



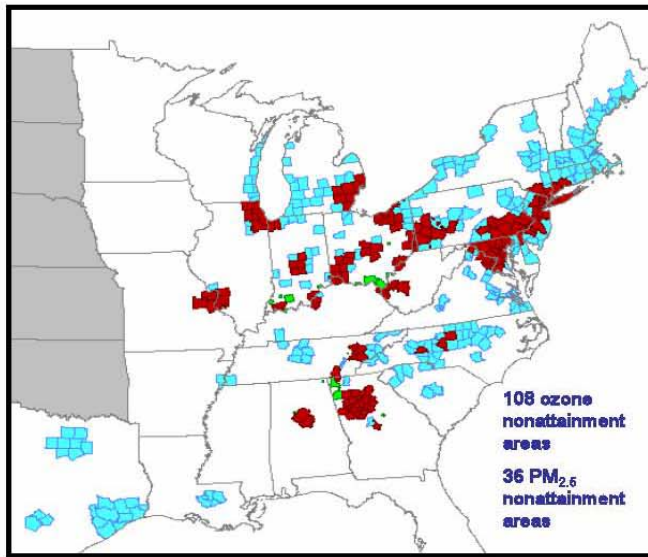
# Summary of State Collaborative I & II and “Super-Regional” Candidate Control Measures

*Christopher Recchia  
OTC Special Meeting  
February 23, 2006  
Washington, DC*

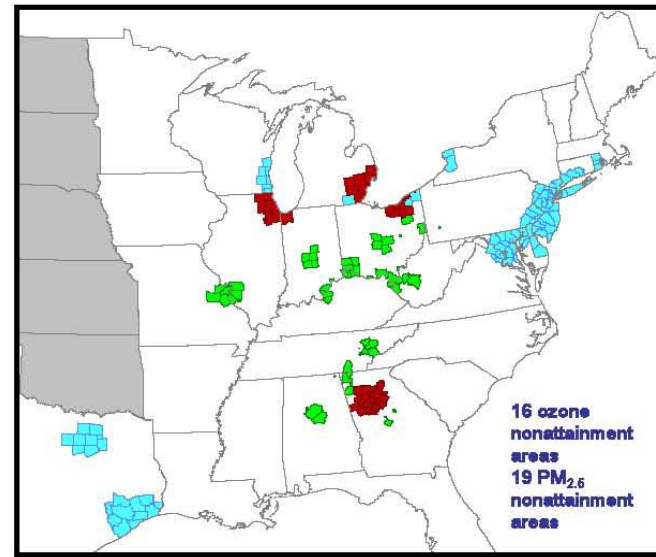


## Ozone and Particle Pollution: CAIR, together with other Clean Air Programs, Will Bring Cleaner Air to Areas in the East - 2010

Ozone and Fine Particle Nonattainment Areas (April 2005)



Projected Nonattainment Areas in 2010 after Reductions from CAIR and Existing Clean Air Act Programs

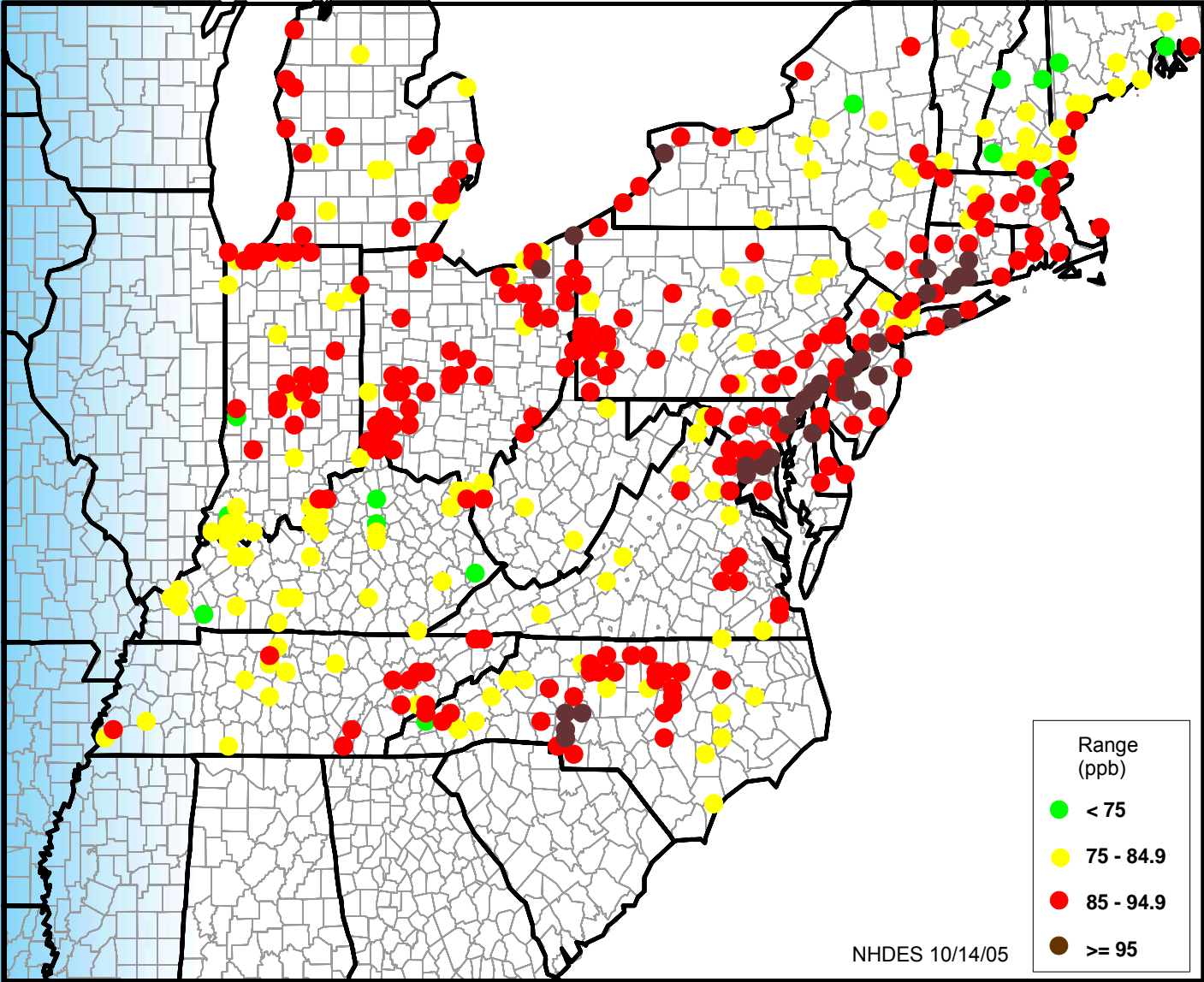


- Nonattainment areas for 8-hour ozone pollution only
- Nonattainment areas for fine particle pollution only
- Nonattainment areas for both 8-hour ozone and fine particle pollution

