Benchmarking Air Emissions

Of the 100 Largest Electric Power Producers in the United States

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Summary Presentation

Full Report at: www.mjbradley.com

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Bank of America. CALPINE NYSE:CPN Ceres Sustainability is the bottom line. Entergy Exelon NRDC TENASKA

2017 Benchmarking Report: Key Findings

- In 2015, power plant SO_2 and NOx emissions were 87 percent and 79 percent lower, respectively, than they were in 1990 when Congress passed major amendments to the Clean Air Act

- In 2015, power plant CO_2 emissions were 6 percent higher than they were in 1990. However, in recent years, from 2005 through 2015, power plant CO_2 emissions decreased by 20 percent. Some of the factors driving this trend include slow economic growth, energy efficiency improvements, and the displacement of coal generation by natural gas and renewable energy resources

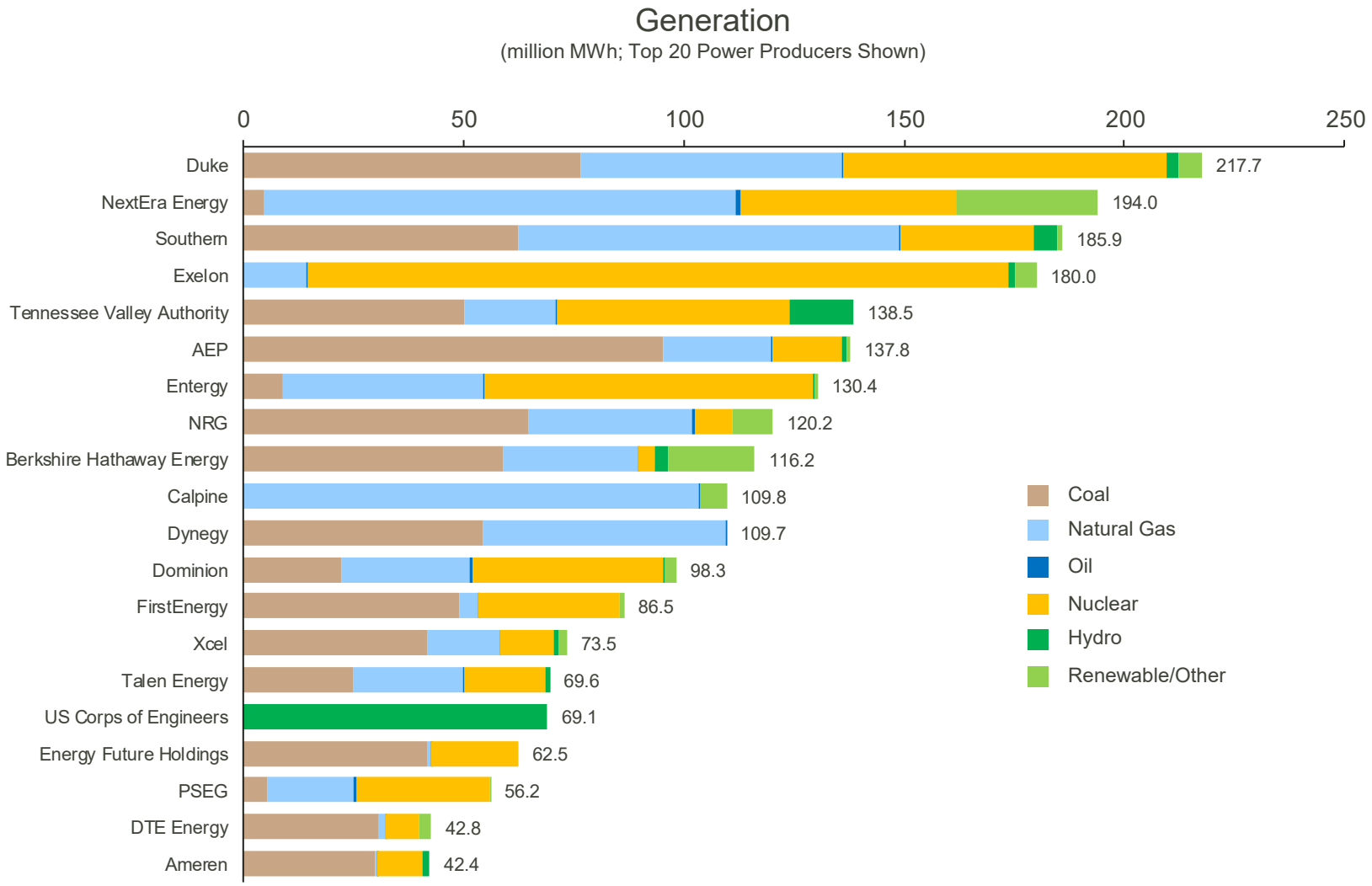
- Mercury emissions from power plants have decreased 69 percent since 2000, and will decline further as the first-ever federal limits on mercury and other hazardous air pollutants from coal-fired power plants went into effect in 2015

