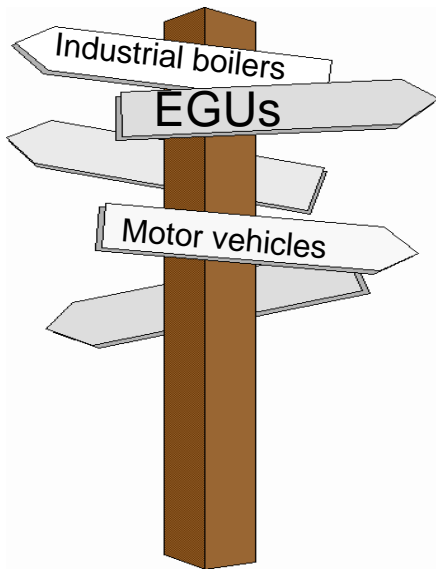


NAAQS Update



ECONOMY

NAAQS Overview

- Standards
- Schedule
- Good News/Bad News
- Designations and Implementation Issues
 - Ozone
 - PM_{2.5}
 - SO₂
 - NO₂
- Moving Forward

Current NAAQS

Pollutant	Primary/Secondary	Averaging Time	Level	Form
PM _{2.5}	Primary & secondary	Annual	15 µg/m ³	Annual mean, averaged over 3 years
PM _{2.5}	Primary & secondary	24-hour	35 µg/m ³	98 th % of daily average, averaged over 3 years
PM ₁₀	Primary & secondary	24-hour	150 µg/m ³	Not to be exceeded more than once per year on average over 3 years
Lead	Primary & secondary	Rolling 3-month avg.	0.15 µg/m ³	Not to be exceeded
NO ₂	Primary	1-hour	100 ppb	98 th % of 1-hour daily max, averaged over 3 years
NO ₂	Primary & secondary	Annual	53 ppb	Annual mean
SO ₂	Primary	1-hour	75 ppb	99% of 1-hour daily max, averaged over 3 years
SO ₂	Secondary	3-hour	0.5 ppm	Not to be exceeded more than once per year
Ozone (2008)	Primary & secondary	8-hour	75 ppb	Annual 4 th -highest daily max, averaged over 3 years

Latest NAAQS Schedules

(subject to change)

Pollutant	NAAQS Promulgation Date	Designations Effective	110(a) SIPs due (normally 3 yrs after NAAQS promulgation)	Attainment Demonstration Due	Attainment Date
PM2.5 (2006)	Oct 2006	Dec 2009	Oct 2009	Dec 2012	Dec 2014/2019
Lead	Oct 2008	Dec 2010/2011	Oct 2011	June 2012/2013	Dec 2015/2016
NO ₂ (primary)	Jan 2010	Feb 2012	Jan 2013	Aug 2013	Feb 2017
SO ₂ (primary)	June 2010	July 2012(?)	June 2013	March 2014 (?)	July 2017 (?)
Ozone (2008)	March 2008	May 2012	March 2011	2015	2015-2035
Ozone (current review)	July 2014	2016	July 2017	2019/2020	2019-2039
PM2.5 (current review)	Dec 2012	Dec 2013 (?)	Dec 2015	Dec 2016 (?)	Dec 2018/2023 (?)
NO ₂ /SO ₂ Secondary	March 2012	TBD	March 2015	TBD	TBD

Good News

- Despite challenges associated with current NAAQS for PM, ozone, and SO₂, some favorable recent developments
 - EPA began reconsideration of 2008 ozone standard but was suspended by White House
 - No changes to current carbon monoxide standards during recent review cycle
 - EPA initially proposed stringent secondary NAAQS for NO₂ and SO₂, but then finalized no changes to current secondary standards
 - Implementation of new NO₂ standard (a challenge for permitting, but) reasonable for SIP development (unlike SO₂)
- Economy and jobs now relevant again to policymakers and outreach/education continues through interaction with EPA and numerous state workgroups
- Ambient concentrations of criteria pollutants significantly lower.

