

US EPA ARCHIVE DOCUMENT

The information presented here reflects EPA's modeling of the Clear Skies Act of 2002. The Agency is in the process of updating this information to reflect modifications included in the Clear Skies Act of 2003. The revised information will be posted on the Agency's Clear Skies Web site (www.epa.gov/clearskies) as soon as possible.

Emissions Cap and Trade and Hotspots

Clear Skies Workshop
June 19, 2002

Clear Skies

Overview

- Concerns over potential negative local impacts of emissions trading to health and the environment
 - What are hotspots?
 - What have we learned about cap and trade?
 - What do we expect for Clear Skies?

What are Hotspots?

- Different people, different definitions
 - Source
 - facility or group of facilities emitting large volumes of pollutants
 - excessive amount of allowances used by a power generating source
 - Receptor
 - area or region with persistently poor air quality or high atmospheric deposition loadings
 - Local impacts
 - area receiving *increased* emissions or pollutants resulting in worsening air quality

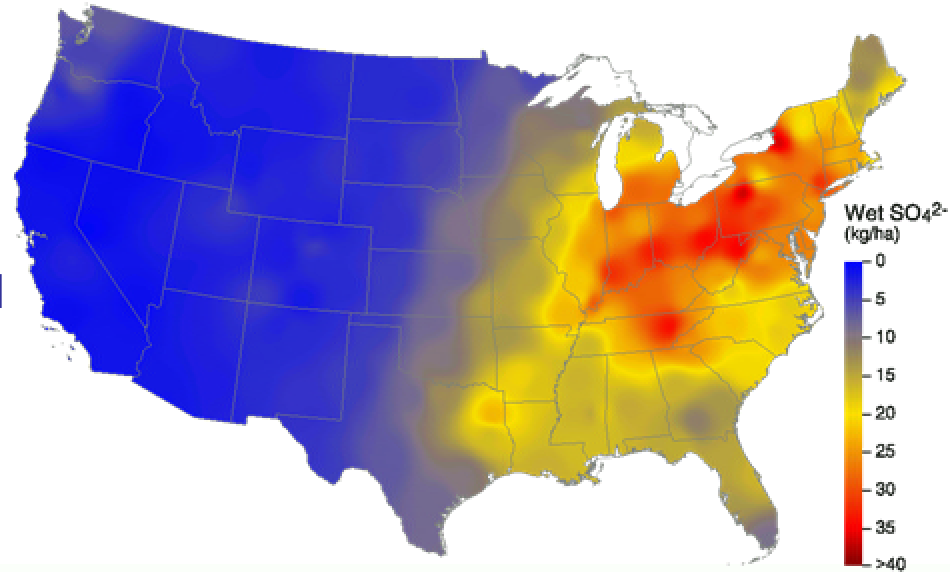


Lessons learned from the Acid Rain Program

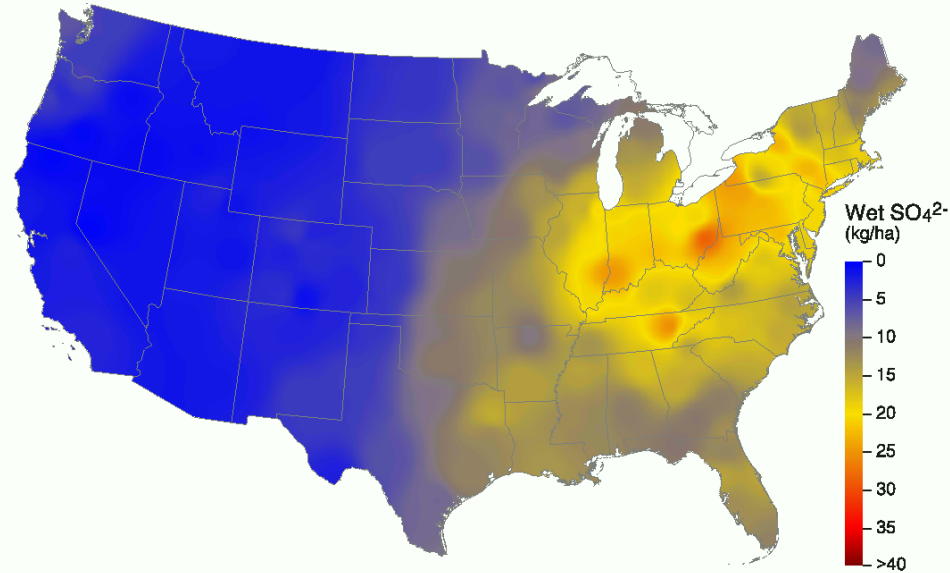
- Designed to reduce SO₂ emissions on a broad, regional, interstate scale
- Cap and trade has worked
 - Greatest reductions in SO₂ emissions have occurred in states with the highest emissions
 - Significant reductions in SO₂ emissions have resulted in dramatic decreases in acid rain -- as much as 30% -- in acid-sensitive ecosystems
- While the program has “worked,” acid deposition levels continue to be a concern

