



New York State Power Plant Emissions 1999 – 2008

A Briefing Paper from the New York Independent System Operator

April 2009

New York State Power Plant Emissions: 1999 - 2008

Most New York electricity generators report fuel use and emissions to the United State Environmental Protection Agency (USEPA). The USEPA dataset is referred to as the Clean Air Markets Data. Emissions data for Sulfur Dioxide (SO₂), Nitrogen Oxides (NO_x), and Carbon Dioxide (CO₂) are shown in Figure #1 below (*New York State Power Plant Emissions*).

Power plant emissions, for all three pollutants, have significantly declined since 1999, when the wholesale electricity markets administered by the New York Independent System Operator (NYISO) were instituted. SO₂ rates have seen the most dramatic decline, dropping 77% over the ten-year period. CO₂ rates dropped by 28%, while NO_x rates dropped by 61%.

SO₂ allowances and NO_x allowances represent costs to generator owners that must be recovered in their offers to the wholesale electricity markets. As a result, generators with lower emissions have a competitive advantage in the marketplace.

CO₂ emissions have not represented a direct cost to generators during the period represented by this data set. They are, however, illustrative of overall generator efficiency within a fuel sector. As a result, CO₂ emissions are an indirect indicator of efficiency. Generators that are more efficient have competitive advantages in the wholesale electricity markets. The trend of decreasing CO₂ emissions is indicative of efficiency improvements by the fleet of power plants serving New York. As illustrated in Figure #2 below (*New York System Heat Rate Improvement*), generator efficiency as measured by gross heat rate¹ improved 21% during the study period. The heat input data and gross load information is from the USEPA Clean Air Markets Data.

The emission rates of New York State's electricity generation ranks among the lowest in the nation.

- CO₂ emissions rate ranks 10th (Fig. # 3),
- NO_x emission rate ranks 12th (Fig. # 4), and
- SO₂ emission rate ranks 13th (Fig. #5).

¹ Heat rate is a measurement of how efficiently a generator uses heat energy. It is expressed as the number of British Thermal Units (BTUs) of heat required to produce a single kilowatt-hour of energy.