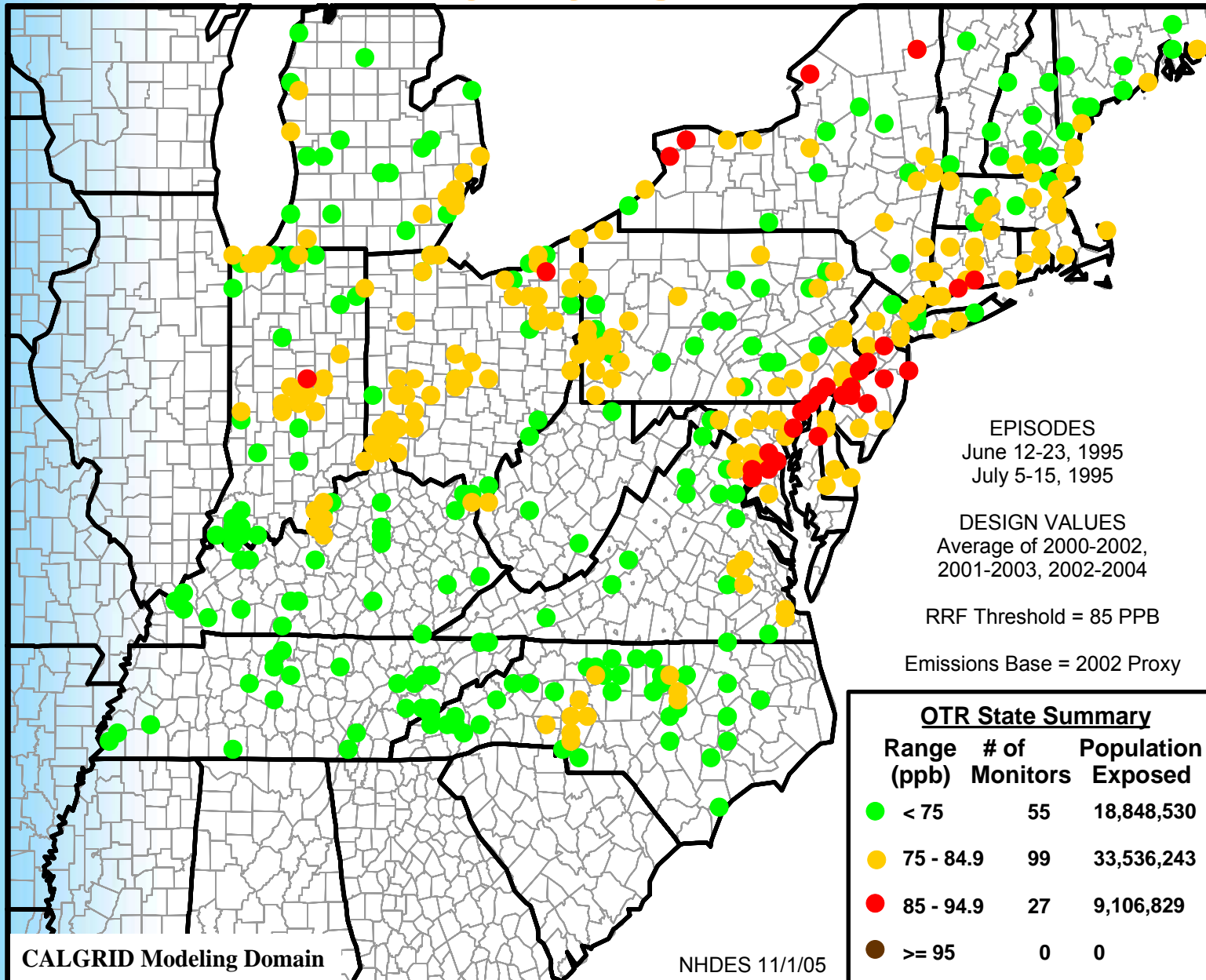
Projections concerning future levels of air pollution in specific geographic locations were estimated using the best scientific models available. They are estimations, however, and should be characterized as such in any description. Actual results may vary significantly if any of the factors that influence air quality differ from the assumed values used in the projections shown here.

# Average Monitored 8-Hour Ozone Design Values

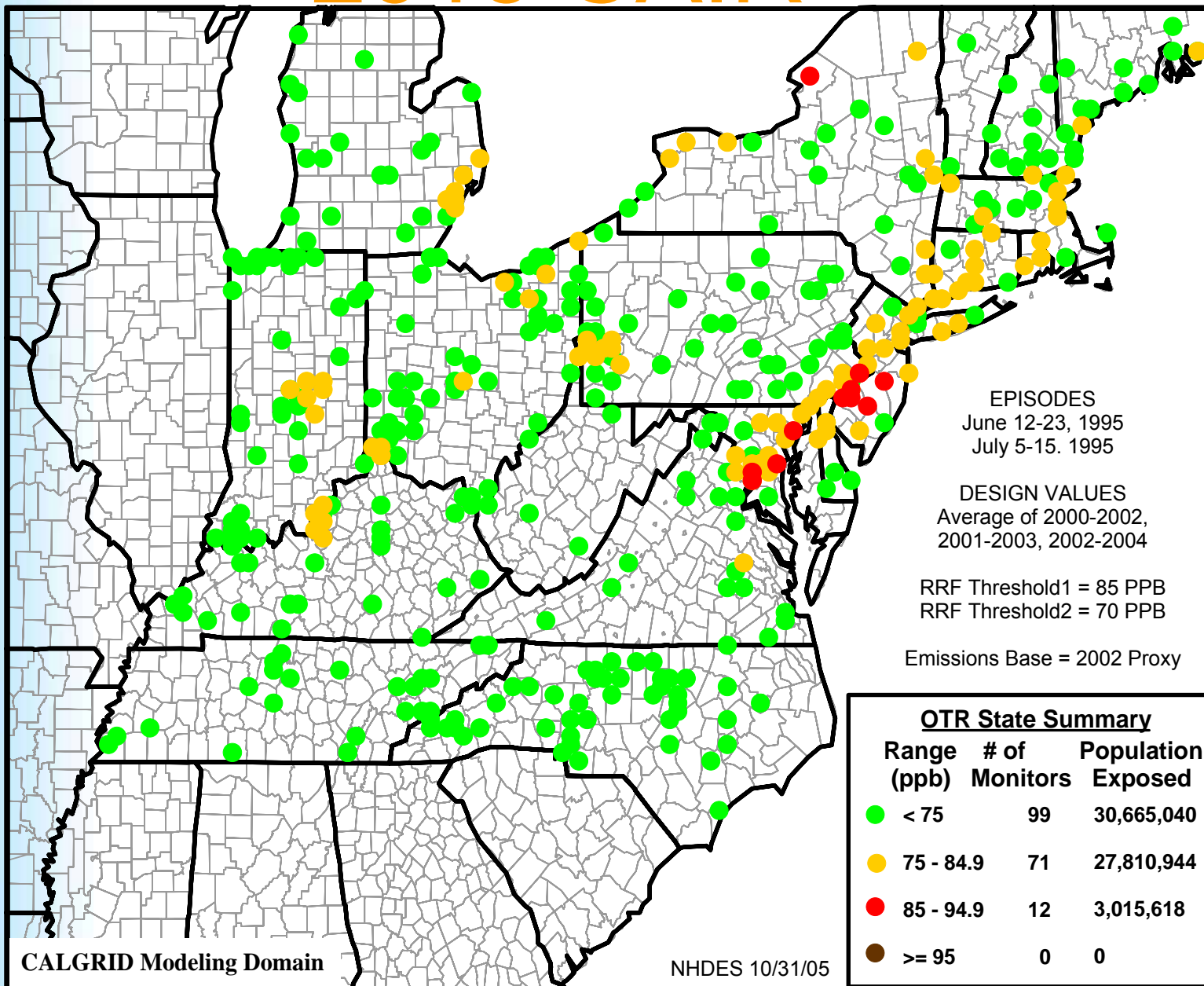
Design Value Periods: 2000-2002, 2001-2003, 2002-2004



