



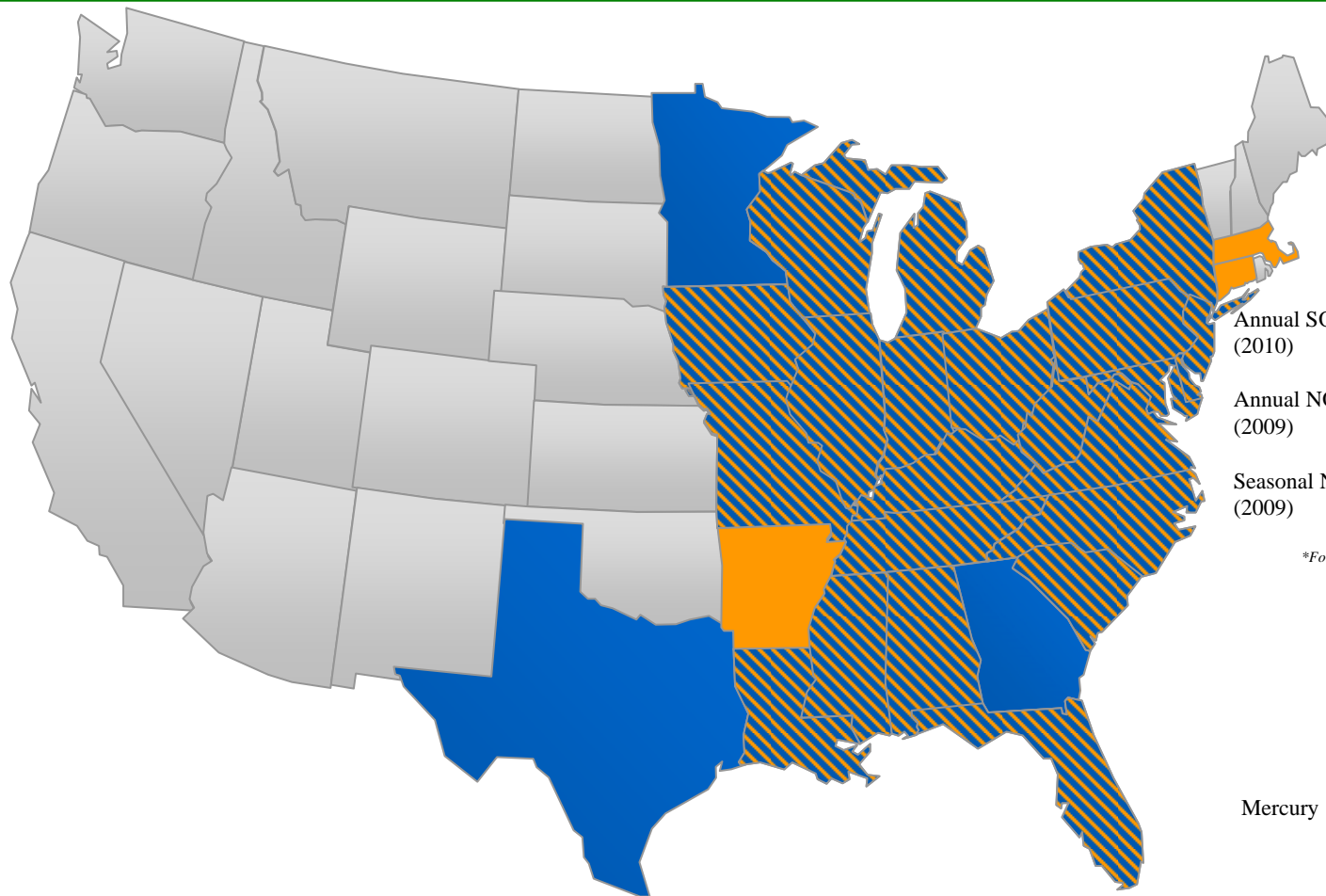
*Progress of*  
**Clean Air Interstate  
and Mercury Rules**  
*And Some Other Activities*

*Presentation for*  
**Regional Air Quality Workshop**  
**Lake Michigan Air Directors Consortium**

**U.S. Environmental Protection Agency**  
**Office of Air and Radiation**  
**March 21, 2007**



# CAIR Sets Stage for CAMR and CAVR



## CAIR Emission Caps\*

(million tons)

	<u>2009/2010</u>	<u>2015</u>
Annual SO <sub>2</sub> (2010)	3.7	2.6
Annual NO <sub>x</sub> (2009)	1.5	1.3
Seasonal NO <sub>x</sub> (2009)	.58	.48

\*For the affected region.





