS = ΣBTVHPZZ
CLCAS	Coal generating units capacity factor.	Percent	CLCASZZ is independent. CLCASUS is independent.
CLGBP	Coal generating units net summer capacity in all sectors.	Thousand kilowatts	CLGBPZZ is independent. CLGBPUS is independent.
CYCAS	Natural gas combined cycle generating units capacity factor.	Percent	CYCASZZ is independent. CYCASUS is independent.
ELGBP	Total (all fuels) electric generating units net summer capacity in all sectors.	Thousand kilowatts	ELGBPZZ is independent. ELGBPUS is independent.
ELVHN	Total electric vehicle (EV) light-duty stocks.	Thousands of registered vehicles	ELVHNZZ = BTVHNZZ + PHVHNZZ ELVHNUS = ΣELVHNZZ
ELVHS	Electric vehicle (EV) share of total light-duty vehicles.	Percent	ELVHSZZ = ELVHNZZ / LDVHNZZ * 100
ESRPP	Electricity consumed by (sales to ultimate customers in) the residential sector per capita.	Kilowatthours	ESRPP = ESRCP / TPOPP * 1000
ESTPP	Electricity total consumption (electricity sales to ultimate customers) per capita.	Kilowatthours	ESTPP = ESTCP / TPOPP * 1000
ESVHP	Electricity consumed for electric vehicle (EV) use.	Million kilowatthours	ESVHPZZ is independent. ESVHPUS = ΣESVHPZZ
EV0CN	Legacy charging ports for electric vehicles.	Number	EV0CNZZ is independent. EV0CNUS is independent.
EV1CN	Level 1 charging ports for electric vehicles.	Number	EV1CNZZ is independent. EV1CNUS is independent.

Table A1. Energy indicators variables (cont.)

MSN	Description	Unit	Formula
EV2CN	Level 2 charging ports for electric vehicles.	Number	EV2CNZZ is independent. EV2CNUS is independent.
EV2CR	Level 2 charging ports per location.	Number	EV2CRZZ is independent. EV2CRUS is independent.
EVCHN	Total charging ports for electric vehicles.	Number	EVCHNZZ is independent. EVCHNUS is independent.
EVCHP	Total electric vehicle charging locations.	Number	EVCHPZZ is independent. EVCHPUS is independent.
EVDCN	DC fast charging ports for electric vehicles.	Number	EVDCNZZ is independent. EVDCNUS is independent.
EVDCR	DC fast charging ports per location.	Number	EVDCRZZ is independent. EVDCRUS is independent.
EVNNP	Electric vehicle charging locations with both networked and non-networked ports.	Number	EVNNPZZ is independent. EVNNPUS is independent.
EVNOP	Electric vehicle charging locations with non-networked ports only.	Number	EVNOPZZ is independent. EVNOPUS is independent.
EVNTP	Electric vehicle charging locations with networked ports only.	Number	EVNTPZZ is independent. EVNTPUS is independent.
EVPPP	Electric vehicle charging locations with both public and private ports.	Number	EVPPPZZ is independent. EVPPPUS is independent.
EVPUP	Electric vehicle charging locations with public ports only.	Number	EVPUPZZ is independent. EVPUPUS is independent.
EVPVP	Electric vehicle charging locations with private ports only.	Number	EVPVPZZ is independent. EVPVPUS is independent.
FFGBP	Fossil fuel total generating units net summer capacity in all sectors.	Thousand kilowatts	FFGBPZZ is independent. FFGBPUS is independent.
GDPRV	Current-dollar gross domestic product (GDP).	Million dollars	GDPRVZZ is independent. GDPRVUS is independent.
GDPRX	Real gross domestic product (GDP).	Million chained (2017) dollars	GDPRXZZ is independent. GDPRXUS is independent.
GECAS	Geothermal generating units capacity factor.	Percent	GECASZZ is independent. GECASUS is independent.

Table A1. Energy indicators variables (cont.)

MSN	Description	Unit	Formula
GEGBP	Geothermal generating units net summer capacity in all sectors.	Thousand kilowatts	GEGBPZZ is independent. GEGBPUS is independent.
HPCAS	Hydroelectric pumped storage generating units usage factor.	Percent	HPCASZZ is independent. HPCASUS is independent.
HPGBP	Hydroelectric pumped storage generating units net summer capacity in all sectors.	Thousand kilowatts	HPGBPZZ is independent. HPGBPUS is independent.
HVCAS	Conventional hydroelectric generating units capacity factor.	Percent	HVCASZZ is independent. HVCASUS is independent.
HVGBP	Conventional hydroelectric power generating units net summer capacity in all sectors.	Thousand kilowatts	HVGBPZZ is independent. HVGBPUS is independent.
LDVHN	Total (all fuels) vehicle light-duty stocks.	Thousands of registered vehicles	LDVHNZZ is independent. LDVHNUS is independent.
MGTPV	Motor gasoline expenditures per capita.	Million dollars	MGTPV = MGTCV / TPOPP * 1000
NGGBP	Natural gas generating units net summer capacity in all sectors.	Thousand kilowatts	NGGBPZZ is independent. NGGBPUS is independent.
NGTPB	Natural gas total consumption per capita.	Million Btu	NGTPB = NGTCB / TPOPP
NGTPP	Natural gas total consumption per capita.	Thousand cubic feet	NGTPP = NGTCP / TPOPP
NTCAS	Natural gas turbine generating units capacity factor.	Percent	NTCASZZ is independent. NTCASUS is independent.
NUCAS	Nuclear generating units capacity factor.	Percent	NUCASZZ is independent. NUCASUS is independent.
NUGBP	Nuclear generating units net summer capacity in all sectors.	Thousand kilowatts	NUGBPZZ is independent. NUGBPUS is independent.
NYCAS	Natural gas conventional steam generating units capacity factor.	Percent	NYCASZZ is independent. NYCASUS is independent.
OJGBP	Other gases generating units net summer capacity in all sectors.	Thousand kilowatts	OJGBPZZ is independent. OJGBPUS is independent.
OTGBP	Other generating units net summer capacity in all sectors.	Thousand kilowatts	OTGBPZZ is independent. OTGBPUS is independent.
PACAS	Petroleum generating units capacity factor.	Percent	PACASZZ is independent. PACASUS is independent.

Table A1. Energy indicators variables (cont.)

