



West Virginia Emissions Reductions and Power Generation

*Prepared for the
West Virginia Public Energy Authority*

December 7, 2022



Consumer Energy Alliance was formed in 2006 on the premise that it would **focus on improving the public's understanding of energy.**

CEA is the **leading advocacy organization for energy education and sound energy policies.**

550,000+

Individual Members

Broad membership of
farmers,
manufacturers, labor,
transportation,
plastics, local
chambers, small
businesses, families

375+

Affiliate Members

65% are consumers
CEA Board includes:
Virginia Manufacturing Assn.
Caterpillar
Nucor Steel
General Electric
Wortham Insurance
American Trucking
Association
National Assn. of
Convenience Stores

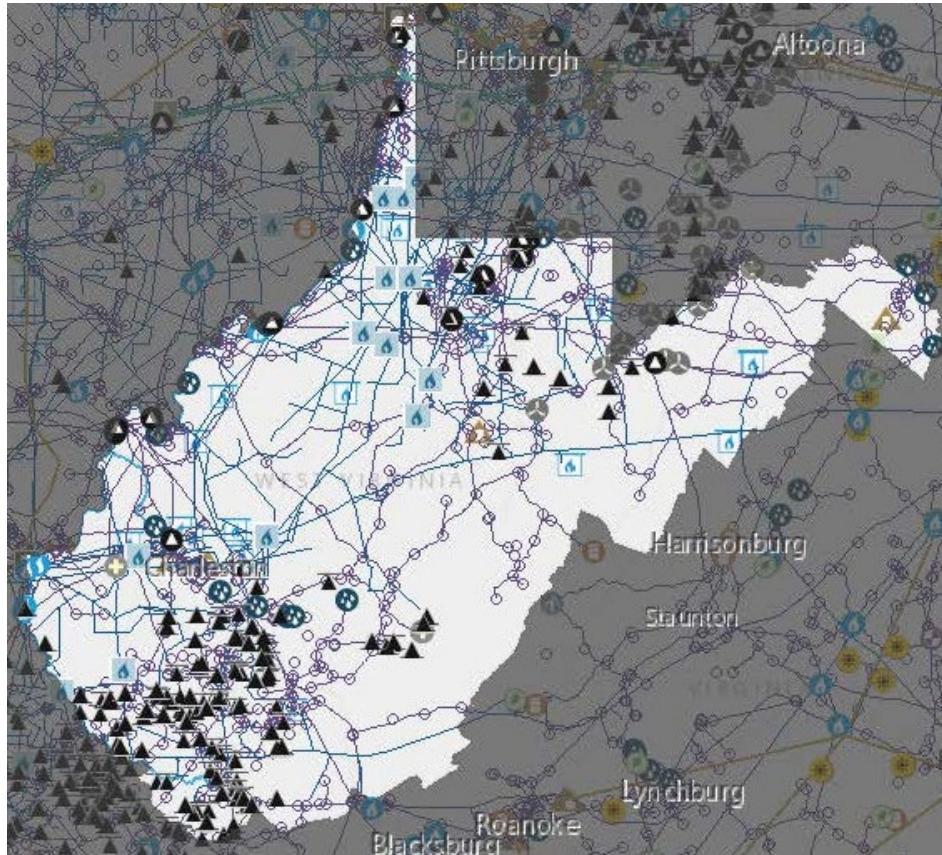
Chapters

National & Local

**National Brand with
Regional Chapters**
CEA Gulf Coast
CEA Midwest
CEA Mid-Atlantic
CEA Mid-Continent
CEA Northeast
CEA Rockies
CEA Southeast
CEA-AK, CEA-FL



- **Environmental Stewardship** to simultaneously drive down consumer costs and lower our emissions footprint.
- The critical importance of **strong supply chains** and energy's impacts throughout the global supply chain.
- **Affordable, Reliable & Environmentally Responsible Energy** considers the needs of consumers while leveraging development of state-of-the-art technologies to improve our environmental stewardship.