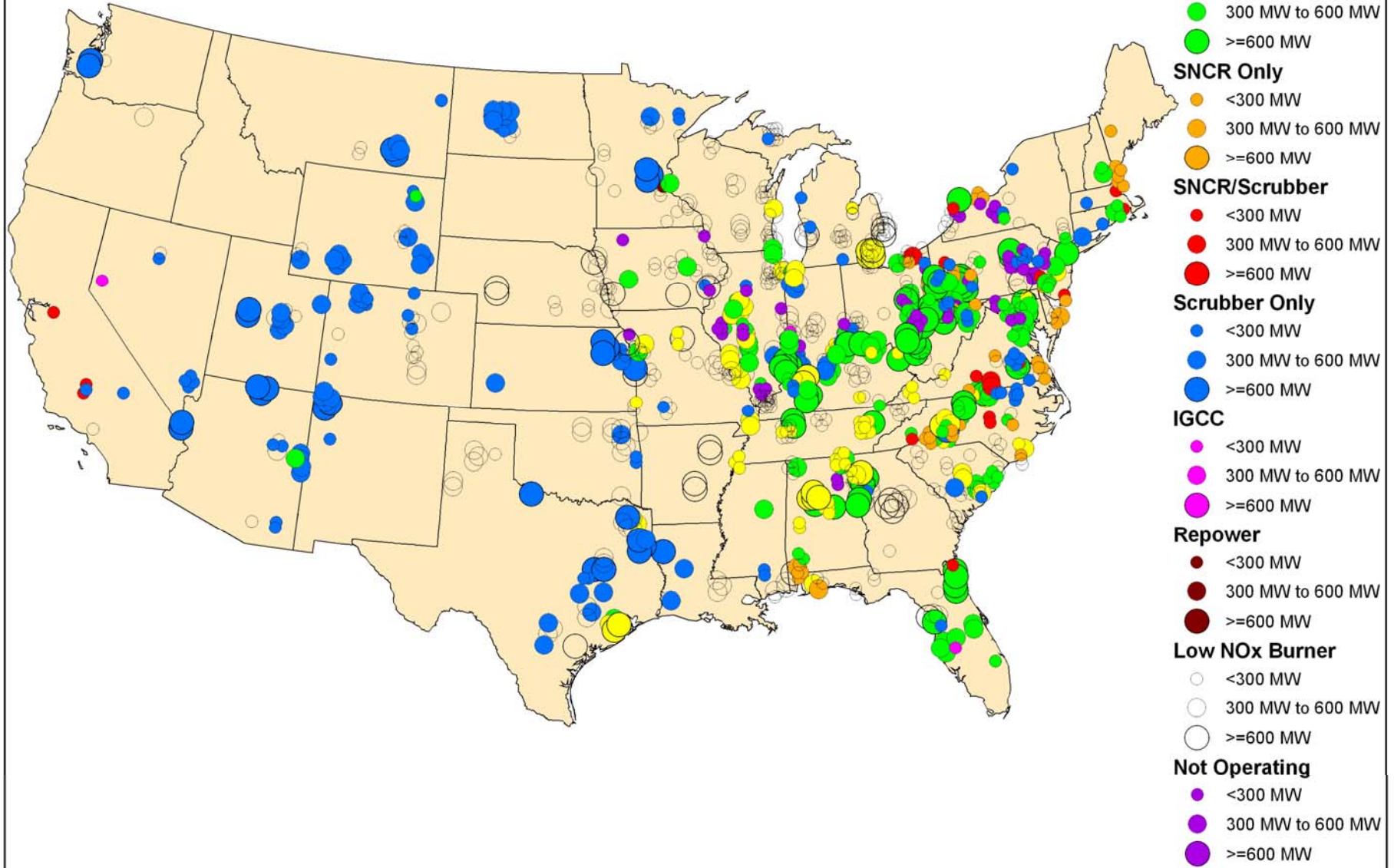
# 2010 CAIR



# 2015 CAIR

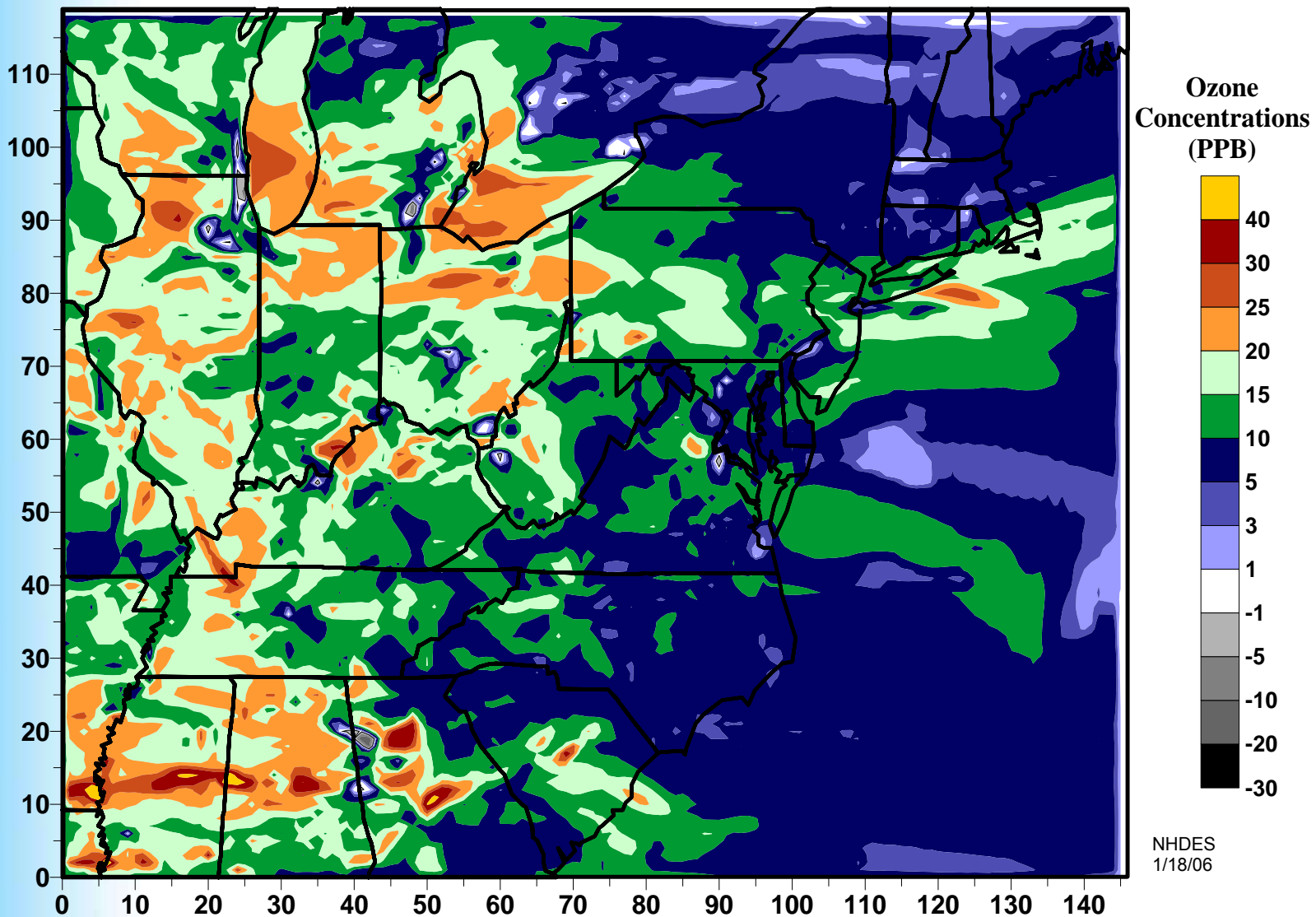


# Projected Pollution Controls at Coal Fired Units After CAIR, CAMR, and CAVR in 2010



# Difference Between 2002 and 2009

Episode 8-Hour Ozone Difference Concentrations  
2002 Proxy minus 2009 Base Run 1.0  
CALGRID Modeling Domain - JUNE 12-23, 1995 Episode



# State Collaborative I

Sponsored by the states of Illinois, Maryland, Ohio and Pennsylvania

- December 8-9, 2005
- Pittsburgh, Pennsylvania
- Participating states :
  - Illinois
  - Maryland
  - Massachusetts
  - New Jersey
  - Michigan
  - Ohio
  - Pennsylvania
  - Virginia
  - Wisconsin





# Most Promising Areas to Examine Based on 2002 Inventory and 2009 Projections

- Point Sources including:
  - Industrial, Commercial and Institutional Boilers ◀
    - Reductions: 75K TPY NO<sub>x</sub>, 150K TPY SO<sub>2</sub>, 45 TPY PM
  - Cement Kilns
    - Reductions: 21K TPY NO<sub>x</sub> (80%), 37K TPY SO<sub>2</sub> (90%)
  - Lime Kilns
    - Reductions: 4.1K TPY NO<sub>x</sub> (80%), 4.5K TPY SO<sub>2</sub> (90%)
  - Glass Furnaces
  - Municipal Waste Combustion
  - Petroleum Refining
  - EGUs, including Peaking Units (Joint Position) ◀
    - Reductions: 2,000K TPY NO<sub>x</sub>, 5300K TPY SO<sub>2</sub> (CSA Region)
      - About 40-50% beyond OTB/OTW in 2012
  - Small Diesel Generation