BENCHMARKING AIR EMISSIONS

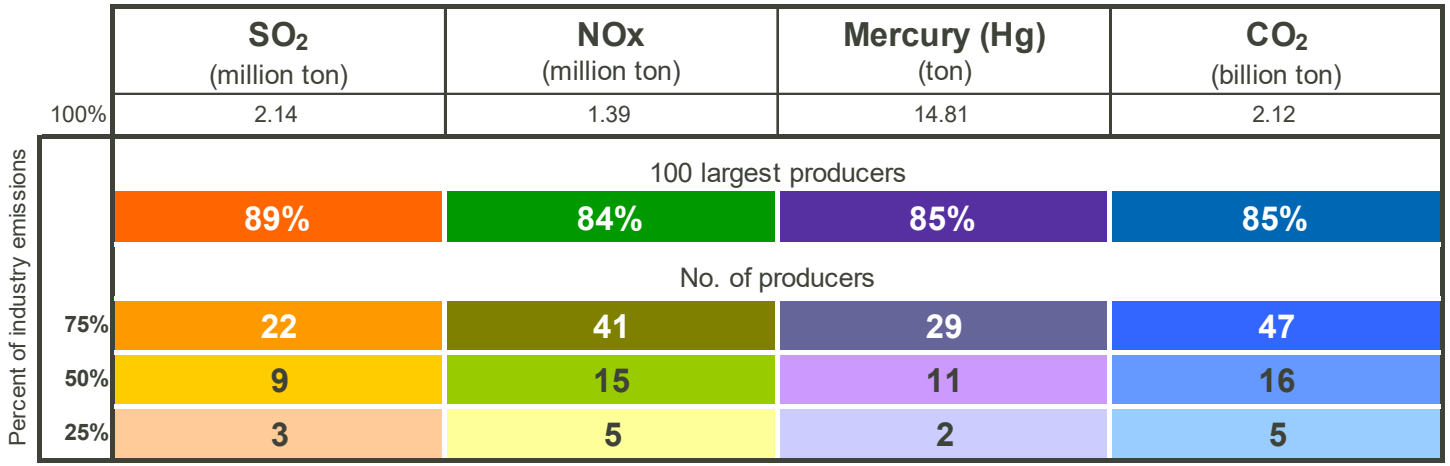
OF THE
100 LARGEST ELECTRIC POWER PRODUCERS
IN THE UNITED STATES

Download the full 2017 Benchmarking Air Emissions report and plant level data at: www.mjbradley.com