Bad News

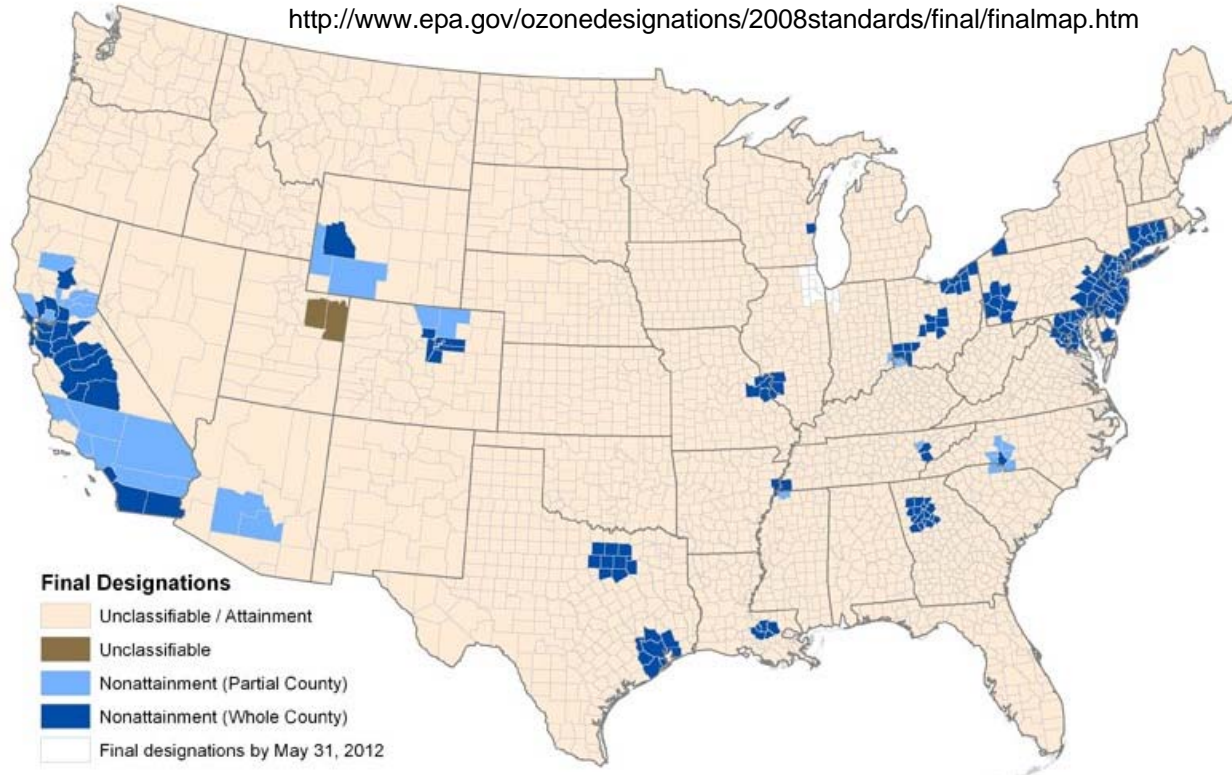
- $PM_{2.5}$ and 1-hour SO_2 and NO_2 NAAQS pose significant challenges for permitting due to overly conservative implementation requirements
- Ozone and $PM_{2.5}$ standards likely to become even more stringent during next review cycle
- Unprecedented EPA commitment to require assessment of secondary formation of ozone and $PM_{2.5}$ as part of PSD permits
- Increased frequency of environmental advocates suing state regulatory agency over failure to enforce modeling requirements for individual sources

Ozone

- Reconsideration of 2008 NAAQS scrapped by White House, court granted EPA motion to dismiss challenge, now on normal review cycle (2013 proposal, 2014 final)
- Current focus on implementing 2008 rule (75 ppb)
 - Designations announced April 30, 2012
 - 46 nonattainment areas; only 3 areas not previously nonattainment under 1997 standards
 - Simultaneous rule to set classification thresholds (% above standard approach)
 - Marginal 0.076 up to 0.086 ppm (3 years)
 - Moderate 0.086 up to 0.100 ppm (6 years)
 - Serious 0.100 up to 0.113 ppm (9 years)
 - Sets Dec 31 of each calendar year as attainment date for each classification
 - Grants voluntary bump-up to six California areas that requested under '97 NAAQS
 - Revokes the 1997 ozone NAAQS for purposes of transportation conformity
- Separate Summer 2012 proposal on other implementation issues
 - Anti-backsliding, SIP deadlines (2015), required control measures (RACT/RACM), RFP, etc.

Ozone

- Designations for 2008 NAAQS not likely to cause widespread issues since most areas were nonattainment under previous standards
 - San Luis Obispo and Tuscan Butte, California and Sublette/Lincoln/Sweetwater Counties, Wyoming only new areas



Notes:

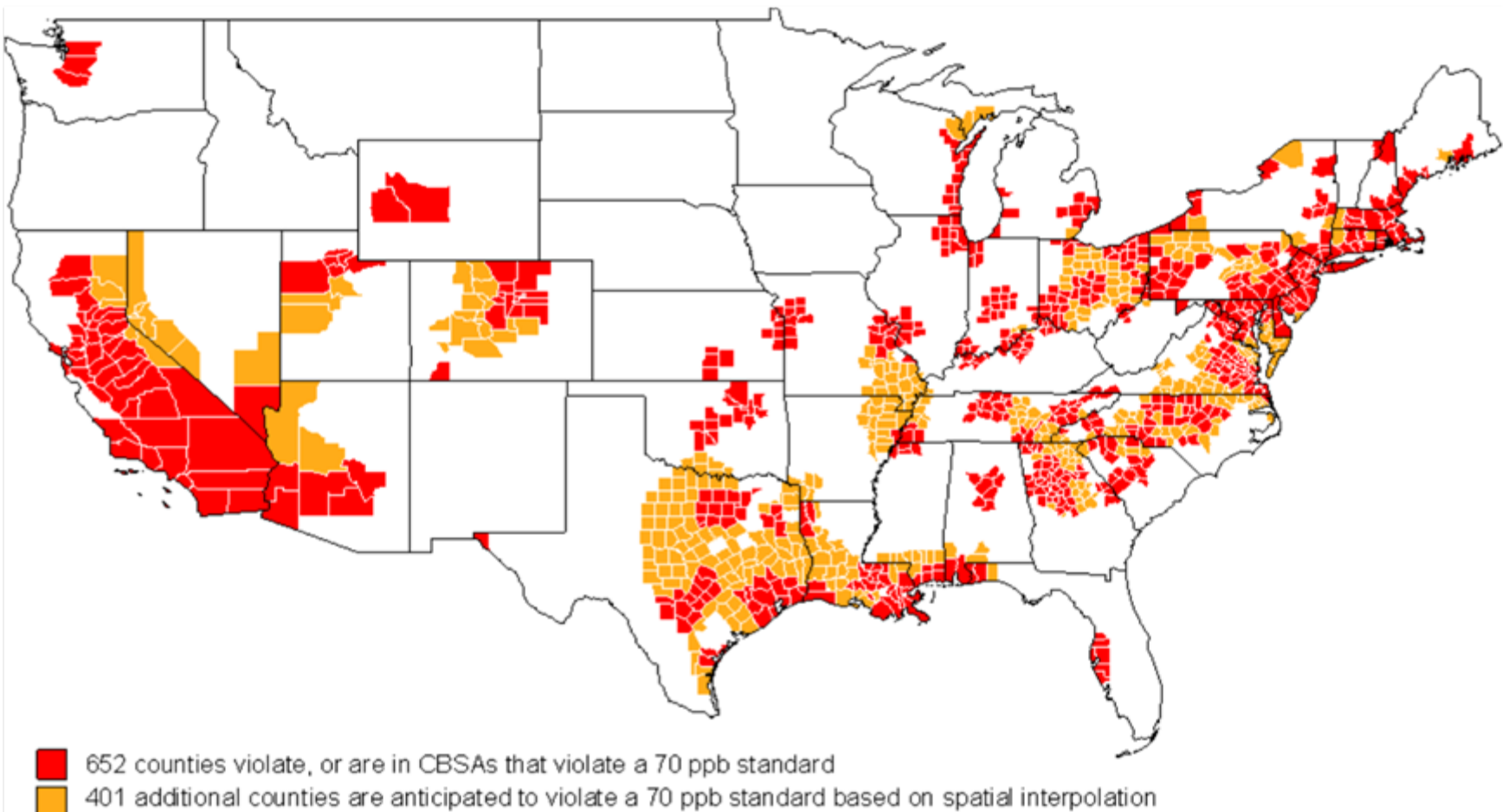
EPA does not intend to designate as nonattainment any areas outside the Continental US.