# Most Promising Areas to Examine

## Based on 2002 Inventory and 2009 Projections

- Area Sources including:

- Residential Coal, Oil
- Residential Wood
- Open Burning
- Cutback Asphalt
- Architectural, Traffic Markings, Industrial Maintenance Coatings  
OTC 31-35% beyond Fed, 150 TPD
- Consumer Products

- POTWs
- Degreasing
- Printing and Graphic Arts
- Metal Production
- Stage 1 Vapor Recovery – 80% reduction:  
24,000 TPY VOC (65 TPD)
- Adhesives
- Auto Refinishing



# Most Promising Areas to Examine Based on 2002 Inventory and 2009 Projections

- Mobile Sources:
  - Onroad Gasoline Vehicles ◀
    - RFG - Approx. 33% increased use in OTR,
      - Reductions: 123 TPD VOC, 3.4 TPD NO<sub>x</sub>
  - Onroad Heavy Duty Diesel Vehicles ◀
    - Chip Reflash – Approx 62 TPD OTR, +46 MidWest
    - Anti-Idling
  - Onroad Heavy Duty Diesel Buses ◀
    - Retrofits
  - Nonroad Gasoline Equipment
  - Non-Road Diesel
  - Marine and Locomotive
  - Airport Passenger and Aircraft Service Equipment
  - Off Highway LPG

# State Collaborative I Measures to work on

- Industrial, Commercial and Institutional Boilers ◀
- Architectural, Traffic Markings, Industrial Maintenance Coatings ◀
- Consumer Products, including PFCs ◀
- Regional Fuel ◀
- Onroad Heavy Duty Diesel Vehicles ◀
  - Chip Reflash – Approx 62 TPD OTR, +46 MidWest
  - Anti-Idling
  - Retrofits ◀
- EGUs, including Peaking Units (Joint Position) ◀