2017 Benchmarking Report: Rankings by Generation

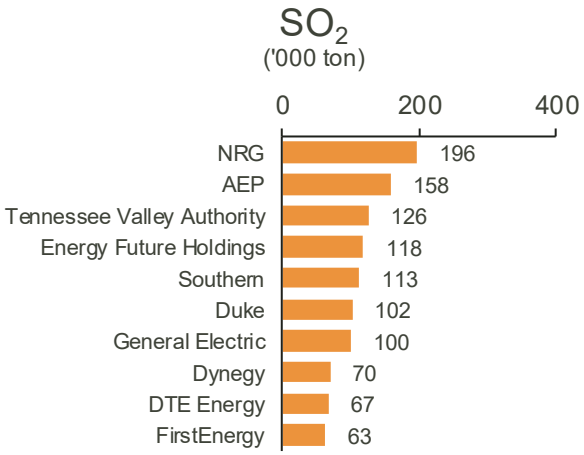


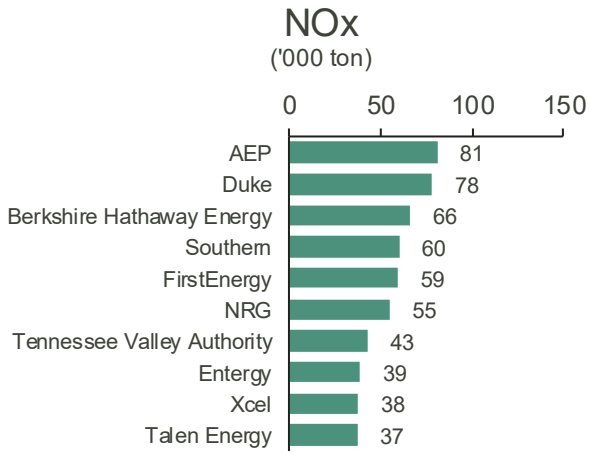
2017 Benchmarking Report: Emission Contributions

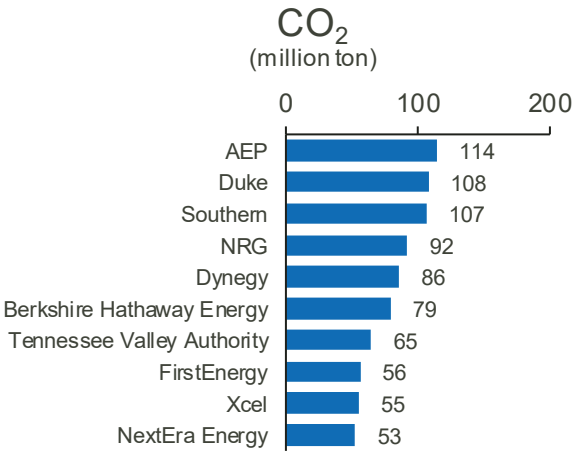


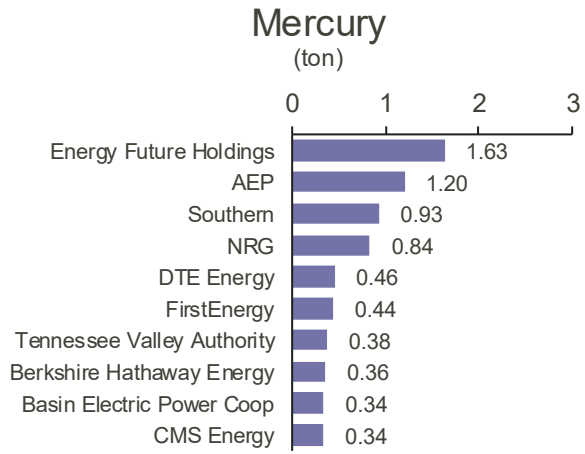
Air pollution emissions from power plants are highly concentrated among a small number of producers. For example, nearly a quarter of the electric power industry's SO_2 and CO_2 emissions are emitted by just three and five top 100 producers, respectively