Ozone - Future

- January 2012 response to Sierra Club petition commits EPA to evaluating ozone (and secondary PM_{2.5}) impacts via PSD permits
- EPA planning a proposed rule in October 2013 and a final rule in July 2014
- Integrated Science Assessment
 - Likely causal relationship between short-term exposures to O₃ and all-cause mortality
 - Evidence suggests a causal relationship between long-term O₃ exposures and mortality
 - Relationship between concentration and response is linear within concentrations present in the U.S., with no indication of a threshold of O₃ concentrations under which no effect would be observed
- New implementation rules likely if standards tighten in 2014

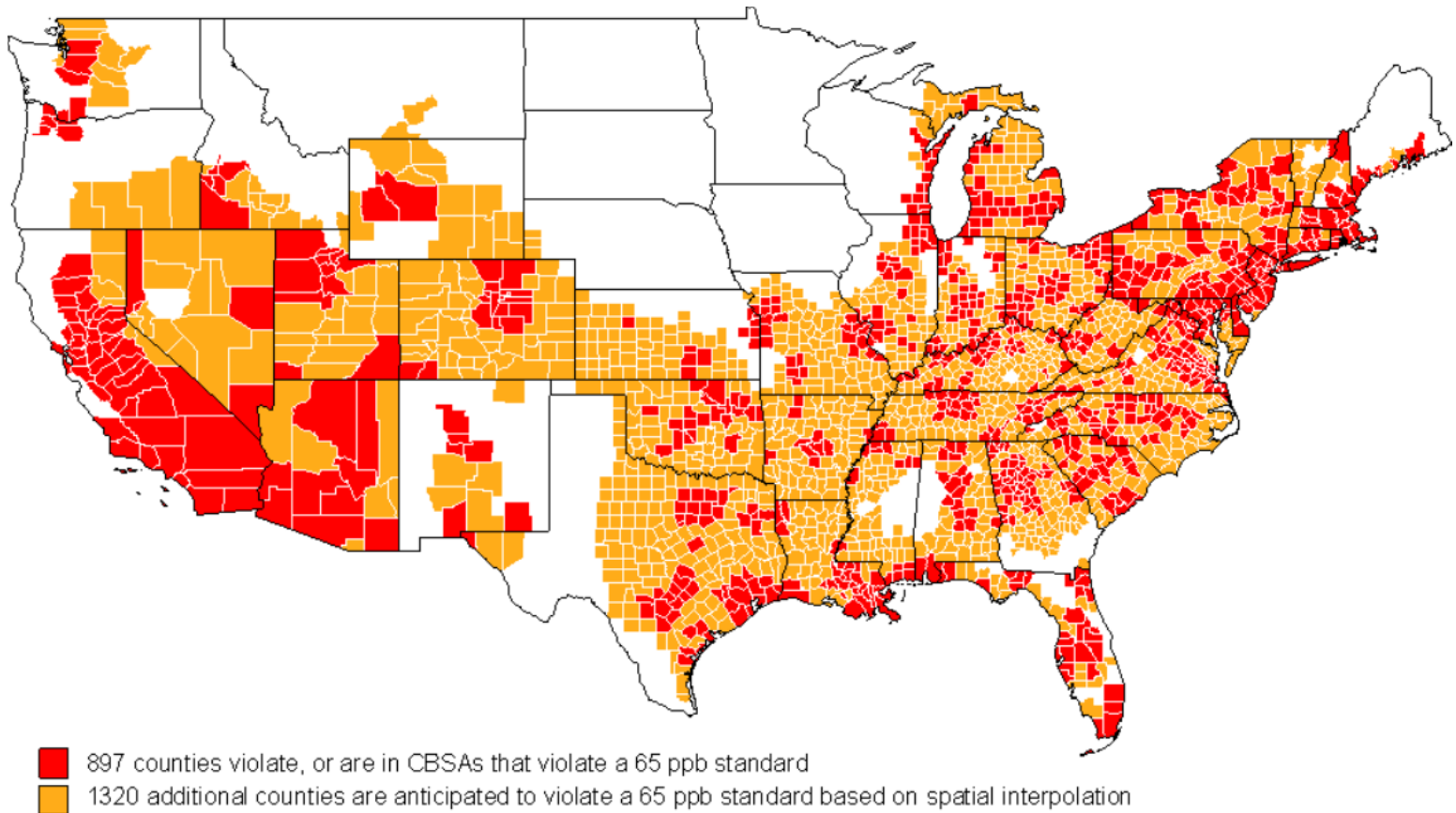
Ozone

- A more stringent standard in next review cycle (2014) could greatly increase nonattainment areas. See impacts of a standard at **70 ppm**.