# State Collaborative I Measures to work on

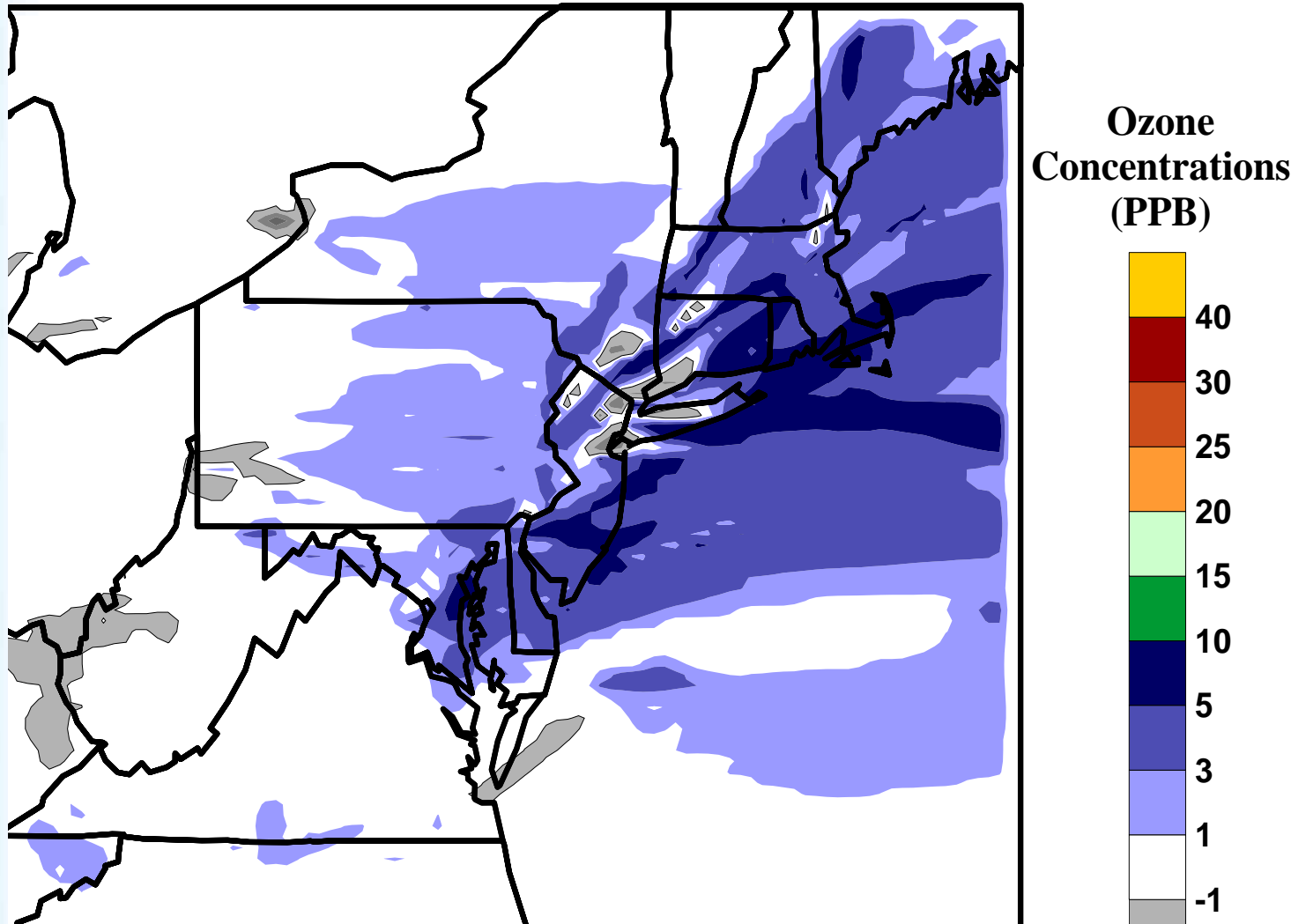
- working to establish one consistent environmentally-sensitive formulated gasoline for the super-region;
- developing consistent standards designed to reduce pollutants on a range of consumer products; and
- addressing emissions from large Industrial, Commercial and Institutional Boilers.
- retrofitting diesel engines;
- accelerating the “chip reflashing”; and
- reducing volatile emissions from architectural, industrial and maintenance coatings.
- The states agreed to meet again toward the end of January to review progress on the initiatives identified above as well as to pursue agreement on energy related emission issues, including emerging technology initiatives and incentives and cost-effective reductions that may still be needed from the power generating sector, while keeping in mind the need to promote clean, affordable and secure energy investments.

# State Collaborative II

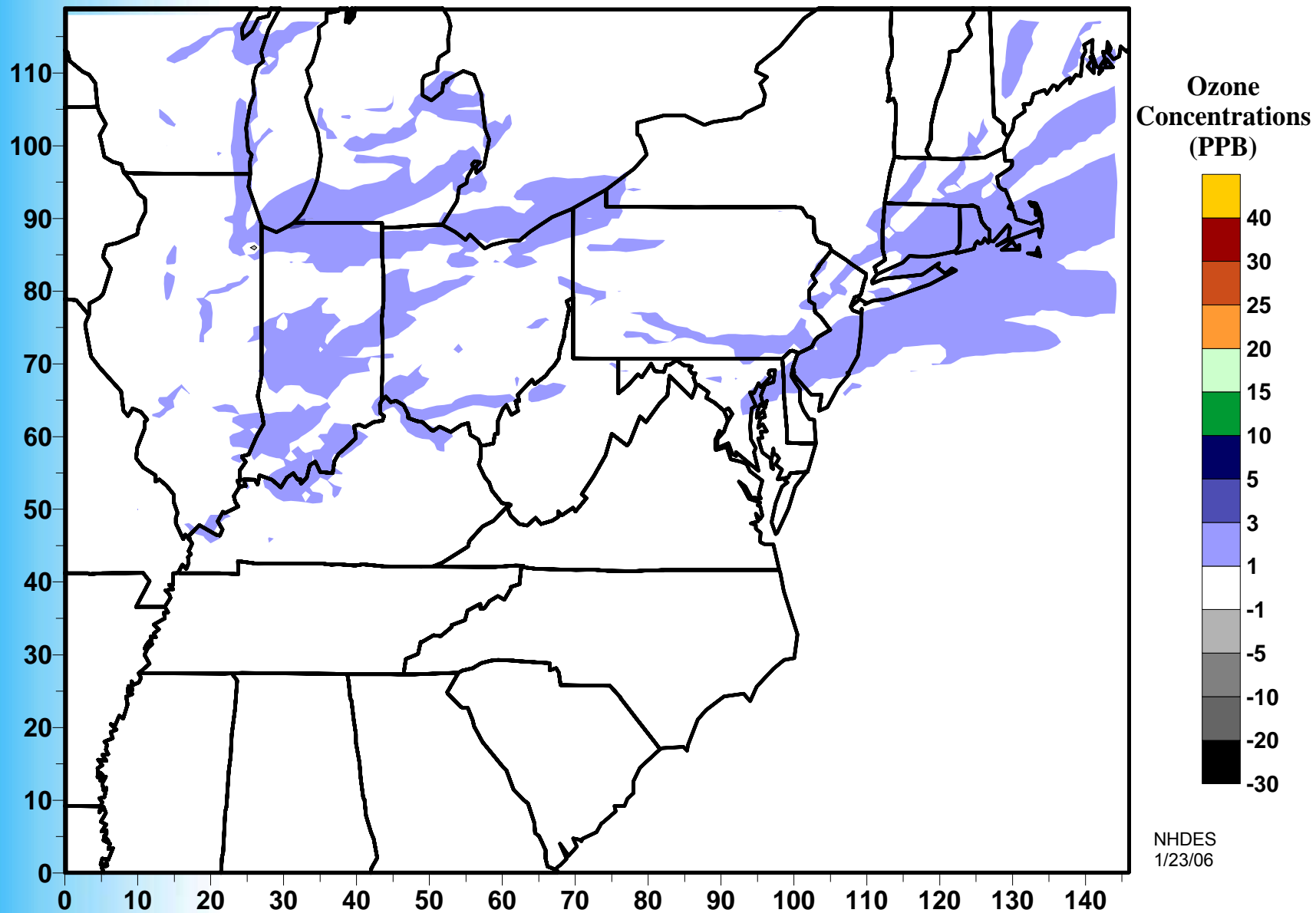
Sponsored by the states of Illinois, Maryland, Ohio and Pennsylvania