2017 Benchmarking Report: Rankings by Total Emissions



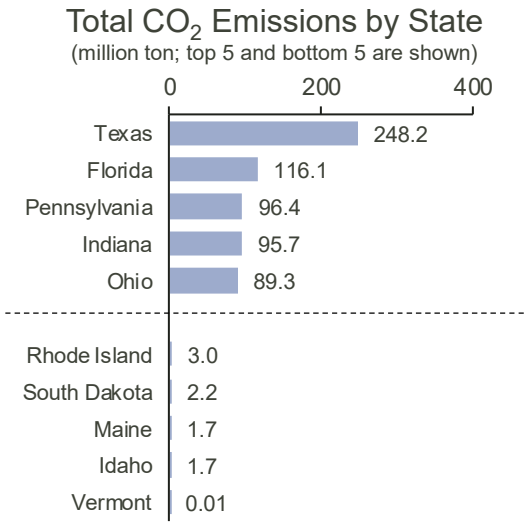


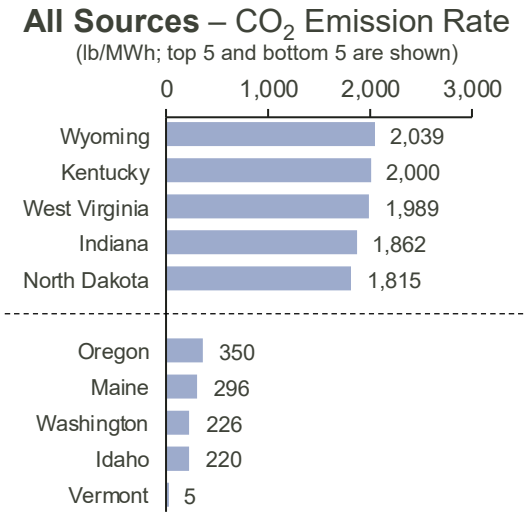


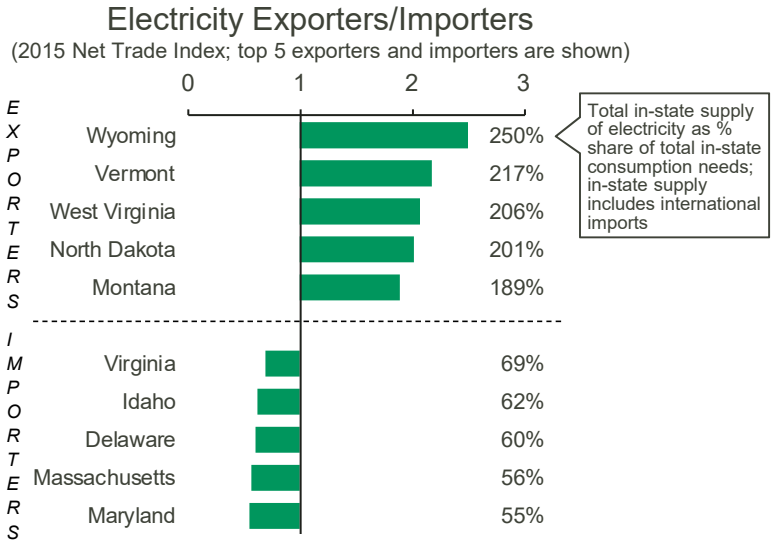


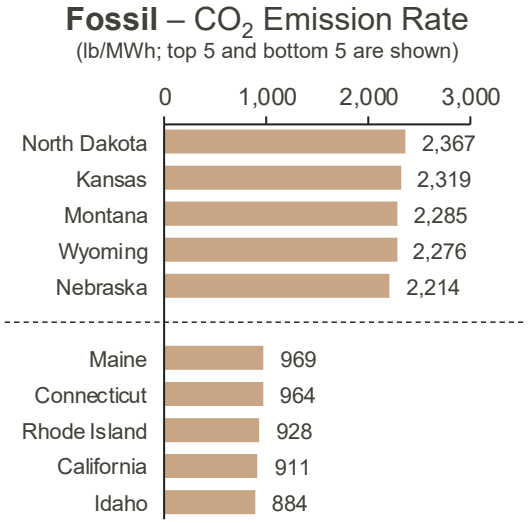
Note: Only the top 10 for each category shown

