Reducing Power Plant Emissions: EPA's New Proposed Rules For Interstate Air Quality and Mercury

U.S. Environmental Protection Agency
Office of Air and Radiation
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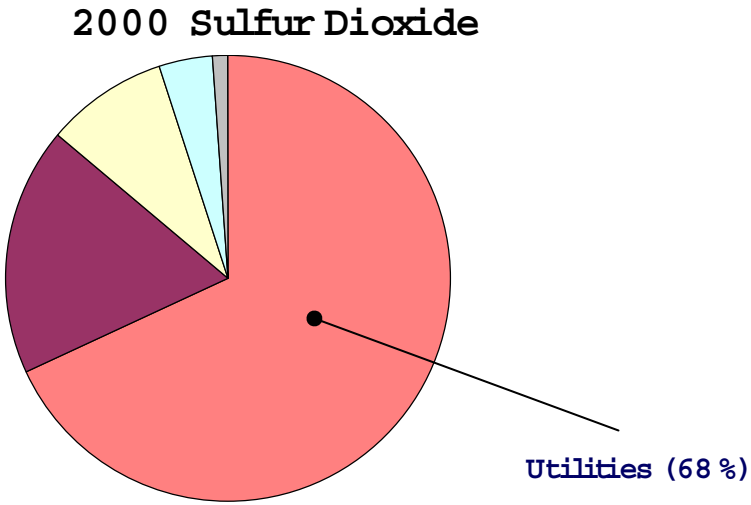
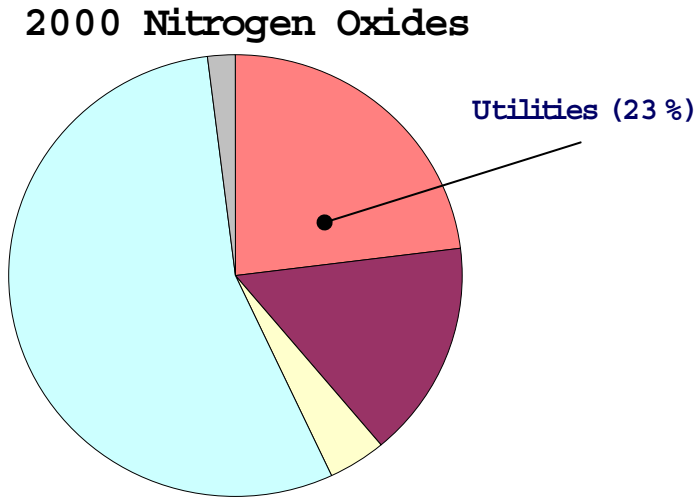
EPA Proposes Emission Reductions from Power Plants through Current CAA Authorities

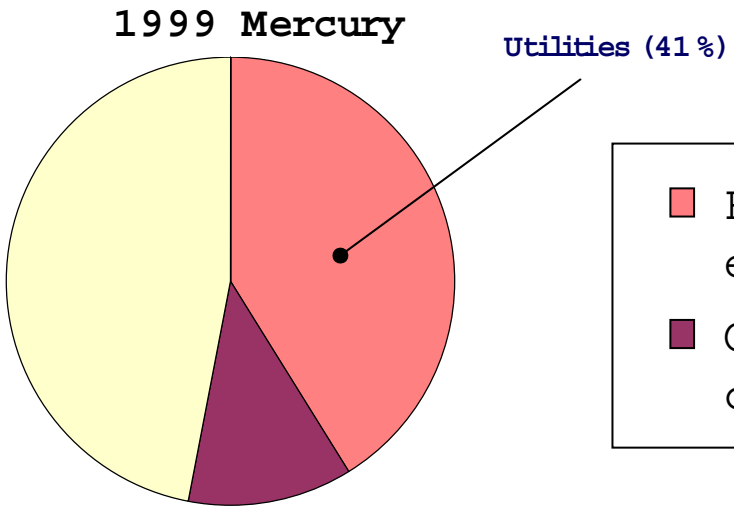
- **Interstate Air Quality Rule** to address the contribution of transported SO_2/NO_x emissions to ozone (smog) and fine particles ($PM_{2.5}$) nonattainment problems in the Eastern U.S.

- **Utility MACT standards** or **state-implemented Section 111 standards** to reduce mercury emissions and deposition that contribute to fish contamination and human exposure.

