

**New Source Review  
Comments on the National Academy  
of Sciences Report**

**John G. Watson  
Desert Research Institute**

**August 16, 2006**

# National Academy of Sciences Report

**PREPUBLICATION COPY**

## New Source Review for Stationary Sources of Air Pollution

**ADVANCE COPY**

NOT FOR PUBLIC RELEASE BEFORE

**Friday, July 21, 2006**

**11:00a.m. EDT**

This prepublication version has been provided to the public to facilitate timely access to the committee's findings. Although the substance of the report is final, editorial changes may be made throughout the text, and citations will be checked prior to publication.

**NATIONAL RESEARCH COUNCIL**  
OF THE NATIONAL ACADEMIES

# Charge to Committee

- Estimate and evaluate effects of NSR changes on
  - Emission increases or decreases
  - Human health
  - Changes in pollution control/prevention methods and technologies at affected sources
  - Increases or decreases in facility efficiency
  - Uncertainty of each estimate
  - Other relevant data

# Committee Limitations

- It's a committee. Must reach consensus
- Consists of volunteers with full time jobs
- Limited to existing analyses and data bases.  
No resources or time to compile new ones
- Charge to committee was broad
- NSR changes are a moving target
- Lots of anecdotal evidence (coulda, woulda, shoulda), not much quantitative information

# Overall Report Conclusion

- “It is not possible at this time to quantify with a reasonable degree of certainty the potential effects of the NSR rule changes on emissions, human health, energy efficiency, or on other relevant activities at facilities subject to the revised NSR program.”

# Watson's Comments

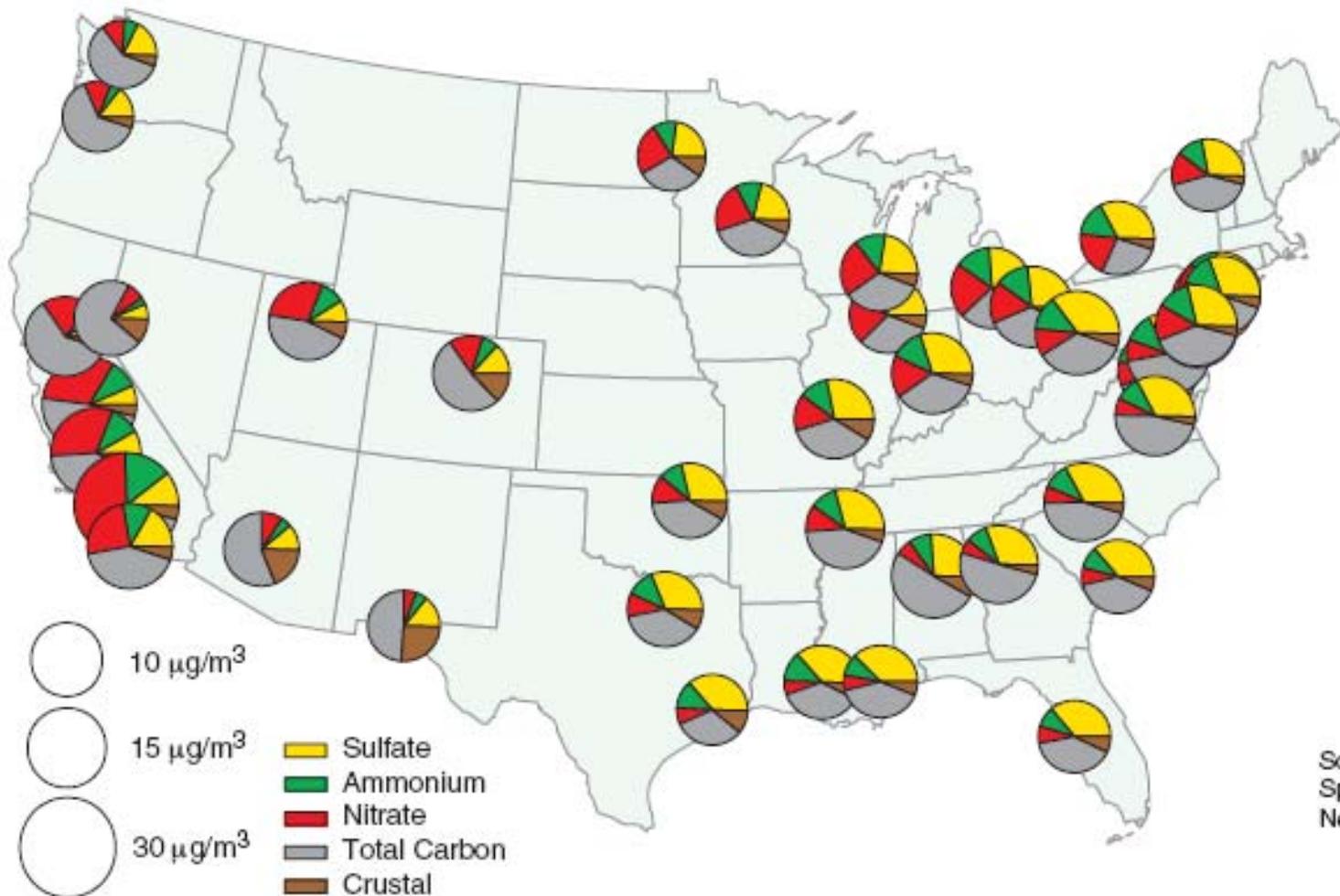
- Problem can be better bounded with respect to pollutants, industries and locations, and detailed report supports this
- Despite recommendations for further research, such research is unlikely to address the task with greater certainty. No agreement on how different companies will behave under specific circumstances
- Given other pressures on industrial emissions (NAAQS attainment SIPs, regional haze, CAIR, local concerns, fraction of non-NSR emissions, needs to modernize and increase productivity) NSR rule changes probably have a minor effect on emissions in most states

