VIRGINIA

EMISSIONS ANALYSIS

CONSUMER ENERGY ALLIANCE
THE VOICE OF THE ENERGY CONSUMER

VIRGINIA EMISSIONS ARE DECLINING

The World Health Organization identifies outdoor air emissions as "a major cause of death and disease globally" and attributes certain emissions to lung cancer, respiratory infection, heart disease and stroke. The economic impacts of these air emissions can include increased health care costs, decreased labor productivity and declining agricultural crop yields.

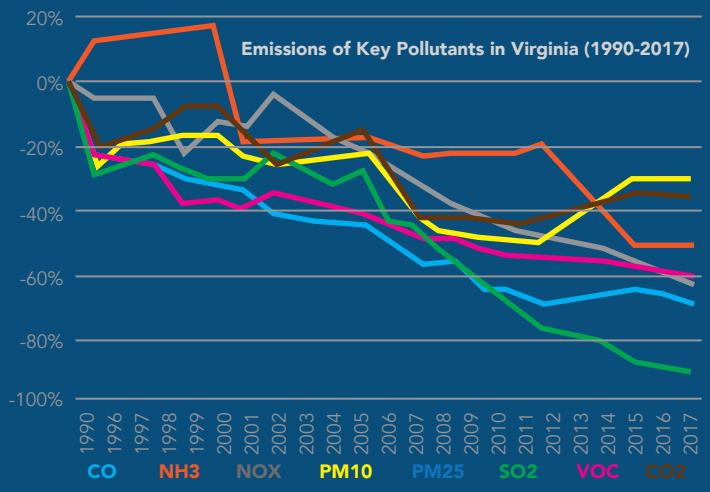


Figure 1. Virginia Emission Trends 1990-2017 (Source: U.S. Environmental Protection Agency and Energy Information Administration). NOTE - 2014 EPA emissions data omitted due to reporting error.

Data from the federal government indicate that from 1990 to 2017, emissions of key air pollutants and greenhouse gases have declined significantly in Virginia.

- 68 percent reduction in carbon monoxide (CO)
- 51 percent reduction in ammonia (NH3)
- 61 percent reduction in nitrogen oxides (NOx)
- 30 percent reduction in coarse particulate matter (PM10)
- 35 percent reduction in fine particulate matter (PM2.5)
- 89 percent reduction in sulfur dioxide (SO2)
- 60 percent reduction in volatile organic compounds (VOCs)

Additionally, from 2005 to 2016, Virginia's carbon dioxide emissions decreased by almost 20 percent. Notably, these trends took place at a time when natural gas saw significantly increased usage in Virginia—according to federal data, natural gas consumption in the state's electricity sector increased more than tenfold from 2003 through 2018.

This contributes to a cleaner environment and ensures that Virginia's tourism industry, which brought in $26 billion in visitor spending during 2018, will continue to thrive. Moreover, Virginia's families and children can enjoy all the Commonwealth has to offer from the Shenandoah Mountains to the shores of Virginia Beach.

Additionally, improved air quality means that Virginia agriculture industries will continue to generate more than $70 billion for the economy annually and contribute more than 334,000 jobs. This means that Virginia apples, livestock and forestry products will continue to be distributed throughout the U.S and globally to nations such as Canada, China and Switzerland.

VIRGINIA'S ECONOMIC GROWTH

The emissions reductions achieved in Virginia have not stymied growth in other areas. From 1990 to 2017, Virginia has experienced:

- A 252 percent increase in the Commonwealth's gross domestic product
- A 4 percent increase in vehicle miles traveled per capita
- A 36 percent increase in population

Virginia is an economic powerhouse, which is reflected in its selection by CNBC as America's Top State for Business in 2019 and Amazon's decision to locate its HQ2 in the Commonwealth. Virginia is home to 37 Fortune 1000 companies and can claim the nation's fourth-highest concentration of science, technology, engineering and math (STEM) employees.

Other important industries have a strong foothold in the Commonwealth as well. Virginia houses the third-largest port on the East Coast that serves as an important transportation hub for the country. Virginia is also a hub for defense contractors, leading the nation in total defense spending at $53 billion in 2018.

VIRGINIA'S ENERGY CONSUMPTION

More than 67 percent of Virginia's energy needs are met by oil and natural gas.

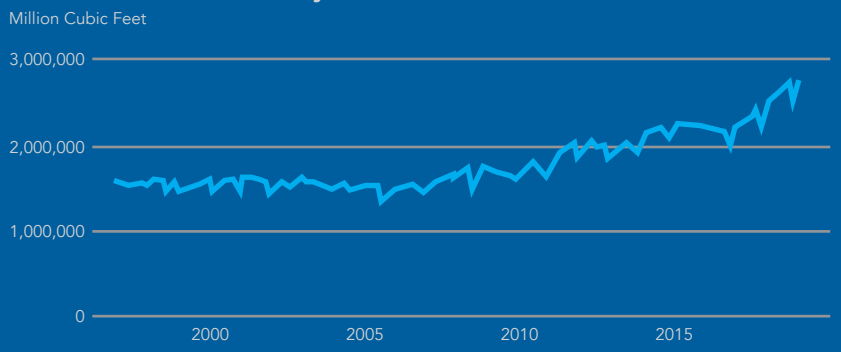
In 2018, natural gas was responsible for fueling more than half of the state's electricity. Additionally, one in three Virginia households relies on natural gas for heat during the winter months. Two-thirds of Virginia's petroleum is used by the transportation sector as fuel. A little more than 9 percent of Virginia homes use petroleum products, such as fuel or propane, for heating.