Power Generation Is a Major Source of Emissions







- Fuel Combustion-electric utilities
- Other stationary combustion *
- Industrial Processing
- Transportation
- Miscellaneous

* Other stationary combustion includes residential and commercial sources.

Pollutants and Concerns

- **Nitrogen oxides** (NO_x) contribute to the formation of both $PM_{2.5}$ and ground-level ozone.
  Sulfur dioxide (SO_2) contributes to formation of $PM_{2.5}$.

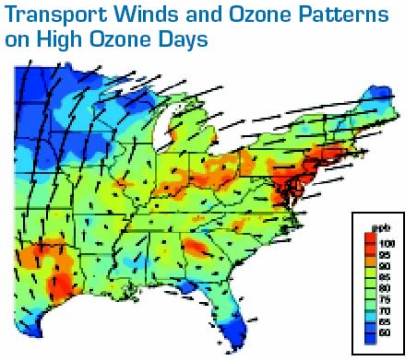
- **Ozone and $PM_{2.5}$** have been linked with serious illnesses such as chronic bronchitis and heart attacks, and respiratory illnesses such asthma exacerbations and, in the case $PM_{2.5}$, premature death.

- **NO_x and SO_2** form acid rain and contribute to regional haze.

- NO_x contributes to eutrophication of coastal water bodies, including estuaries such as the Chesapeake Bay

- **Mercury** has been linked to reproductive, immune and nervous system effects, especially in young children and developing fetuses, as well as cardiovascular effects in adults and children.

Long Range Transport of Air Pollution



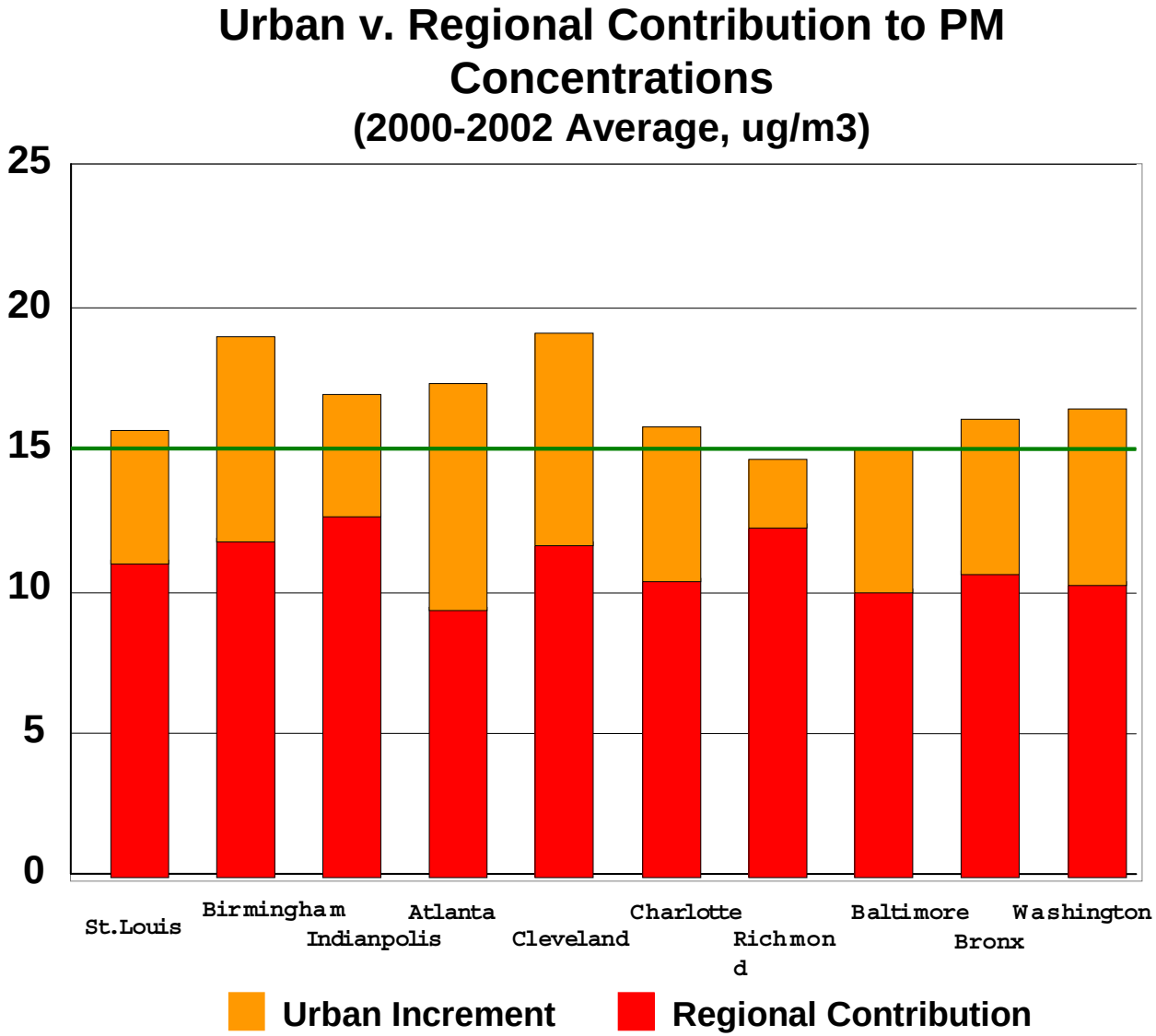
- Air pollution can travel hundreds of miles and cause multiple health and environmental problems on regional or national scales