Monitored Reduction in Wet Sulfate Deposition

1989 - 1991



1998-2000



Clear Skies

Source: National Acid Deposition Program

Lessons learned from the Acid Rain Program (Cont'd)

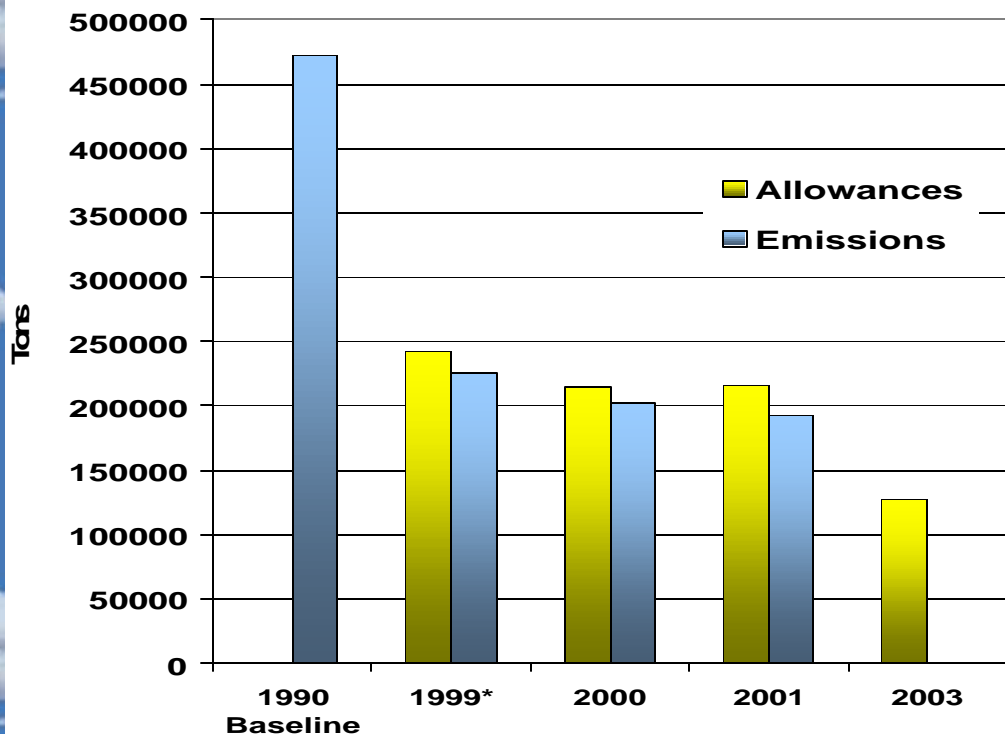
- Trading has not created hot spots
 - Independent analyses (i.e., ELI, RFF, and EDF) have found that trading under the Acid Rain Program has not created hot spots
- Trading has not harmed SO₂ attainment status
 - No negative impact on re-designation to attainment
 - No evidence of adverse impact on monitored attainment areas