2017 Benchmarking Report: State-by-State CO_2 Emissions

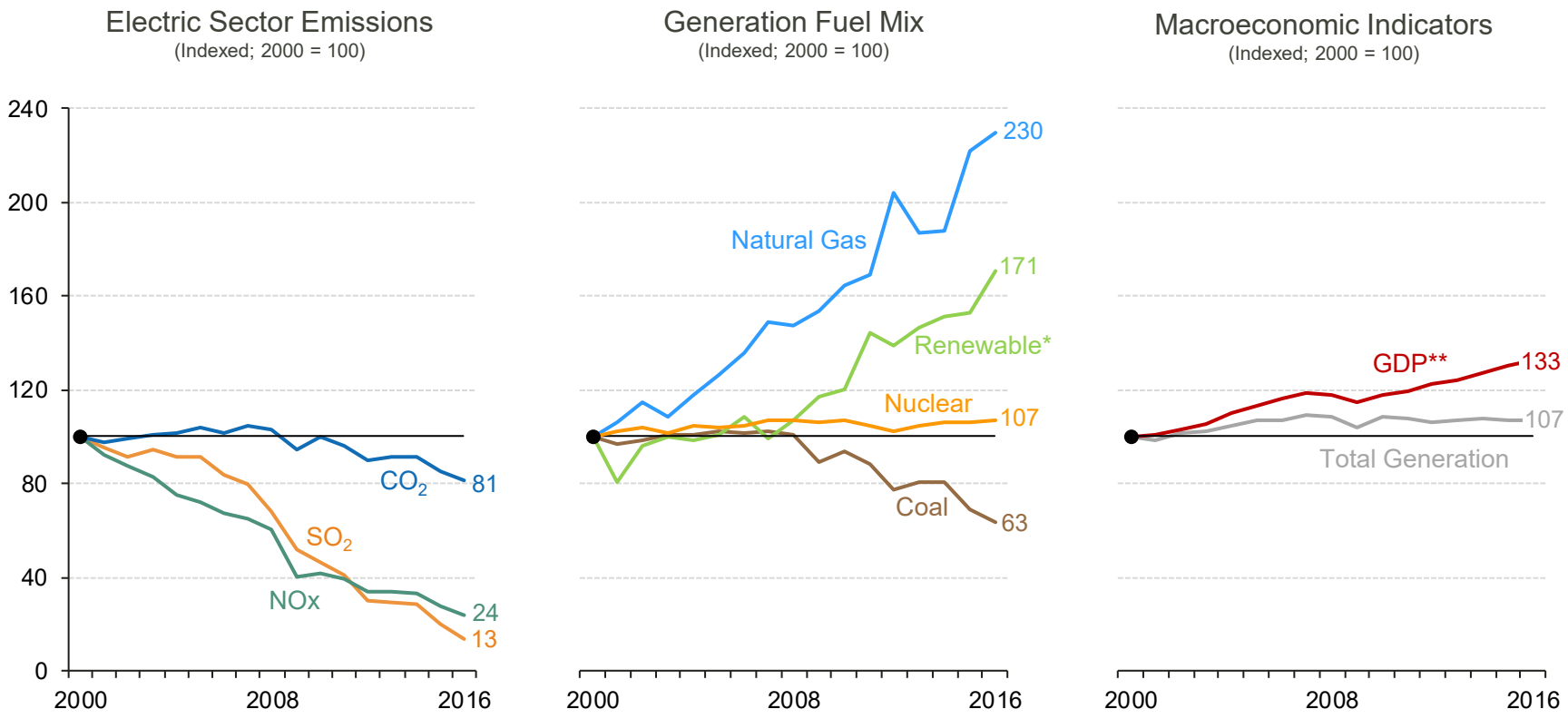








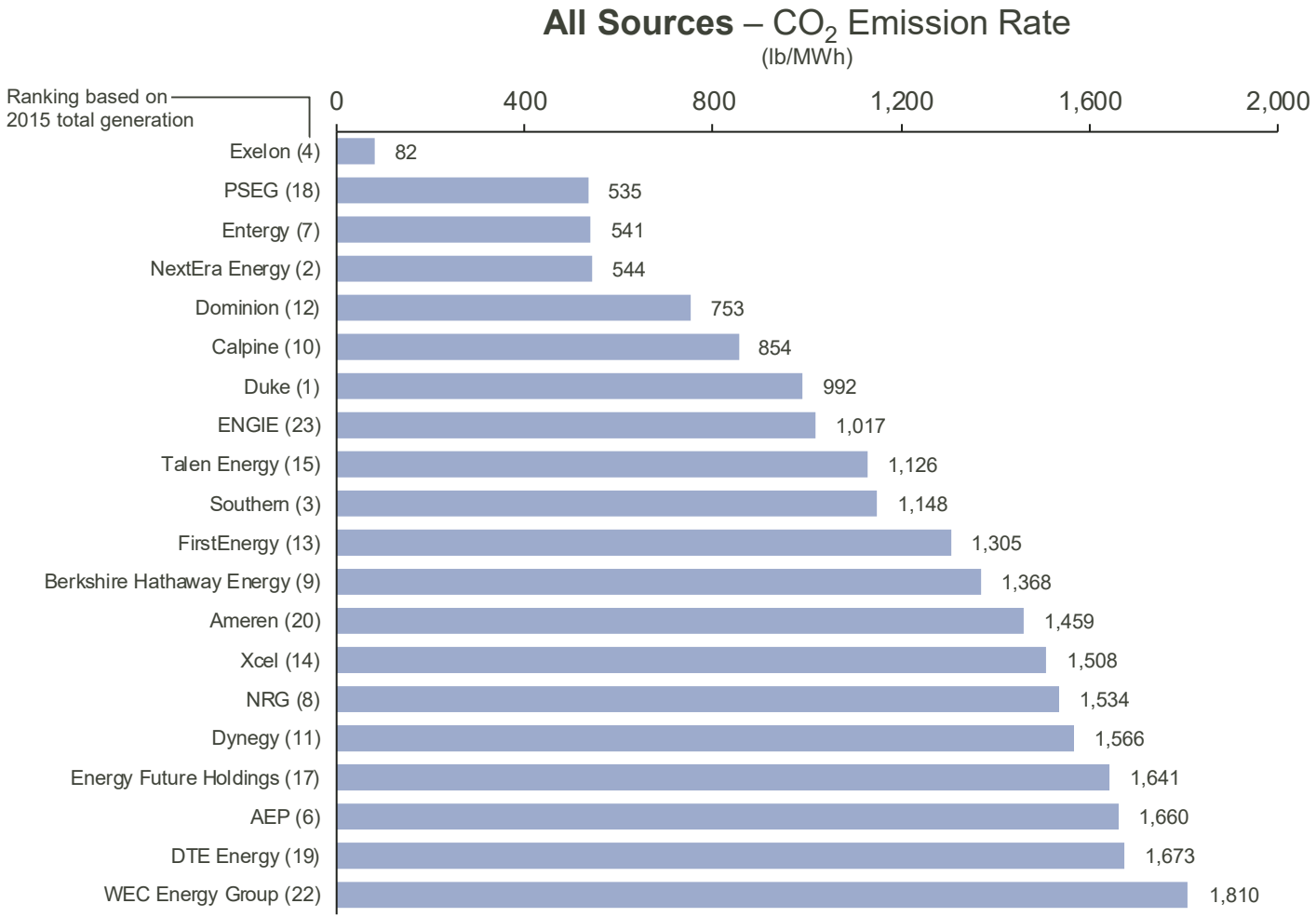
2017 Benchmarking Report: Annual Trends



*Includes hydroelectric, wind, solar, biomass, geothermal, and other renewable sources.