# What are criteria pollutants of interest?

## $O_3$ and $PM_{2.5}$

- $SO_2$  and  $NO_2$  standards not exceeded anywhere for many years
- CO levels high in only a few, roadside locations
- Pb non-attainment at two mining/processing plants in Missouri and Montana
- With current industrial duct configurations, coarse particles are mostly removed prior to emission

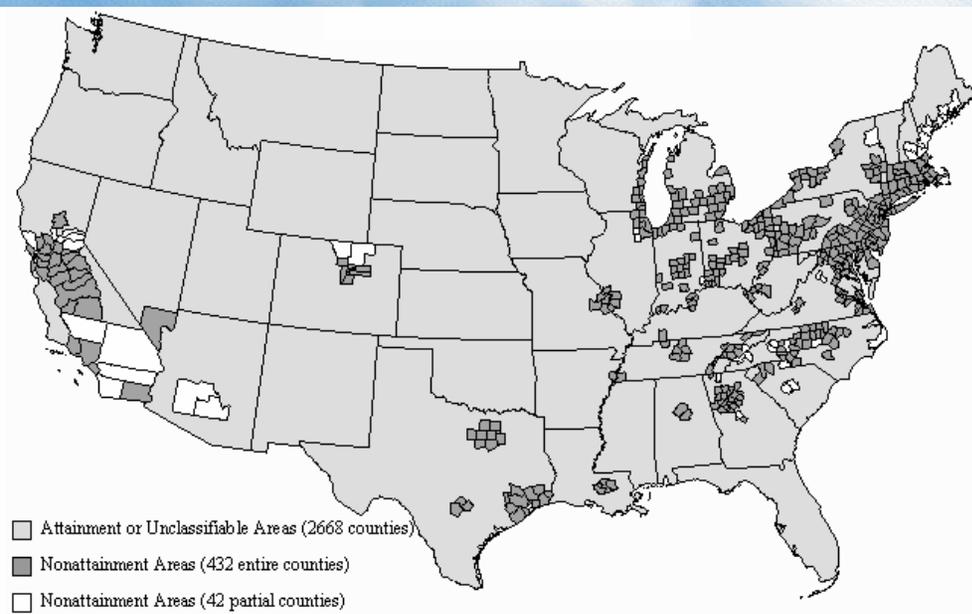
# What are emissions of of interest? $\text{SO}_2$ , $\text{NO}_x$ , VOC and primary $\text{PM}_{2.5}$