MSN	Description	Unit	Formula
PAGBP	Petroleum generating units net summer capacity in all sectors.	Thousand kilowatts	PAGBPZZ is independent. PAGBPUS is independent.
PATPB	All petroleum products total consumption per capita.	Million Btu	PATPB = PATCB / TPOPP
PATPP	All petroleum products total consumption per capita.	Barrels	PATPP = PATCP / TPOPP
PHVHN	Plug-in hybrid electric vehicle (PHEV) light-duty stocks.	Thousands of registered vehicles	PHVHNZZ is independent. PHVHNUS = ΣPHVHNZZ
PHVHP	Electricity consumed for plug-in hybrid electric vehicle (PHEV) use.	Million kilowatthours	PHVHPZZ is independent. PHVHPUS = ΣPHVHPZZ
REGBP	Renewable energy total generating units net summer capacity in all sectors.	Thousand kilowatts	REGBPZZ is independent. REGBPUS is independent.
SHCAS	Solar thermal generating units capacity factor.	Percent	SHCASZZ is independent. SHCASUS is independent.
SOGBP	Solar generating units net summer capacity in all sectors.	Thousand kilowatts	SOGBPZZ is independent. SOGBPUS is independent.
SPCAS	Solar photovoltaic generating units capacity factor.	Percent	SPCASZZ is independent. SPCASUS is independent.
TEAPB	Total energy consumption per capita in the transportation sector.	Million Btu	TEAPBZZ = TEACBZZ / TPOPPZZ TEAPBUS = TEACBUS / TPOPPUS
TECPB	Total energy consumption per capita in the commercial sector.	Million Btu	TECPBZZ = TECCBZZ / TPOPPZZ TECPBUS = TECCBUS / TPOPPUS
TEGDS	Energy expenditures as percent of current-dollar GDP.	Percent	TEGDS = TETCV / GDPRV * 100
TEIPB	Total energy consumption per capita in the industrial sector.	Million Btu	TEIPBZZ = TEICBZZ / TPOPPZZ TEIPBUS = TEICBUS / TPOPPUS
TERPB	Total energy consumption per capita in the residential sector.	Million Btu	TERPBZZ = TERCBZZ / TPOPPZZ TERPBUS = TERCBUS / TPOPPUS
TETGR	Total energy consumption per dollar of real gross domestic product (GDP).	Thousand Btu per chained (2017) dollars	TETGRZZ = TETCBZZ / GDPRXZZ TETGRUS = TETCBUS / GDPRXUS
TETPB	Total energy consumption per capita.	Million Btu	TETPBZZ = TETCBZZ / TPOPPZZ TETPBUS = TETCBUS / TPOPPUS

Table A1. Energy indicators variables (cont.)

MSN	Description	Unit	Formula
TETPV	Total energy expenditures per capita.	Dollars	TETPV = TETCV / TPOPP * 1000
TPOPP	Resident population including Armed Forces.	Thousand population	TPOPPZZ is independent. TPOPPUS is independent.
WDGBP	Wood generating units net summer capacity in all sectors.	Thousand kilowatts	WDGBPZZ is independent. WDGBPUS is independent.
WSGBP	Waste generating units net summer capacity in all sectors.	Thousand kilowatts	WSGBPZZ is independent. WSGBPUS is independent.
WYCAS	Wind generating units capacity factor.	Percent	WYCASZZ is independent. WYCASUS is independent.
WYGBP	Wind generating units net summer capacity in all sectors.	Thousand kilowatts	WYGBPZZ is independent. WYGBPUS is independent.
ZWCDP	Cooling degree days (CDD).	Cooling degree days	ZWCDPZZ is independent. ZWCDPUS is independent.
ZWHDP	Heating degree days (HDD).	Heating degree days	ZWHDPZZ is independent. ZWHDPUS is independent.

Glossary

Asphalt: A dark brown-to-black cement-like material obtained by petroleum processing and containing bitumens as the predominant component; used primarily for road construction. It includes crude asphalt as well as the following finished products: cements, fluxes, the asphalt content of emulsions (exclusive of water), and petroleum distillates blended with asphalt to make cutback asphalts. *Note:* The conversion factor for asphalt is 5.5 barrels per short ton.

ASTM: American Society for Testing and Materials

Aviation gasoline (finished): A complex mixture of relatively volatile hydrocarbons with or without small quantities of additives, blended to form a fuel suitable for use in aviation reciprocating engines. Fuel specifications are provided in ASTM Specification D 910 and Military Specification MIL-G-5572. *Note:* Data on blending components are not counted in data on finished aviation gasoline.

Aviation gasoline blending components: Naphthas that will be used for blending or compounding into finished aviation gasoline (e.g., straight run gasoline, alkylate, reformate, benzene, toluene, and xylene). Excludes oxygenates (alcohols, ethers), butane, and pentanes plus. Oxygenates are re-ported as other hydrocarbons, hydrogen, and oxygenates.

Barrel (petroleum): A unit of volume equal to 42 U.S. gallons.

Barrels per calendar day: The amount of input that a distillation facility can process under usual operating conditions. The amount is expressed in terms of capacity during a 24-hour period and reduces the maximum processing capability of all units at the facility under continuous operation (see **Barrels per stream day**) to account for the following limitations that may delay, interrupt, or slow down production: 1. the capability of downstream processing units to absorb the output of crude oil processing facilities of a given refinery. No reduction is necessary for intermediate streams that are distributed to other than downstream facilities as part of a refinery's normal operation; 2. the types and grades of inputs to be processed; 3. the types and grades of products expected to be manufactured; 4. the environmental constraints associated with refinery operations; 5. the reduction of capacity for scheduled downtime due to such conditions as routine inspection, maintenance, repairs, and turnaround; and 6. the reduction of capacity for unscheduled downtime due to such conditions as mechanical problems, repairs, and slowdowns.

Barrels per stream day: The maximum number of barrels of input that a distillation facility can process within a 24-hour period when running at full capacity under optimal crude and product slate conditions with no allowance for downtime.

Battery electric vehicle (BEV): An all-electric vehicle that receives power by plugging into an electric power source and storing the power in a battery pack. BEVs do not use any petroleum-based or other liquid- or gas-based fuel during operation and do not produce tailpipe emissions.