## CAMR Emissions Caps

(tons)

	<u>2010</u>	<u>2018</u>
Mercury	38	15

## CAVR

Outside of CAIR Region – BART

-  States not covered by CAIR
-  States controlled for fine particles (annual SO<sub>2</sub> and NO<sub>x</sub>)
-  States controlled for both fine particles (annual SO<sub>2</sub> and NO<sub>x</sub>) and ozone (ozone season NO<sub>x</sub>)
-  States controlled for ozone (ozone season NO<sub>x</sub>)

# CAIR, CAMR, CAVR Implementation Timeline

**CAIR**

**Phase I: CAIR NO<sub>x</sub> Programs  
(ozone-season and annual)  
(09)**

*Early reductions for CAIR NO<sub>x</sub> ozone-season program and CAIR SO<sub>2</sub> program begin immediately because NO<sub>x</sub> SIP Call and title IV allowances can be banked into CAIR*

**CSP Early Emission Reduction Period  
(annual CAIR NO<sub>x</sub> program)  
(07 and 08)**

**FIP  
(June 06)**

**SIPs due  
(Sep 06)**

**Phase I: CAIR SO<sub>2</sub> Program  
(10)**

**Phase II: CAIR NO<sub>x</sub> and  
SO<sub>2</sub> Programs Begin  
(15)**

**CAIR Rule  
signed**



**CAMR  
Rule  
signed**

**Phase I: Hg Program  
(10)**

**Phase II: Hg Program  
(18)**

**CAVR**

**BART Controls Required  
(5 years after RH SIPs approved)**

**States develop SPs  
(18 months)**

Note: Dotted lines indicate a range of time.

**CAMR and CAVR**



# Where We Are on Implementation...

- Federal Plans
  - CAIR in effect June 2006
  - CAMR proposal comment period ended in February 2007, working to finalize
- Litigation
  - CAIR – Briefing Court underway
  - CAMR – Briefing Court underway



# Where We Are on Implementation...continued

- CAIR State Plans
  - 6 States submitted plan by September 11<sup>th</sup> deadline; more States later provided plans
  - Expect all States to want trading
- CAMR State Plans
  - 21 States submitted plans by November 17<sup>th</sup> deadline; more States later provided plans
  - Expect viable trading program, although some States plan to directly control mercury emissions, also