Figure # 1

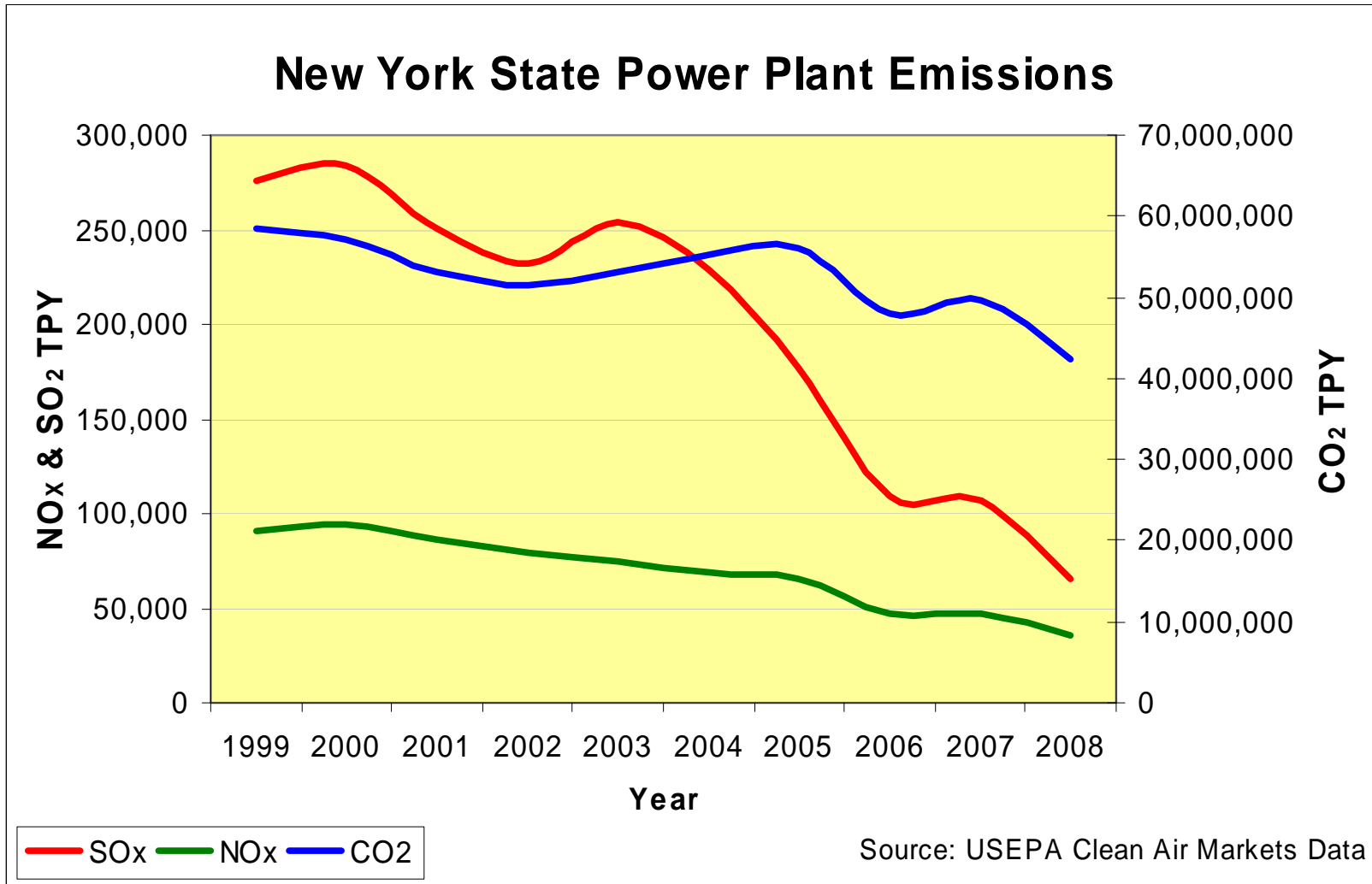


Figure # 2

New York System