Biodiesel (B100): Renewable fuel consisting of mono alkyl esters (long chain fatty acids) that are produced through the conversion of animal fats, vegetable oils, and recycled grease feedstocks (transesterification) to produce biodiesel. Biodiesel is typically blended with petroleum diesel in concentrations of 2% to 20% biodiesel, or B2 to B20.

Biofuels: Liquid fuels and blending components produced from biomass feedstocks, used primarily for transportation.

Biomass: Organic non-fossil material of biological origin constituting a re-newable energy source.

Biomass waste: Organic non-fossil material of biological origin that is a byproduct or a discarded product. Biomass waste includes municipal solid waste from biogenic sources, landfill gas, sludge waste, agricultural crop byproducts, straw, and other biomass solids, liquids, and gases; but excludes wood and wood-derived fuels (including black liquor), biofuels feedstock, biodiesel, and fuel ethanol. *Note:* EIA biomass waste data also include energy crops grown specifically for energy production, which would not normally constitute waste.

Black liquor: A byproduct of the paper production process, alkaline spent liquor, that can be used as a source of energy. Alkaline spent liquor is removed from the digesters in the process of chemically pulping wood. After evaporation, the residual "black" liquor is burned as a fuel in a recovery furnace that permits the recovery of certain basic chemicals.

British thermal unit (Btu): The quantity of heat required to raise the temperature of 1 pound of liquid water by 1 degree Fahrenheit at the temperature at which water has its greatest density (about 39 degrees

Fahrenheit).

Bunker fuels: Fuel supplied to ships and aircraft, both domestic and foreign, consisting primarily of residual and distillate fuel oil for ships and kerosene-based jet fuel for aircraft. The term "international bunker fuels" is used to denote the consumption of fuel for international transport activities. Note: For the purposes of greenhouse gas emissions inventories, data on emissions from combustion of international bunker fuels are subtracted from national emissions totals. Historically, bunker fuels have meant only ship fuel.

Butane (C_4H_{10}): A straight-chain or branch-chain hydrocarbon extracted from natural gas or refinery gas streams, which is gaseous at standard temperature and pressure. It includes isobutane and normal butane and is designated in ASTM Specification D1835 and Gas Processors Association specifications for commercial butane.

Butylene (C_4H_8): An olefinic hydrocarbon recovered from refinery or petrochemical processes, which is gaseous at standard temperature and pressure. Butylene is used in the production of gasoline and various petrochemical products.

Catalytic cracking: The refining process of breaking down the larger, heavier, and more complex hydrocarbon molecules into simpler and lighter molecules. Catalytic cracking is accomplished by the use of a catalytic agent and is an effective process for increasing the yield of gasoline from crude oil. Catalytic cracking processes fresh feeds and recycled feeds.

Chained dollar gross domestic product: A measure of gross domestic product using real prices. See **chained dollars** and **gross domestic product (GDP)**.

Chained dollars: A measure used to express real prices. Real prices are those that have been adjusted to remove the effect of changes in the purchasing power of the dollar; they usually reflect buying power relative to a reference year. Before 1996, real prices were expressed in constant dollars, a measure based on the weights of goods and services in a single year, usually a recent year. In 1996, the U.S. Department of Commerce introduced the chained-dollar measure. The new measure is based on the average weights of goods and services in successive pairs of years. It is "chained" because the second year in each pair, with its weights, becomes the first year of the next pair. The advantage of using the chained-dollar measure is that it is more closely related to any given period covered and is therefore subject to less distortion over time.

Coal: A readily combustible black or brownish-black rock whose composition, including inherent moisture, consists of more than 50% by weight and more than 70% by volume of carbonaceous material. It is formed from plant remains that have been compacted, hardened, chemically altered, and metamorphosed by heat and pressure over geologic time.

Coal coke: A solid carbonaceous residue derived from low-ash, low-sulfur bituminous coal from which the volatile constituents are driven off by baking in an oven at temperatures as high as 2,000 degrees Fahrenheit so that the fixed carbon and residual ash are fused together. Coke is used as a fuel and as a reducing agent in smelting iron ore in a blast furnace. Coke from coal is gray, hard, and porous and has a heating value of 24.8 million Btu per ton.

Coke plants: Plants where coal is carbonized for the manufacture of coke in slot or beehive ovens.

Combined heat and power (CHP) plant: A plant designed to produce both heat and electricity from a single heat source. *Note:* This term is being used in place of the term "cogenerator" that was used by EIA in the past. CHP better describes the facilities because some of the plants included do not produce heat and power in a sequential fashion and, as a result, do not meet the legal definition of cogeneration specified in the Public Utility Regulatory Polices Act (PURPA).

Commercial sector: An energy-consuming sector that consists of service-providing facilities and equipment of: businesses; federal, state, and local governments; and other private and public organizations, such as religious, social, or fraternal groups. The commercial sector includes institutional living quarters. It also includes sewage treatment facilities. Common uses of energy associated with this sector include space heating, water heating, air conditioning, lighting, refrigeration, cooking, and running a wide variety of other equipment. *Note:* This sector includes generators that produce electricity and/or useful thermal output primarily to support the activities of the above-mentioned commercial establishments.

Conversion factor: A factor for converting data between one unit of measurement and another (such as between short tons and British thermal units, or between barrels and gallons). (See http://www.eia.gov/totalenergy/data/monthly/pdf/mer_a.pdf and http://www.eia.gov/totalenergy/data/monthly/pdf/mer_b.pdf for further information on conversion factors.)

Cord of wood: A cord of wood measures 4 feet by 4 feet by 8 feet, or

128 cubic feet.

Crude oil (including lease condensate): A mixture of hydrocarbons that exists in liquid phase in natural underground reservoirs and remains liquid at atmospheric pressure after passing through surface separating facilities. Depending upon the characteristics of the crude stream, crude oil may also include: 1. small amounts of hydrocarbons that exist in gaseous phase in natural underground reservoirs but are liquid at atmospheric pressure after being recovered from oil well (casinghead) gas in lease separators and are subsequently comingled with the crude stream without being separately measured. Lease condensate recovered as a liquid from natural gas wells in lease or field separation facilities and later mixed into the crude stream is also included; 2. Small amounts of nonhydrocarbons produced with the oil, such as sulfur and various metals; 3. Drip gases, and liquid hydrocarbons produced from tar sands, gilsonite, and oil shale. Liquids produced at natural gas processing plants are excluded. Crude oil is refined to produce a wide array of petroleum products, including heating oils; gasoline, diesel and jet fuels; lubricants; asphalt; ethane, propane, and butane; and many other products used for their energy or chemical content.