- February 2-3, 2006
- Chicago, Illinois
- Participating states :
  - Illinois
  - Iowa
  - Indiana
  - Maryland
  - Massachusetts
  - New Jersey
  - New York
  - Michigan
  - Ohio
  - Pennsylvania
  - Texas
  - Wisconsin

# Benefits of Additional Local/Regional Controls Within the OTR - Beyond CAIR



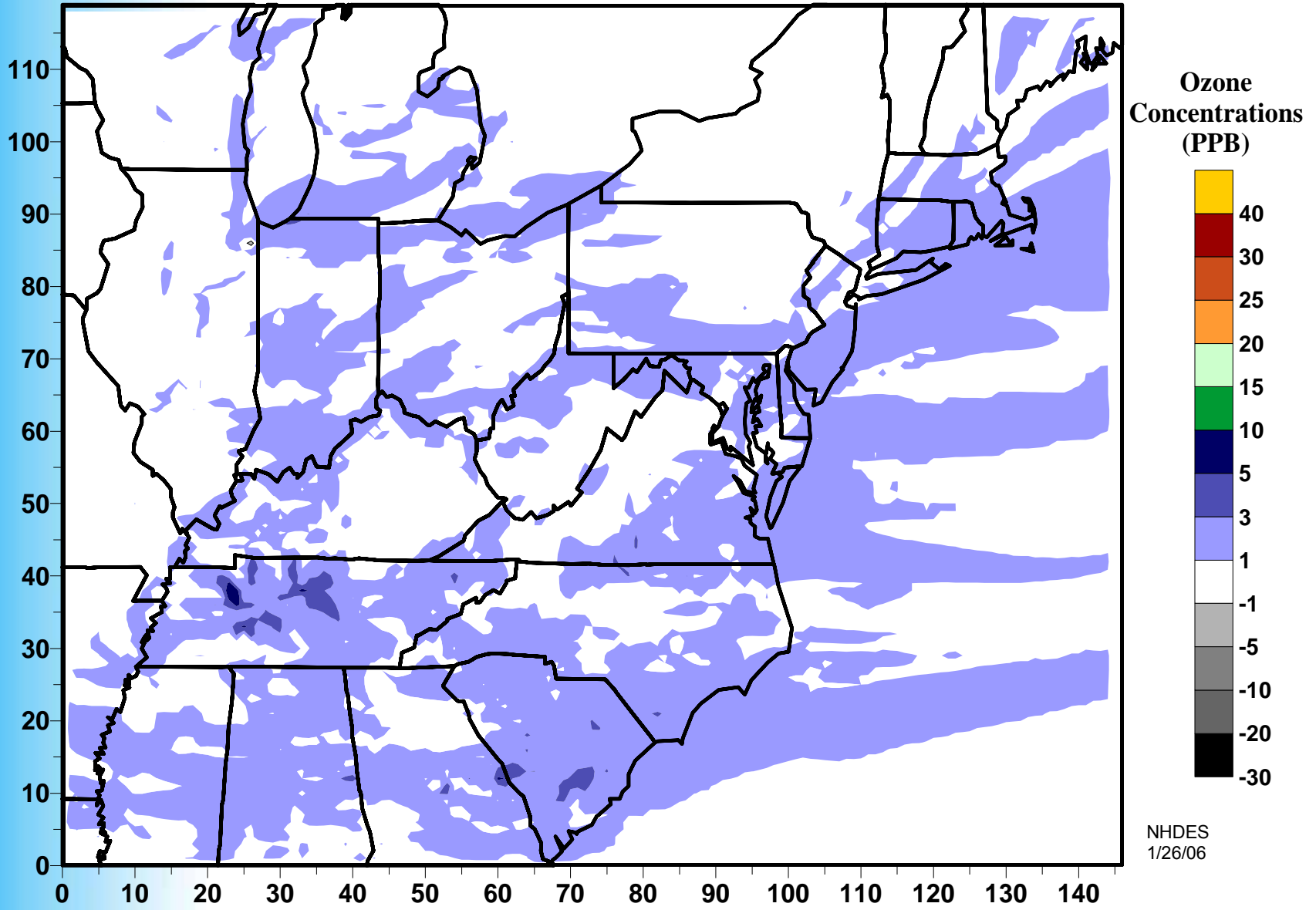
**Episode 8-Hour Ozone Difference Concentrations**  
**2009 Base Run 1.0 minus 2009 Max Local Measures/No-EGU Run 1.5**  
**CALGRID Modeling Domain - JULY 5-15, 1995 Episode**





# Maximum Local Controls

Episode 8-Hour Ozone Difference Concentrations  
2009 Base Run 1.0 minus 2009 High-End/No-EGU Run 4.1  
CALGRID Modeling Domain - JULY 5-15, 1995 Episode