- Emissions contributing to $PM_{2.5}$ and ozone nonattainment often travel across state lines, especially in the eastern U.S.

- Attaining national ambient air quality standards will require some combination of emissions reductions from:
  - sources located in or near nonattainment areas (such as mobile sources) and
  - sources, that contribute to regional levels of pollution, such as power plants, located further from nonattainment areas

- EPA is also addressing ozone and particle pollution from mobile sources by implementing national fuel and engine standards.

Regional Emissions Contribute Significantly to Local Nonattainment Problems

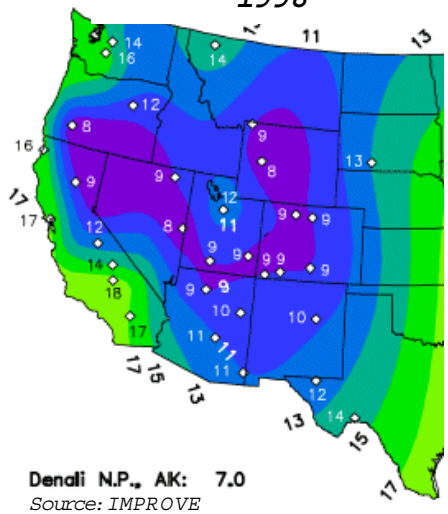


- **Because emissions are often transported across state boundaries, both regional and local action is needed to address air quality issues.**
- **Federal action would significantly reduce the burden on state and local governments by addressing transport.**

Regional Haze and Visibility

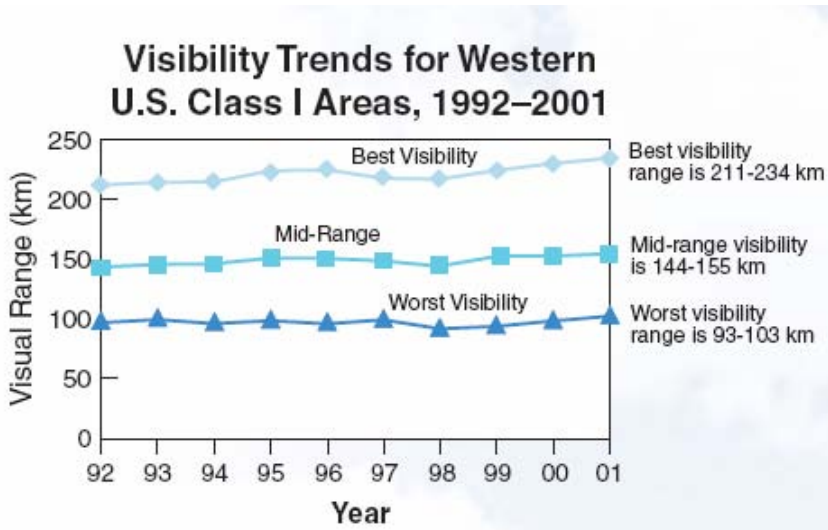
Shenandoah National Park under bad and good visibility conditions. The visual range in the top photo is 25 km while the visual range in the bottom photo is 180 km.