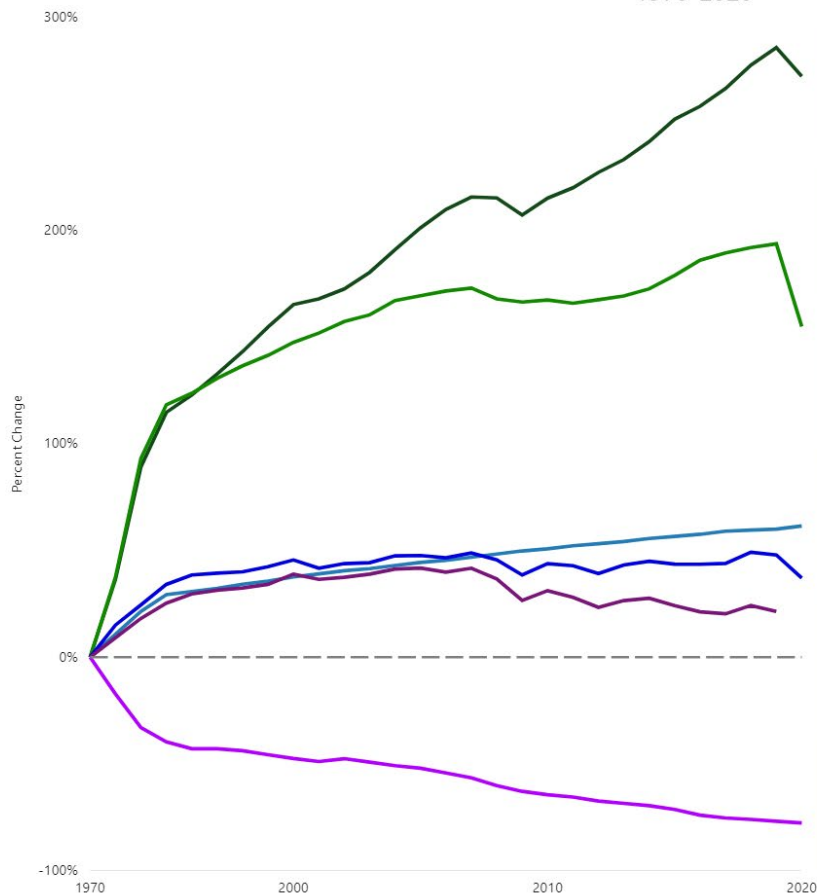


- West Virginia ranked **fifth among the states in total energy production** in 2019, accounting for 5% of the nation's total.
- In 2020, West Virginia's 2.6 trillion cubic feet of natural gas production was the **fifth-largest amount of marketed natural gas** in the nation.
- Although West Virginia's **crude oil production** accounts for less than 1% of the nation's total, it is ten times greater than 2012 because of production from the Marcellus Shale.