Lessons learned from the Acid Rain Program (Cont'd)

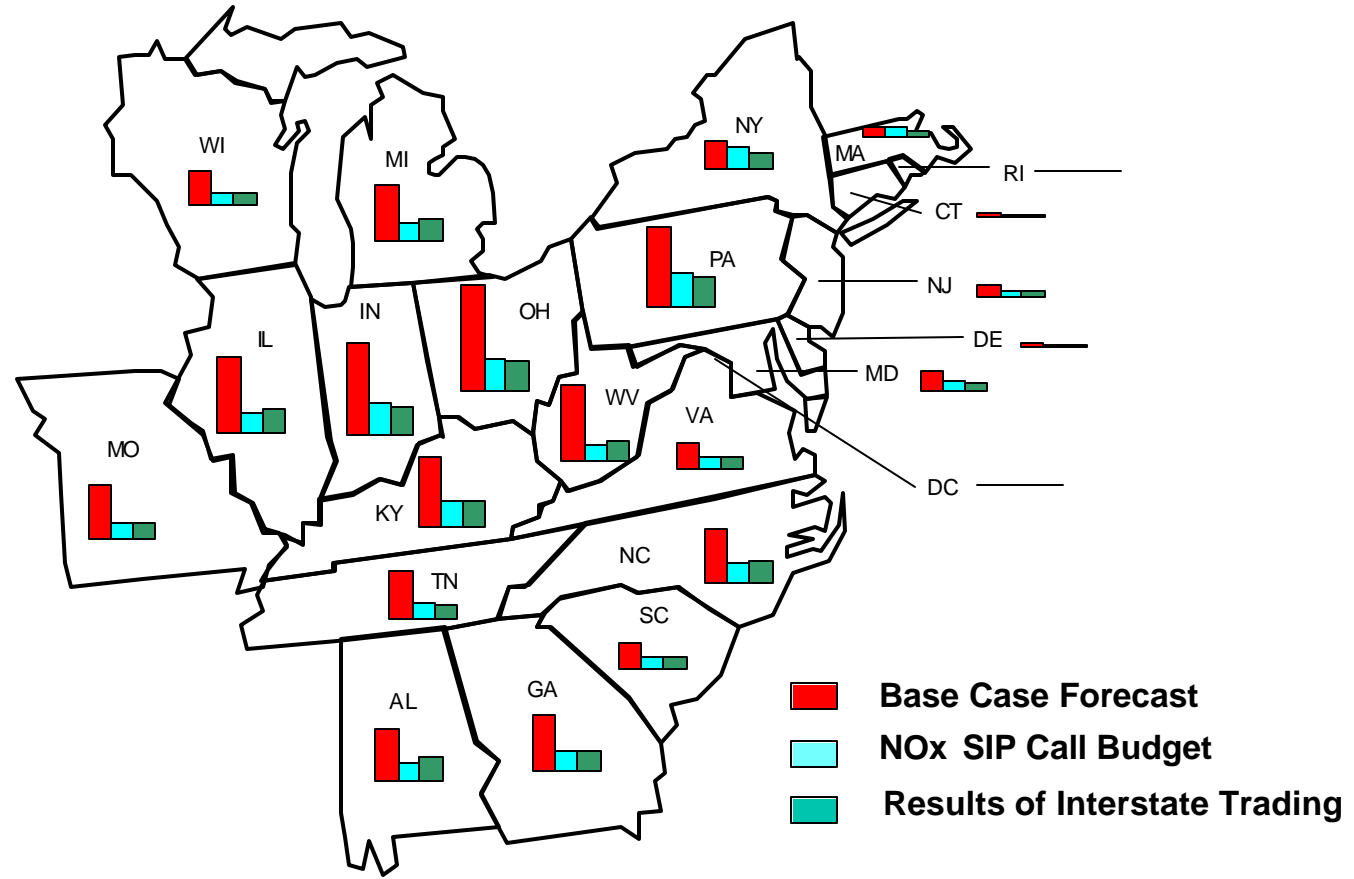
- No regional shift in SO₂ emissions caused by allowance trading
 - Overwhelming majority of allowances were retired in the same state in which they were originally allocated
 - The geographic centers of activity acquiring and supplying allowances were close to each other (within approximately 200 miles), and remained centered in the Midwest (1995-1999)