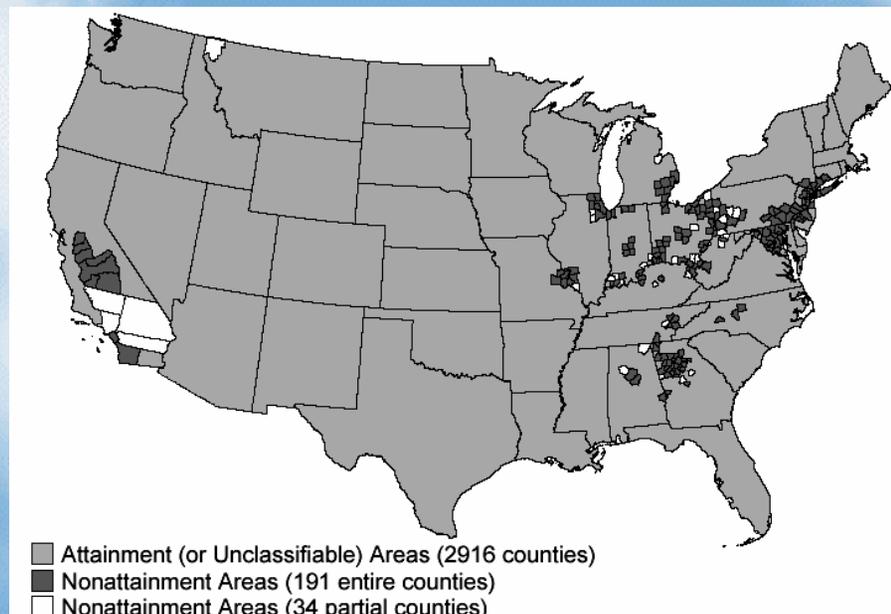
Source: EPA  
Speciation  
Network, 2002.