An Era of Declining Emissions

Comparison of Growth Areas and Declining Emissions
1970-2020



Gross Domestic Product



Vehicles Miles Traveled



Population



Energy Consumption



CO₂ Emissions

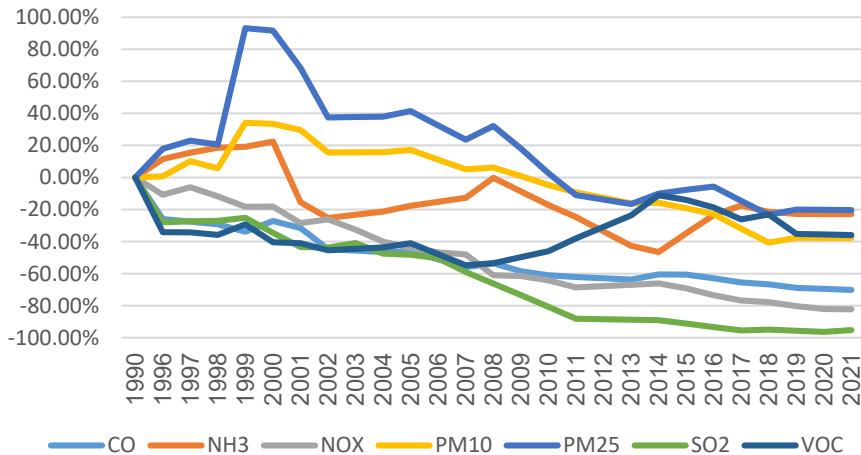


Aggregate Emissions
(Six Common Pollutants)

Source: U.S. Environmental Protection Agency and Energy Information Administration



West Virginia Emission Trends 1990-2021



Source: U.S. Environmental Protection Agency and Energy Information Administration

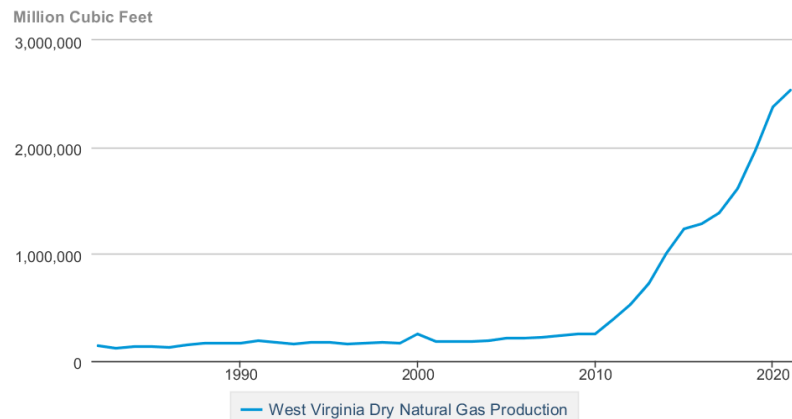
From 1990 to 2021, West Virginia's emissions of key pollutants have decreased across the board:

- 82 percent reduction in nitrogen oxides (NOx)
- 95 percent reduction in sulfur dioxide (SO2)
- 70 percent reduction in carbon monoxide (CO)
- 35 percent reduction in volatile organic compounds (VOCs)
- 20 percent reduction in fine particulate matter (PM2.5)
- 37 percent reduction in coarse particulate matter (PM10)
- 22 percent reduction in ammonia (NH3)

Additionally, from 1990 to 2020, West Virginia's carbon dioxide (CO2) emissions declined by 25 percent.



