

# PENNSYLVANIA

## EMISSIONS ANALYSIS



### PENNSYLVANIA EMISSIONS ARE DECLINING

While the nation's increased energy production has received a great deal of media focus in recent years, little notice has been paid to the significant emission reductions and overall environmental improvement in Pennsylvania and across the nation.

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 include increased health care costs, decreased labor productivity and declining agricultural crop yields.

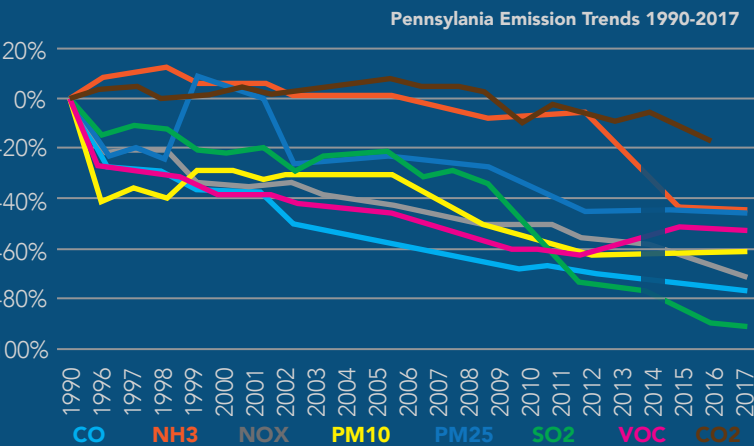


Figure 1. Pennsylvania Emission Trends 1990-2017 (Source: U.S. Environmental Protection Agency and Energy Information Administration) NOTE - 2014 EPA emissions data omitted due to reporting error; EIA CO2 data available through 2016.

Data from the federal government indicate that from 1990 to 2017, emissions of key air pollutants and greenhouse gases have declined significantly in Pennsylvania even though it remains a large energy producer and consumer:

- 72 percent reduction in nitrogen oxides (NOx)
- 92 percent reduction in sulfur dioxide (SO2)
- 77 percent reduction in carbon monoxide (CO)
- 53 percent reduction in volatile organic compounds (VOCs)
- 45 percent reduction in fine particulate matter (PM2.5)
- 61 percent reduction in coarse particulate matter (PM10)
- 45 percent reduction in ammonia (NH3)

Additionally, from 1990 to 2016, Pennsylvania's carbon dioxide (CO2) emissions decreased by 18 percent. These emissions reductions are remarkable in light of Pennsylvania's growth from 1990 to 2017, including:

- A 177 percent increase in the Commonwealth's gross domestic product
- A 10 percent increase in vehicle miles traveled per capita
- A 7.5 percent increase in population

Further, these trends all occurred while Pennsylvania's natural gas production soared eleven fold from 2010 to 2018 and natural gas plant processing expanded more than eightfold from 2010 to 2017.

Pennsylvania's cleaner air means that the state's wildlife and natural assets will be protected. This ensures that Pennsylvania's tourism industry, which brings in \$41 billion annually, will continue to thrive. Not only that, Pennsylvania's families and children can enjoy all their state has to offer in a healthier way, from adventures at Hershey park to Philadelphia's Liberty Bell.

Additionally, improved air quality means that Pennsylvania's 59,000 farms will continue to generate more than \$7.4 billion for the Commonwealth's annual income. This means that Pennsylvania meat and dairy products, mushrooms and soybeans will continue to support local farms and feed families throughout the eastern U.S.

### PENNSYLVANIA ECONOMIC GROWTH

Pennsylvania is the nation's sixth-largest economy and home to 44 of the nation's largest 1,000 public and private companies. Pennsylvania is strategically situated to move goods throughout the Commonwealth, the region and the world with six international airports, three major ports and 64 operating railroads – ranking first in the nation for operating railroads. Natural gas production leads the state's economy. Manufacturing, with natural gas serving as a valuable feedstock, is also a significant sector for Pennsylvania.

### PENNSYLVANIA ENERGY CONSUMPTION

Currently, more than 73 percent of Pennsylvania's energy needs are met by oil and natural gas. Pennsylvania's electricity generation sector accounts for more than half of the natural gas consumed in the state. Additionally, more than half of Pennsylvania's households rely on natural gas for heat during the winter months. Almost one in seven of Pennsylvania's homes use petroleum products, such as fuel or propane, for heating.

## PENNSYLVANIA ENERGY PRODUCTION

Nationwide, Pennsylvania ranks second – behind Texas – in estimated proved natural gas reserves, with nearly three-fifths of the state sitting on top of the Marcellus natural gas field. Due to development in the Marcellus Shale, these natural gas reserves more than tripled from 2011 to 2017. With several new pipeline projects coming online in recent years, Pennsylvania energy producers have been able to transport their products to more markets. Currently, most Pennsylvania natural gas is distributed to consumers in New Jersey, New York, Ohio and West Virginia

### U.S. EMISSIONS ARE DECLINING TOO

Rigorous environmental standards and energy production 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. 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 CO2 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 2.2 percent in 2019 and an additional 0.7 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, as they are critical for moving energy throughout Pennsylvania and the rest of the country.

With the emission reductions that have occurred recently, Pennsylvania'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.