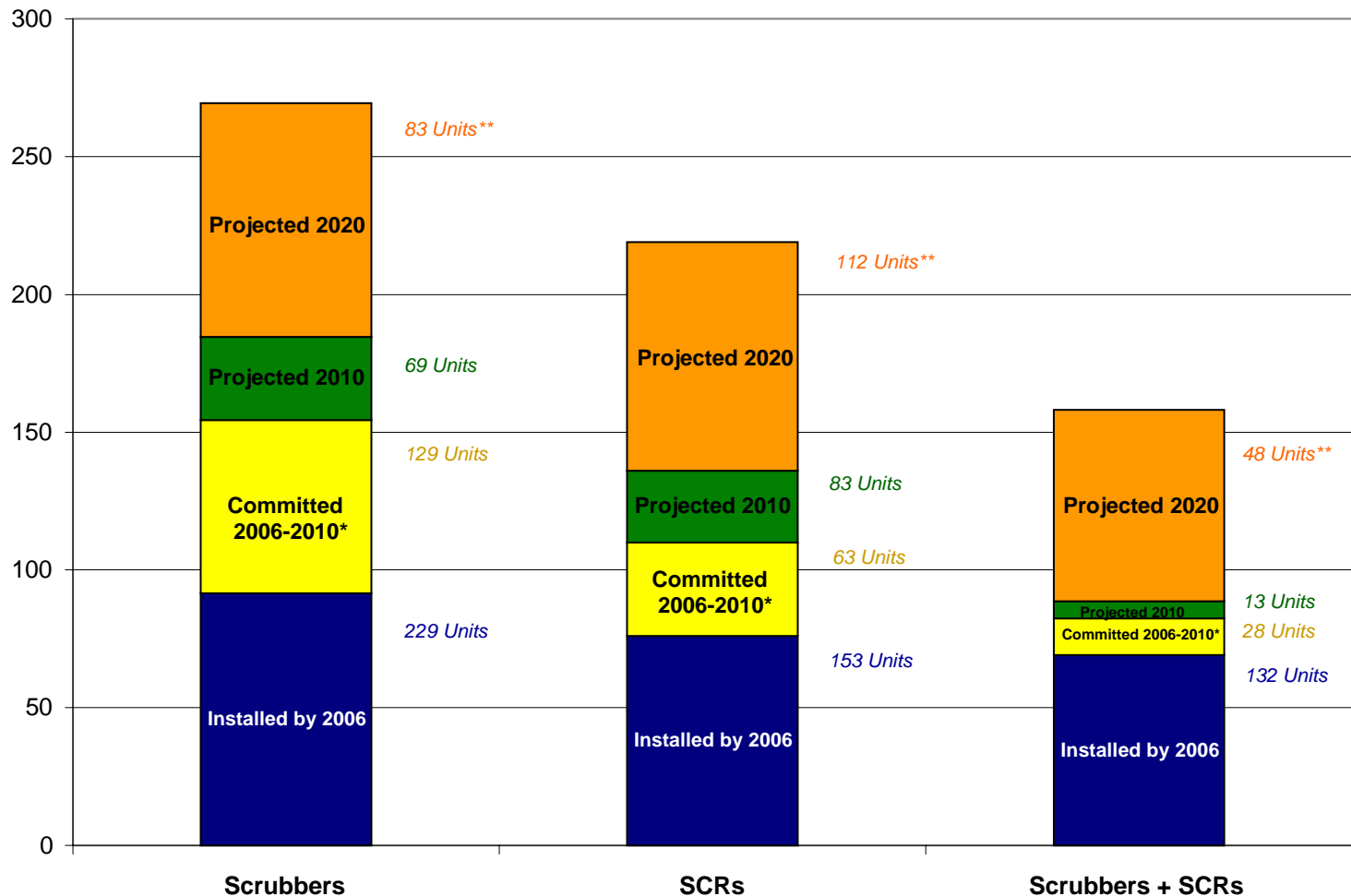
# Where We Are on Implementation...continued



- Power sector already installing pollution controls
- EPA just began training for generation units initially facing federal NO<sub>x</sub> and SO<sub>2</sub> control with CAIR
- CAIR and CAMR start with monitoring for “newly-regulated” units.
  - 2008: NO<sub>x</sub>
  - 2009: SO<sub>2</sub> and mercury
  - All coal-fired units face new mercury rules