Crude oil used directly: Crude oil consumed as fuel by crude oil pipelines and on crude oil leases.

Cubic foot (cf), natural gas: The amount of natural gas contained at stan-dard temperature and pressure (60 degrees Fahrenheit and 14.73 pounds standard per square inch) in a cube whose edges are one foot long.

Denaturant: Petroleum, typically pentanes plus or conventional motor gasoline, added to fuel ethanol to make it unfit for human consumption. Fuel ethanol is denatured, usually before transport from the ethanol production facility, by adding 2 to 5 volume percent denaturant.

Diesel fuel: A fuel composed of distillates obtained in petroleum refining operation or blends of such distillates with residual fuel oil used in motor vehicles. The boiling point and specific gravity are higher for diesel fuels than for gasoline.

Distillate fuel oil: A general classification for one of the petroleum fractions produced in conventional distillation operations. It includes diesel fuels and fuel oils. Products known as No. 1, No. 2, and No. 4 diesel fuel are used in on-highway diesel engines, such as those in trucks and automobiles, as well as off-highway engines, such as those in railroad locomotives and agricultural machinery. Products known as No. 1, No. 2, and No. 4 fuel oils are used primarily for space heating and electric power generation.

Electric power sector: An energy-consuming sector that consists of electricity only and combined-heat-and-power (CHP) plants whose primary business is to sell electricity, or electricity and heat, to the public—i.e., North American Industry Classification System 22 plants. See combined-heat-and-power (CHP) plant and electricity only plant. The electric power sector consumes primary energy to generate electricity and heat (forms of secondary energy). Electricity is sold to the four end-use sectors (residential, commercial, industrial, and transportation), stored for future use, and exported to other countries.

Electric utility: A corporation, person, agency, authority, or other legal entity or instrumentality aligned with distribution facilities for delivery of electric energy for use primarily by the public. Included are investor-owned electric utilities, municipal and state utilities, federal electric utilities, and rural electric cooperatives. A few entities that are tariff based and corporately aligned with companies that own distribution facilities are also included.

Electric vehicle (EV): A general term for any on-road licensed vehicle that can plug into an electric power source and uses electric power to move. EVs plug into a source of electricity and store power in a battery pack for all or part of their power needs. Includes Battery electric vehicles (BEVs) and Plug-in hybrid vehicles (PHEVs). Can also be referred to as Plug-in Electric Vehicles (PEV).

Electrical system energy losses: The amount of energy lost during generation, transmission, and distribution of electricity, including plant and unaccounted for uses.

Electricity sales to ultimate customers: Electricity sales that are consumed by the customer and not available for resale. Includes electric sales to end users by third-party owners of behind-the-meter PV solar systems.

End-use sectors: The residential, commercial, industrial, and transportation sectors of the economy.

Energy: The capacity for doing work as measured by the capability of doing work (potential energy) or the conversion of this capability to motion (kinetic energy). Energy has several forms, some of which are easily convertible and can be changed to another form useful for work. Most of the world's convertible energy comes from fossil fuels that are burned to produce heat that is then used as a transfer medium to mechanical or other means to accomplish tasks. Electrical energy is usually measured

in kilowatthours, while heat energy is usually measured in British thermal units (Btu).

Energy consumption: The use of energy as a source of heat or power or as a raw material input to a manufacturing process.

End-use energy consumption: End-use sector (residential, commercial, industrial, and transportation) consumption of primary energy plus electricity sales to ultimate customers. The energy associated with electrical system energy losses is not included.

Energy-consuming sectors: The residential, commercial, industrial, transportation, and electric power sectors of the economy.

Ethane (C_2H_6): A straight-chain saturated (paraffinic) hydrocarbon extracted predominantly from the natural gas stream, which is gaseous at standard temperature and pressure. It is a colorless gas that boils at a temperature of -127 degrees Fahrenheit.

Ethanol (C_2H_5OH): A clear, colorless, flammable alcohol. Ethanol is typically produced biologically from biomass feedstocks such as agricultural crops and cellulosic residues from agricultural crops or wood. Ethanol can also be produced chemically from ethylene. See **fuel ethanol**.

Ethylene (C_2H_4): An olefinic hydrocarbon recovered from refinery or petrochemical processes, which is gaseous at standard temperature and pressure. Ethylene is used as a petrochemical feedstock for many chemical applications and the production of consumer goods.

Exports: Shipments of goods from within the 50 states and the District of Columbia to U.S. possessions and territories or to foreign countries.

Federal Energy Regulatory Commission (FERC): The federal agency with jurisdiction over interstate electricity sales, wholesale electric rates, hydroelectric licensing, natural gas pricing, oil pipeline rates, and gas pipeline certification. FERC is an independent regulatory agency within the Department of Energy and is the successor to the Federal Power Commission.

Federal Power Commission (FPC): The predecessor agency of the Federal Energy Regulatory Commission. The Federal Power Commission was created by an Act of Congress under the Federal Water Power Act on June 10, 1920. It was charged originally with regulating the electric power and natural gas industries. It was abolished on September 30, 1977, when the Department of Energy was created. Its functions were divided between the Department of Energy and the Federal Energy Regulatory Commission, an independent regulatory agency.

Fiscal year: The U.S. Government's fiscal year runs from October 1 through September 30. The fiscal year is designated by the calendar year in which it ends; e.g., fiscal year 2002 begins on October 1, 2001, and ends on September 30, 2002.

Fossil fuel: An energy source formed in the Earth's crust from decayed organic material. The common fossil fuels are petroleum, coal, and natural gas.

Fossil-fuel steam-electric power plant: An electricity generation plant in which the prime mover is a turbine rotated by high-pressure steam produced in a boiler by heat from burning fossil fuels.

Fuel ethanol: Ethanol intended for fuel use. Fuel ethanol in the United States must be anhydrous (less than 1% water). Fuel ethanol is denatured (made unfit for human consumption), usually before transport from the ethanol production facility, by adding 2 to 5 volume percent petroleum, typically pentanes plus or conventional motor gasoline. Fuel ethanol is used principally for blending in low concentrations with motor gasoline as an oxygenate or octane enhancer. In high concentrations, it is used to fuel alternative-fuel vehicles specially designed for its use.