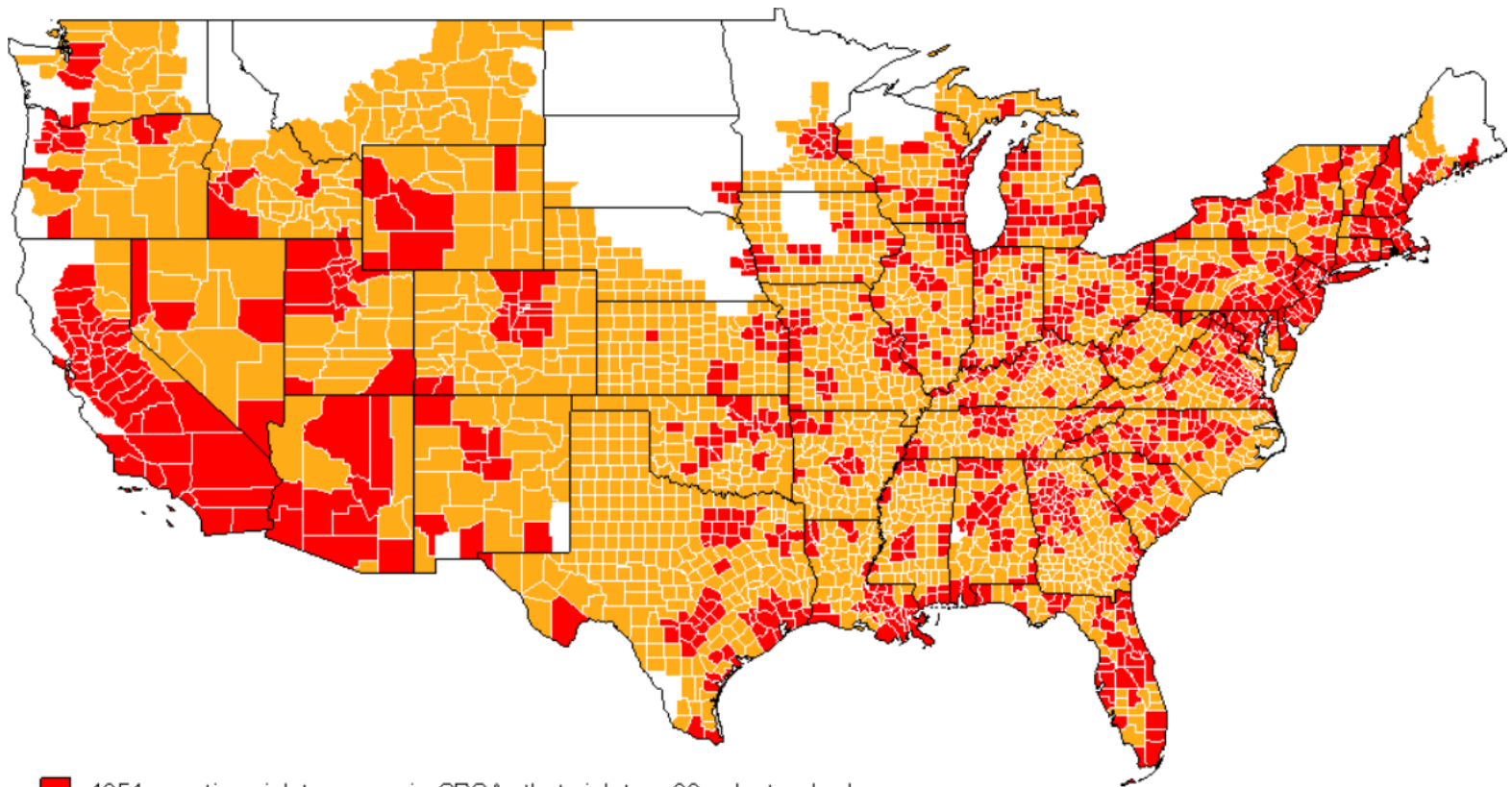
Ozone

- A more stringent standard in next review cycle (2014) could greatly increase nonattainment areas. See impacts of a standard at **65 ppm**.



Ozone

- A more stringent standard in next review cycle (2014) could greatly increase nonattainment areas. See impacts of a standard at **60 ppm**.