Visibility in the West (Deciview) 1996-1998



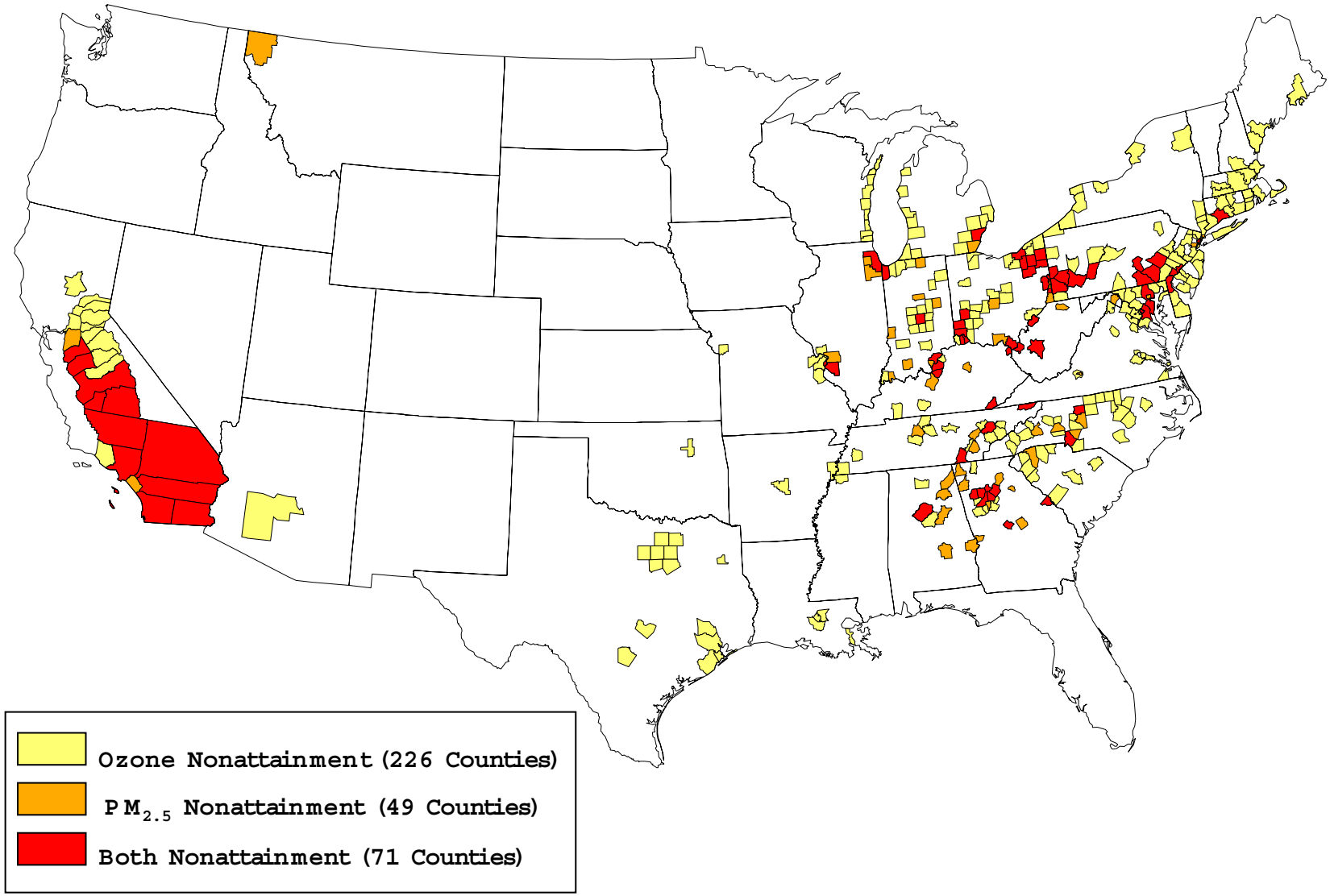
Source: IMPROVE

Yosemite National Park under bad and good visibility conditions. The visual range in the top photo is 111 km while the visual range in the bottom photo is greater than 208 km.



