

Upwind/Downwind Transport Linkages for “New” Ozone NAAQS



Paul Miller
Deputy Director

MANE-VU Board Meeting
September 15, 2011

“New” Ozone NAAQS

- “New” ozone NAAQS is 0.075 ppm(?)
- CSAPR ozone transport linkages based on 0.085 ppm
- What happens after CSAPR implementation?
 - What counties are projected to be nonattainment or maintenance areas?
 - Which upwind states are projected to be significant contributors of ozone to these areas?

CSAPR “significant contribution” factors

- 2-step approach
- Step 1 based on modeling:
 - >1% of NAAQS minimum contribution to link upwind-downwind states
- Step 2 based on costs:
 - Maximum cost threshold applied to emissions from EGUs in upwind linked states
 - Cost threshold could vary according to downwind air quality impact

The Approach

- Using EPA CSAPR modeling results
 - No new modeling done apart from EPA's
- Step 1A - Identify downwind monitoring sites projected to be nonattainment / maintenance in 2014 after CSAPR in effect
- Step 1B - Look at upwind ozone contributions at those downwind sites
 - If upwind contribution $\geq 1\%$ of 0.076 ppm, upwind state is “linked” to downwind site
- Step 2 - TBD: \$/ton of NO_x for “significant contribution” amount?

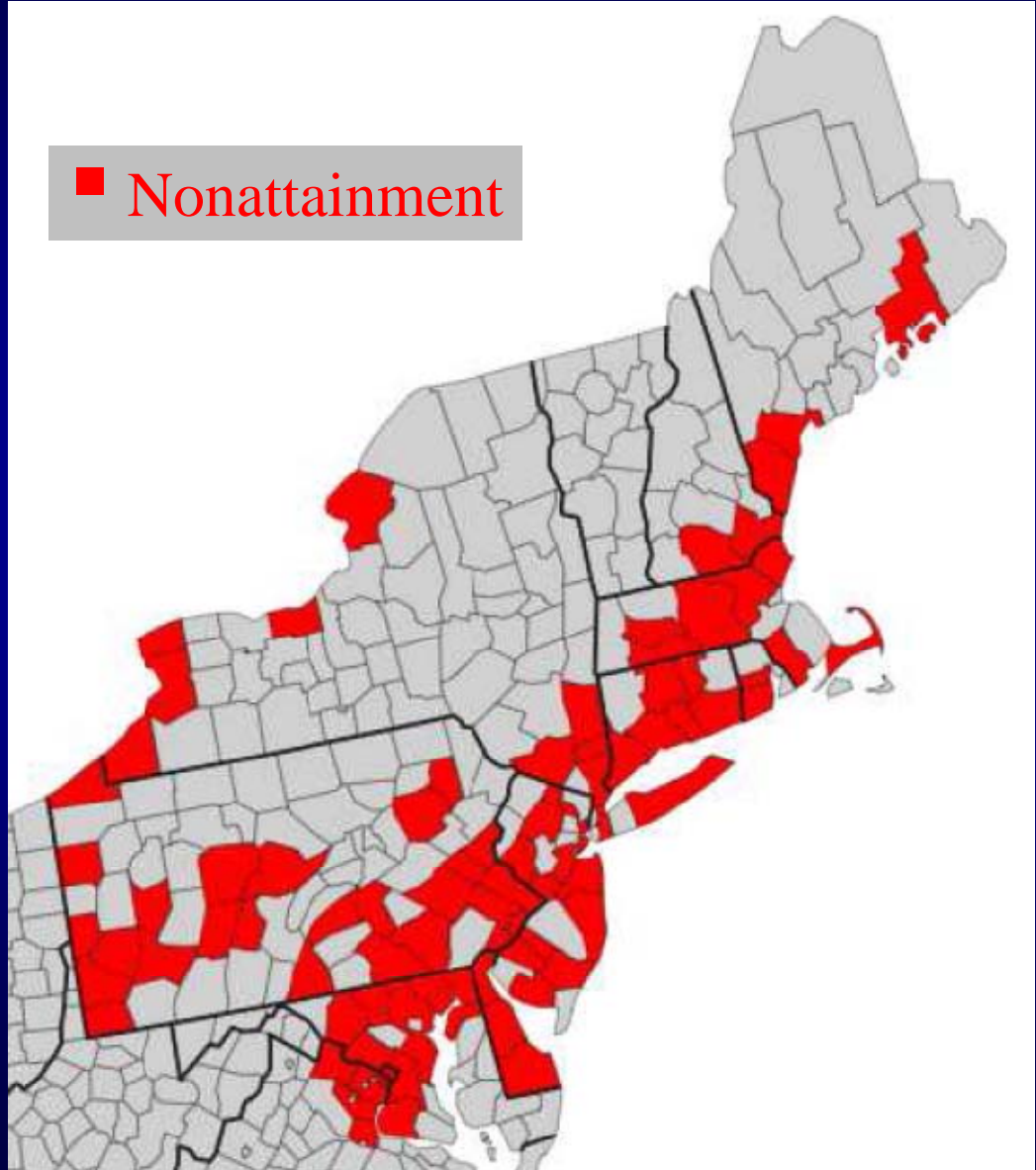
Measures Assumed in CSAPR Modeling Post-2014

- CSAPR (full implementation)
- Light-Duty Vehicle Tier 2 Rule
- Onroad Heavy-Duty Vehicle Rule
- Mobile Source Air Toxics Rule
- Locomotive and Marine Rule
- Category 3 Marine Diesel Engines (IMO)
- Various non-EGU MACT rules / state-specific measures, consent decrees, etc.
- NOT INCLUDED – Utility MACT, Boiler MACT