OTC NO_x Budget Program



- Participating states have reduced their total NO_x emissions by approximately 60% since 1990

NO_x SIP Call Trading Analysis: Electric Power Sources in 2007 Ozone Season

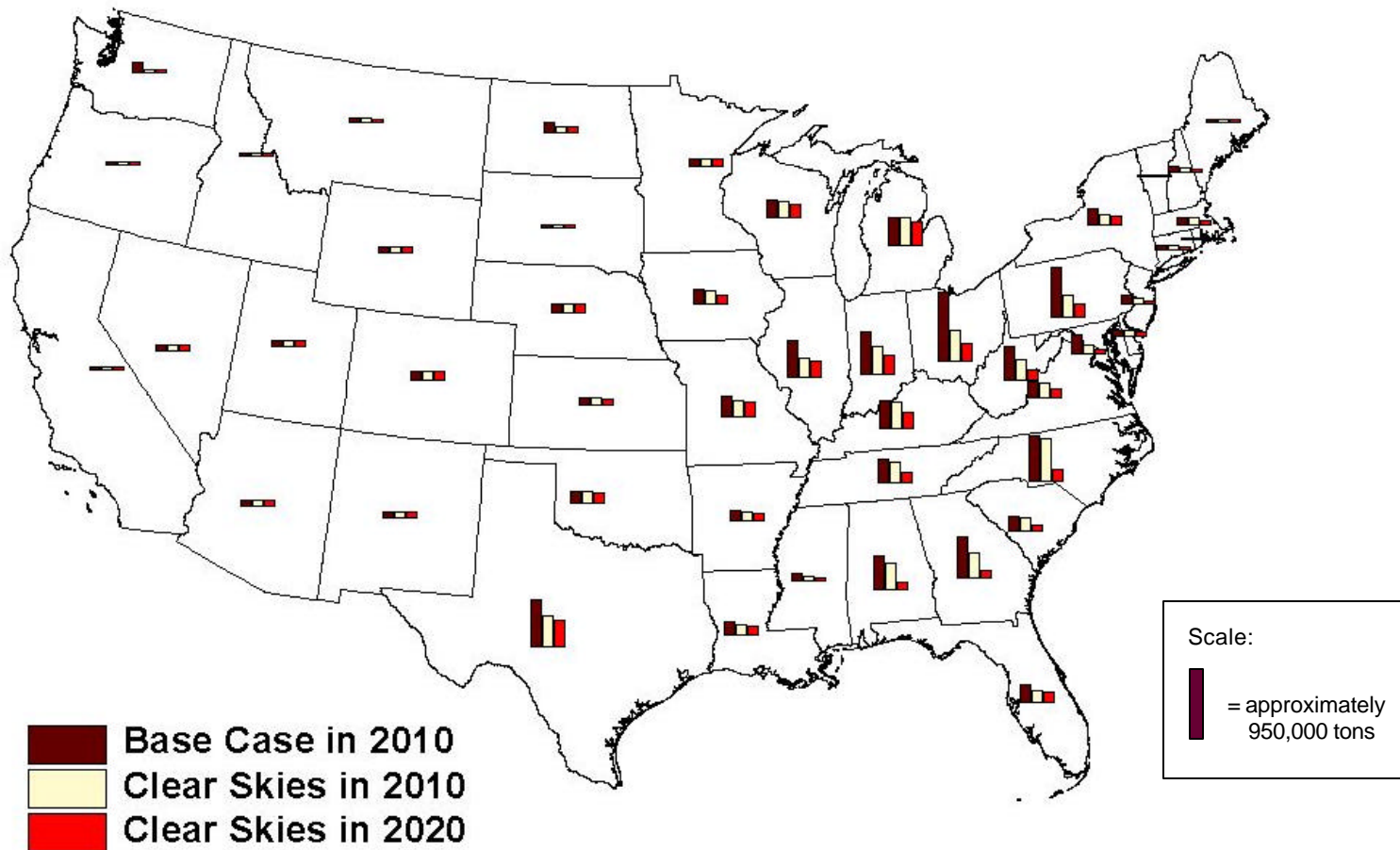




Expectations for Clear Skies