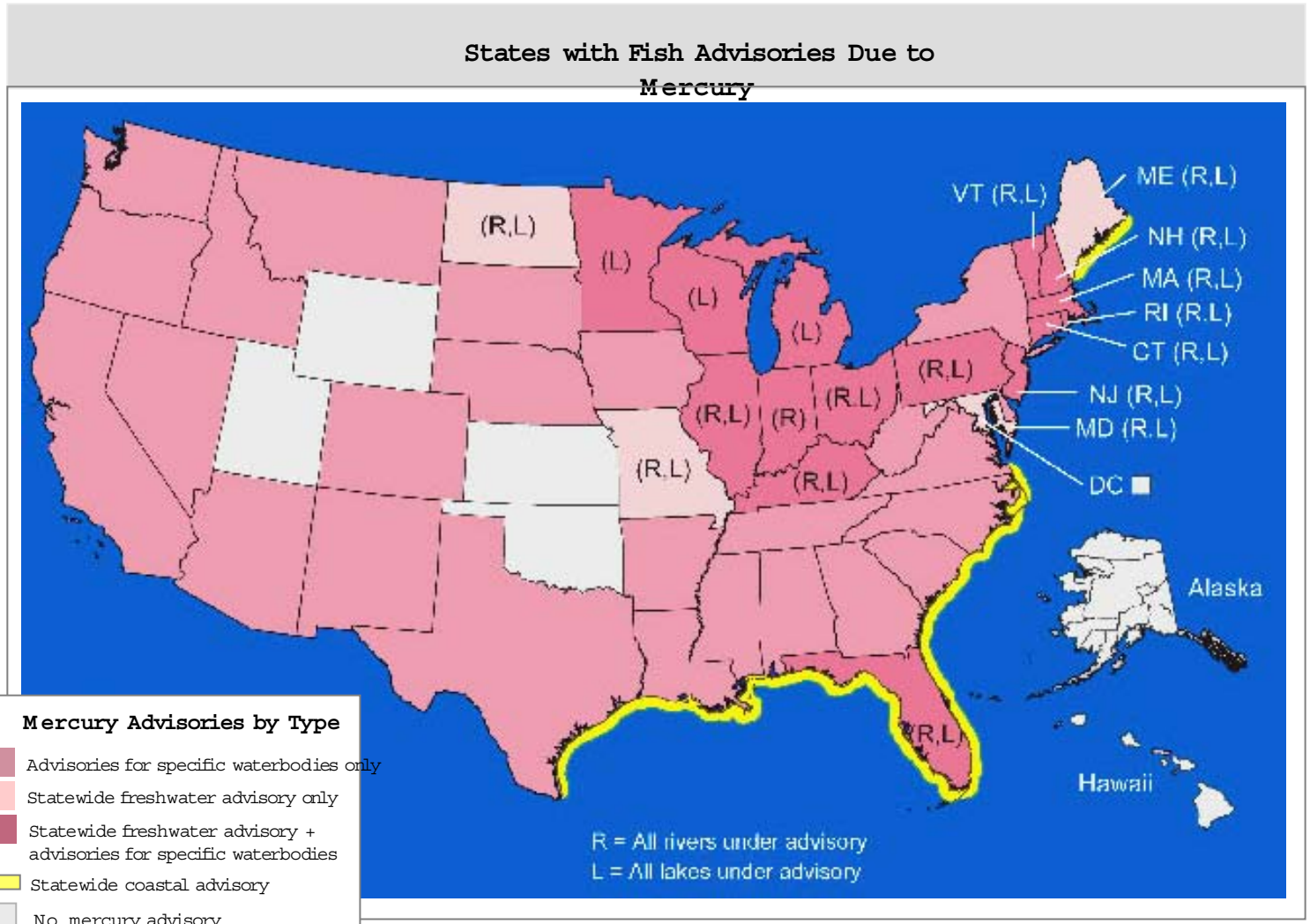
Source: 'Latest Findings on National Air Quality' 2002.

Counties With Monitors Exceeding the Ozone and $PM_{2.5}$ NAAQS in 2002



Mercury Contamination in Fish

- Currently 44 states have issued fish consumption advisories for some or all of their waters due to contamination from mercury.*



***Note:** For more information about the relationship between fish advisories and human exposure to mercury, see the EPA Report "America's Children and the Environment: Measures of Contaminants, Body Burdens, and Illnesses" available at *http://yosemite.epa.gov/ochp/ochpweb.nsf/content/publications.htm*