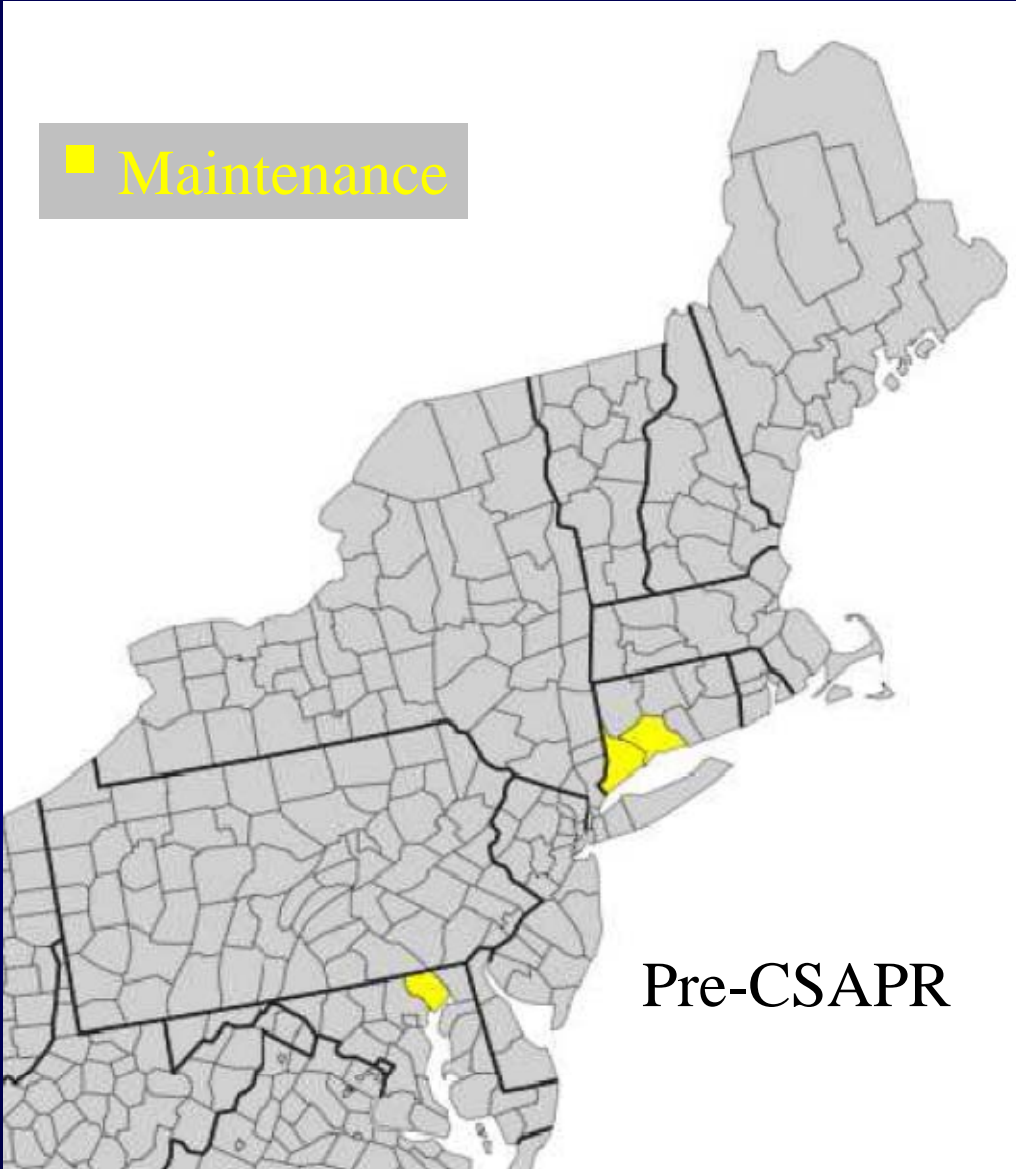
Step 1A - Identifying downwind monitoring sites

- 3-year design values (DV) at monitoring sites during 2003-2007
- Project DVs to 2014 after CSAPR et al. in place as given by EPA modeling
 - “Nonattainment” exists if average of all projected DVs ≥ 0.076 ppm
 - “Interferes with maintenance” if any one DV ≥ 0.076 ppm, but multi-DV average < 0.076 ppm

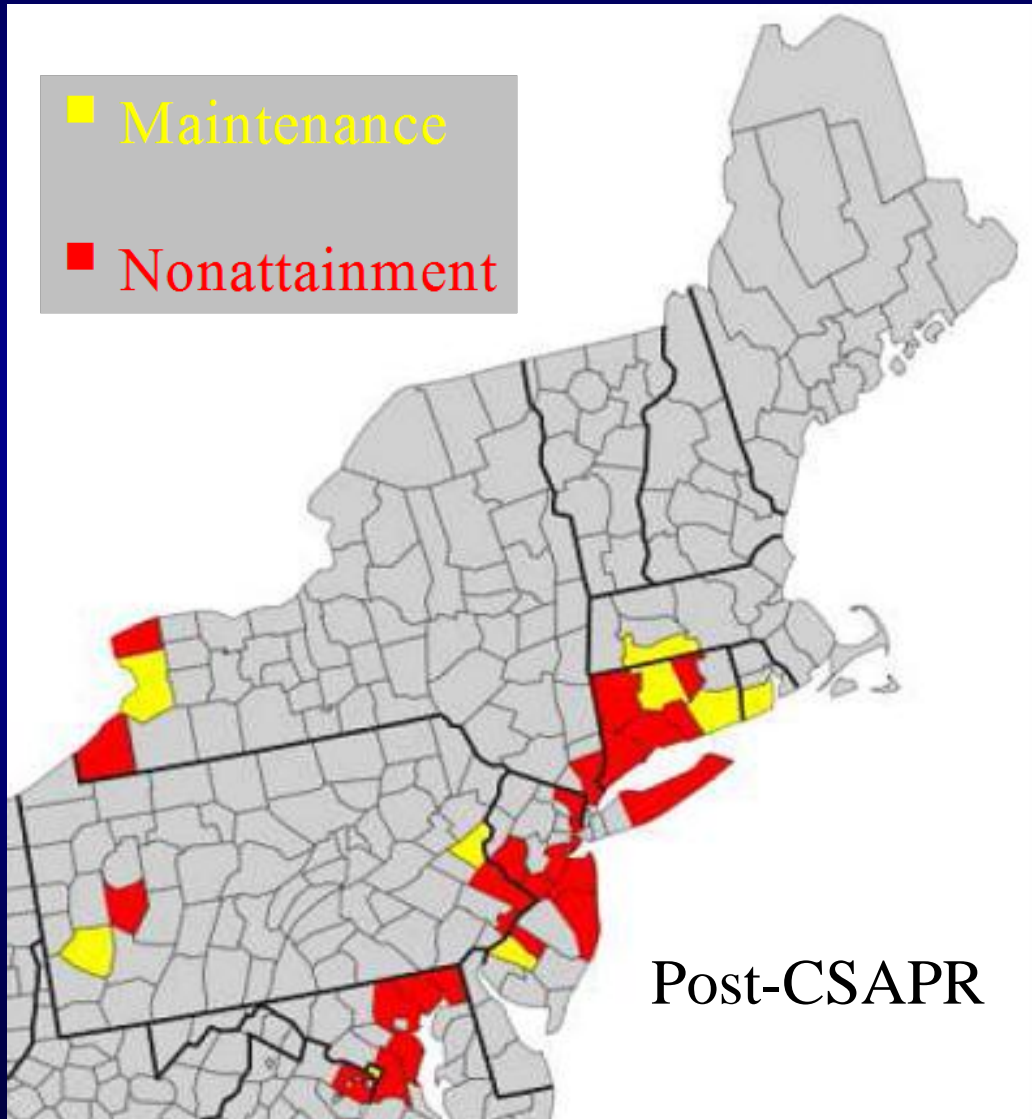
2000 Nonattainment 0.085 ppm NAAQS Status