Heat Rate Improvement

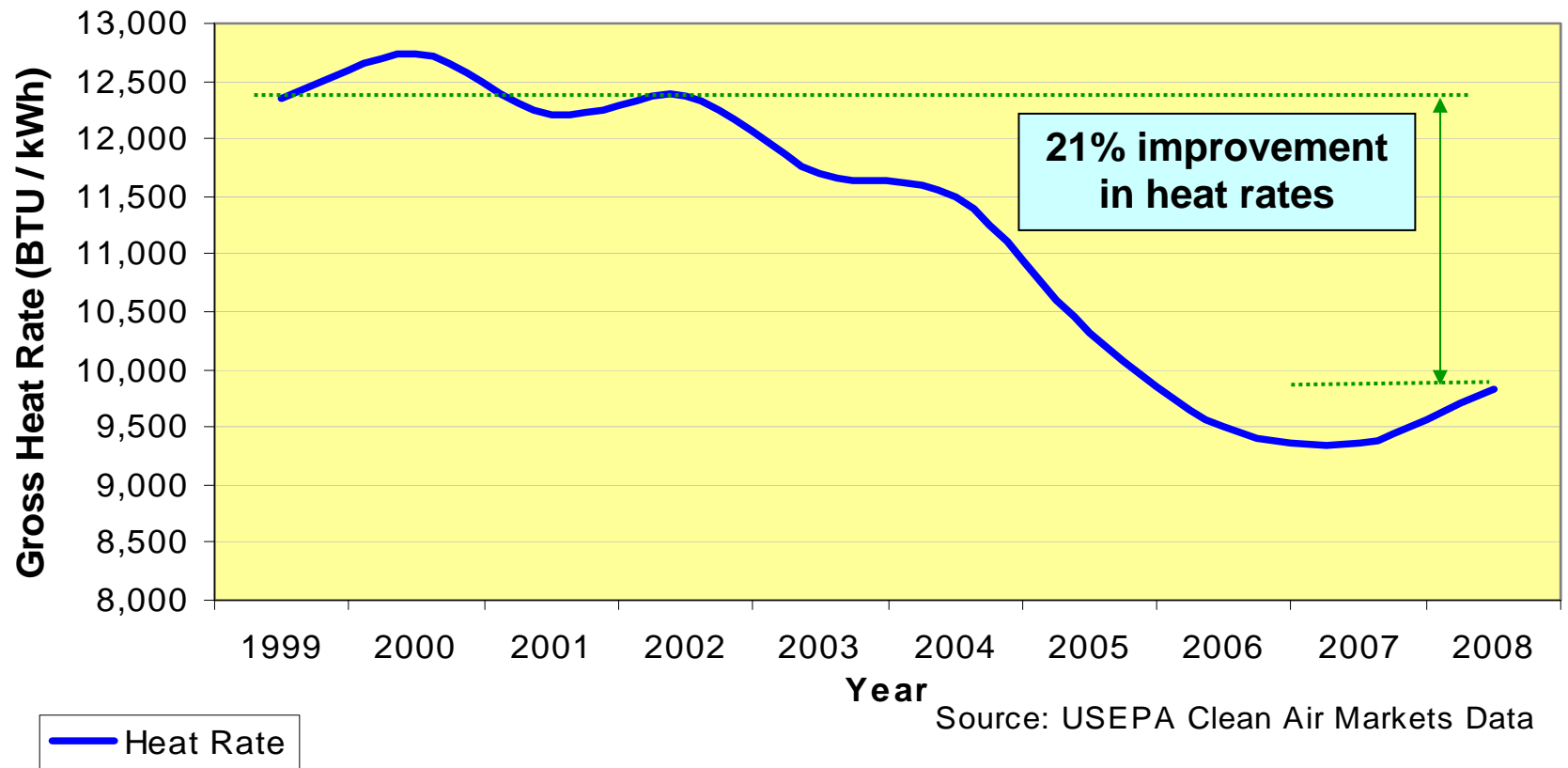


Figure # 3