# Where are exposures unhealthy?

## Much of California, northeast, Lake Michigan, Texas cities, other urban areas



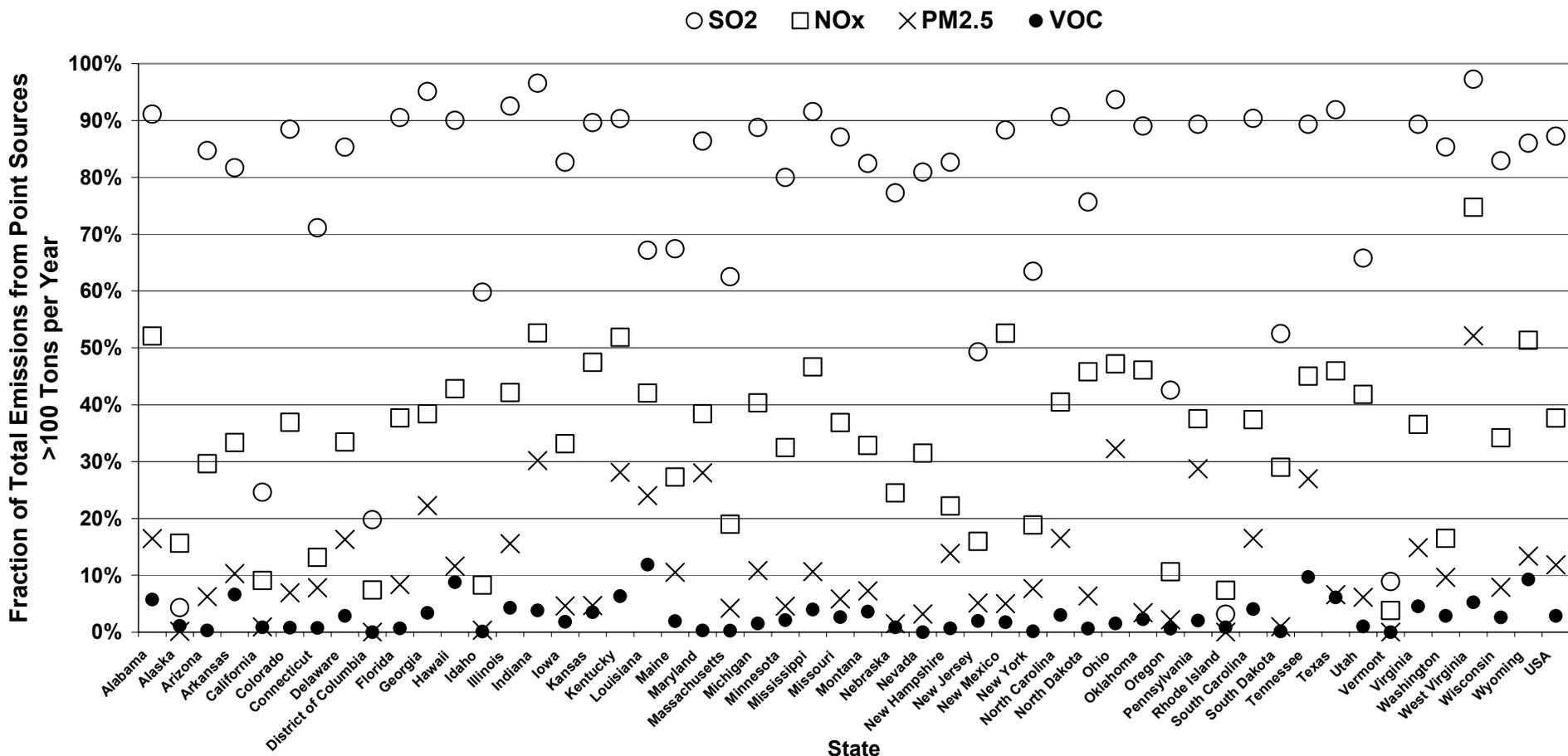
**O<sub>3</sub> non-attainment**



**PM<sub>2.5</sub> non-attainment**

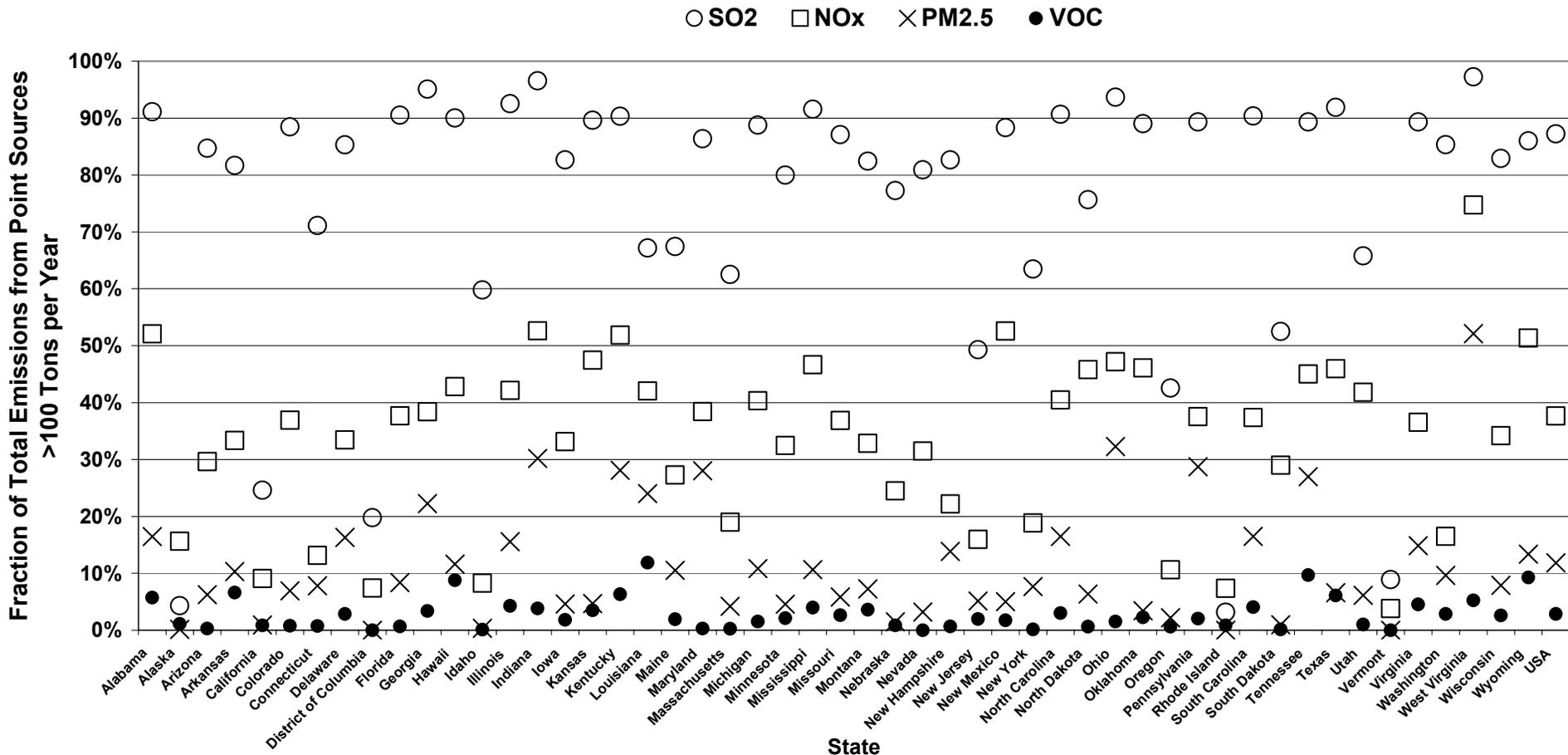
# Which emissions are dominated by NSR sources?