**GDP in chained 2009 dollars.

The electric power sector has made significant progress in terms of reducing its NOx and SO_2 emissions over the past decade

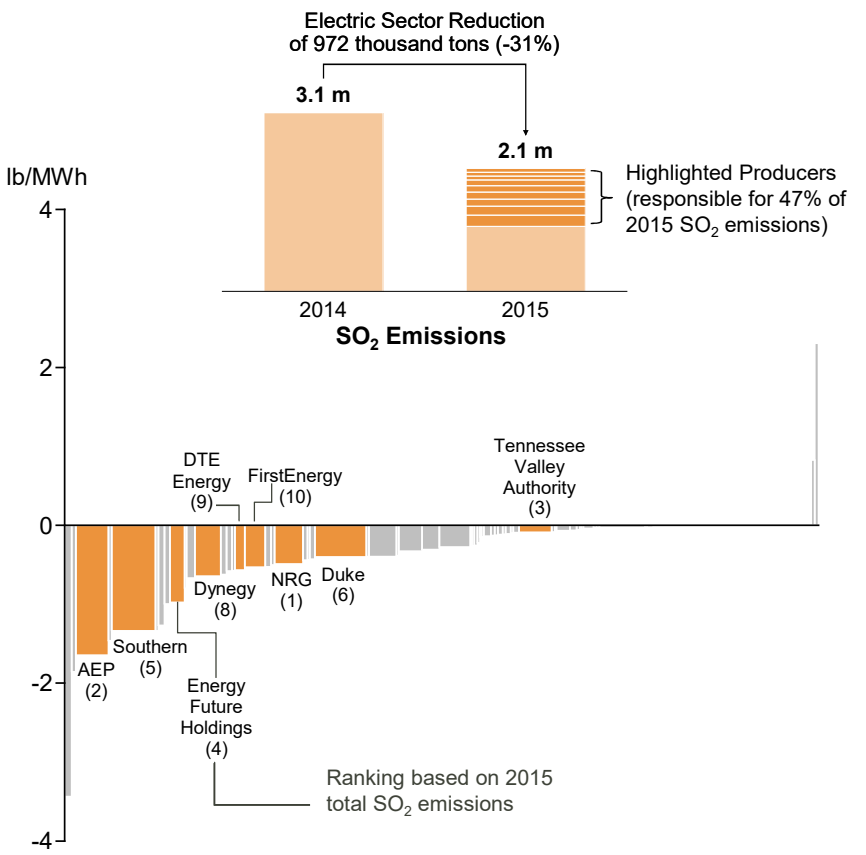
2017 Benchmarking Report: Rankings by CO_2 Emission Rate
(Top 20 Privately/Investor Owned Power Producers)