- 1051 counties violate, or are in CBSAs that violate a 60 ppb standard
- 1744 additional counties are anticipated to violate a 60 ppb standard based on spatial interpolation

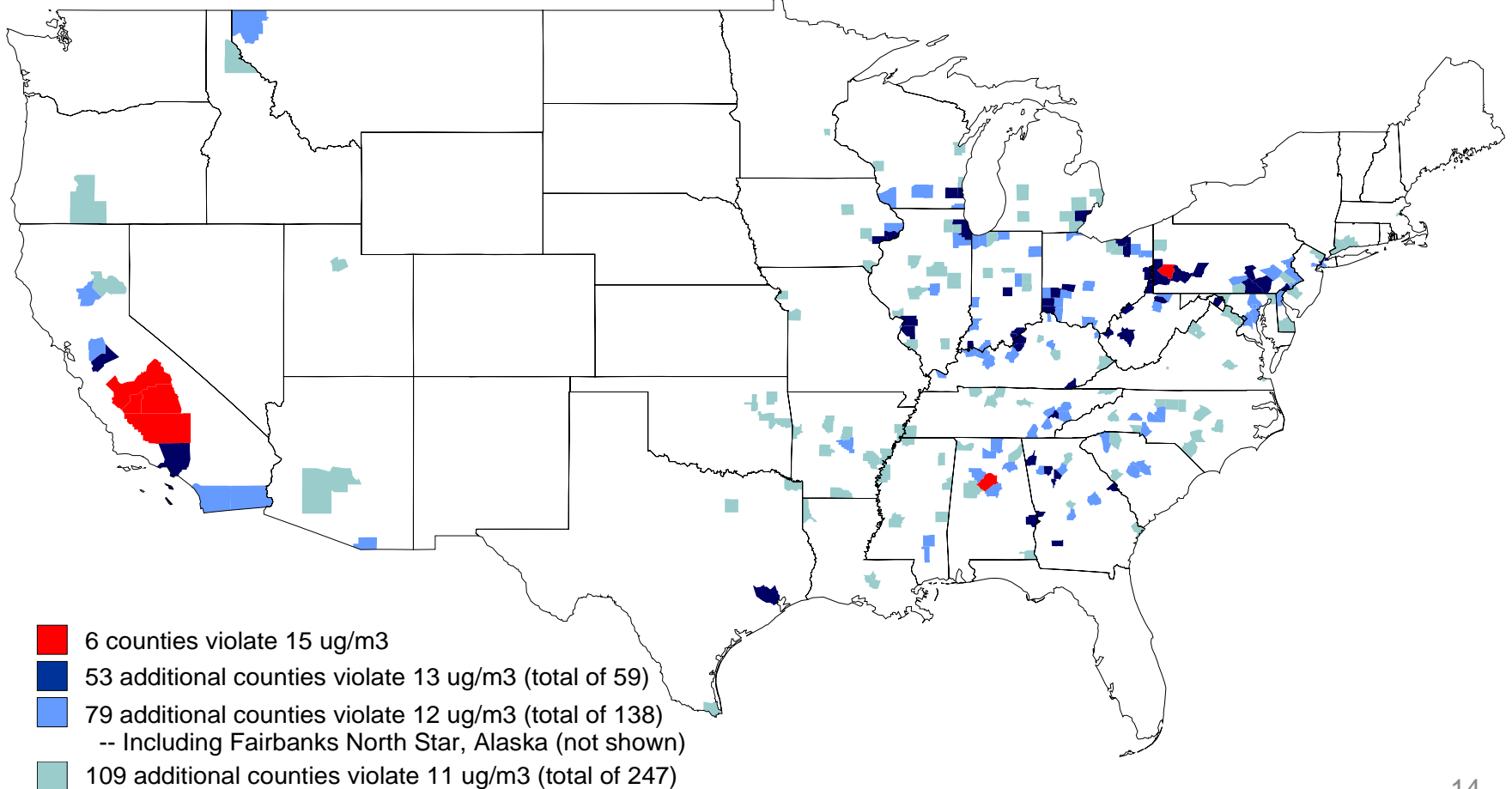
PM_{2.5}

- Feb 2009 remand by D. C. Circuit to EPA on 2006 annual and 24-hour standards
- EPA final policy assessment:
 - Revise annual standard within the range of 13 to 11 µg/m³
 - With an annual standard of 13 µg/m³, limited support to revise 24-hour standard below 35 µg/m³, such as 30 µg/m³
 - No discernible thresholds have been identified for any health effects associated with long or short-term PM_{2.5} exposures
 - Insufficient information for a separate ultrafine indicator or to eliminate any individual component or group of components from the mix of particles in the PM_{2.5} mass-based indicator
- Court requires revisions to be proposed June 14, 2012, promulgated by December 14, 2012
 - Comments on proposal due 9 weeks after publication

PM_{2.5}

Counties Violating Existing PM_{2.5} 15 ug/m³ Annual Standard And Hypothetical Lower Standards of 13, 12, and 11 ug/m³