Fuel ethanol excluding denaturant: See **fuel ethanol minus denaturant**.

Fuel ethanol minus denaturant: An unobserved quantity of anhydrous, biomass-derived, undenatured ethanol for fuel use. The quantity is obtained by subtracting the estimated denaturant volume from fuel ethanol volume. Fuel ethanol minus denaturant is counted as renewable energy, while denaturant is counted as nonrenewable fuel.

Gasohol: A blend of finished motor gasoline containing alcohol (generally ethanol but sometimes methanol) at a concentration between 5.7% and 10% by volume.

Geothermal energy: Hot water or steam extracted from geothermal reser-voirs in the Earth's crust. Water or steam extracted from geothermal reser-voirs can be used for geothermal heat pumps, water heating, or electricity generation.

Gross domestic product (GDP): The total value of goods and services produced by labor and property located in the United States. As long as the labor and property are located in the United States, the supplier (that is, the workers and, for property, the owners) may be either U.S. residents or residents of foreign countries.

Gross generation: The total amount of electric energy produced by generating units and measured at the generating terminal in kilowatthours (kWh) or megawatthours (MWh).

Heat content: The amount of heat energy available to be released by the transformation or use of a specified physical unit of an energy form (e.g., a ton of coal, a barrel of oil, a kilowatthour of electricity, a cubic foot of natural gas, or a pound of steam). The amount of heat energy is commonly expressed in British thermal units (Btu). *Note:* Heat content of combustible energy forms can be expressed in terms of either gross heat content (higher or upper heating value) or net heat content (lower heating value), depending on whether the available heat energy includes or excludes the energy used to vaporize water (contained in the original energy form or created during the combustion process). The Energy Information Administration typically uses gross heat content values.

Heat rate: A measure of generating station thermal efficiency commonly stated as Btu per kilowatthour. *Note:* Heat rates can be expressed as either gross or net heat rates, depending on whether the electricity output is gross or net generation. Heat rates are typically expressed as net heat rates.

Hydrocarbon gas liquids (HGL): A group of hydrocarbons including ethane, propane, normal butane, isobutane, and natural gasoline, and their associated olefins, including ethylene, propylene, butylene, and isobutylene. As marketed products, HGL represents all natural gas liquids (NGL) and olefins. EIA reports production of HGL from refineries (liquefied refinery gas, or LRG) and natural gas plants (natural gas plant liquids, or NGPL). Excludes liquefied natural gas (LNG).

Hydroelectric power: The use of flowing water to produce electric power.

Hydroelectric power, conventional: Hydroelectric power generated from flowing water that is not created by hydroelectric pumped storage.

Hydroelectric pumped storage: Hydroelectric power that is generated during peak load periods by using water previously pumped into an elevated storage reservoir during off-peak periods when excess generating capacity is available to do so. When additional generating capacity is needed, the water can be released from the reservoir through a conduit to turbine generators located in an electric power plant at a lower level.

Hydroelectric power plant: A plant in which the turbine generators are driven by falling water.

Imports: Receipts of goods into the 50 states and the District of Columbia from U.S. possessions and territories or from foreign countries.

Independent power producer: A corporation, person, agency, authority, or other legal entity or instrumentality that owns or operates facilities for the generation of electricity for use primarily by the public, and that is not an electric utility. Note: Independent power producers are included in the electric power sector.

Industrial sector: An energy-consuming sector that consists of all facilities and equipment used for producing, processing, or assembling goods. The industrial sector encompasses the following types of activity: manufacturing (NAICS codes 31-33); agriculture, forestry, fishing and hunting (NAICS code 11); mining, including oil and gas extraction (NAICS code 21); and construction (NAICS code 23). Overall energy use in this sector is largely for process heat and cooling and powering machinery, with lesser amounts used for facility heating, air conditioning, and lighting. Fossil fuels are also used as raw material inputs to manufactured products. Note: This sector includes generators that produce electricity and/or useful thermal output primarily to support the above-mentioned industrial activities.

Isobutane (C_4H_{10}): A branch-chain saturated (paraffinic) hydrocarbon extracted from both natural gas and refinery gas streams, which is gaseous at standard temperature and pressure. It is a colorless gas that boils at a temperature of 11 degrees Fahrenheit.

Isobutylene (C_4H_8): A branch-chain olefinic hydrocarbon recovered from refinery or petrochemical processes, which is gaseous at standard temperature and pressure. Isobutylene is used in the production of gasoline and various petrochemical products.

Jet fuel: A refined petroleum product used in jet aircraft engines. It includes kerosene-type jet fuel and naphtha-type jet fuel.

Jet fuel, kerosene-type: A kerosene-based product having a maximum distillation temperature of 400 degrees Fahrenheit at the 10% recovery point and a final maximum boiling point of 572 degrees Fahrenheit and meeting ASTM Specification D 1655 and Military Specifications MIL-T-5624P and MIL-T-83133D (Grades JP-5 and JP-8). It is used for commercial and military turbo jet and turbo prop aircraft engines.

Jet fuel, naphtha-type: A fuel in the heavy naphtha boiling range having an average gravity of 52.8 degrees API, 20% to 90% distillation temperatures of 290 degrees to 470 degrees Fahrenheit, and meeting Military Specification MIL-T-5624L (Grade JP-4). It is used primarily for

military turbojet and turboprop aircraft engines because it has a lower freeze point than other aviation fuels and meets engine requirements at high altitudes and speeds. *Note:* Beginning with January 2004 data, naphtha-type jet fuel is included in Miscellaneous Products.

Kerosene: A light petroleum distillate that is used in space heaters, cook stoves, and water heaters and is suitable for use as a light source when burned in wick-fed lamps. Kerosene has a maximum distillation temperature of 400 degrees Fahrenheit at the 10% recovery point, a final maximum boiling point of 572 degrees Fahrenheit, and a minimum flash point of 100 degrees Fahrenheit. Included are No. 1-K and No. 2-K, the two grades recognized by ASTM Specification D 3699 as well as all other grades of kerosene called range or stove oil, which have properties similar to those of No. 1 fuel oil. Also see **Jet Fuel, Kerosene-type**.