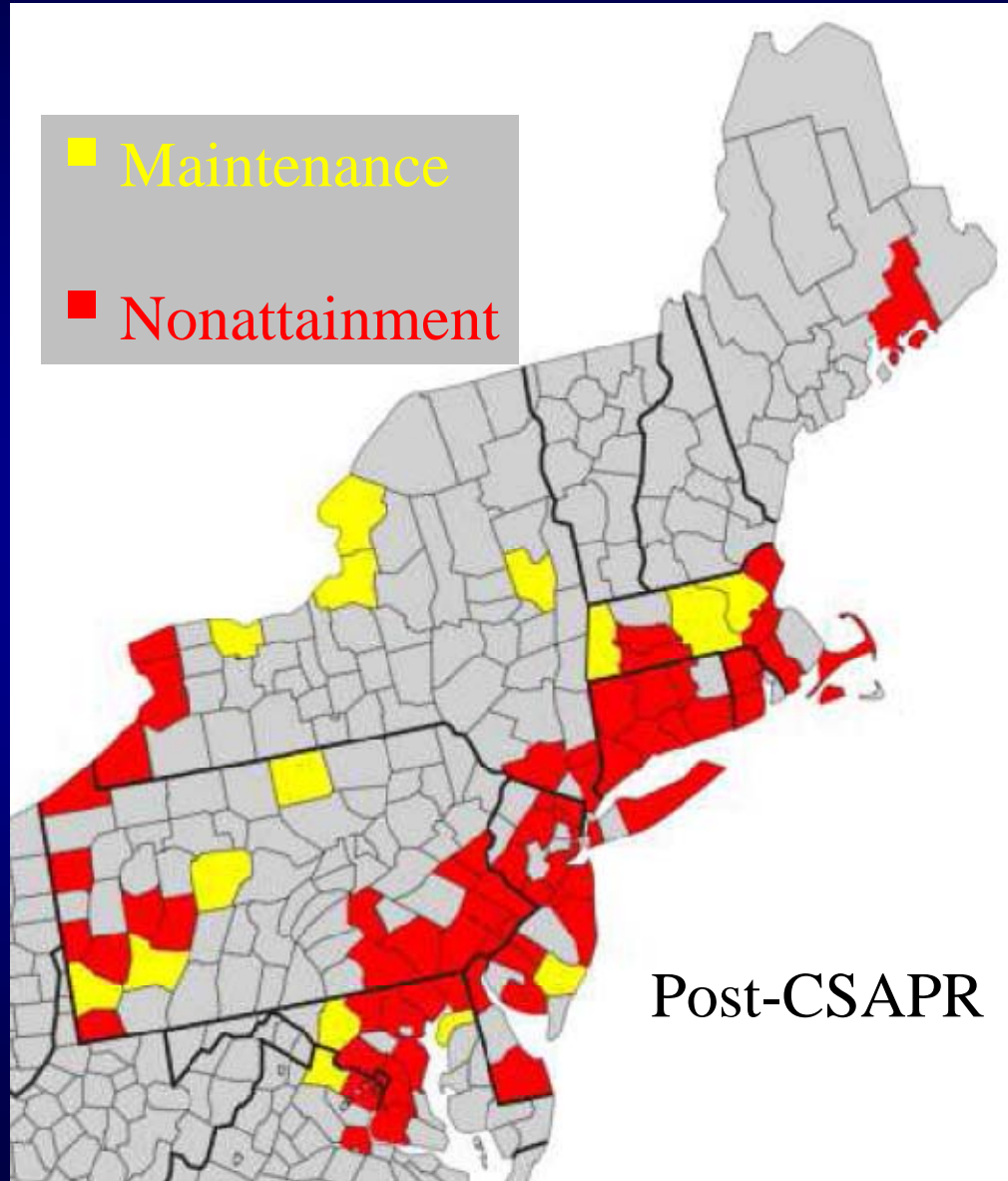
Projected 2012 0.085 ppm NAAQS Status



Projected 2014 0.075 ppm NAAQS Status



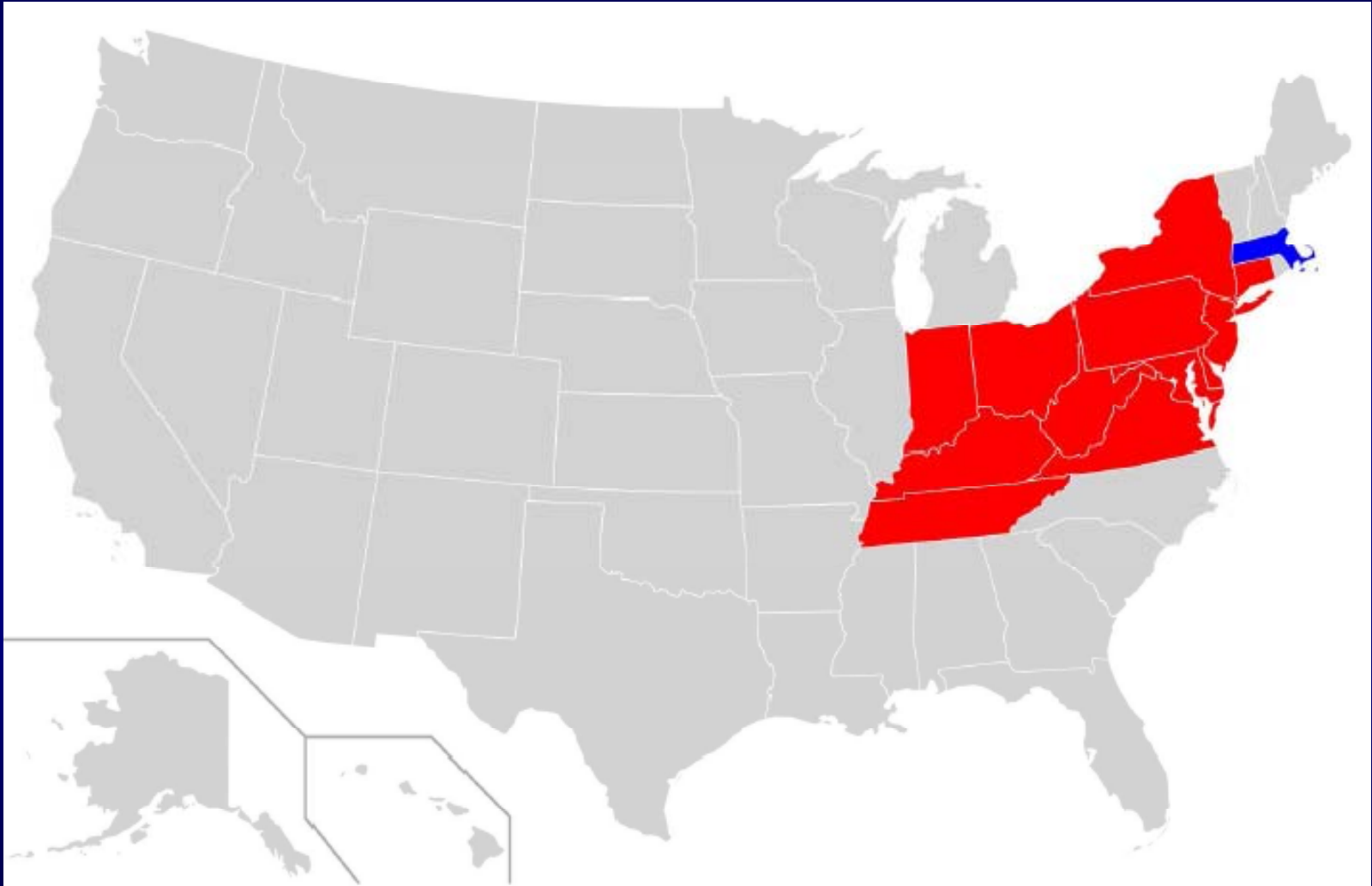
What if there was a 2014 0.070 ppm NAAQS?