# Installed, Committed and Projected Advanced SO<sub>2</sub> and NO<sub>x</sub> Controls for Coal-Fired Generations

Gigawatts



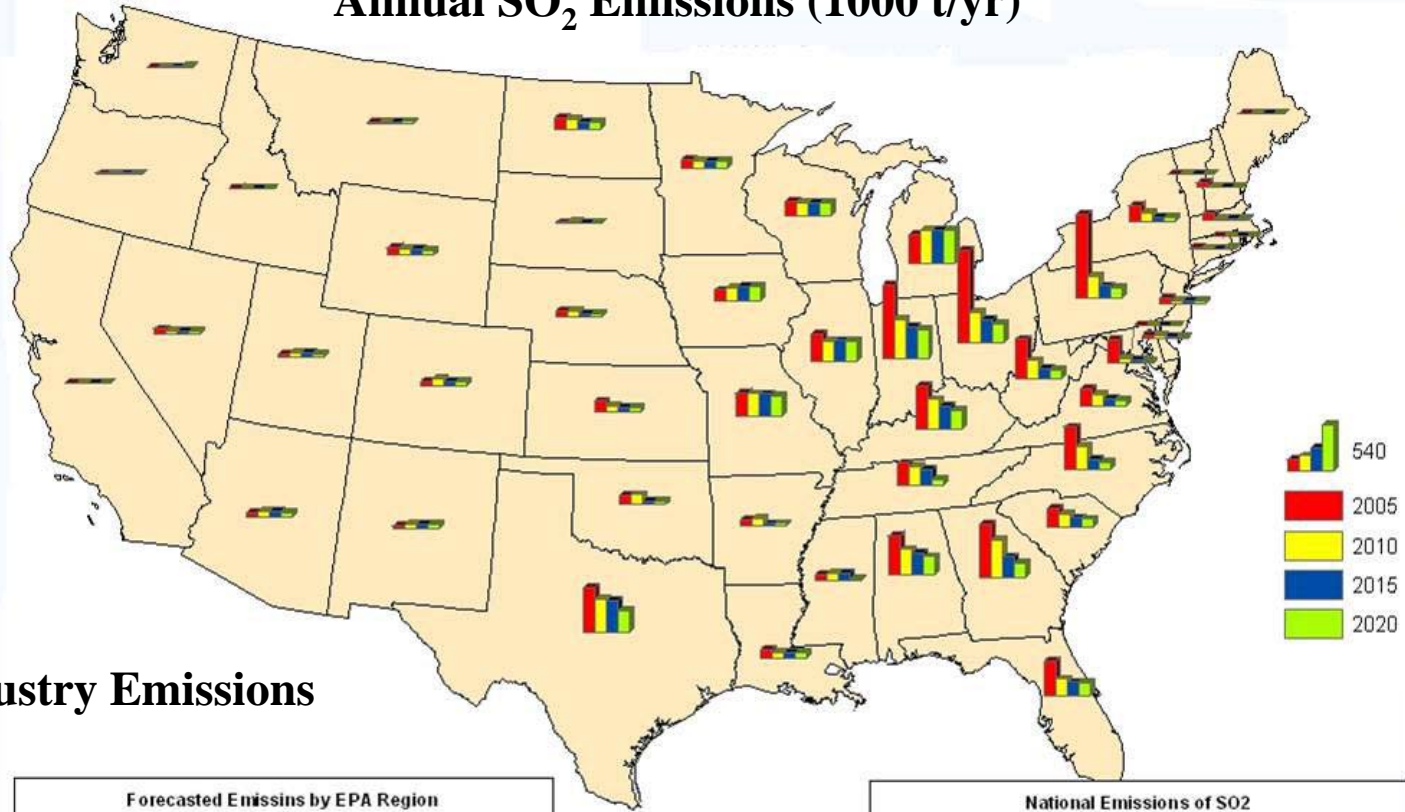
Source: EPA 2006 Base Case for CAIR, CAMR, and CAVR results from IPM and 2004 and 2006 NEEDS data sets for IPM

\*Committed 2006-2010 based on reports from selected major companies. It is an understatement of controls going in place now.

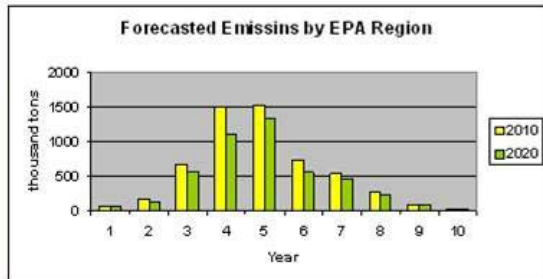
\*\*Total Units for Projected 2020 does not include new units or IGCC.

# SO<sub>2</sub> Forecast

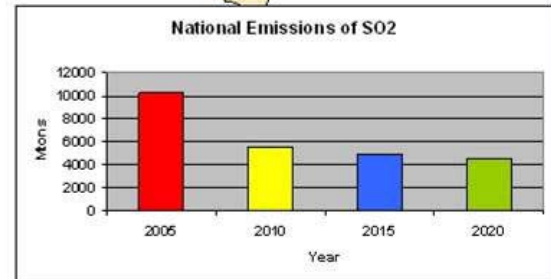
## Annual SO<sub>2</sub> Emissions (1000 t/yr)