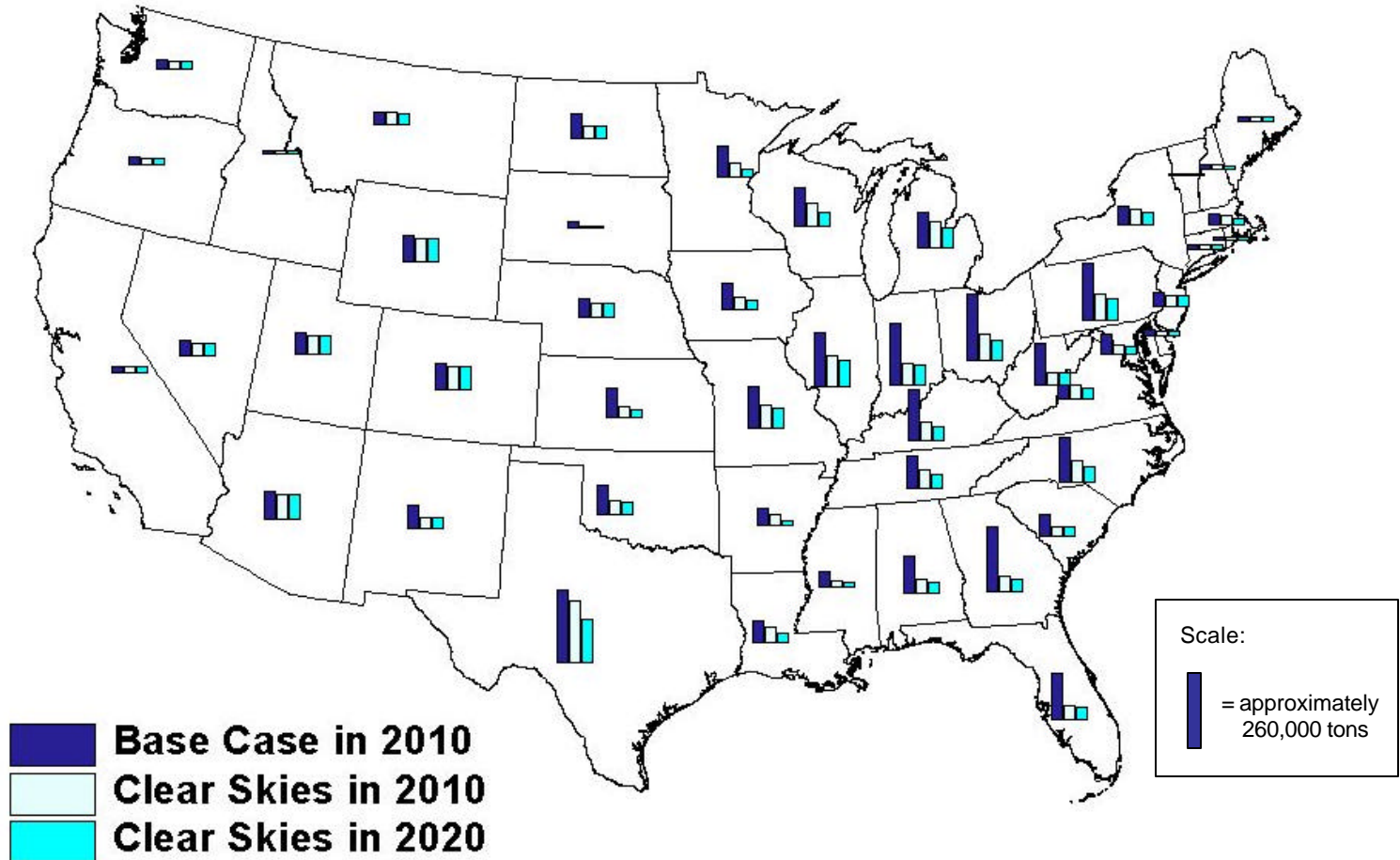
- Major reductions in SO₂, NO_x, and Hg emissions from highest emitting sources
- Broad reductions of PM concentrations, annual ozone, and S, N, and Hg deposition
- Significant early reductions of emissions (e.g., close-up look at Great Smoky Mountains National Park)