VOC fraction is small, PM<sub>2.5</sub> is probably overestimated  
SO<sub>2</sub> and NO<sub>x</sub> are dominant emittants



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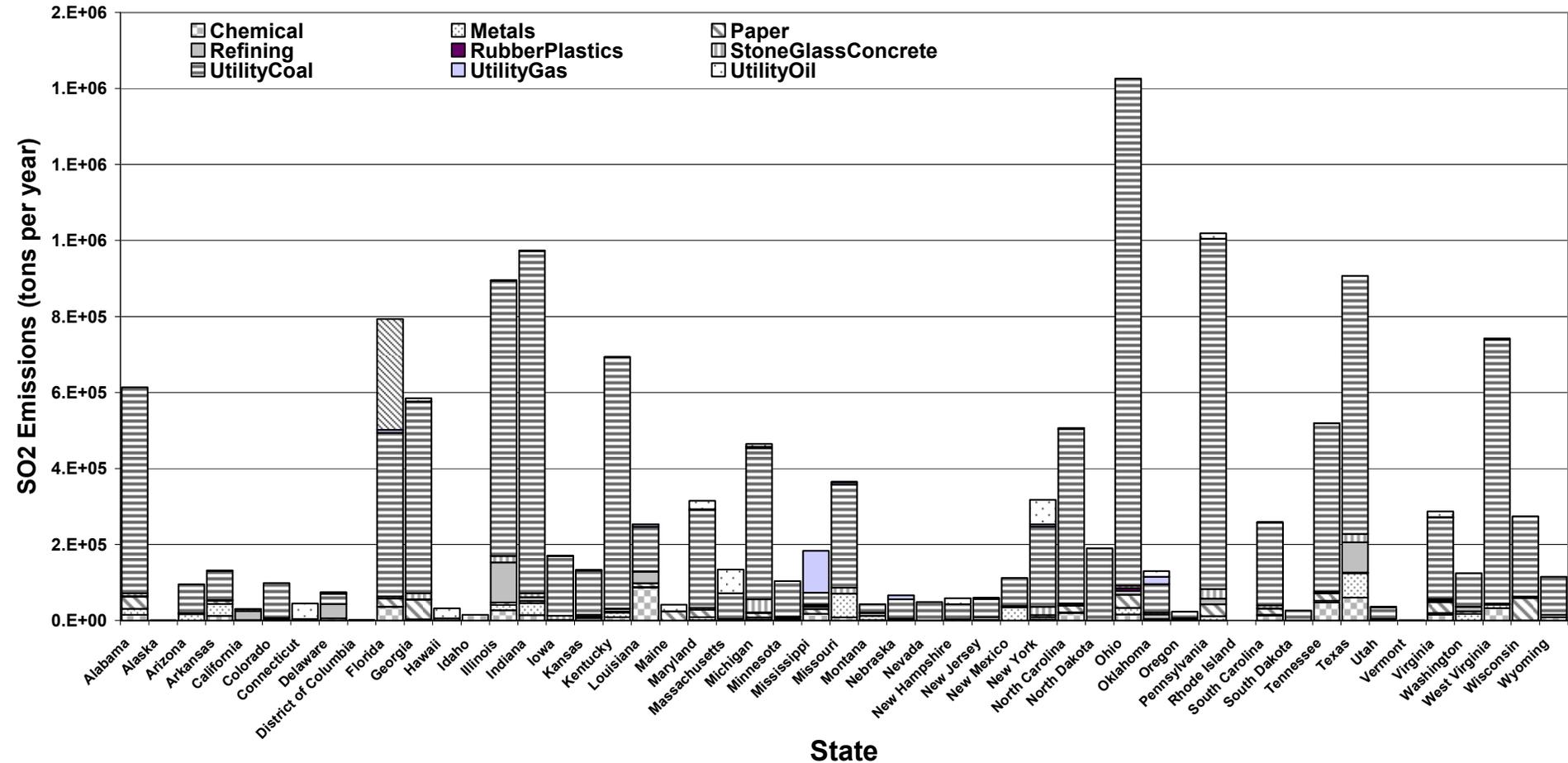
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1999 National Emissions Inventory