Note: "Privately/investor owned" power producers include investor owned, privately held, and foreign owned corporations. This chart does not show public power producers (federal power authorities, state power authorities, municipalities, power districts), or cooperatives

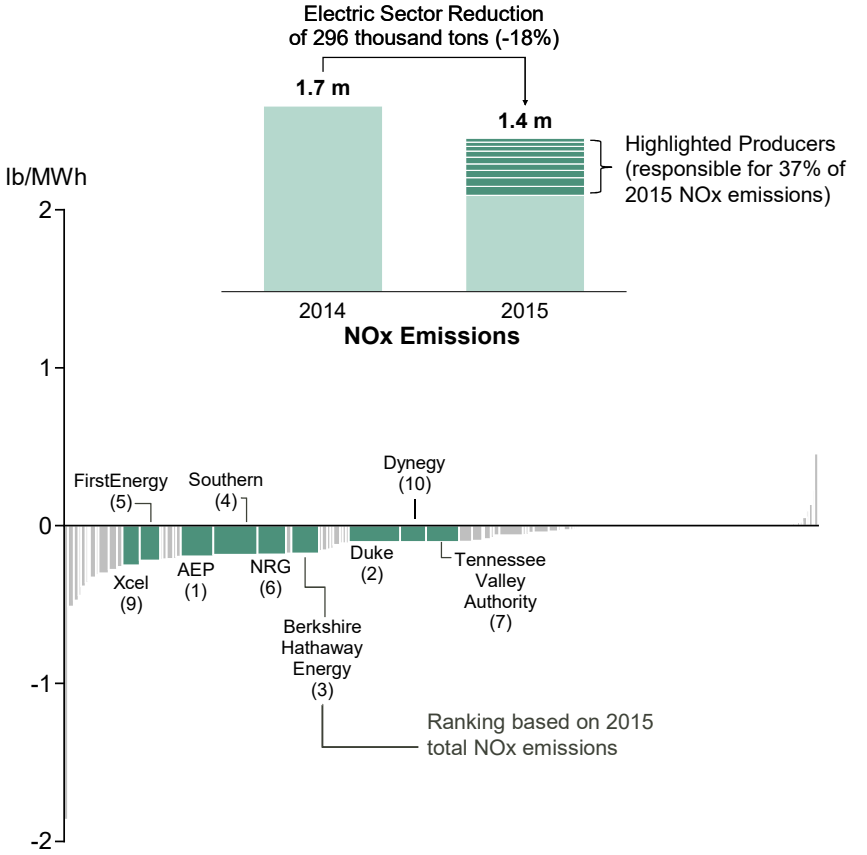
2017 Benchmarking Report: SO_2 and NOx Emission Rate Changes

All Sources – SO_2 Emission Rate Change
(lb/MWh change from 2014 to 2015)



Bar Widths Proportional to 2015 Total Generation (MWh)

All Sources – NOx Emission Rate Change
(lb/MWh change from 2014 to 2015)



Bar Widths Proportional to 2015 Total Generation (MWh)