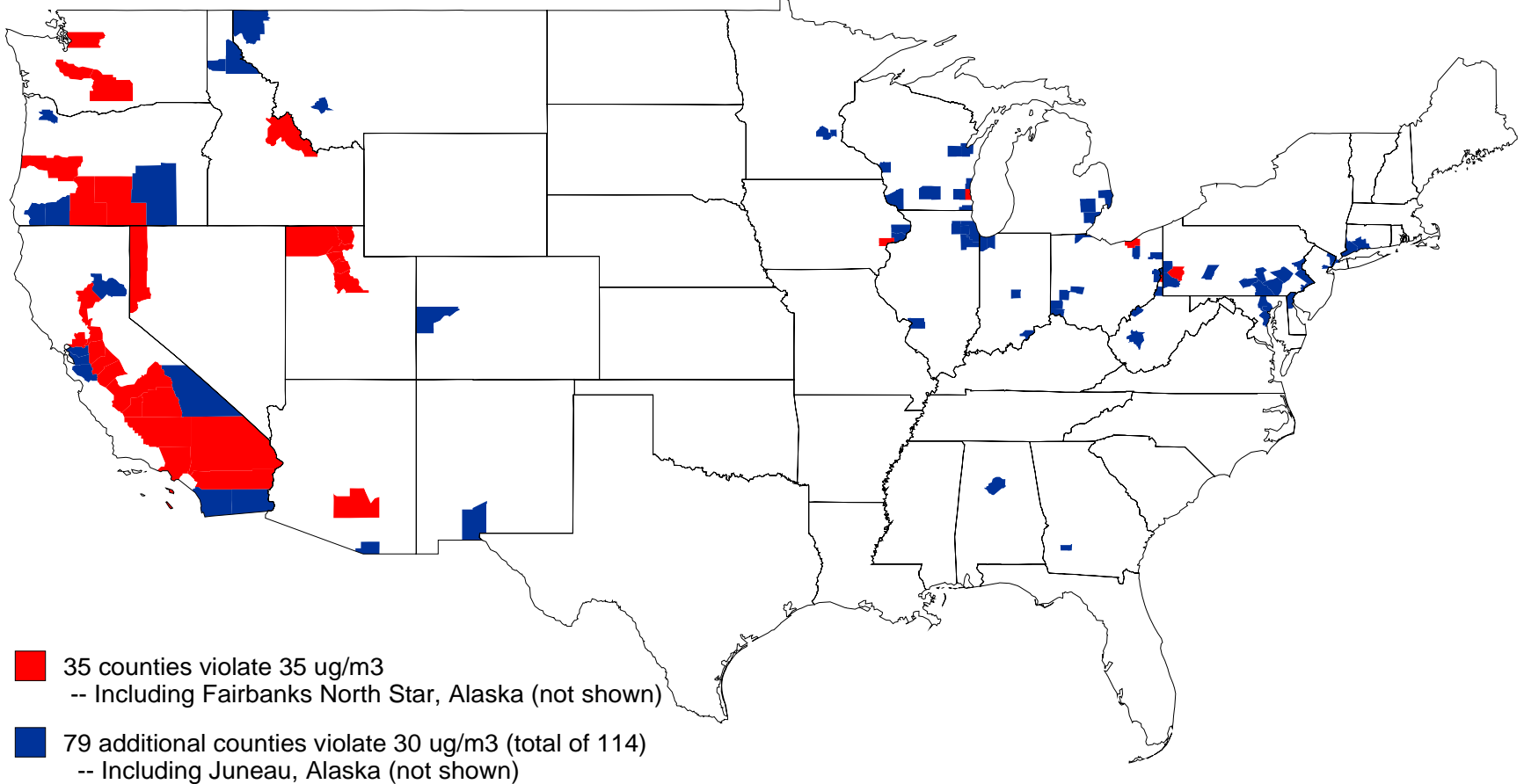
Data Source: <http://www.epa.gov/airtrends/values.html>



PM_{2.5}

Counties Violating Existing PM_{2.5} 35 ug/m³ 24-Hour Standard And Hypothetical Lower Standard of 30 ug/m³

Data Source: <http://www.epa.gov/airtrends/values.html>



PM_{2.5}

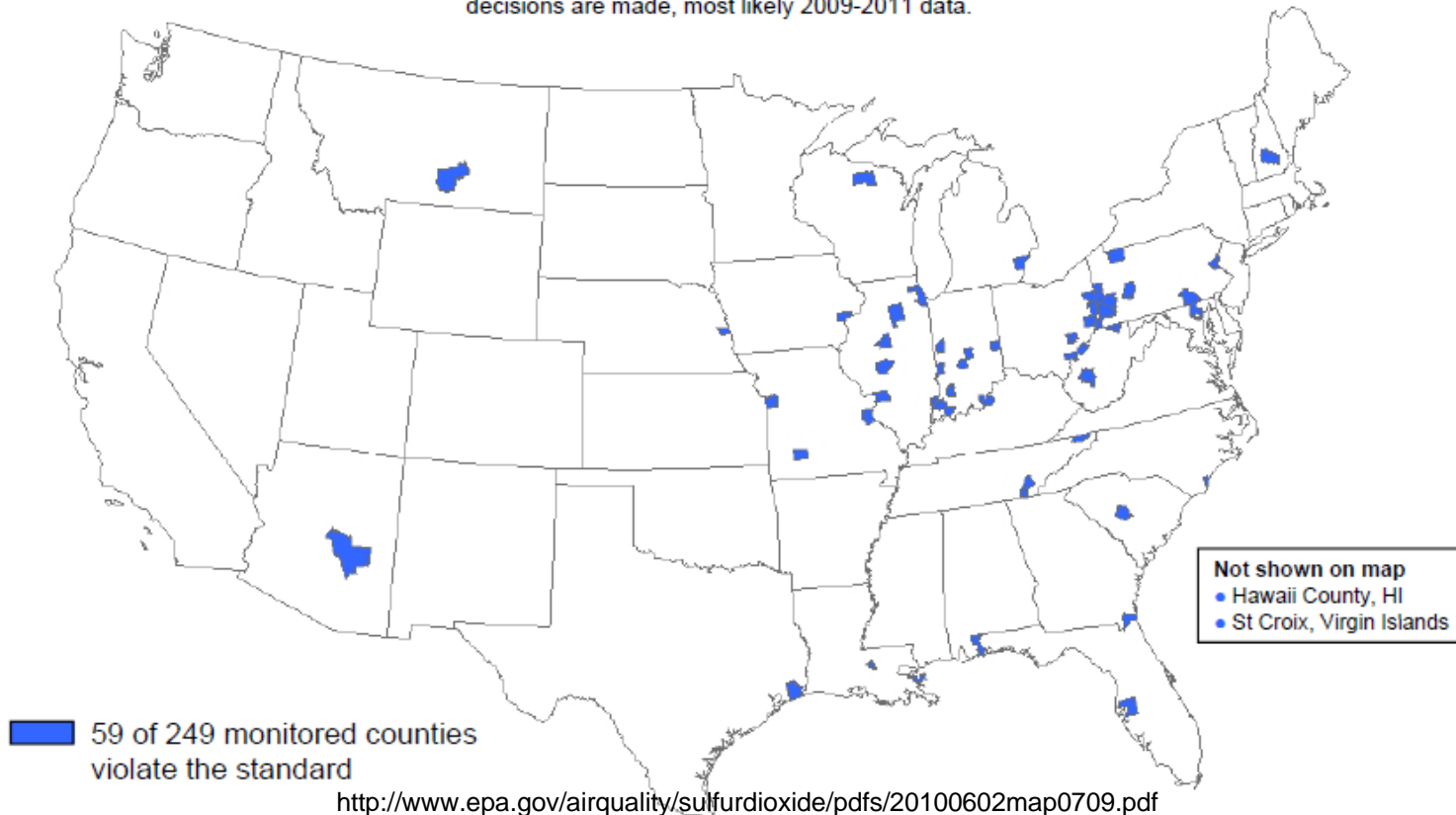
- Fewer nonattainment areas than ozone, but many monitors near current/future standards
- 2008 implementation rule and 2011 end of PM₁₀ surrogacy policy established requirements for permitting
 - Condensable PM now included for PM₁₀ and PM_{2.5} emissions inventories, permitting, and modeling
 - PSD projects held up by modeling guidance
 - 2010 guidance unworkable in practice
 - 2012 proposed guidance overdue and unlikely to offer sufficient flexibility
 - EPA staff seemingly unaware that there is no current method for direct measurement of PM_{2.5} emissions from wet stacks
- January 2012 response to Sierra Club petition commits EPA to evaluating secondary PM_{2.5} impacts as part of PSD permits
 - Pending guidance will propose approach; EPA aims to resolve by 2015