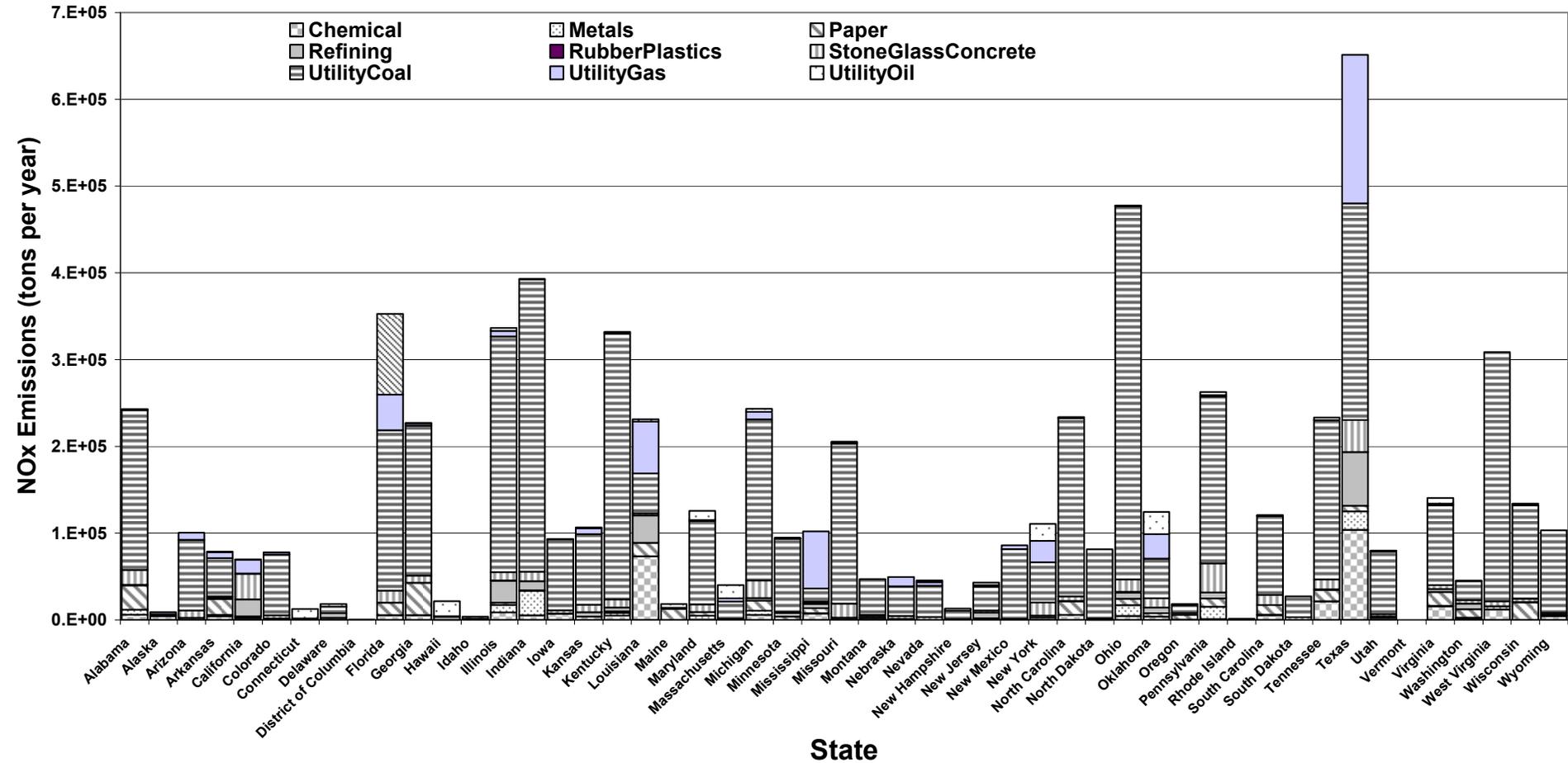
# Which source types dominate NSR SO<sub>2</sub> emissions and in which states?