Emissions of Sulfur Dioxide



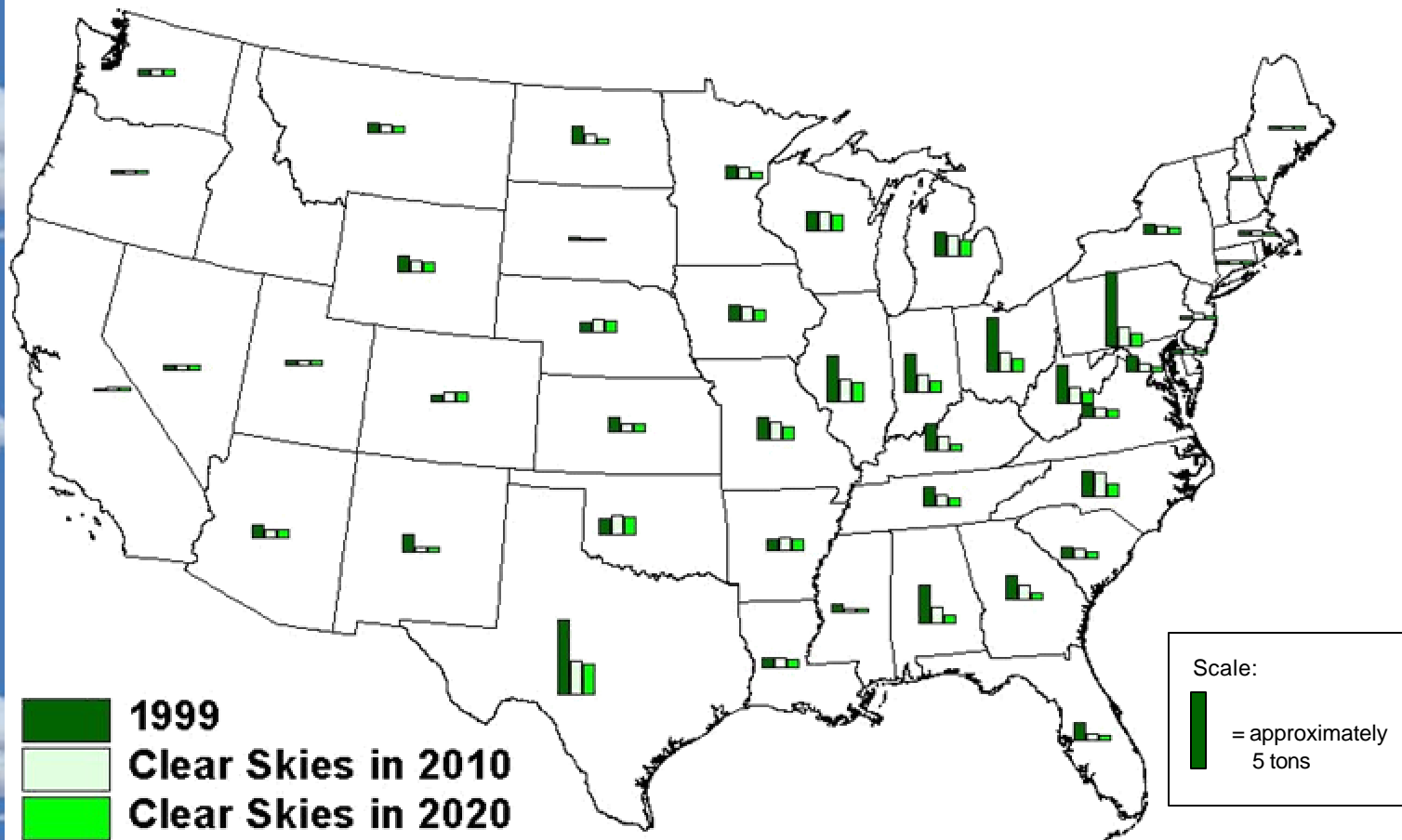
Total emissions under the Base Case in 2010 would be 9.6 million tons; total emissions under Clear Skies in 2010 would be 6.6 million tons; total emissions under Clear Skies in 2020 would be 3.9 million tons. (Note: Emissions are from electric generating facilities greater than 25MW.)