Kilowatthour (kWh): A measure of electricity defined as a unit of work or energy, measured as 1 kilowatt (1,000 watts) of power expended for 1 hour. One kWh is equal to 3,412 Btu.

Lease and plant fuel: Natural gas used in well, field, and lease operations (such as gas used in drilling operations, heaters, dehydrators, and field compressors) and as fuel in natural gas processing plants.

Lease condensate: A mixture consisting primarily of hydrocarbons heavier than pentanes that is recovered as a liquid from natural gas in lease separation facilities. This category excludes natural gas plant liquids, such as butane and propane, which are recovered at downstream natural gas processing plants or facilities.

Liquefied petroleum gases (LPG): A group of hydrocarbon gases, primarily propane, normal butane, and isobutane, derived from crude oil refining or natural gas processing. These gases may be marketed individually or mixed. They can be liquefied through pressurization (without requiring cryogenic refrigeration) for convenience of transportation or storage. Excludes ethane and olefins. Note: In some EIA publications, LPG includes ethane and marketed refinery olefin streams, in accordance with definitions used prior to January 2014.

Lubricants: Substances used to reduce friction between bearing surfaces, or incorporated into other materials used as processing aids in the manufacture of other products, or used as carriers of other materials. Petroleum lubricants may be produced either from distillates or residues. Lubricants include all grades of lubricating oils, from spindle oil to cylinder oil to those used in greases.

Methanol (CH_3OH): A light, volatile alcohol eligible for gasoline blending.

Miscellaneous petroleum products: Includes all finished products not classified elsewhere (e.g., petrolatum lube refining by products (aromatic extracts and tars), absorption oils, ram-jet fuel, petroleum rocket fuels, synthetic natural gas feed stocks, and specialty oils).

Motor gasoline (finished): A complex mixture of relatively volatile hydrocarbons with or without small quantities of additives, blended to form a fuel suitable for use in spark-ignition engines. Motor gasoline, as defined in ASTM Specification D 4814 or Federal Specification VV-G-1690C, is characterized as having a boiling range of 122 to 158 degrees Fahrenheit at the 10% recovery point to 365 to 374 degrees Fahrenheit at the 90% recovery point. Motor Gasoline includes conventional gasoline; all types of oxygenated gasoline, including gasohol; and reformulated gasoline, but excludes aviation gasoline. *Note:* Volumetric data on blending components, such as oxygenates, are not counted in data on finished motor gasoline until the blending components are blended into the gasoline.

Motor gasoline blending components: Naphthas (e.g., straight-run gas-oline, alkylate, reformate, benzene, toluene, xylene) used for blending or compounding into finished motor gasoline. These components include re-formulated gasoline blendstock for oxygenate blending (RBOB) but exclude oxygenates (alcohols, ethers), butane, and pentanes plus. *Note:* Oxygenates are reported as individual components and are included in the total for other hydrocarbons, hydrogens, and oxygenates.

Natural gas: A gaseous mixture of hydrocarbon compounds, the primary one being methane.

Natural gas liquids (NGL): A group of hydrocarbons including ethane, propane, normal butane, isobutane, and natural gasoline. Generally include natural gas plant liquids and all liquefied refinery gases except olefins.

Natural gas, dry: Natural gas which remains after: 1. the liquefiable hydrocarbon portion has been removed from the gas stream (i.e., gas after lease, field, and/or plant separation); and 2. any volumes of nonhydrocarbon gases have been removed where they occur in sufficient quantity to render the gas unmarketable. *Note:* Dry natural gas is also known as consumer-grade natural gas. The parameters for measurement are cubic feet at 60 degrees Fahrenheit and 14.73 pounds per square inch absolute.

Natural gasoline: A commodity product commonly traded in natural gas liquids (NGL) markets that comprises liquid hydrocarbons (mostly pentanes and hexanes) and generally remains liquid at ambient

temperatures and atmospheric pressure. Natural gasoline is equivalent to pentanes plus.

Net generation: The amount of **gross generation** less the electrical energy consumed at the generating station(s) for station service or auxiliaries. Note: Electricity required for pumping at pumped-storage plants is regarded as electricity for station service and is deducted from **gross generation**.

Net interstate flow of electricity: The difference between the sum of electricity sales and losses within a state and the total amount of electricity generated within that state. A positive number indicates that more electricity (including associated losses) came into the state than went out of the state during the year; conversely, a negative number indicates that more electricity (including associated losses) went out of the state than came into the state.

Net summer capacity: The maximum output, commonly expressed in thousand kilowatts (kW), that generating equipment can supply to system load, as demonstrated by a multi-hour test, at the time of summer peak demand (period of June 1 through September 30). This output reflects a reduction in capacity due to electricity use for station service or auxiliaries.

Non-biomass waste: Material of non-biological origin that is a byproduct or a discarded product. "Non-biomass waste" includes municipal solid waste from non-biogenic sources, such as plastics, and tire-derived fuels.

Nonutilities: See **nonutility power producer**.

Nonutility power producer: A corporation, person, agency, authority, or other legal entity or instrumentality that owns or operates facilities for electric generation and is not an electric utility. Nonutility power producers include qualifying cogenerators, qualifying small power producers, and other nonutility generators (including independent power producers). Nonutility power producers are without a designated franchised service area and do not file forms listed in the *Code of Federal Regulations,* Title 18, Part 141.

Normal butane (C_4H_{10}): A straight-chain saturated (paraffinic) hydrocarbon extracted from both natural gas and refinery gas streams, which is gaseous at standard temperature and pressure. It is a colorless gas that boils at a temperature of 31 degrees Fahrenheit.

North American Industry Classification System (NAICS): A classification scheme, developed by the Office of Management and Budget to replace the Standard Industrial Classification (SIC) System, that categorizes establishments according to the types of production processes they primarily use.

Nuclear electric power (nuclear power): Electricity generated by the use of the thermal energy released from the fission of nuclear fuel in a reactor.

Other biofuels: Fuels and fuel blending components, except biodiesel, renewable diesel fuel, and fuel ethanol, produced from renewable biomass.

Other energy losses: Energy losses throughout the energy system as they are consumed, usually in the form of heat, that are not separately identified by the U.S. Energy Information Administration. Examples include heat lost in the process of burning motor gasoline to move vehicles or in electricity used to power a lightbulb.