## Coal-fired electrical generation in eastern states and Texas



# Which source types dominate NSR NO<sub>x</sub> emissions and in which states?

Coal-fired and gas-fired electrical generation, chemical/oil production in eastern states and Texas



1999 National Emissions Inventory

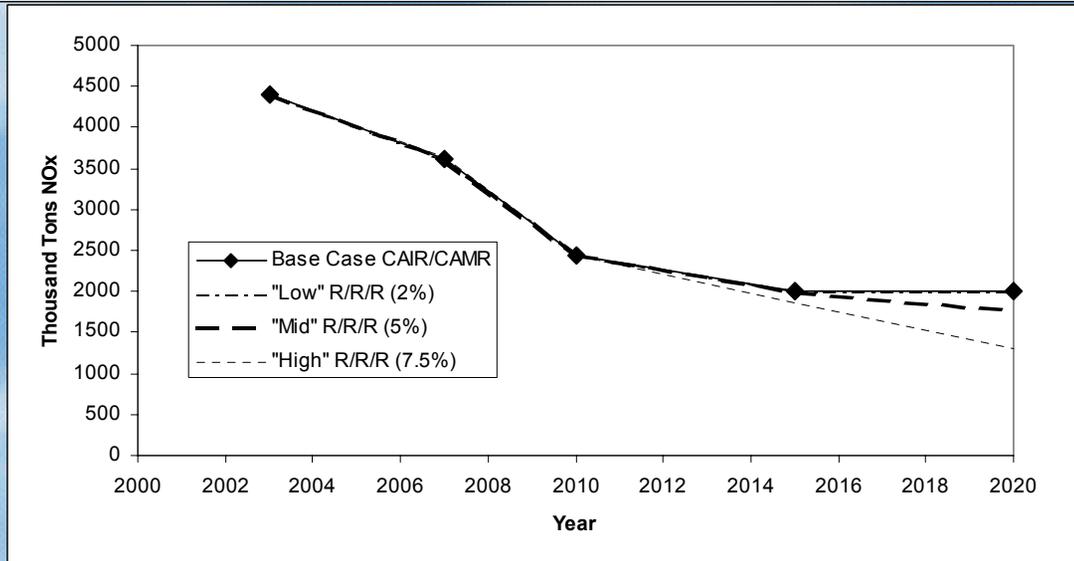
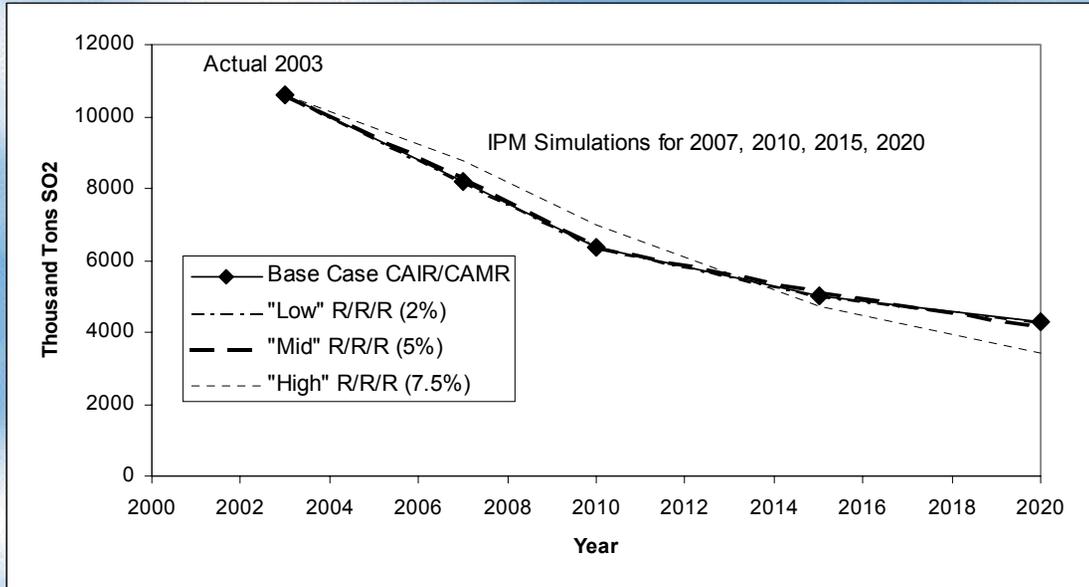
# Which power stations have greatest potential to reduce emissions and increase efficiency?