SO₂

- 1-hour standard (75 ppb) effective August 2010

Counties With Monitors Currently Violating the Revised Primary 1-Hour Sulfur Dioxide (SO₂) Standard of 75 ppb (Based on 2007 – 2009 Air Quality Data)

EPA will not designate areas based on these data but will use the currently available air quality data at the time designations decisions are made, most likely 2009-2011 data.



Notes:

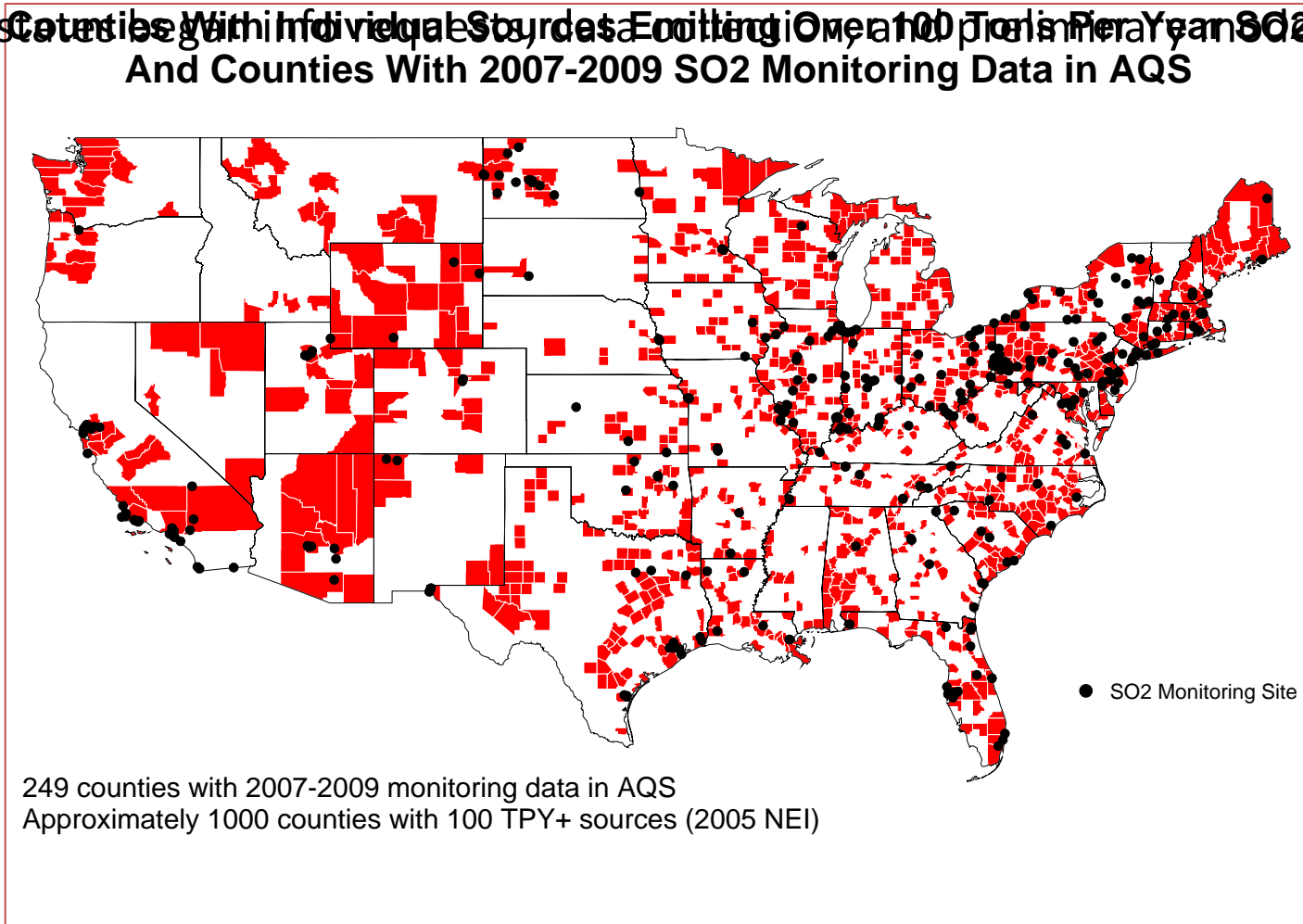
1. Data are shown for monitors that met the following criteria: 75% of the day has valid hourly values, 75% of the days in a quarter are valid, and all 4 quarters for each of the three years are valid as well as other applicable data handling conventions included in 40CFR50 Appendix T.