Emissions of Nitrogen Oxide



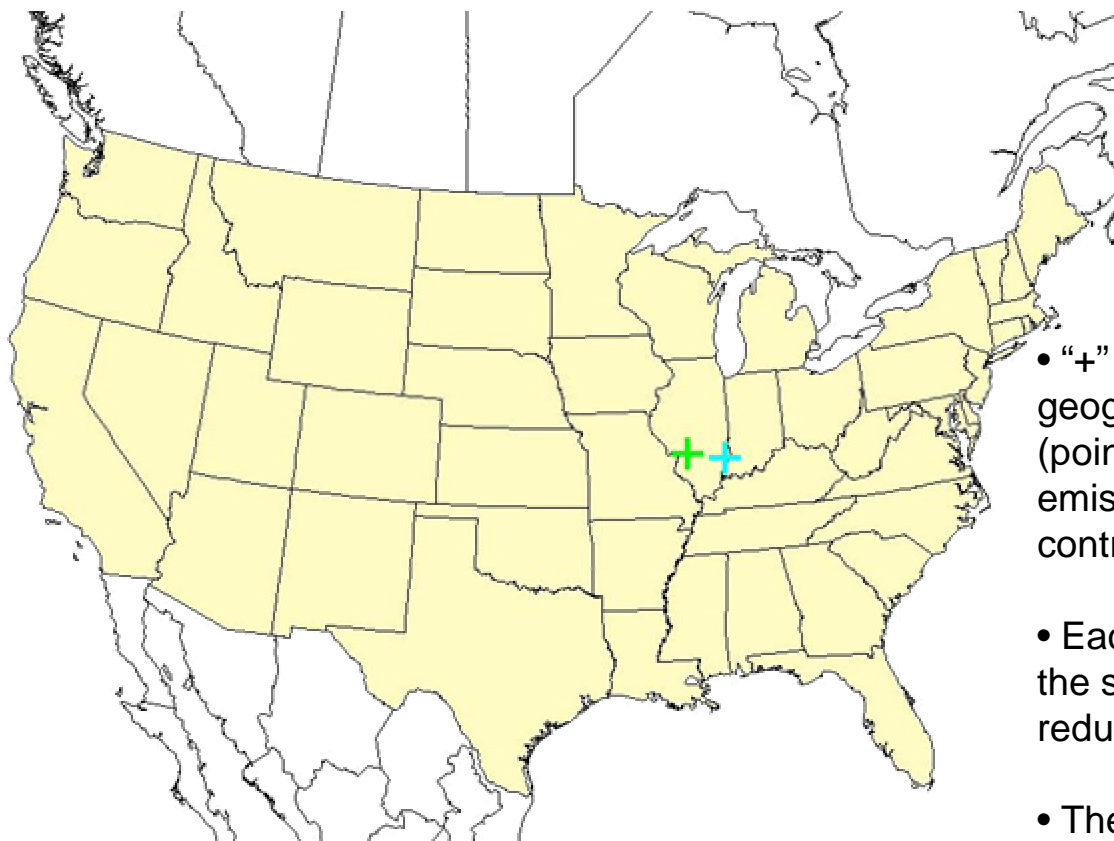
Total emissions under the Base Case in 2010 would be 4.2 million tons; total emissions under Clear Skies in 2010 would be 2.1 million tons; total emissions under Clear Skies in 2020 would be 1.7 million tons. (Note: Emissions are from electric generating facilities greater than 25MW.)