PAD Districts or PADD: Petroleum Administration for Defense Districts. A geographic aggregation of the 50 states and the District of Columbia into five Districts, with PADD 1 further split into three subdistricts. The PADDs include the states listed below:

- PADD 1 (East Coast):
  - PADD 1A (New England): Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont.
  - PADD 1B (Central Atlantic): Delaware, District of Columbia, Maryland, New Jersey, New York, and Pennsylvania.
  - PADD 1C (Lower Atlantic): Florida, Georgia, North Carolina, South Carolina, Virginia, and West Virginia.
- PADD 2 (Midwest): Illinois, Indiana, Iowa, Kansas, Kentucky, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, Oklahoma, South Dakota, Tennessee, and Wisconsin.
- PADD 3 (Gulf Coast): Alabama, Arkansas, Louisiana, Mississippi, New Mexico, and Texas.
- PADD 4 (Rocky Mountain): Colorado, Idaho, Montana, Utah, and Wyoming.
- PADD 5 (West Coast): Alaska, Arizona, California, Hawaii, Nevada, Oregon, and Washington.

Pentanes plus: A mixture of hydrocarbons, mostly pentanes and heavier, extracted from natural gas. Pentanes plus is equivalent to natural gasoline.

Petrochemical feedstocks: Chemical feedstocks derived from petroleum principally for the manufacture of chemicals, synthetic rubber, and a variety of plastics. In this report the categories reported are "Naphtha Less Than 401˚F" and "Other Oils Equal to or Greater Than

401˚F."

Petroleum: A broadly defined class of liquid hydrocarbon mixtures. Included are crude oil, lease condensate, unfinished oils, refined products obtained from the processing of crude oil, and natural gas plant liquids. Note: Volumes of finished petroleum products include nonhydrocarbon compounds, such as additives and detergents, after they have been blended into the products.

Petroleum coke: A residue high in carbon content and low in hydrogen that is the final product of thermal decomposition in the condensation process in cracking. This product is reported as marketable coke or catalyst coke. The conversion is 5 barrels (of 42 U.S. gallons each) per short ton.

Petroleum coke, catalyst: The carbonaceous residue that is deposited on and deactivates the catalyst used in many catalytic operations (e.g., catalytic cracking). Carbon is deposited on the catalyst, thus deactivating the catalyst. The catalyst is reactivated by burning off the carbon, which is used as a fuel in the refining process. That carbon or coke is not recoverable in a concentrated form.

Petroleum coke, marketable: Those grades of coke produced in delayed or fluid cokers that may be recovered as relatively pure carbon. Marketable petroleum coke may be sold as is or further purified by calcining.

Petroleum consumption: The sum of all refined petroleum products sup-plied. See **products supplied (petroleum)**.

Petroleum products: Petroleum products are obtained from the processing of crude oil (including lease condensate), natural gas, and other hydrocarbon compounds. Petroleum products include unfinished oils, hydrocarbon gas liquids, aviation gasoline, motor gasoline, naphtha-type jet fuel, kerosene-type jet fuel, kerosene, distillate fuel oil, residual fuel oil, petrochemical feedstocks, special naphthas, lubricants, waxes, petroleum coke, asphalt, road oil, still gas, and miscellaneous products.

Photovoltaic energy: Direct-current electricity generated from photovoltaic cells. See **photovoltaic cells (PVC)**.

Photovoltaic cells (PVC): An electronic device consisting of layers of semiconductor materials fabricated to form a junction (adjacent layers of materials with different electronic characteristics) and electrical contacts and being capable of converting incident light directly into electricity (direct current).

Plant condensate: Liquid hydrocarbons recovered at inlet separators or scrubbers in natural gas processing plants at atmospheric pressure and ambient temperatures. Mostly pentanes and heavier hydrocarbons.

Plug-in hybrid electric vehicle (PHEV): A vehicle that can both (1) plug into an electric power source and store power in a battery pack and (2) use petroleum-based or other liquid- or gas-based fuel to power an internal combustion engine (ICE).

Primary energy consumption: Consumption of primary energy. EIA includes the following in U.S. primary energy consumption:

- Coal
- Coal coke net imports
- Petroleum (equal to petroleum products supplied, excluding biofuels)
- Dry natural gas, excluding supplemental gaseous fuels
- Nuclear electricity net generation (converted to Btu using the average annual heat rate of nuclear plants)
- Conventional hydroelectricity net generation (converted to Btu using the heat content of electricity)
- Geothermal electricity net generation (converted to Btu using the heat content of electricity), geothermal heat pump energy, and geothermal direct-use thermal energy
- Solar thermal and photovoltaic electricity net generation, both utility-scale and small-scale (converted to Btu using the heat content of electricity)
- Solar thermal direct-use energy
- Wind electricity net generation (converted to Btu using the heat content of electricity)
- Wood and wood-derived fuels
- Biomass waste
- Biofuels (fuel ethanol, biodiesel, renewable diesel, and other biofuels)
- Losses and co-products from the production of biofuels
- Electricity net imports (converted to Btu using the electricity heat content of electricity)

Primary energy consumption also includes all non-combustion uses of fossil fuels. Energy sources produced from other energy sources—for example, coal coke from coal—are included in primary energy consumption only if their energy content has not already been included as part of the original energy source. As a result, U.S. primary energy

consumption does include net imports of coal coke, but it does not include the coal coke produced from domestic coal.

Product supplied (petroleum): Approximately represents consumption of petroleum products because it measures the disappearance of these products from primary sources, i.e., refineries, natural gas-processing plants, blending plants, pipelines, and bulk terminals. In general, product supplied of each product in any given period is computed as follows; field production, plus refinery production, plus imports, plus unaccounted-for crude oil (plus net receipts when calculated on a PAD District basis) minus stock change, minus crude oil losses, minus refinery inputs, and minus exports.

Propane (C_3H_8): A straight-chain saturated (paraffinic) hydrocarbon extracted from natural gas or refinery gas streams, which is gaseous at standard temperature and pressure. It is a colorless gas that boils at a temperature of -44 degrees Fahrenheit. It includes all products designated in ASTM Specification D1835 and Gas Processors Association specifications for commercial (HD-5) propane.

Propylene (C_3H_6): An olefinic hydrocarbon recovered from refinery or petrochemical processes, which is gaseous at standard temperature and pressure. Propylene is an important petrochemical feedstock.