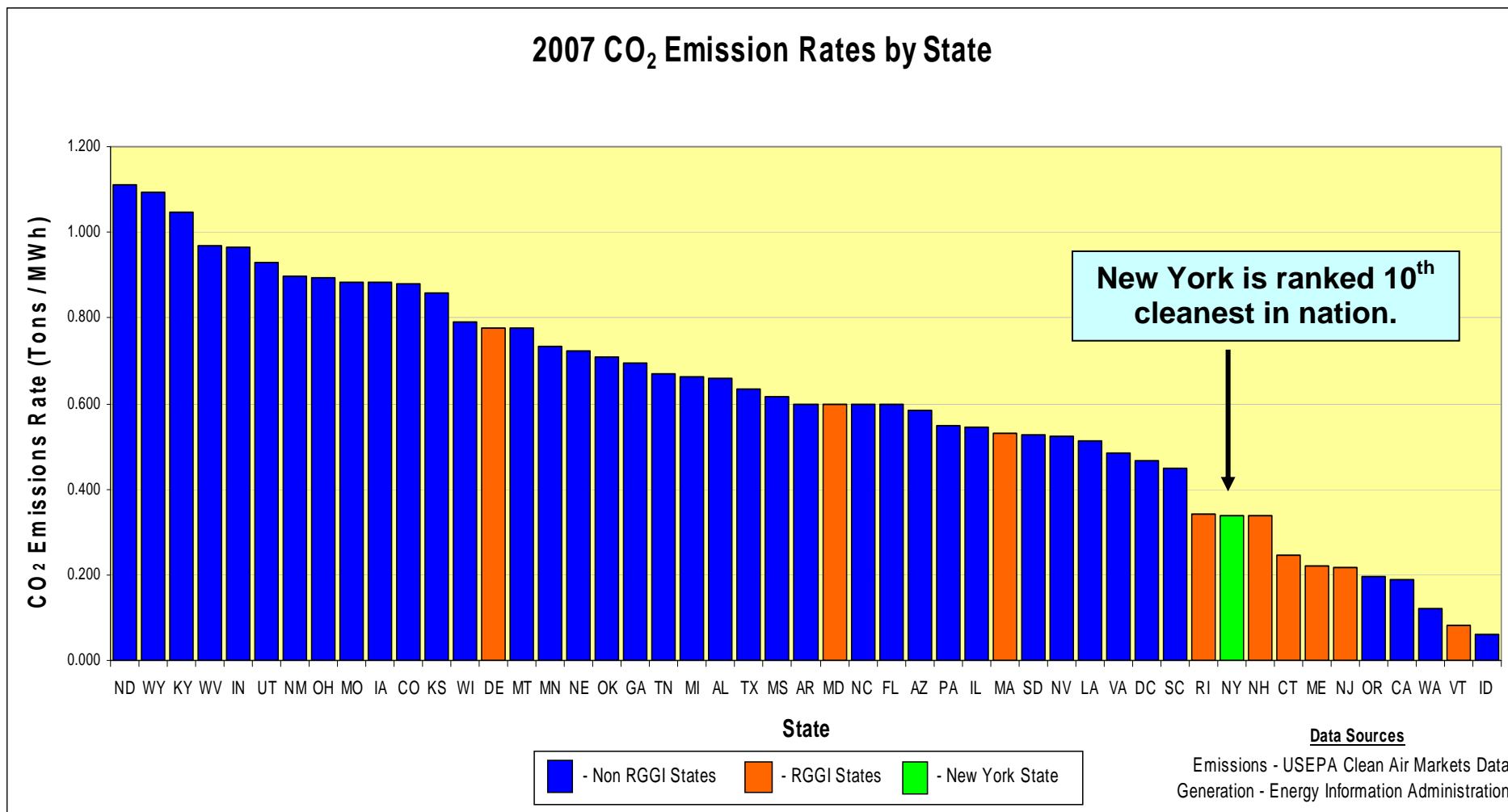


Figure # 4

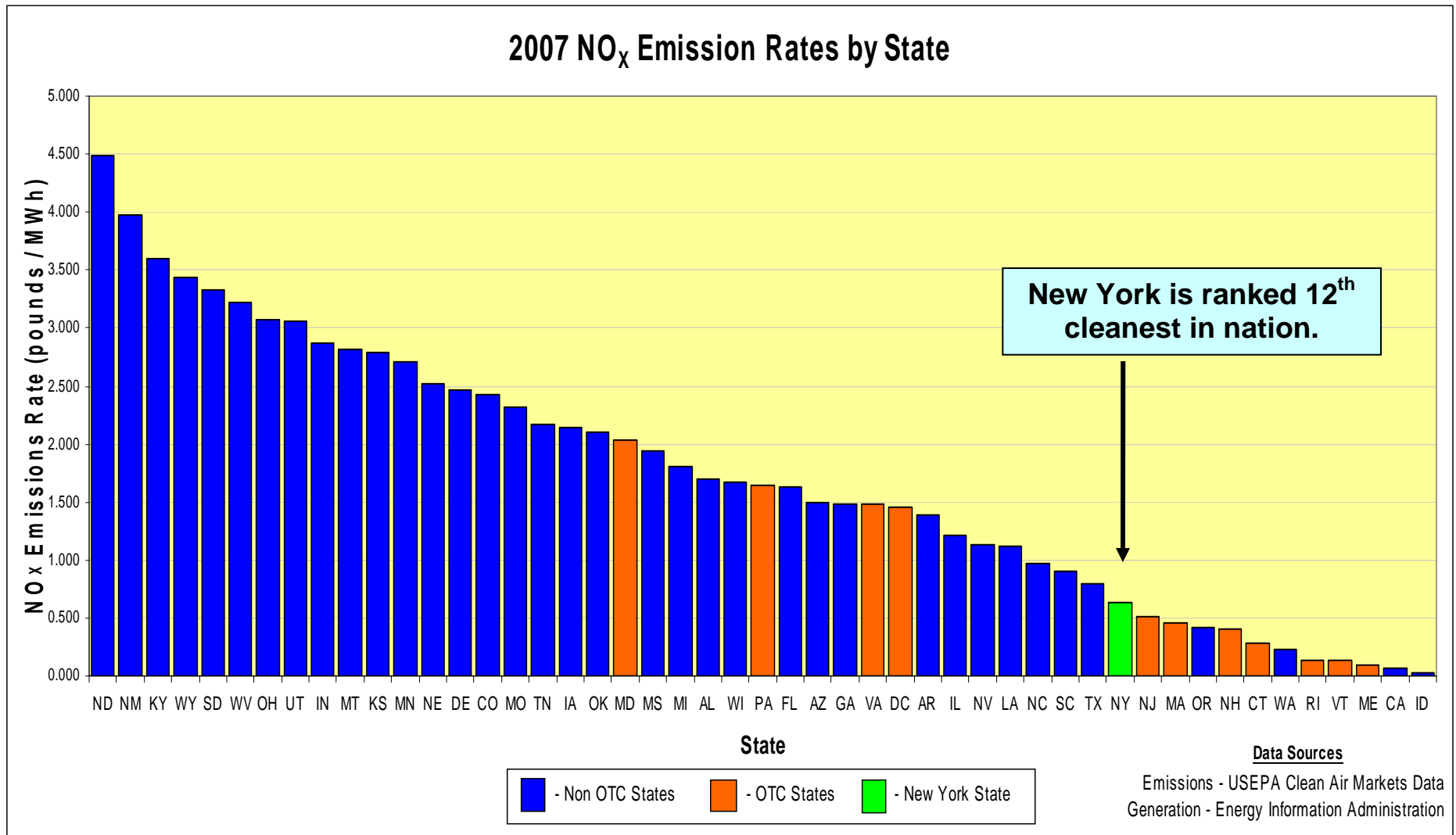