### National Emissions Trends

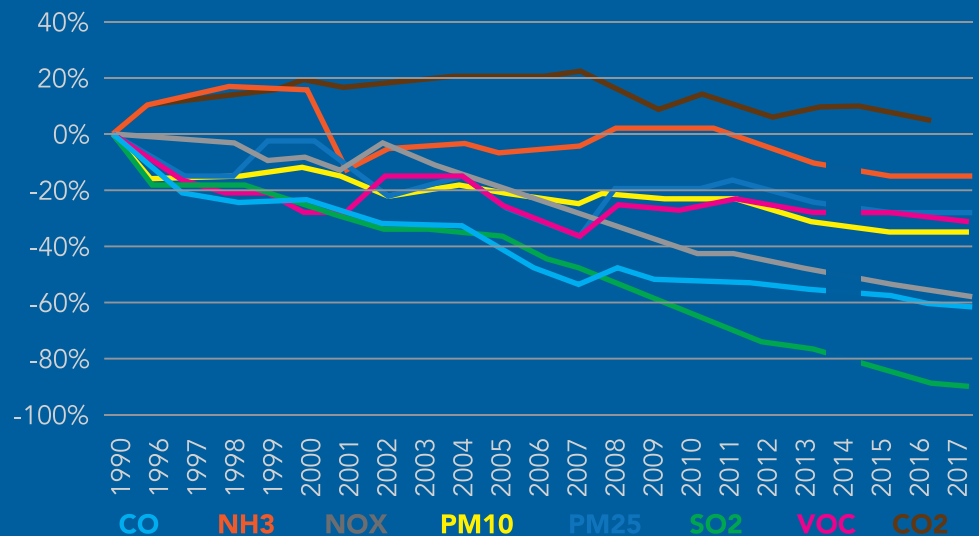
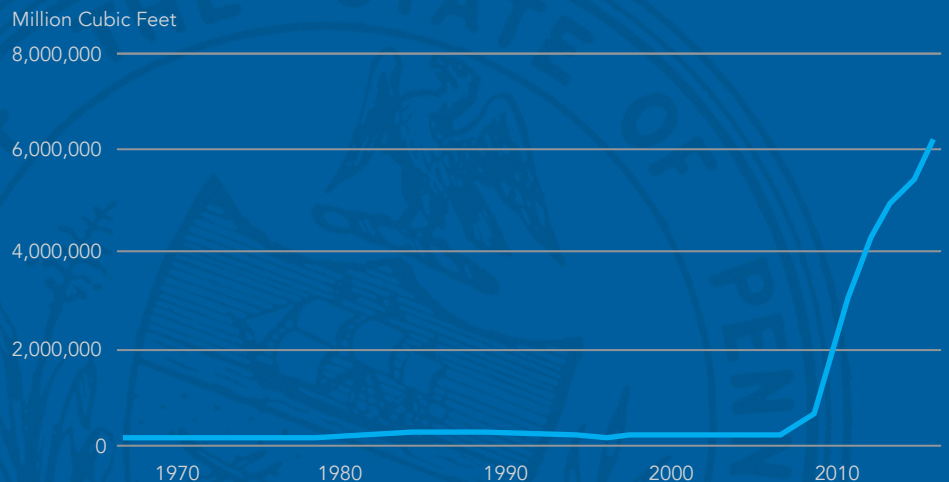


Figure 4. National Emission Trends 1990-2017. (Sources: U.S. Environmental Protection Agency and Energy Information Administration) NOTE - 2014 EPA emissions data omitted due to reporting error; EIA CO2 data only available through 2016.

### Pennsylvania Natural Gas Marketed Production



Source: U.S. Energy Information Administration

World Health Organization, <https://www.who.int/airpollution/ambient/health-impacts/en/>  
 EPA State Annual Emissions Trend, [https://www.epa.gov/sites/production/files/2018-07/state\\_tier1\\_caps.xlsx](https://www.epa.gov/sites/production/files/2018-07/state_tier1_caps.xlsx)  
 EIA, State Carbon Dioxide Emissions Data, <https://www.eia.gov/environment/emissions/state/>  
 Bureau of Economic Analysis, Regional Data – GDP and Personal Income, <https://apps.bea.gov/itable/itable.cfm?ReqID=70&step=1>  
 U.S. VMT Per Capita by State, 1981-2017, <https://www.enotrans.org/wp-content/uploads/2019/06/VMT-per-capita-by-state-1981-2017-1.pdf>  
 U.S. Census Bureau., <https://www.census.gov/>  
<https://www.eia.gov/state/analysis.php?sid=PA>  
<https://dced.pa.gov/key-industries/tourism/>  
<https://www.farmflavor.com/pennsylvania/pennsylvanias-top-10-ag-products-infographic/>  
<https://www.forbes.com/places/pa/>  
<https://dced.pa.gov/business-climate/infrastructure/>  
<https://www.eia.gov/state/analysis.php?sid=PA>  
<https://www.eia.gov/beta/states/states/pa/overview>  
<https://www.eia.gov/beta/states/states/pa/analysis>  
 International Energy Agency – Emissions, <https://www.iea.org/geco/emissions/>  
 EIA Short Term Energy Outlook, July 2019 [https://www.eia.gov/outlooks/steo/pdf/steo\\_full.pdf](https://www.eia.gov/outlooks/steo/pdf/steo_full.pdf)