Refinery (petroleum): An installation that manufactures finished petroleum products from crude oil, unfinished oils, natural gas liquids, other hydrocarbons, and alcohol.

Refinery olefins: Subset of olefinic hydrocarbons (olefins) produced at crude oil refineries, including ethylene, propylene, butylene, and isobutylene.

Renewable diesel fuel: Renewable fuel consisting of hydrocarbon molecules, produced through the hydrotreating of animal fats, vegetable oils, and recycled grease feedstocks. It is considered a drop-in replacement to petroleum-based diesel fuel (for example, it can be used in diesel engines without modification). Renewable diesel fuel reported on the EIA-819 is produced at dedicated biorefineries or co-processed at petroleum refineries.

Renewable energy: Energy resources that are naturally replenishing but flow-limited. They are virtually inexhaustible in duration but limited in the amount of energy that is available per unit of time. In this report, renewable sources of energy include biomass, hydroelectric power, geothermal, solar, and wind.

Residential sector: An energy-consuming sector that consists of living quarters for private households. Common uses of energy associated with this sector include space heating, water heating, air conditioning, lighting, refrigeration, cooking, and running a variety of other appliances. The residential sector excludes institutional living quarters.

Residual fuel oil: A general classification for the heavier oils, known as No. 5 and No. 6 fuel oils, that remain after the distillate fuel oils and lighter hydrocarbons are distilled away in refinery operations. It conforms to ASTM Specifications D 396 and D 975 and Federal Specification VV-F-815C. No. 5, a residual fuel oil of medium viscosity, is also known as Navy Special and is defined in Military Specification MIL-F-859E, including Amendment 2 (NATO Symbol F-770). It is used in steam-powered vessels in government service and inshore powerplants. No. 6 fuel oil includes Bunker C fuel oil and is used for the production of electric power, space heating, vessel bunkering, and various industrial purposes.

Road oil: Any heavy petroleum oil, including residual asphaltic oil, used as a dust palliative and surface treatment on roads and highways. It is generally produced in six grades, from 0, the most liquid, to 5, the most viscous.

Short ton: A unit of weight equal to 2,000 pounds.

Solar energy: The radiant energy of the sun, which can be converted into other forms of energy, such as heat or electricity.

Special naphthas: All finished products within the naphtha boiling range that are used as paint thinners, cleaners, or solvents. These products are refined to a specified flash point. Special naphthas include all commercial hexane and cleaning solvents conforming to ASTM Specifications D1836 and D484, respectively. Naphthas to be blended or marketed as motor gasoline or aviation gasoline, or that are to be used as petrochemical and synthetic natural gas (SNG) feedstocks, are excluded.

Standard Industrial Classification (SIC): Replaced with North American Industry Classification System. See **NAICS**.

Still gas: Any form or mixture of gases produced in refineries by distillation, cracking, reforming, and other processes. The principal constituents are methane and ethane. May contain hydrogen and small/trace amounts of other gases. Still gas is typically consumed as refinery fuel or used as petrochemical feedstock. Still gas burned for refinery fuel may differ in composition from marketed still gas sold to other users.

Supplemental gaseous fuels supplies: Synthetic natural gas, propane-air, coke oven gas, refinery gas, biomass gas, air injected for Btu stabilization, and manufactured gas commingled and distributed with

natural gas.

Total energy consumption: Primary energy consumption, electricity sales to ultimate customers, and electrical system energy losses allocated to each end-use sector. Also includes other energy losses throughout the energy system.

Transportation sector: An energy-consuming sector that consists of all vehicles whose primary purpose is transporting people and/or goods from one physical location to another. Included are automobiles; trucks; buses; motorcycles; trains, subways, and other rail vehicles; aircraft; and ships, barges, and other waterborne vehicles. Vehicles whose primary purpose is not transportation (e.g., construction cranes and bulldozers, farming vehicles, and warehouse tractors and forklifts) are classified in the sector of their primary use. In this report, natural gas used in the operation of natural gas pipelines is included in the transportation sector.

Unfinished oils: All oils requiring further processing, except those requiring only mechanical blending. Unfinished oils are produced by partial refining of crude oil and include naphthas and lighter oils, kerosene and light gas oils, heavy gas oils, and residuum.

Unfractionated streams: Mixtures of unsegregated natural gas liquid components, excluding those in plant condensate. This product is extracted from natural gas.

United States: The 50 states and the District of Columbia. Note: The United States has varying degrees of jurisdiction over a number of territories and other political entities outside the 50 states and the District of Columbia, including Puerto Rico, the U.S. Virgin Islands, Guam, American Samoa, Johnston Atoll, Midway Islands, Wake Island, and the Northern Mariana Islands. EIA data programs may include data from some or all of these areas in U.S. totals. For these programs, data products will contain notes explaining the extent of geographic coverage included under the term “United States.”

Value added by manufacture: A measure of manufacturing activity that is derived by subtracting the cost of materials (which covers materials, supplies, containers, fuel, purchased electricity, and contract work) from the value of shipments. This difference is then adjusted by the net change in finished goods and work-in-progress between the beginning and end-of-year inventories.

Vessel bunkering: Includes sales for the fueling of commercial or private boats, such as pleasure craft, fishing boats, tugboats, and ocean-going ves-sels, including vessels operated by oil companies. Excluded are volumes sold to the U.S. Armed Forces.

Waste energy: Municipal solid waste, landfill gas, methane, digester gas, liquid acetonitrile waste, tall oil, waste alcohol, medical waste, paper pellets, sludge waste, solid byproducts, tires, agricultural byproducts, closed loop biomass, fish oil, and straw used as fuel. See **biomass waste** and **non-biomass waste**.

Wax: A solid or semi-solid material consisting of a mixture of hydrocarbons obtained or derived from petroleum fractions, or through a Fischer-Tropsch type process, in which the straight-chained paraffin series predominates. This includes all marketable wax, whether crude or refined, with a congealing point (ASTM D 938) between 100 and 200 degrees Fahrenheit and a maximum oil content (ASTM D 3235) of 50 weight percent.

Wind energy: Kinetic energy present in wind motion that can be converted to mechanical energy for driving pumps, mills, and electric power generators.

Wood energy: Wood and wood products used as fuel, including round wood (cord wood), limb wood, wood chips, bark, sawdust, forest residues, charcoal, pulp waste, and spent pulping liquor.