Models predicting the effect of these emission reductions on air quality show that all areas in the eastern United States will have lower ozone concentrations in 2015 relative to present-day conditions. In most cases, the predicted improvement in ozone ranges from 10% to 20%. An estimated 274 counties violated the 8-hour ozone standard in 2002 (Figure 23), but only 34 of those counties are projected to violate the 8-hour standard by 2015 (Figure 24). Additional NO_x controls will be necessary to address the residual ozone problem. Toward that end, EPA recently proposed the Clean Air Interstate Rule, which would reduce NO_x emissions in 29 eastern states and the District of Columbia by 1.8 million tons annually by 2015. This rule is projected to bring 8 of the 34 residual counties into attainment with the 8-hour standard by 2015.

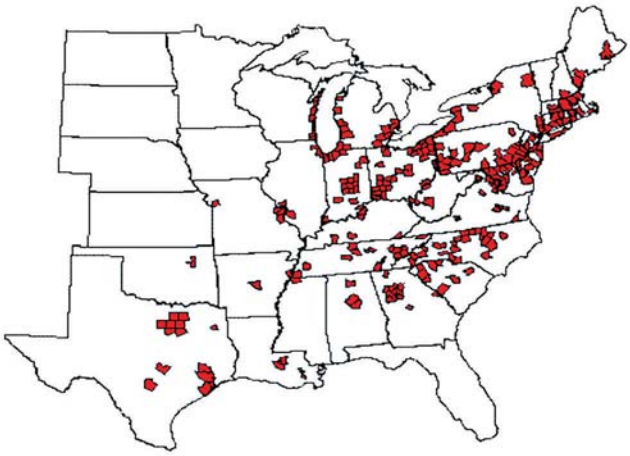

Figure 23. Counties (274) Violating the 8-Hour Ozone Standard in 2002.

Figure 24. Remaining Counties (34) Likely to Violate the 8-Hour Ozone Standard in 2015.

Summary

Ozone levels vary from year to year and location to location. Meteorology, transport of ozone precursors, and difficulties in estimating emissions make analysis and interpretation of ambient ozone levels challenging. EPA will continue to measure and study ozone concentrations, characterize and measure the reductions in VOC and NO_x emissions, and assess the nation's progress in attaining the ozone standards. This information will help guide the country's air quality program and help EPA to more accurately report the status and progress of the program to the public.

The "state of ozone" can be summarized as follows:

- Ozone levels have decreased over the past 10 to 25 years, and these reductions resulted from emission control programs.
- Ozone is at its lowest level nationally since 1980, but the downward trend is slowing.
- Ozone trends vary by region: since 1980, the Northeast and West/Southwest have shown the greatest improvements, whereas other areas reveal a flatter trend.
- Nationally, 2003 was one of the cleanest years on record, due in part to meteorology.
- After the variability of meteorology is accounted for, we are able to better assess regional ozone trends and make initial comparisons to trends in emissions.
- Ozone still threatens public health and the environment in a number of areas around the country.
- Over the next decade, federal, state, and local regulations are expected to further reduce ozone precursor emissions, and, as a result, ozone levels are expected to drop.
- Future analysis and continual tracking of ozone trends across the nation will allow us to determine the effectiveness of emission control programs and whether there is a sustained downward trend in ozone across the United States.
- Areas of further investigation include regional ozone air quality patterns, more detailed emission estimates (including biogenics), meteorological effects on ozone trends, and regional and transcontinental transport of ozone and its precursors.
- Additional information may be found at EPA's air trends website at: **www.epa.gov/airtrends**.

Acronyms

CAA	Clean Air Act
EPA	U.S. Environmental Protection Agency
MACT	maximum achievable control technology
MSA	metropolitan statistical area
NAAQS	National Ambient Air Quality Standards
NO_x	oxides of nitrogen
ppm	parts per million
SIP	State Implementation Plan
VMT	vehicle miles traveled
VOC	volatile organic compound

For Further Information

Reference

U.S. Environmental Protection Agency. 1996. *Air Quality Criteria for Ozone and Related Photochemical Oxidants.* EPA/600/P-93/004a-cF. Research Triangle Park, NC: U.S. Environmental Protection Agency.

Web Sites

Bureau of Economic Analysis: www.bea.gov

Bureau of Transportation Statistics: www.bts.gov

Clean Air Interstate Rule: www.epa.gov/interstateairquality

Detailed Information of Air Pollution Trends: www.epa.gov/airtrends

Energy Information Administration: www.eia.doe.gov

Formation of Ozone: www.epa.gov/air/urbanair/ozone/what.html

Health and Ecological Effects:
www.epa.gov/airnow/health/smog1.html#3
www.epa.gov/air/urbanair/ozone/hlth.html

National Park Service: www.nps.gov

Office of Air and Radiation: www.epa.gov/oar

Office of Air Quality Planning and Standards: www.epa.gov/oar/oaqps

Office of Atmospheric Programs: www.epa.gov/air/oap.html

Office of Radiation and Indoor Air: www.epa.gov/air/oria.html

Office of Transportation and Air Quality: www.epa.gov/otaq

Online Air Quality Data: www.epa.gov/air/data/index.html

Ozone Depletion: www.epa.gov/ozone

Ozone Designations: www.epa.gov/ozonedesignations

Real-Time Air Quality Maps and Forecasts: www.epa.gov/airnow

Regional Patterns in Ozone: www.epa.gov/airtrends/ozonepatterns.html

Westar: www.westar.org/downloads.html

U.S. Census Bureau: www.census.gov

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EPA Publication No. EPA 454/K-04-001