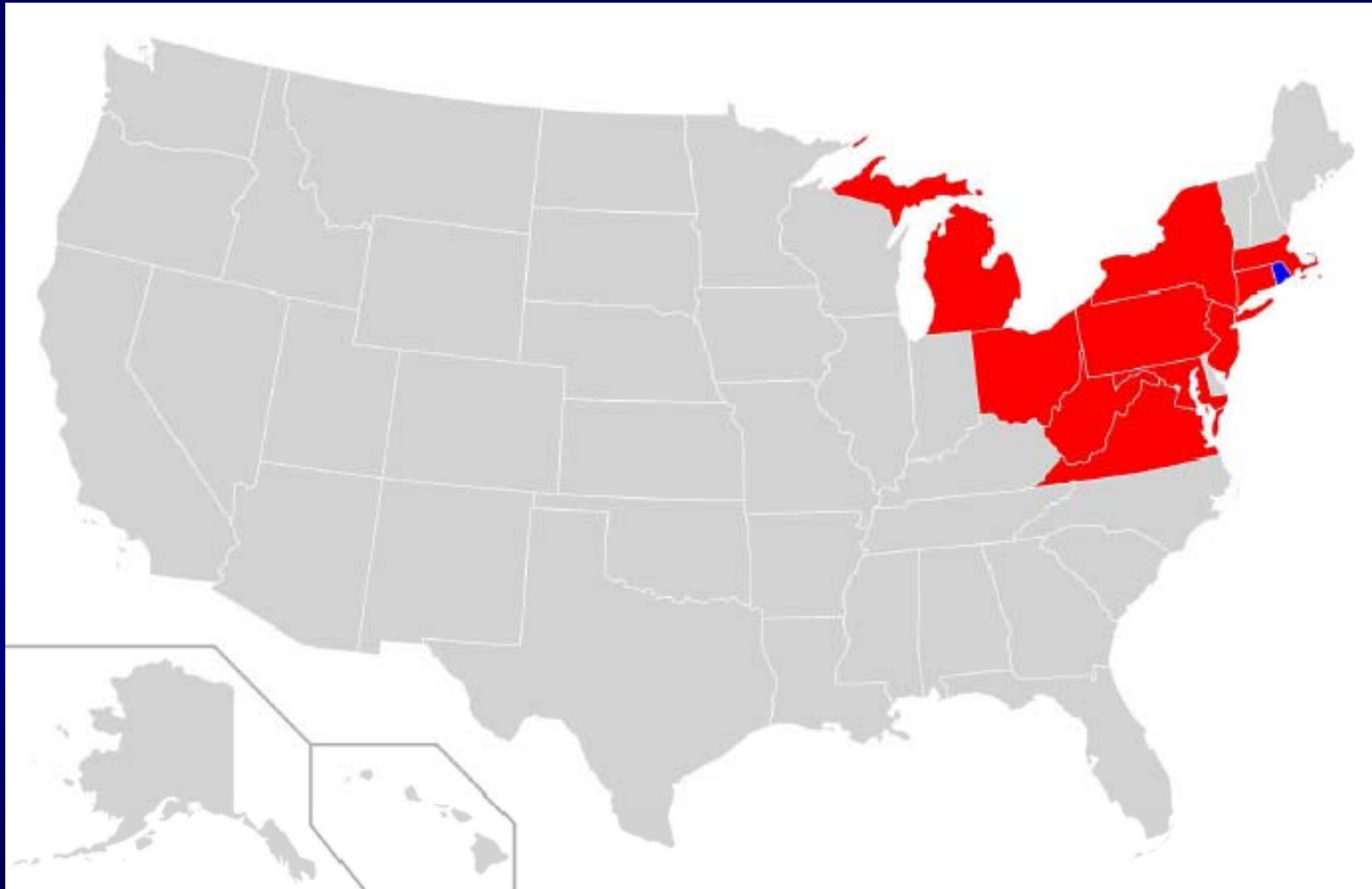
Step 1B - Link upwind states to downwind sites

- Using same EPA modeling
- Look at identified monitoring sites ≥ 0.076 ppm in 2014 after CSAPR
 - Nonattainment
 - Maintenance
- Identify states contributing $>1\%$ NAAQS threshold in EPA's 2012 base case