## Power Industry Emissions

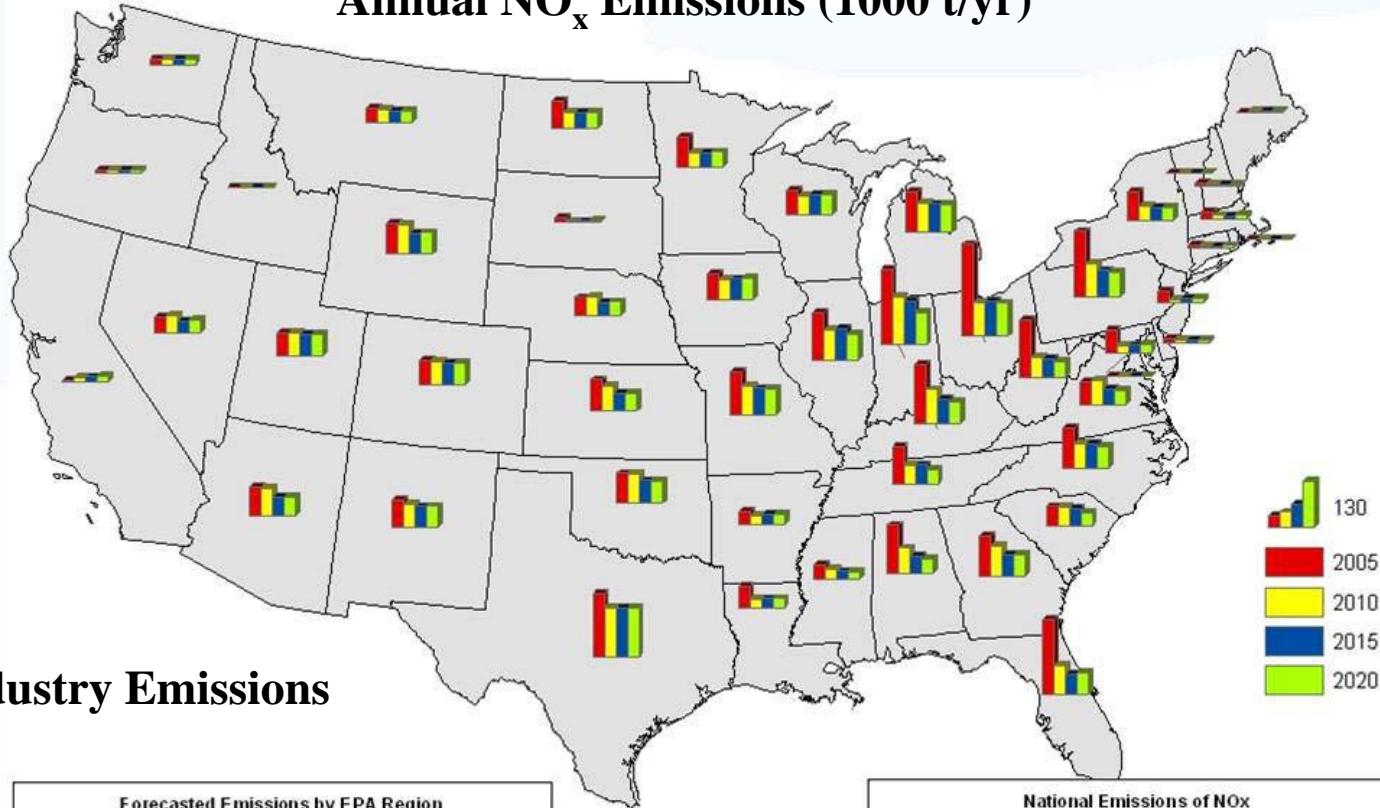


\* Pre 2010 data is based on Title IV emissions. 2010, 2015, and 2020 is based on IPM projections with CAIR/CAMR/CAVR.  
Source: EPA IPM Forecast 2006 and ICR reports.

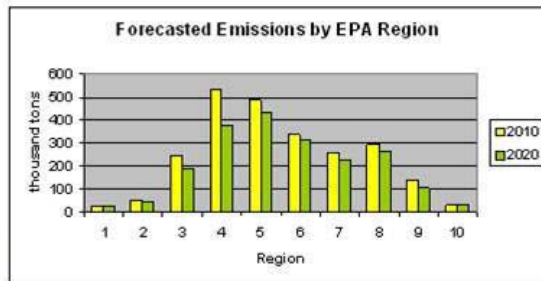


# Annual NO<sub>x</sub> Forecast

## Annual NO<sub>x</sub> Emissions (1000 t/yr)

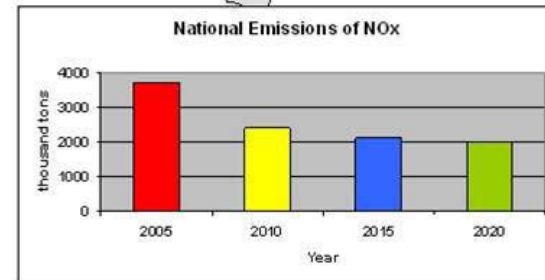


## Power Industry Emissions



\* Pre 2010 data is based on Title IV emissions. 2010, 2015, and 2020 is based on IPM projections with CAIR/CAMR/CAVR.