West Virginia Dry Natural Gas Production

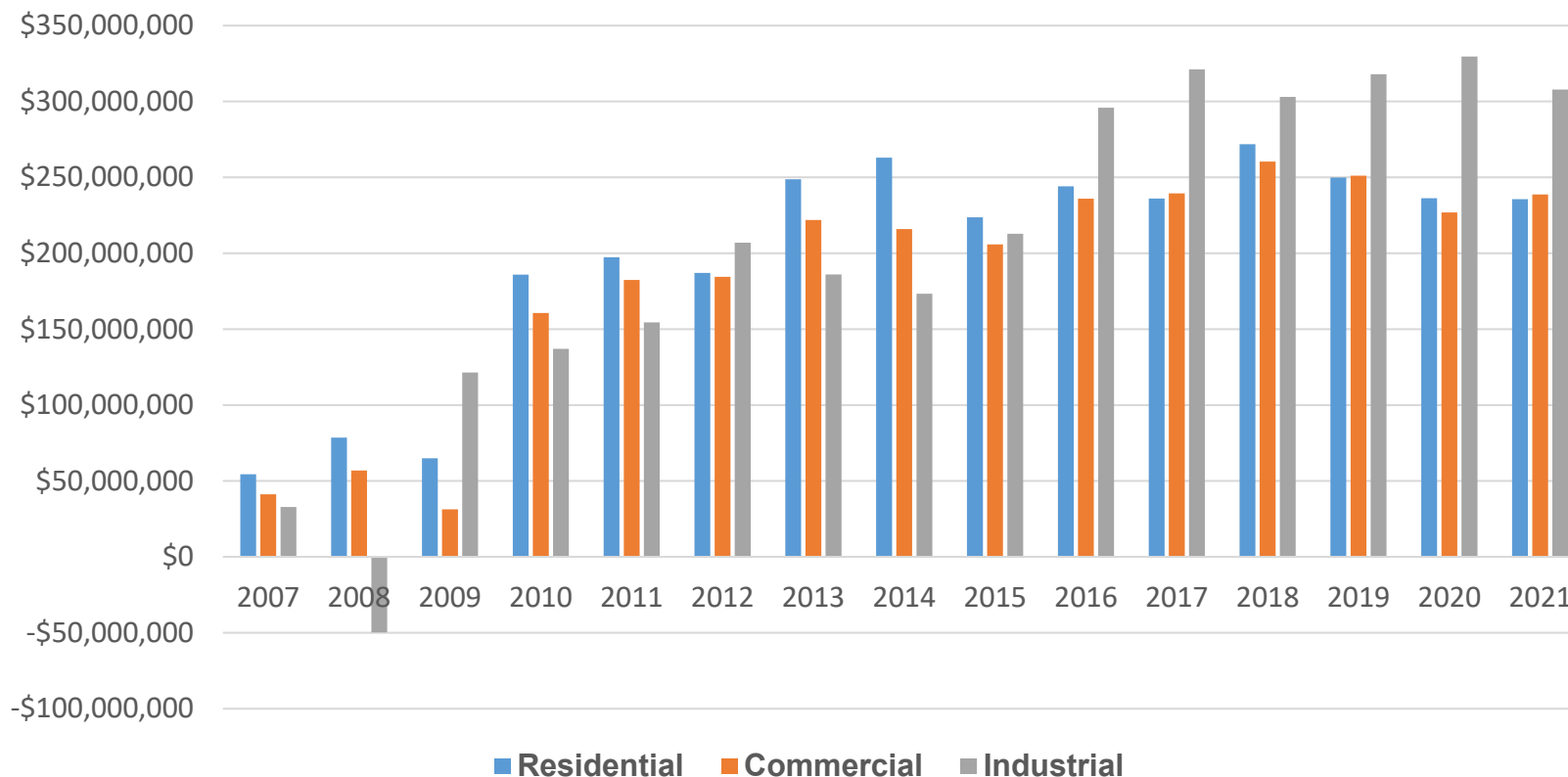


Source: U.S. Energy Information Administration

- 207 percent increase in West Virginia's gross domestic product
- 9.7 percent increase in vehicle miles traveled
- 1,402 percent increase in West Virginia's natural gas production