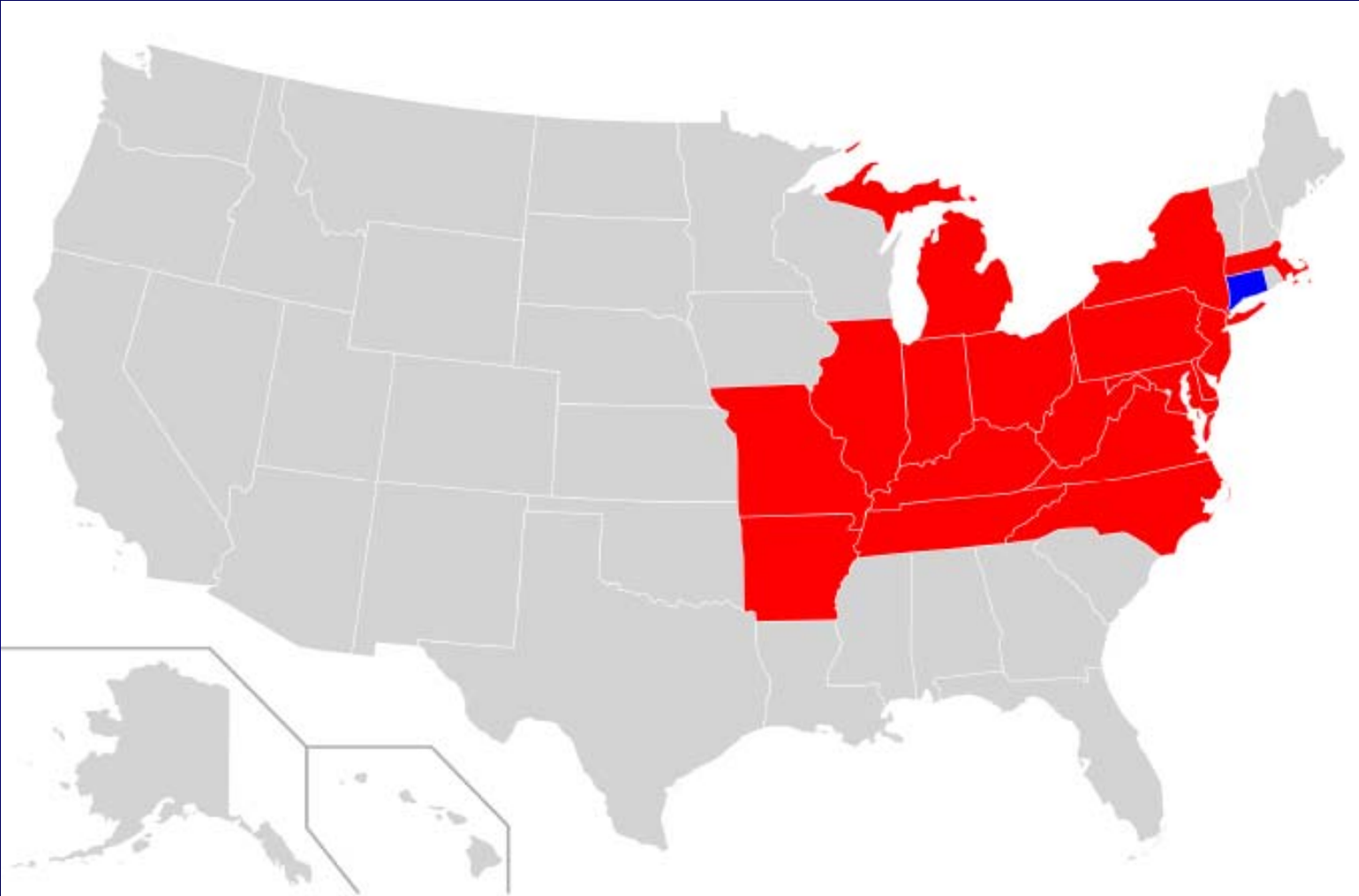
Massachusetts



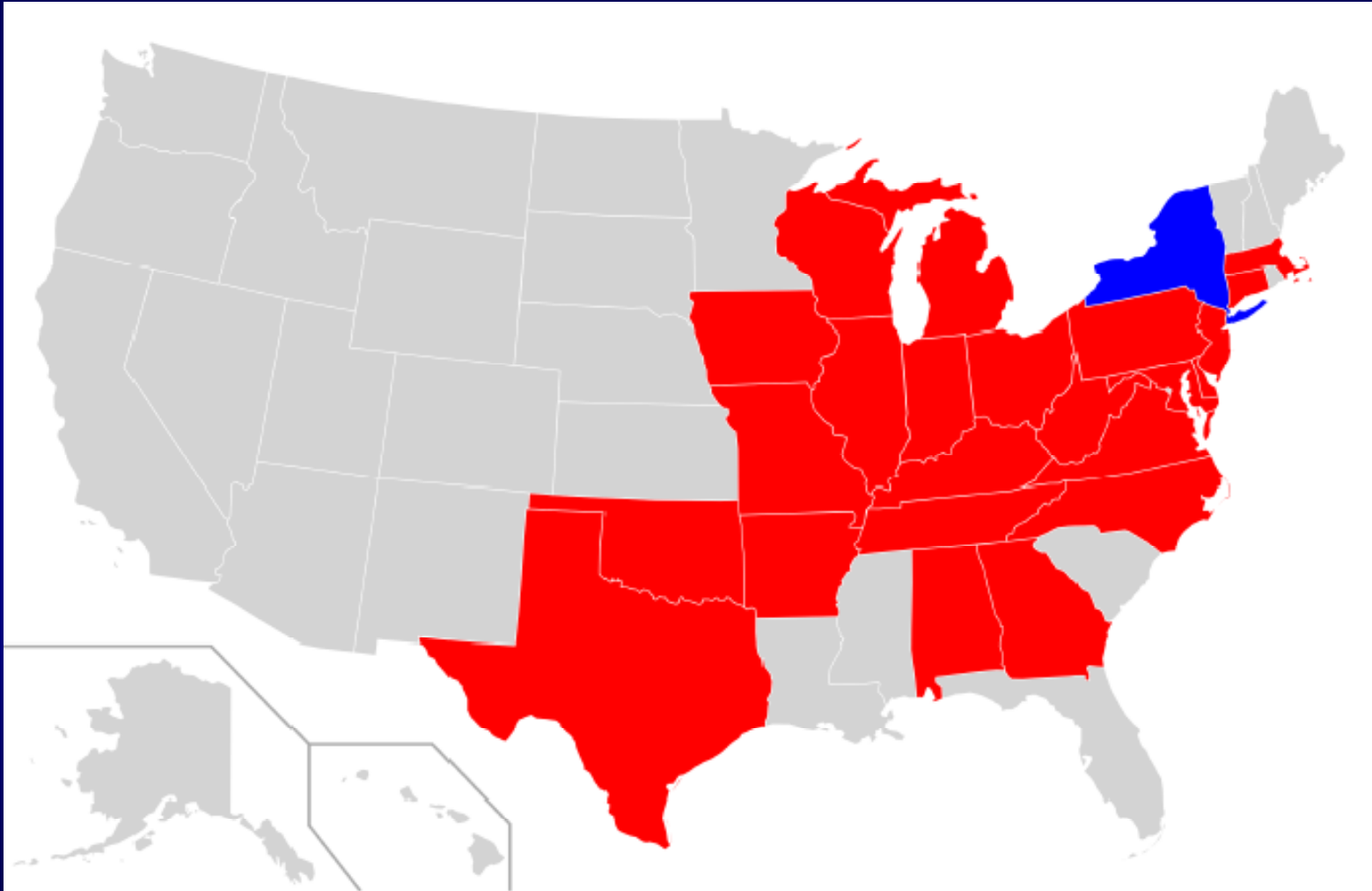
Rhode Island



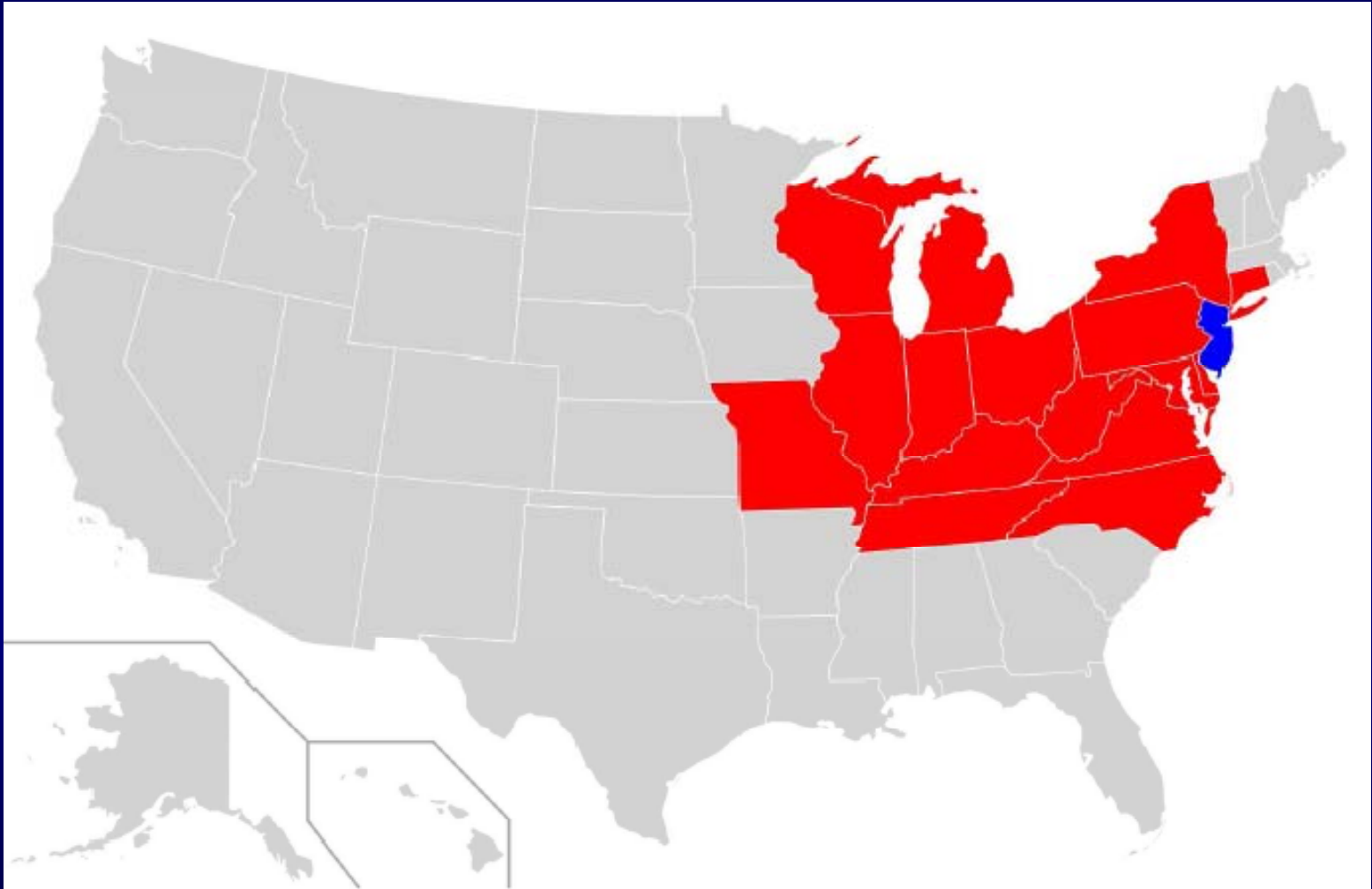
Connecticut



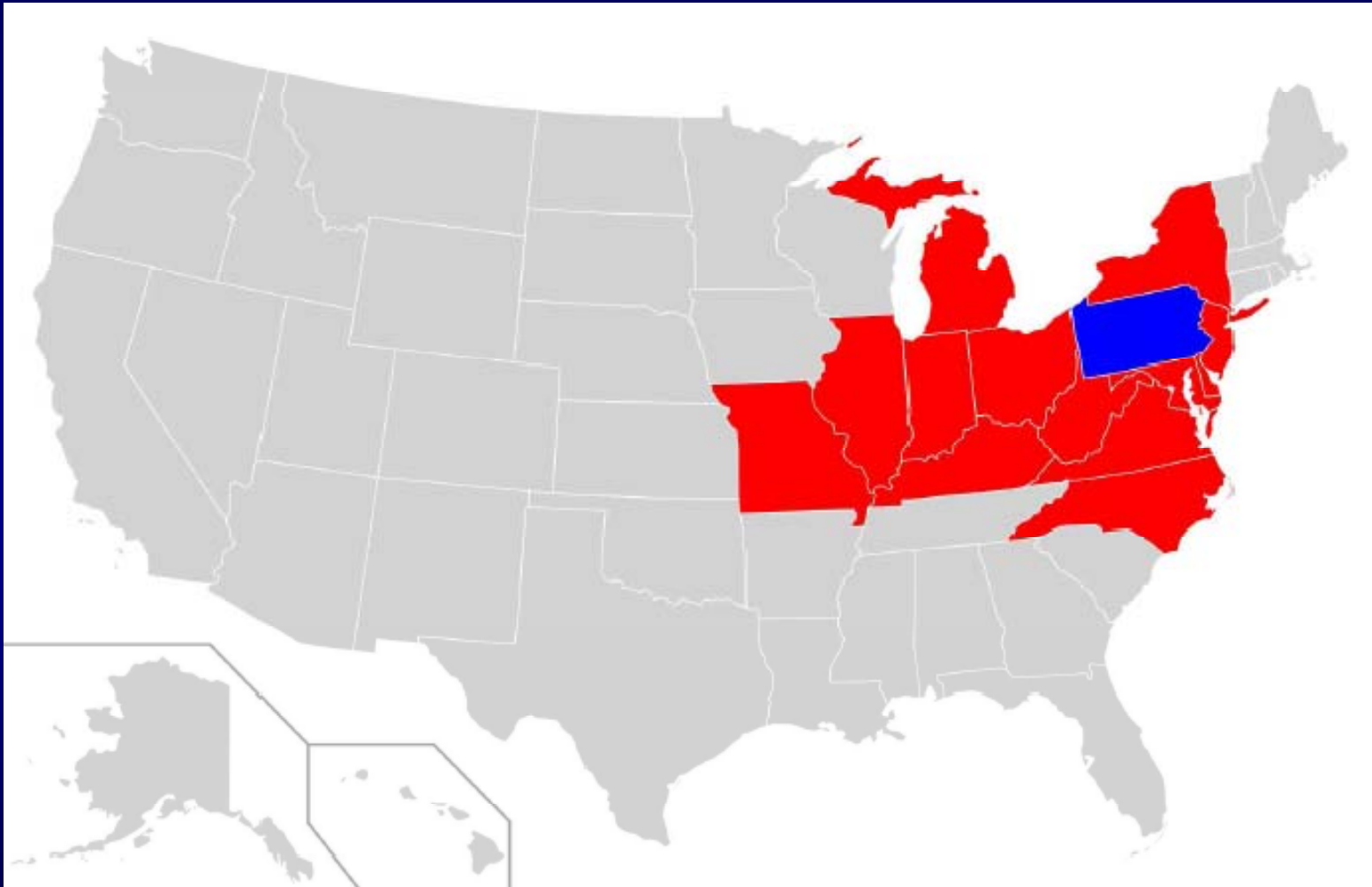
New York



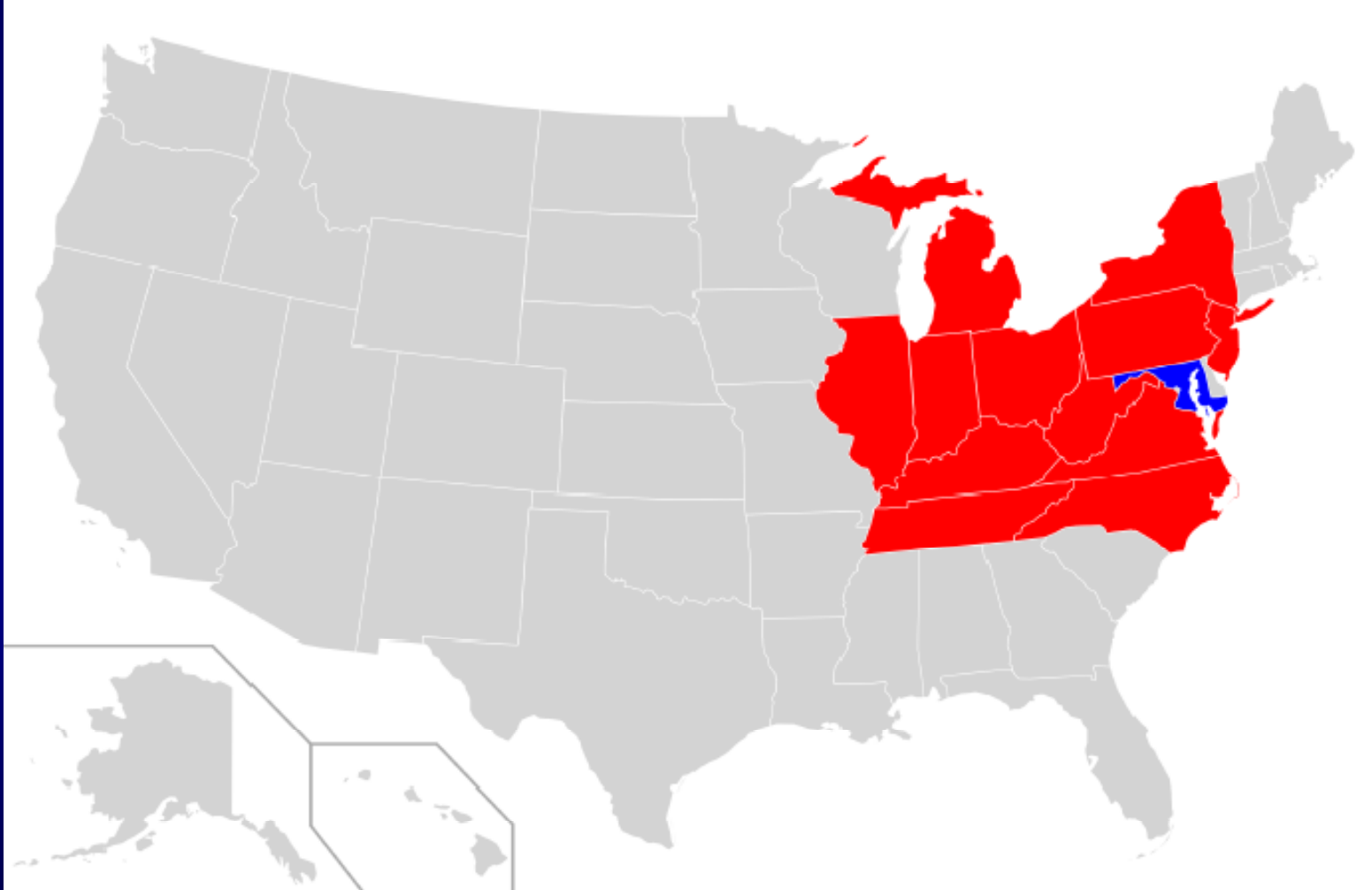
New Jersey



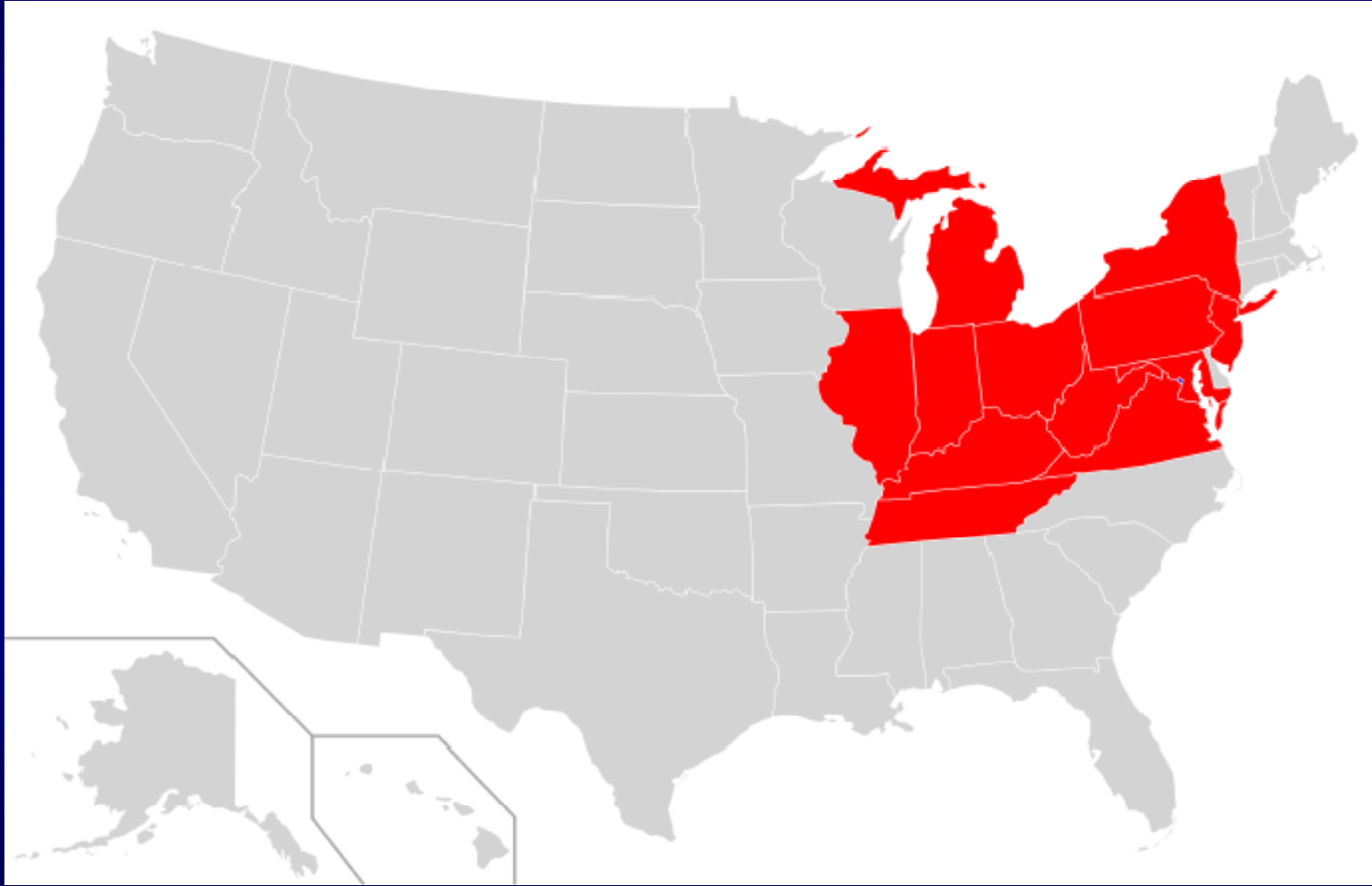
