

## Nitrogen Oxides: How NOx Emissions Affect Human Health and the Environment

### What are Nitrogen Oxides?

- ✓ Nitrogen oxides (NOx) include various nitrogen compounds like nitrogen dioxide (NO<sub>2</sub>) and nitric oxide (NO). **These compounds play an important role in the atmospheric reactions that create harmful particulate matter, ground-level ozone (smog) and acid rain.**
- ✓ **NOx forms when fuels are burned at high temperatures.** The two major emissions sources are transportation vehicles and stationary combustion sources such as electric utility and industrial boilers. Power plants account for 21% of the NOx that is emitted nationwide.
- ✓ **National emissions of NOx have actually increased over the past 30 years by about 19 percent.** Whereas all the other major criteria air pollutants (carbon monoxide, lead, ozone, particulate matter and sulfur dioxide) have decreased since the advent of the modern Clean Air Act in 1970, **NOx emissions have increased by nearly 4 million tons each year.**

### What are the harmful effects of NOx emissions?

- ✓ NOx emissions contribute to the formation of fine particles and ozone smog that cost society **billions of dollars annually from illnesses and deaths.**
- ✓ NOx emissions also contribute to a suite of year-round environmental problems, from **acid rain** in the mountain regions to eutrophication (the buildup of nutrients in coastal estuaries), leading to **oxygen depletion** that degrades water quality and harms fish. NOx emissions also contribute to **haze air pollution in our national parks and wilderness areas.**

### What is being done to reduce NOx emissions?

- ✓ The Environmental Protection Agency took a significant step to combat summertime ozone problems with its program for Eastern states to reduce their NOx emissions from power plants and other sources from May through September. Power plants across the East are **installing control equipment** to meet these new standards (NOx SIP Call standards).
- ✓ While this is a commendable step forward for reducing NOx emissions, **few facilities intend to operate this equipment year-round.** With capital investments already made for summertime NOx controls, the benefits of extending NOx reductions year-round far outweigh the more limited costs involved in operating the pollution control equipment additional months throughout the year. Investments in reducing NOx emissions year-round will produce significant societal benefits in both public health and environmental protection.
- ✓ Environmental Defense advocates that **states take the lead in creating year-round NOx reduction standards**, in the absence of action at the federal level to clean up the multiple pollutants from power plants. States can no longer afford to wait for the federal government to protect their citizens from year-round pollution caused by NOx. Some states, including North Carolina, New Hampshire, Massachusetts and Texas have already adopted policies that control NOx and other pollutants year-round.

Read the Environmental Defense report [A Plan for All Seasons: Costs and Benefits of Year-Round NOx Reductions in Eastern States \(12/02\)](#)

For more information go to [www.environmentaldefense.org/go/airquality](http://www.environmentaldefense.org/go/airquality)  
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