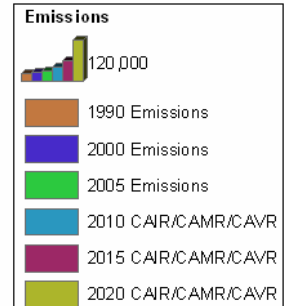
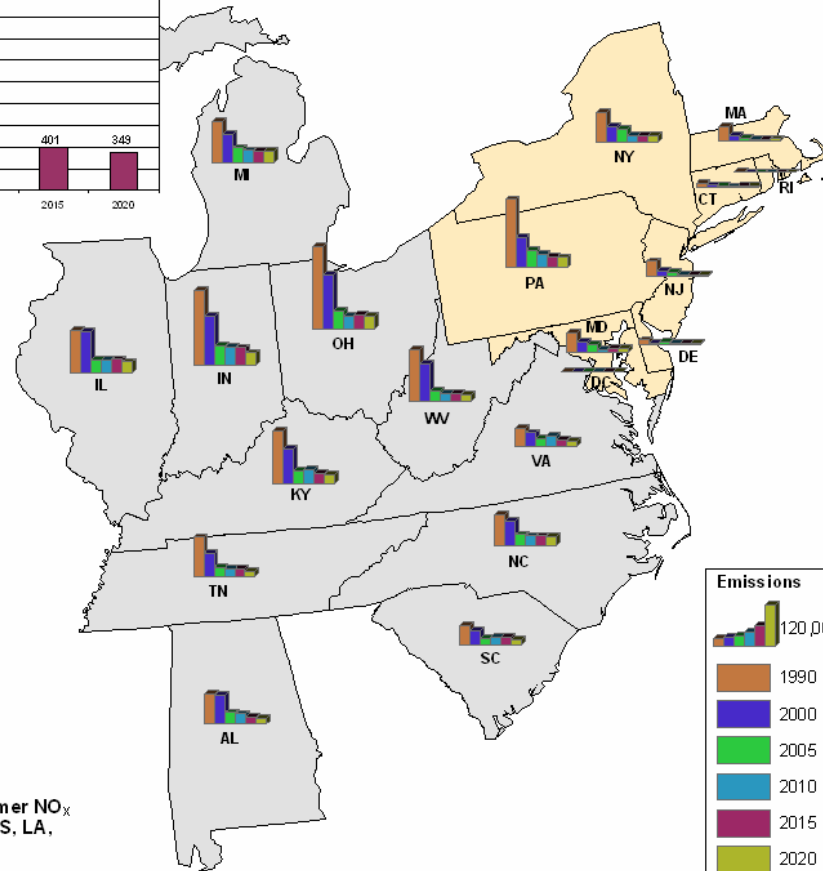
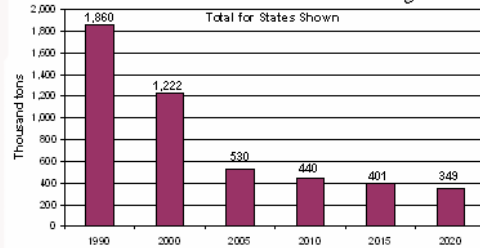
Source: EPA IPM Forecast 2006 and ICR reports.



# Ozone Season NO<sub>x</sub> Forecast in NBP



**NO<sub>x</sub> Budget Trading Program Ozone Season NO<sub>x</sub> Emissions from 1990, 2000, and 2005, and 2010, 2015, and 2020 CAIR/CAMR/CAVR Projected Emissions**



Note: CAIR will also lead to summer NO<sub>x</sub> reductions over AR, FL, GA, IA, KS, LA, MN, MO, MS, TX, and WI.

# IPM Improvements

- Last fall, EPA completed an update to IPM
- Key changes included:
  - Fuel supply curves
  - Stakeholder comments on unit data
  - Regulatory update
  - General modeling update
- Update results in some differences in emission projections from the past



# High Energy Demand Day Control Strategies



- Several OTC States have agreed to achieve reductions using high energy demand day strategies. Strategies focus on:
  - DSM, clean energy strategies
  - Controls on peaking units
- EPA has been working with the OTC:
  - Analyzing potential reductions
  - Providing technical guidance on DSM, clean energy strategies

# To Learn More....

## Clean Air Interstate Rule

[www.epa.gov/cleanairinterstaterule](http://www.epa.gov/cleanairinterstaterule)

## Clean Air Mercury Rule

[www.epa.gov/mercury](http://www.epa.gov/mercury)

## Clean Air Rules Combined Analysis for IPM 3.0

<http://www.epa.gov/airmarkets/progsregs/epa-ipm/index.html>

## Multi-Pollutant Legislative Analysis

<http://www.epa.gov/airmarkets/mp>