Pennsylvania



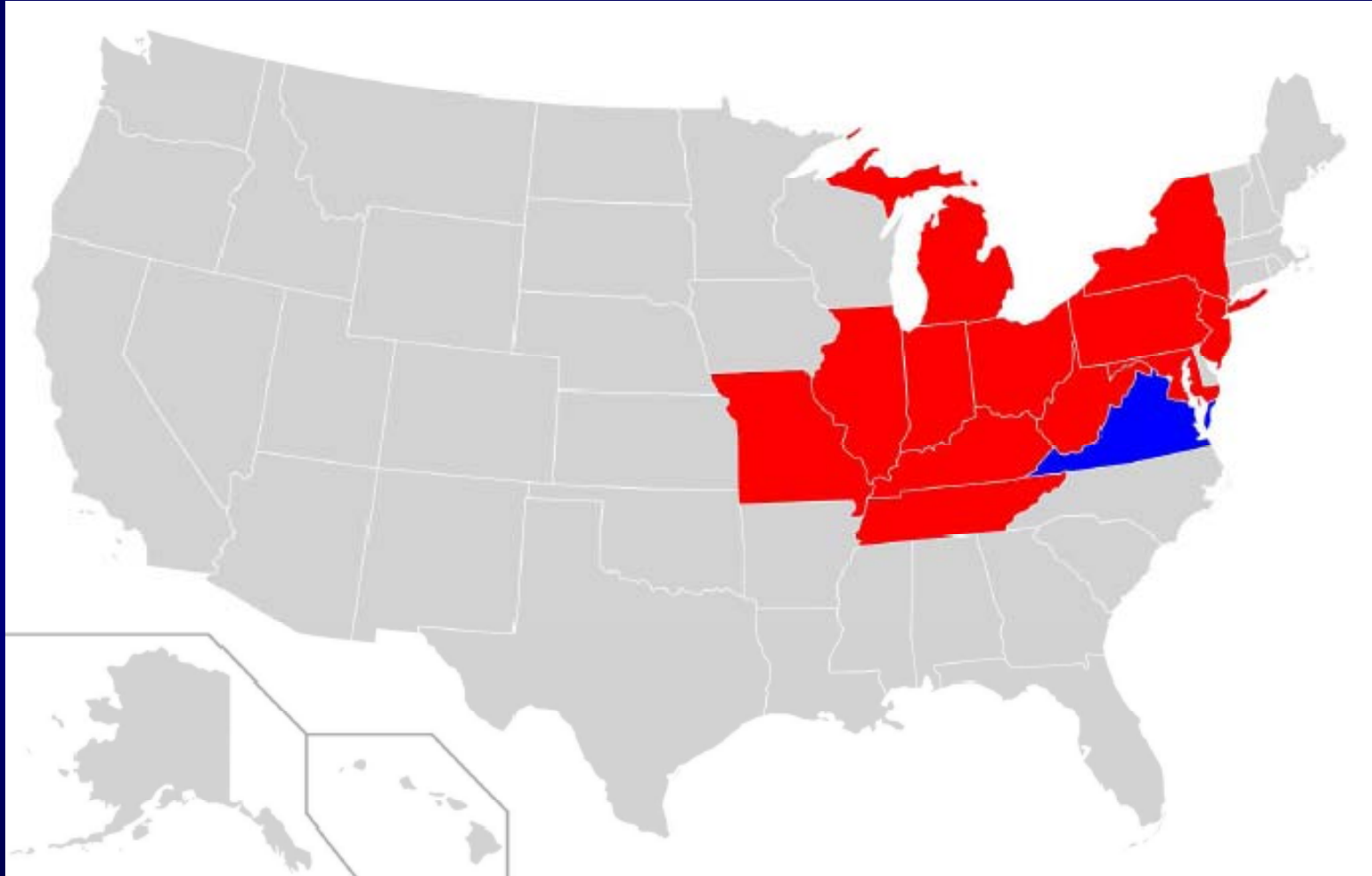
Maryland



District of Columbia



Virginia (OTR portion)



Step 2 - What is Control Cost Level for “Significant Contribution”?

- In CSAPR, EPA applied a \$/ton limit to determine amount of NO_x emissions deemed “significantly contributing”
- For EGUs in CSAPR, EPA chose \$500/ton NO_x as limit
- Where would that \$/ton threshold be for a different NAAQS / different stationary sources?

Parting Thoughts

- Increased ozone nonattainment / maintenance in MANE-VU for ozone NAAQS = 0.075 ppm
- Would be more counties nonattainment / maintenance in OTR if ozone NAAQS was at upper end of CASAC range (0.070 ppm)
- Widespread regional ozone transport will contribute to MANE-VU ozone problem post-2014 CSAPR

Parting Questions

- Does a tighter ozone NAAQS change the EGU control cost threshold?
- What about non-EGU sources?
- Will there be LDV Tier 3 / 10 ppm S gasoline?