# EGUs



# EGU Relative Contribution

- Local Measures are More Expensive
  - Level of CAIR at “Highly Cost Effective”
- Local Measures are not Enough
- Broader Regional Benefits improve Picture
- Broader Regional Benefits with EGU’s most meaningful

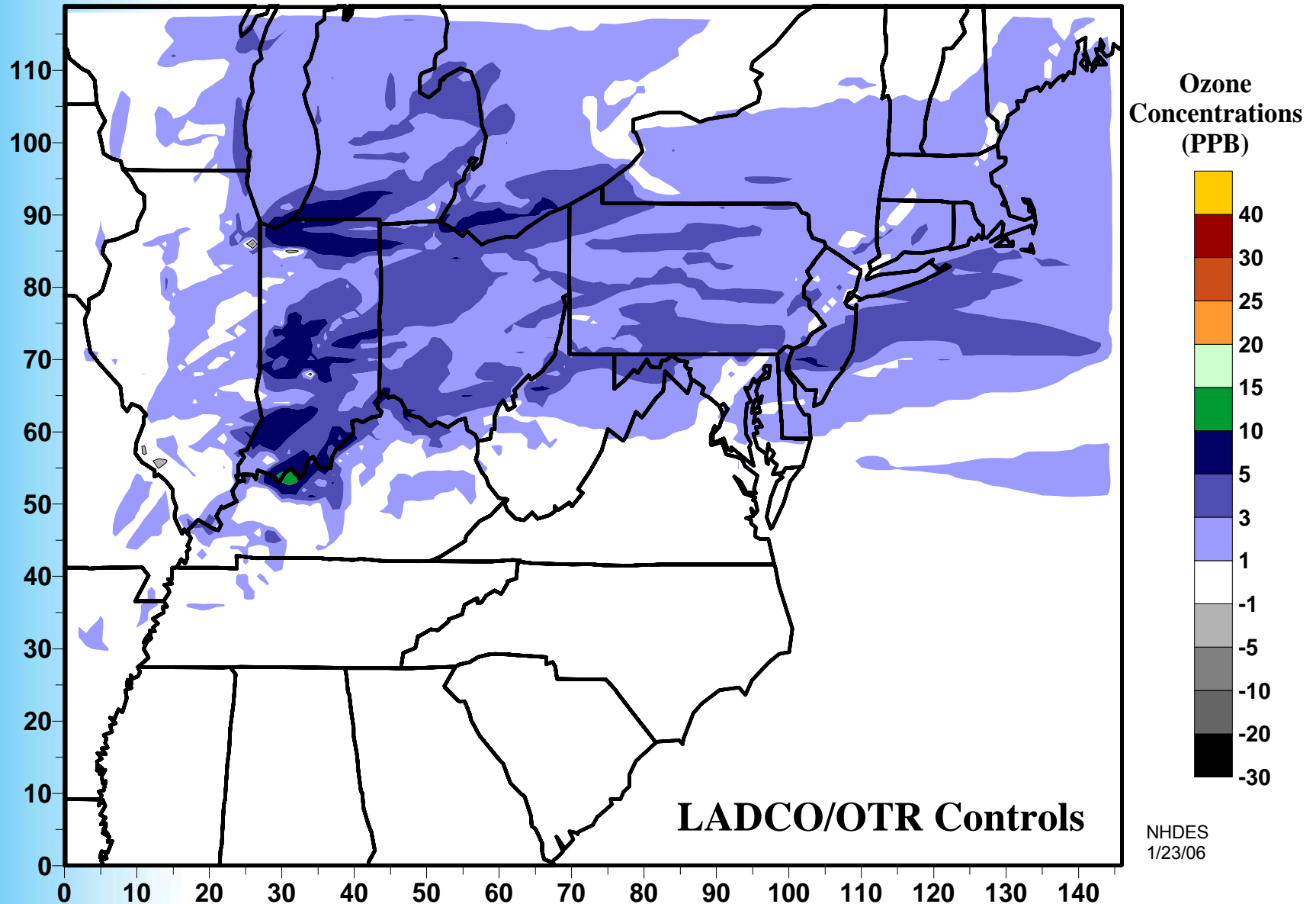


# OTC/LADCO Multi-P Straw Proposal

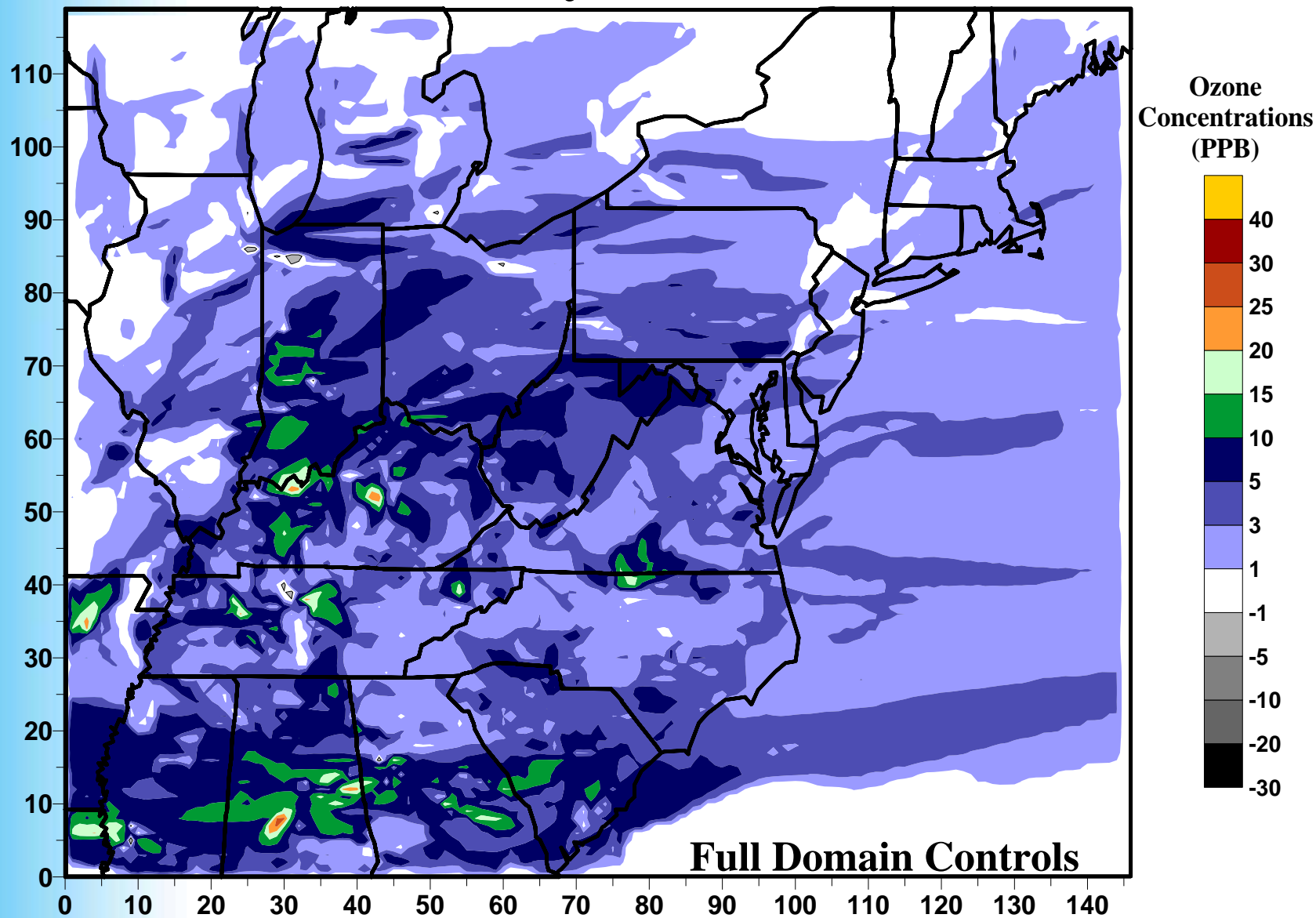
	Pollutant	OTC National Cap (tons)	Required National Emission Rate (lb/MMBtu)	Mid-West RPO EGU White Paper Proposal (2009/2013)		Straw Proposal OTC/LADCO modeling Proposal
				EGU1	EGU2	
NO <sub>x</sub>	Phase I (2008)	1,870,000	0.13	0.15	0.12	0.12 (2009)
	Phase II (2012)	1,280,000	0.09	0.10	0.07	0.08 (2012)
SO <sub>2</sub>	Phase I (2008)	3,000,000	0.21	0.36	0.24	0.24 (2009)
	Phase II (2012)	2,000,000	0.14	0.15	0.10	0.14 (2012)