SO₂

- Preamble: Only areas with both monitoring data and refined modeling results showing no violations would be designated as “attainment.” (EPA now claims to be “non-binding guidance”)
- “Due to the generally localized impacts of SO₂, we have not historically considered monitoring alone to be an adequate tool “
- EPA issued draft SIP guidance in September 2011
 - Anticipated most areas designated unclassifiable
 - Specified hybrid modeling/monitoring approach for designations that would have required clean model and monitor to designate attainment
 - Required infrastructure SIP submitted in June 2013 identifying compliance solutions for all major SO₂ sources based on modeling ***even in unclassifiable areas***
- Initial designations by July 2012 with most areas unclassifiable

SO₂

- Modeling attainment plans would have been required for more than 2,000 sources
- Many counties with individual sources emitting over 100 tons per year SO₂



SO₂

- States and industry both opposed EPA approach for SO₂ designations and attainment plans and submitted comments in December 2011
 - AERMOD significantly overpredicts impacts , even when using actual emissions, so nonattainment predicted even when monitors say otherwise
 - Use of modeling for attainment & unclassifiable areas not envisioned in statute, must be addressed through notice & comment rulemaking
 - EPA should use NO₂ NAAQS approach: monitoring determines area status; where monitoring inadequate, site more. Use modeling solely for non-attainment areas
 - 2013 SIP submittal deadline for states with unclassifiable areas (which means modeling required) results in huge burden, unattainable schedule
 - 2013 SIP submittal deadline means states will be unable to include enforceable commitments that will result from utility and boiler MACT (too soon)

SO₂

- EPA considered comments and announced suspension of proposed modeling/monitoring approach on April 12, 2012
- EPA May-June stakeholder discussions on next steps
- NGOs favor conservative modeling (for all sources above certain thresholds); states and industry favor monitoring and oppose modeling to define nonattainment areas.
- EPA interested in cases where models show results above monitors and developing a weight-of-evidence approach for proper siting of monitors (possibly based on modeling, terrain, source characteristics/distribution, meteorology, population)
- EPA will either propose new guidance or rulemaking

1-hr SO₂ NAAQS Litigation

- The D.C. Circuit Court of Appeals case is *National Environmental Development Association's Clean Air Project v. EPA*
- Challenges also filed by ND, TX, UARG, et al.; LA, NV, & SD intervened; OK filed amicus curiae
- Final briefs submitted in January and oral arguments held in May
 - Modeling predictions play the dominant role in initial designation process
 - Requires States to model in both “nonattainment” areas and —for the first time— in “unclassifiable” areas and in some “attainment” areas
 - Burdensome, deviates from historical practice and not a “logical outgrowth” of the rulemaking
 - Standard of 75 ppb is overly stringent and not requisite to protect the public health
 - Seek vacatur and remand to EPA of the standard

NO₂

- Effective April 2010, 1-hour NAAQS set at 100 ppb (3-yr average of 98th percentile)
- Requires monitoring near both major roadways and in large cities
- Jan. 2012 designations mostly unclassifiable
- Monitoring network complete Jan. 2013
- Attainment 2017, with likely new designations 2016-17 and attainment 5 years later
- EPA kicked off 2015 review in March
- Effective June 2012, EPA retains secondary standards for NO₂ and SO₂.
- EPA planning 5-yr pilot program in 3-5 select acid-sensitive regions to inform the next secondary NAAQS review

NO₂ NAAQS Litigation

- *American Petroleum Institute v. EPA*; joint petition with UARG, INGAA
- Oral arguments held in February 2012
- Issues for the petitioners include:
 - whether EPA's decision to revise the 1-hour primary NO₂ NAAQS was arbitrary...because of EPA's reliance on an unpublished analysis
 - information fails to meet federal data quality requirements
 - EPA's decision to require that permit applications must immediately demonstrate compliance with the new standard was arbitrary

NAAQS - Moving Forward

- NAAQS remain challenging due to stringent standards and rigid implementation/guidance requirements
 - Modeling designations; modeling new sources; monitors; offsets
- EPA commitment to pending rule to account for ozone and secondary PM_{2.5} as part of PSD permit applications could pose additional challenges and risk of adverse comments
- Future revisions to ozone & PM_{2.5} NAAQS could have significant impacts for permitting new growth and potential for reducing emissions from existing sources by new “regional transport” rules
- Ambient monitoring likely to become increasingly important for SO₂ attainment demonstrations and possibly as alternative to modeling for PSD permits