**The older ones!**

Power Plant Established	Avg. SO <sub>2</sub> Emission Rate (lb/MWh)	% of Total SO <sub>2</sub> Emitted	% of Coal-Fired Electricity Generation	% of SO <sub>2</sub> Emitted per % of Electricity Generated <sup>a</sup>	Average Capacity Factor (%) <sup>b</sup>	Average Heat Rate (Btu/kWh generated)
Pre-1950	20.58	1.02	0.50	2.04	36.35	12,549
1950-1959	15.78	19.64	12.56	1.56	58.93	10,668
1960-1969	13.92	27.12	19.65	1.38	64.37	10,150
1970-1979	9.31	35.75	38.76	0.92	68.29	10,270
1980-1989	6.02	15.49	25.97	0.60	73.17	10,401
Post-1990	3.88	0.98	2.56	0.38	75.80	9,982

# What would stricter enforcement have gained with CAIR, CAMR, BART, etc?

## Not much for energy sector



# How serious are states about applying new NSR rules?

## Several legal challenges or “Big Deal” reaction

Challenged NSR Changes	No Position	Supported NSR Changes
Implemented group		
CA, IL, MA, NJ, NY, PA	AZ, HI, MI, MN, NV, WA	SD
Nonimplemented group		
CT, DE, ME, MD, NH, RI, VT, WI, DC	AL, AR, CO, FL, GA, IA, ID, KY, LA, MO, MS, MT, NC, NM, OH, OK, OR, TN, TX, WV, WY	AK, IN, KS, ND, NE, SC, UT, VA

# What good is this report? Something for everyone!

## Scientists Group Fears More Pollution

By JOHN HEILPRIN  
The Associated Press

Friday, July 21, 2006; 11:00 AM

Friday, July 21, 2006

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**NAS Report Fails To Provide Certainty On EPA's New Source Review Reforms**

**Lieberman Calls Upon EPA to Clarify Health Effects of Proposed Power Plant Rule Changes**

*Cites New National Research Council Recommendation*

## Effect of pollution policy unclear

By [JEFF NESMITH](#)

The Atlanta Journal-Constitution

Published on: 07/22/06

## Bush Pollution Curbs Are Rated Equal to Clinton's Science Panel Says Proposed Cap-and-Trade System Will Help Clean Air

By Juliet Eilperin  
Washington Post Staff Writer  
Saturday, July 22, 2006; A05

[washingtonpost.com](http://washingtonpost.com)