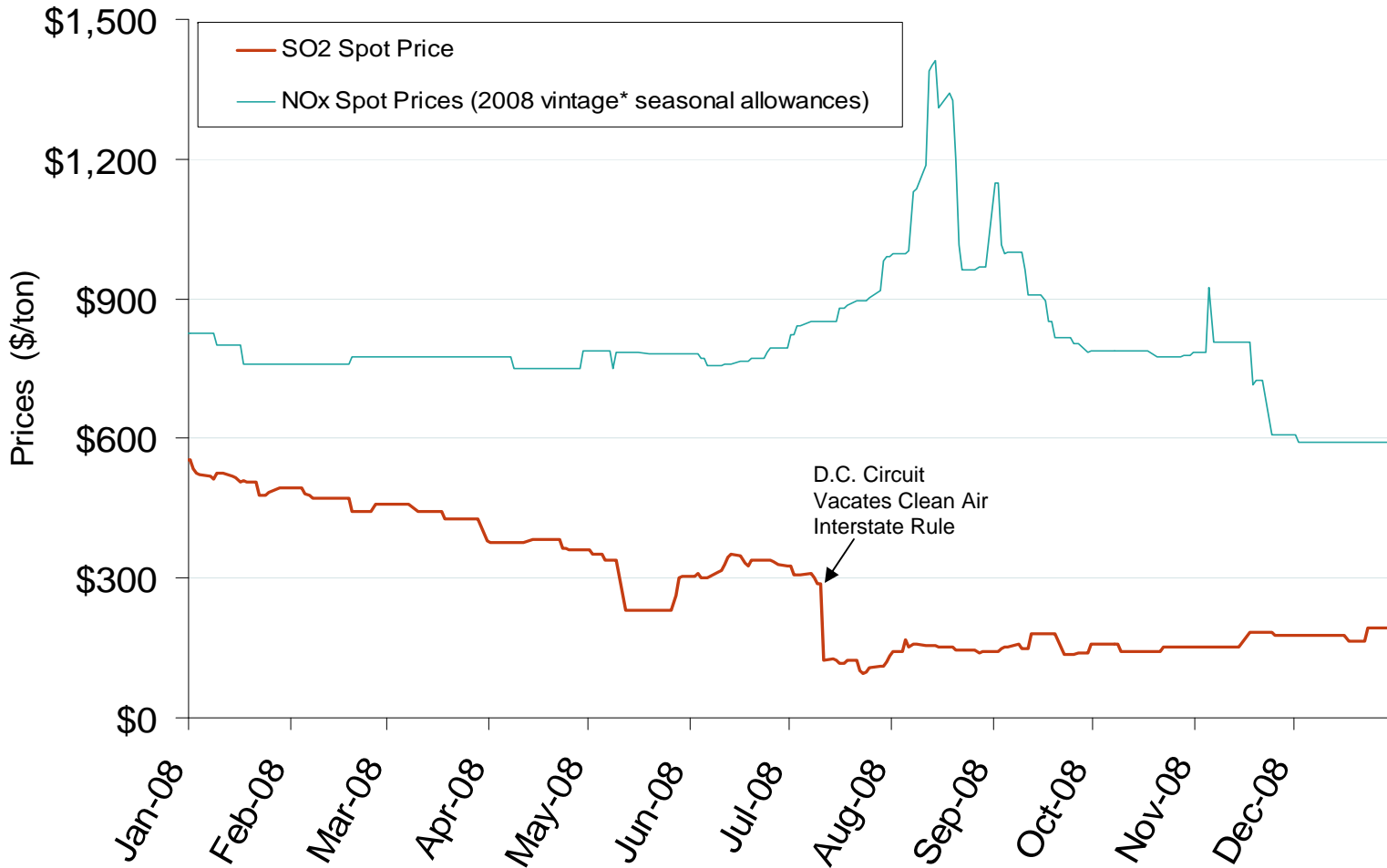


## SO<sub>2</sub> Allowance Spot Prices and NOx Seasonal Allowance Spot Prices



Source: Derived from Cantor Fitzgerald data.

\* Earliest year an allowance may be applied against emissions.

Updated January 9, 2009

## Brief Overview of the SO<sub>2</sub> and NO<sub>x</sub> Emissions Markets

The electric power industry is a major source of sulfur dioxide emissions (SO<sub>2</sub>) and nitrogen dioxide emissions (NO<sub>x</sub>) – both precursors of acid rain and smog. According to the Environmental Protection Agency's (EPA) 2006 Acid Rain Progress Report, the power sector is responsible for 70% of SO<sub>2</sub> emissions and 20% of NO<sub>x</sub> emissions.

Currently US policy encourages reduction in SO<sub>2</sub> and NO<sub>x</sub> emissions which can be achieved through a cap and trade program. This market based model also allows for relative flexibility in compliance options. An emitting source may choose pollution control technology such as add-on controls like flue gas desulfurization (FGD) for SO<sub>2</sub> and selective catalytic reduction (SCR) for NO<sub>x</sub>, fuel switching, and/or participation in the respective cap and trade markets. The decision is primarily driven by the regulatory environment, fuel input type, the level of emission output, and compliance costs, the latter of which affects wholesale and retail prices.

### The Acid Rain Program

<http://www.epa.gov/airmarkets/progsregs/arp/index.html>

EPA's Acid Rain Program (ARP), established under the 1990 Clean Air Act Amendments, requires reductions of SO<sub>2</sub> and NO<sub>x</sub> emissions from the electric power industry. The Acid Rain Program was the first cap and trade program implemented nationwide to reduce SO<sub>2</sub> emissions.<sup>[1]</sup> The SO<sub>2</sub> program set a permanent cap on the total amount of SO<sub>2</sub> that can be emitted by fossil fuel-fired generating units and allows allowance trading so affected sources have some flexibility in their compliance method. Currently, SO<sub>2</sub> sources must surrender one allowance to emit one ton of SO<sub>2</sub>. If a source falls short on the number of allowances it needs to comply with its individual cap, it can purchase allowances from another source that has a surplus of allowances. An emitting source may have a surplus of allowances for several reasons. For example, if it chose to install and/or run scrubbers, it can "bank" those unused allowances for future use or sell the leftover allowances to other emitting sources.

### The NO<sub>x</sub> Budget Trading Program

<http://www.epa.gov/airmarkets/cap-trade/docs/nox.pdf>

In 2003, the cap-and-trade method was also implemented to reduce seasonal (primarily summer) NO<sub>x</sub> emissions from fossil fuel-fired plants. While the EPA administers the program, states are required to share the responsibility for allowance allocation and enforcement. Currently, NO<sub>x</sub> sources must surrender one allowance to emit one ton of NO<sub>x</sub>.

[1] The Acid Rain Program also required NO<sub>x</sub> emission reductions by select coal units but under a rate-based regulatory program [<http://www.epa.gov/airmarkets/progsregs/arp/nox.html>].