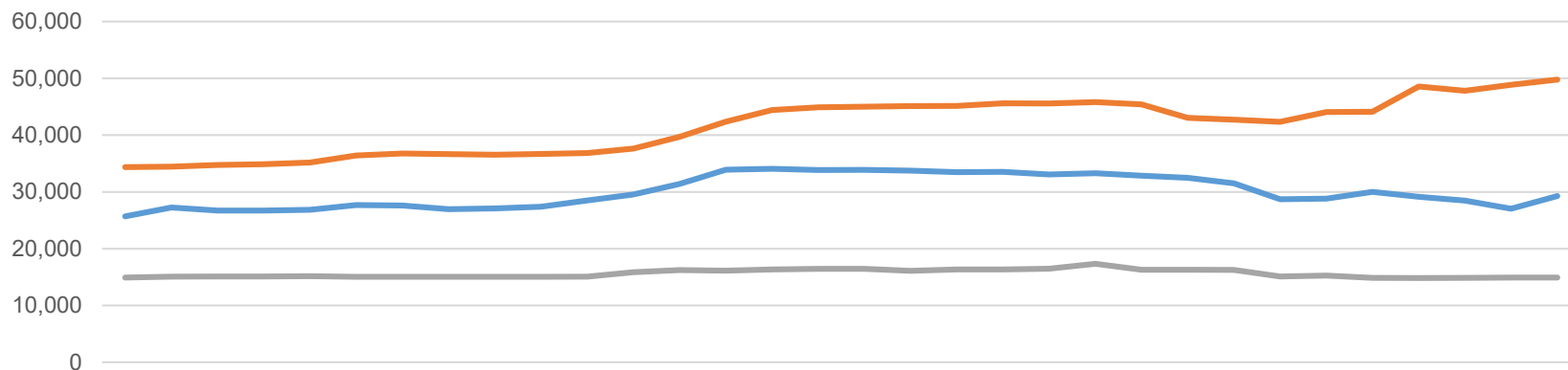
Consumer Savings Per Year



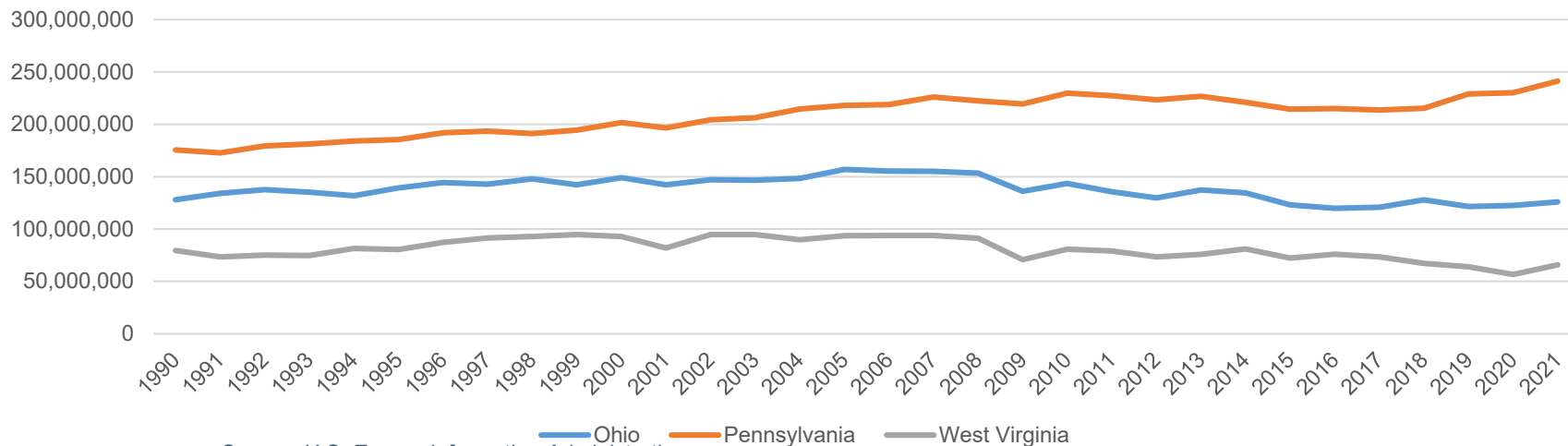
Source: Consumer Energy Alliance calculations based on U.S. Energy Information Administration data



Capacity - Total Electric Industry (MWh)



Generation - Total Electric Industry (MWh)