Virginia consumes more oil and natural gas than it can produce from its limited reserves located in southwest Virginia. Petroleum products arrive in the Commonwealth via pipelines originating in Texas, Louisiana and Mississippi and by marine vessels. Natural gas arrives in Virginia from the Gulf Coast and Appalachian regions as well as from overseas suppliers.

U.S. ENERGY PRODUCTION

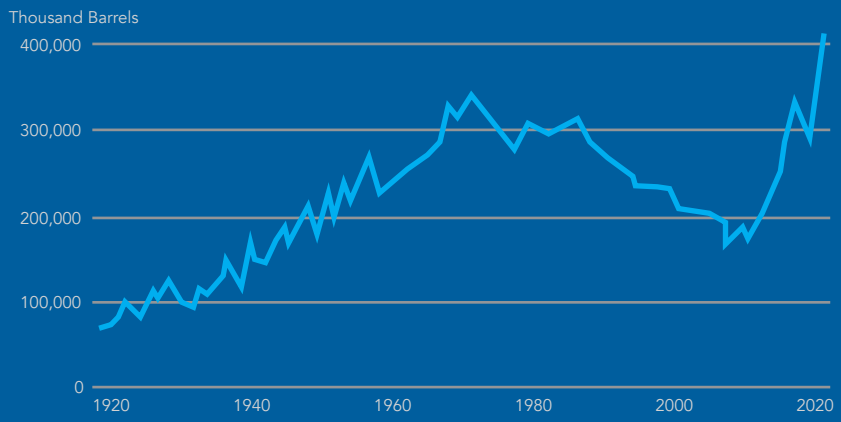
New, efficient technologies have enabled the United States to increase oil and gas production over the last two decades. The U.S. is now the world's largest crude oil and natural gas producer, having surpassed Saudi Arabia and Russia, respectively, according to the U.S. Energy Information Administration.

U.S. Dry Natural Gas Production



Source: U.S. Energy Information Administration

U.S. Field Production of Crude Oil



Source: U.S. Energy Information Administration

National Emissions Trends

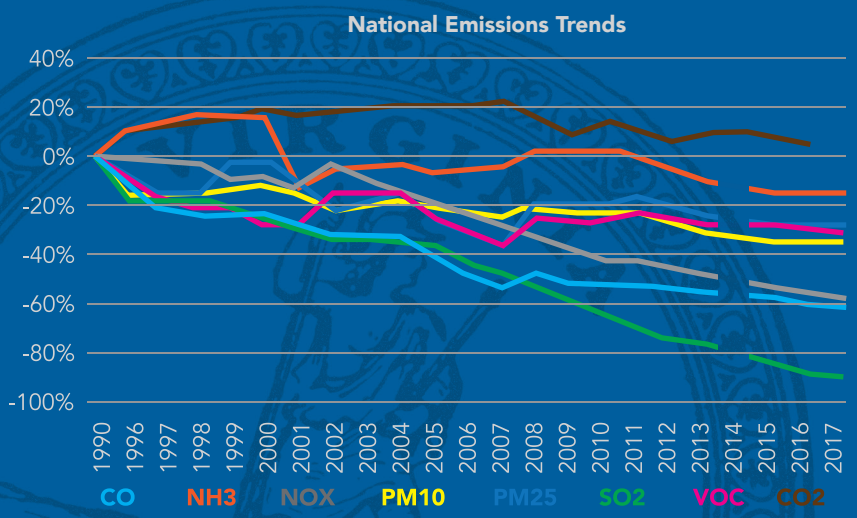


Figure 4. National Emission Trends 1990-2017. (Sources: U.S. Environmental Protection Agency and Energy Information Administration) NOTE - 2014 EPA emissions data omitted due to reporting error; EIA C02 data only available through 2016.

U.S. EMISSIONS ARE DECLINING TOO

Rigorous environmental standards and responsible, reliable production of energy can and do coexist. U.S. oil and gas companies banded together to form The Environmental Partnership to improve environmental performance and further reduce emissions of methane and volatile organic compounds. Again, these improvements are occurring at a time when our country has catapulted forward to become the world's leading producer of oil and natural gas.

Worldwide, carbon dioxide emissions increased by 1.7 percent in 2018. The U.S. stands in stark contrast to global trends, leading the world in reductions by lowering carbon emissions with an anticipated decline of 2.4 percent in 2019 and an additional 1.7 percent decline in 2020. These reductions are forecast in large part due to U.S. usage of natural gas.

Consumer Energy Alliance (CEA) works to support and advocate for the continued development of a balanced energy portfolio, including oil and natural gas, as well as other traditional and renewable energy sources. CEA also recognizes the vital role that transportation infrastructure like pipelines and transmission lines serve—they are critical for moving energy throughout Virginia and the rest of the country.

Given the emissions reductions that have occurred recently, Virginia's policymakers, regulators and leaders must come together in support of access to reliable energy resources and infrastructure development that will keep the state thriving, and ensure that hard-working families, seniors, households and small businesses can continue to enjoy the benefits of American energy.

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