Emissions of Mercury



Total emissions in 1999 were 48 tons; total emissions under Clear Skies in 2010 would be 26 tons; total emissions under Clear Skies in 2020 would be 18 tons. (Note: Emissions are from coal-fired electric generating facilities greater than 25MW.)

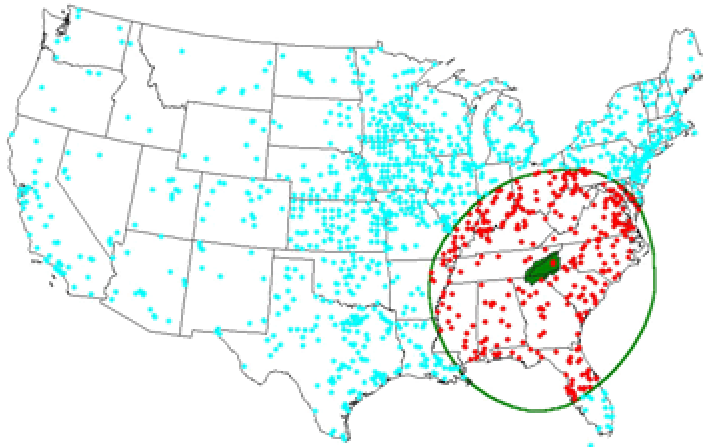
No Significant Shift in Hg Emissions with Trading



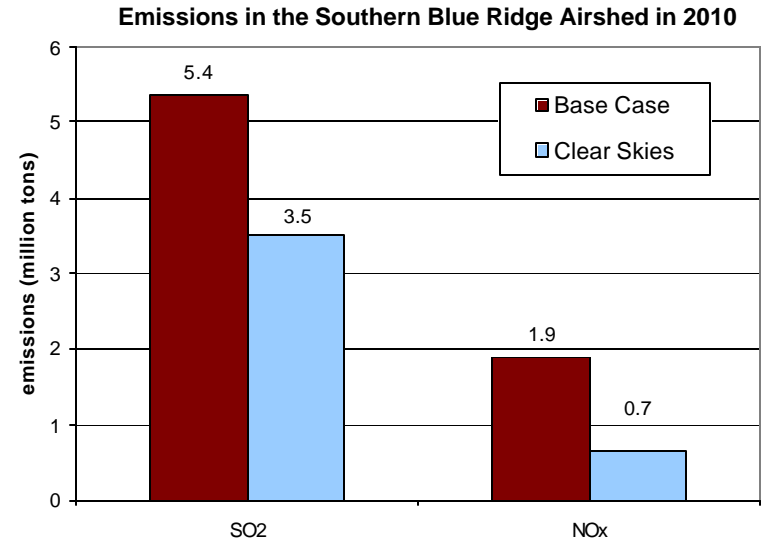
Blue: Facility Specific
Green: Cap and Trade

- “+” represents the geographic mean center (point of balance) of emissions under the two control approaches
- Each approach achieves the same overall emission reduction
- The Cap and Trade approach does not significantly shift emissions

Case Study of Emission Changes: Southern Blue Ridge



• Electric generating sources within the airshed area



- Emissions from the sources in the airshed depicted account for 80% of the total sulfur deposition impacts
- Compared to the Base Case, the Clear Skies Initiative accounts for a 35% reduction in SO₂ emissions and a 63% reduction in NO_x emissions from sources located in the airshed in 2010

Conclusions

- Clear Skies will reduce emissions and deposition over broad regions
- Remember: Cap and trade does not stand alone - it works in concert with local protections established under Title I of the CAA
 - States and localities have the obligation and the authority under the Clean Air Act to attain ambient air quality standards and assure that emissions from any particular source don't cause problems for local public health