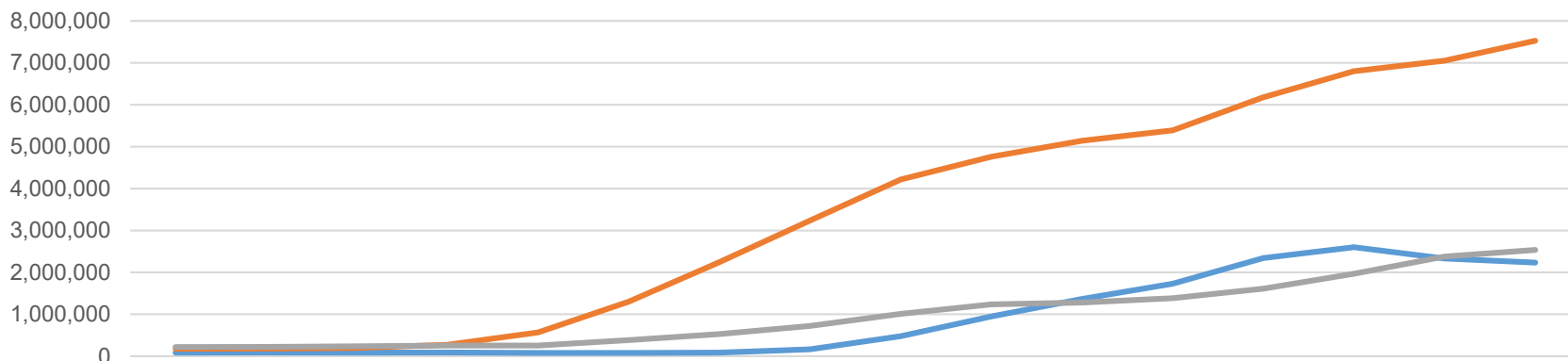
Source: U.S. Energy Information Administration

— Ohio — Pennsylvania — West Virginia

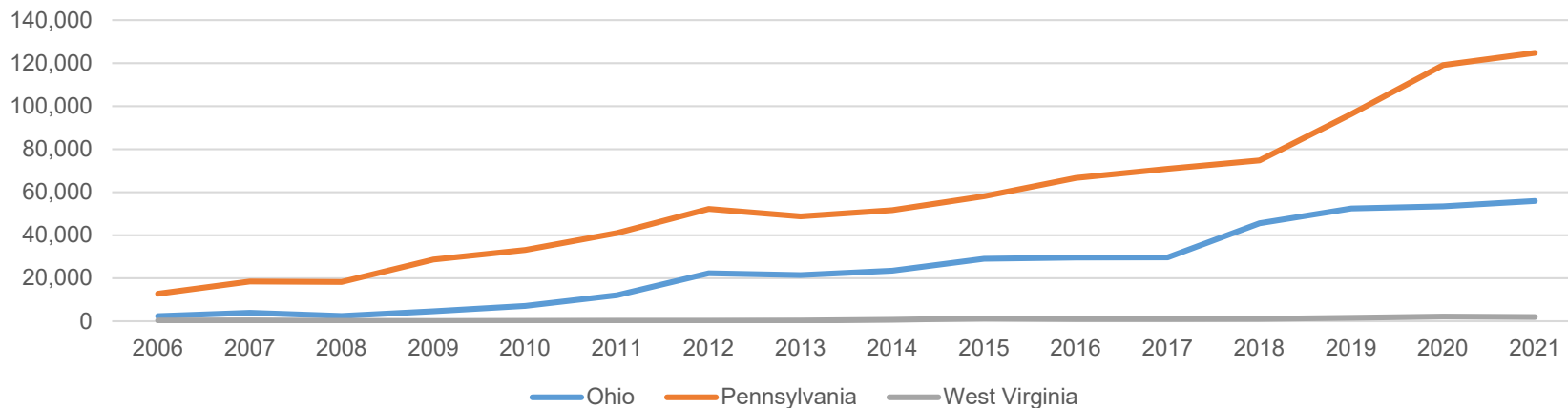


Natural Gas Production vs. Power Generation

Natural Gas Production (MMcf)