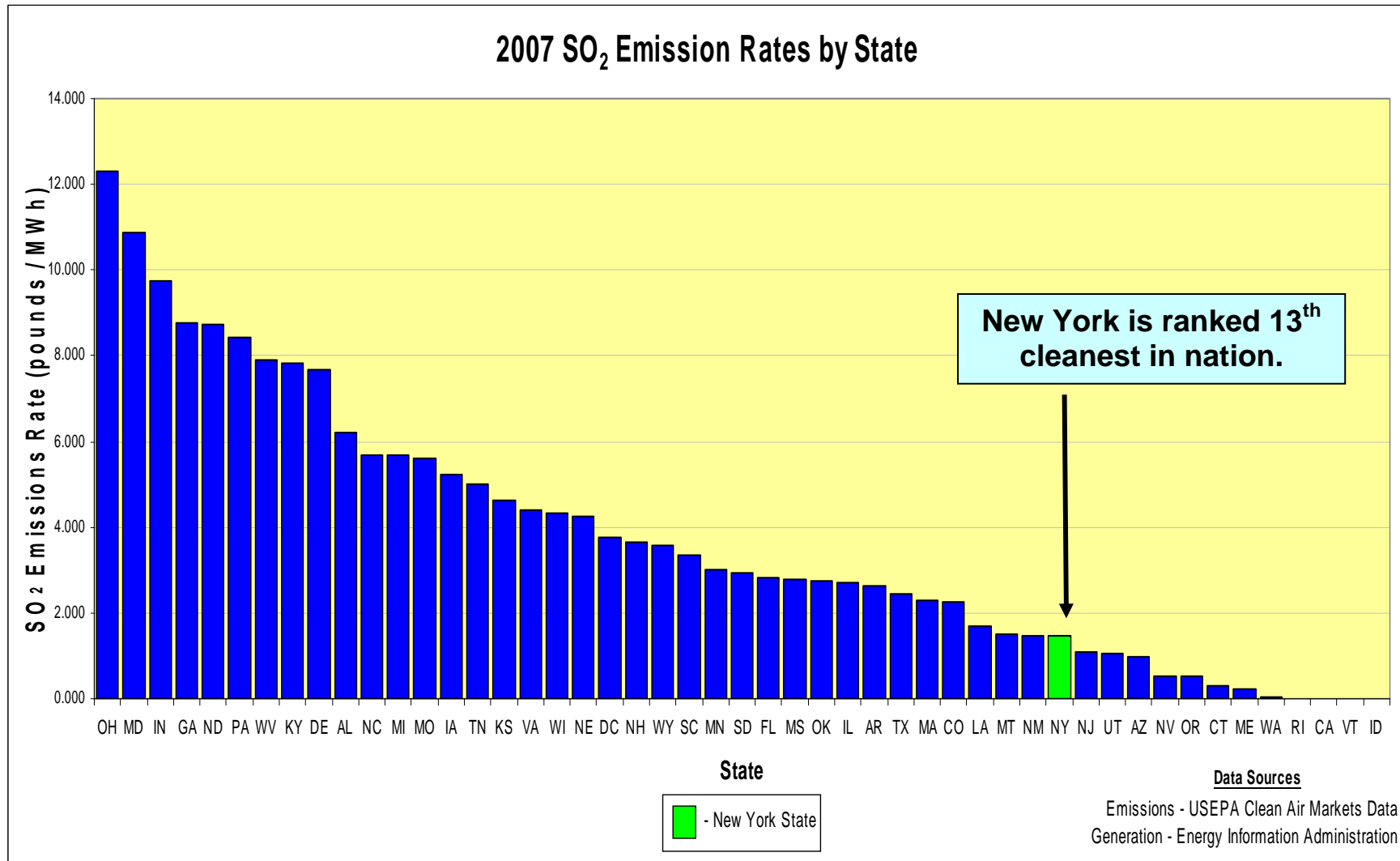


Figure # 5





www.nyiso.com