Heat Input (2000) 29,221,854,977

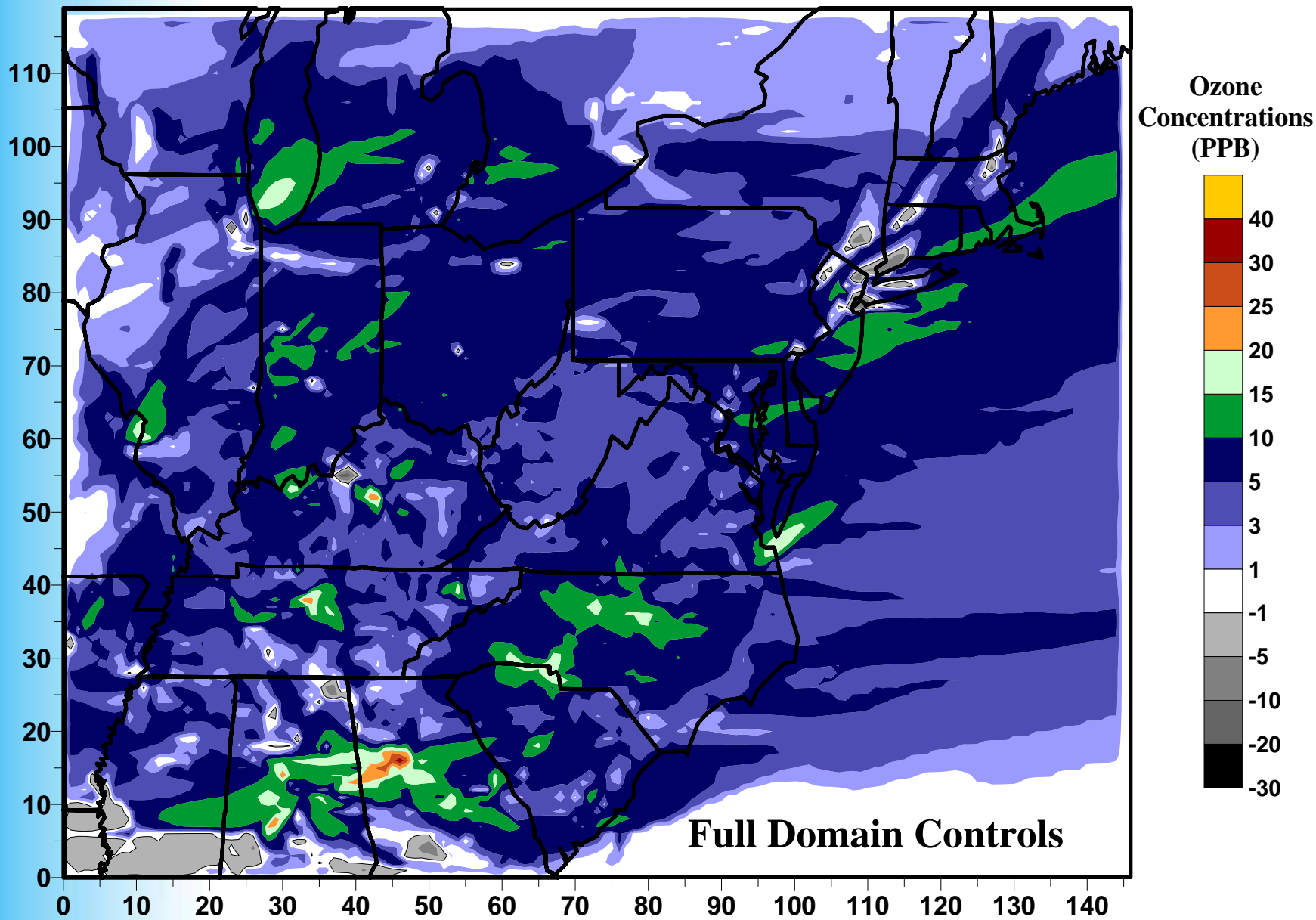
# 2009 - Benefits of Straw Proposal as a Regional Strategy vs. CAIR/OTW/OTB



# 2009 - Benefits of OTC Position (w/ICI Boilers) Beyond CAIR



# 2009 Benefits of EGU2 Plus Area & Mobile Beyond CAIR



# Collaborative II Measures

- Letter to EPA on Small Engines
- AIM
- Consumer Products
- EGU's
- Agreement to talk/meet again in March on EGU's and others