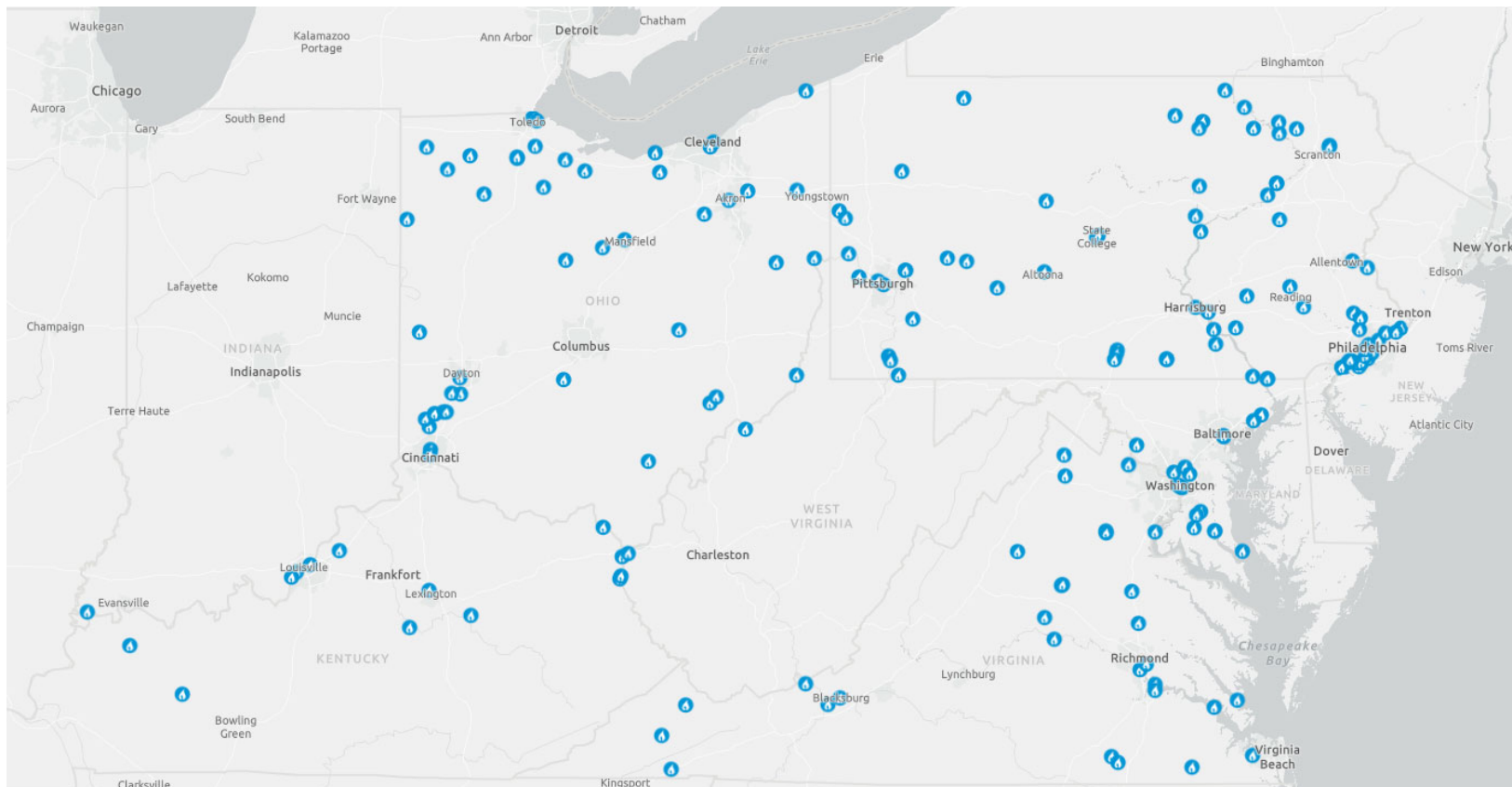
Net Generation from Natural Gas (MWh)



Source: U.S. Energy Information Administration



West Virginia and Neighboring States



Source: U.S. Energy Information Administration



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