Update on EPA Rule Making

David Conroy,
EPA Region 1
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Presentation Overview

- Climate Change
  - Carbon Pollution Standard for New Power Plants
  - Carbon Pollution Standard for Modified and Existing Power Plants
- Air Quality
  - Ozone Implementation for 2008 NAAQS
  - $PM_{2.5}$ Implementation
  - SO_2 Implementation
  - 2015 Ozone NAAQS

Carbon Pollution Standards & Clean Power Plan (CPP)

- June 25, 2013 - Presidential Directive to EPA to develop carbon pollution standards
- Carbon Pollution Standards for new power plants under CAA §111(b)
  - Sept 20, 2013 – EPA proposal
  - May 9, 2014 – comment period closes.
- Carbon Pollution Standards for modified and reconstructed power plants under CAA §111(b)
  - June 2, 2014 – EPA proposal
  - Oct 16, 2014 – 120-day comment period closes.
- Clean Power Plan for existing power plants under CAA §111(d)
  - June 2, 2014 – EPA proposal for States.
  - Oct 28, 2014 – EPA proposal for Indian Country and U.S. Territories.
  - Dec 1 & 19, 2014 – comment periods ends.

Under CPP, EPA Establishes a Goal for Every State

- EPA analyzed the practical and affordable strategies that states and utilities are already using.
- The state goal rate (lbs/MWhr) is calculated to account for the mix of power sources in each state and the application of the "building blocks" that make up the Best System of Emission Reduction (BSER).
- States will need to meet an interim goal (2020-2029 average) and a final goal (2030 and after).
- New England states are interested in using the Regional Greenhouse Gas Initiative (RGGI) as their compliance mechanism

Building Block	Value Allocated in Goal-Setting Formula
1. Make fossil fuel-fired power plants more efficient	Average heat rate improvement of 6% for coal steam electric generation units (EGUs)
2. Use lower-emitting power sources more	Dispatch to existing and under-construction natural gas combined cycle (NGCC) units to up to 70% capacity factor
3. Use more zero/low-emitting energy sources	Dispatch to new clean generation, including new nuclear generation under construction, moderate deployment of new renewable generation, and continued use of existing nuclear generation
4. Use electricity more efficiently	Increase demand-side energy efficiency to 1.5% annually

State Proposed Performance Goals – lbs/MWh

State	2012 Fossil Emission Rate	2012 Fossil, RE, Nuclear Rate	**Interim Goal (2020 - 2029 average)**	**Final Goal (2030 and thereafter)**
Connecticut	844	765	**597**	**540**
Maine	873	437	**393**	**378**
Massachusetts	1,001	925	**655**	**576**
New Hampshire	1,119	905	**546**	**486**
Rhode Island	918	907	**822**	**782**

Flexibilities Available to States

- **Timing:**
  - Up to 15-year window in which to plan for and achieve reductions in carbon pollution.
  - Up to two or three years to submit final plans.
- **Form of goal:** States can use either a rate-based or mass-based goal.
- **Single or multi-state plans:** States can collaborate and develop plans on a multi-state basis.
- **Selection of measures:**
  - States will choose how to meet the goal through whatever collection of measures reflects its particular circumstances and policy objectives.
  - State measures may impact and, in fact may be explicitly designed to reduce, CO_2 emissions from utilities on a regional basis.
  - EPA would support building off existing reduction programs.

Carbon Pollution Standards & Clean Power Plan

Upcoming Milestones – *Announced Jan 7, 2015*

- ***January 2015***
  - EPA begins process for proposing a federal plan covering existing power plants.
- ***Summer 2015***
  - EPA to issue final rules on:
    - Clean Power Plan for Existing Power Plants in States, Indian Country and U.S. Territories.
    - Carbon Pollution Standards for New, Modified and Reconstructed Power Plants.
  - EPA plans to propose a federal plan for meeting Clean Power Plan goals.
- ***Summer 2016***
  - Proposed due date for states to submit compliance plans to EPA
  - EPA in position to issue a final federal plan for areas that do not submit plans.
- ***Summer 2017***
  - Proposed due date for compliance plans with 1-year extension.
- ***Summer 2018***
  - Proposed due date for multi-state compliance plans with 2-year extension.
- ***Summer 2020***
  - Proposed beginning of the Clean Power Plan compliance period.

Air Quality

- Ozone Implementation for 2008 NAAQS
  - Implementation for the 2008 Ozone NAAQS
  - Interstate Pollution Transport
  - Emission Offsets for Nonattainment NSR
- $PM_{2.5}$ Implementation
  - Designations for 2012 NAAQS
  - Wood Heater NSPS
- SO_2 Implementation
- 2015 Ozone NAAQS

2008 Ozone NAAQS

2008 Ozone NAAQS

- Revised primary 8-hr Ozone standard in 2008 (.075 ppm/8-hr)

Classifications Rule

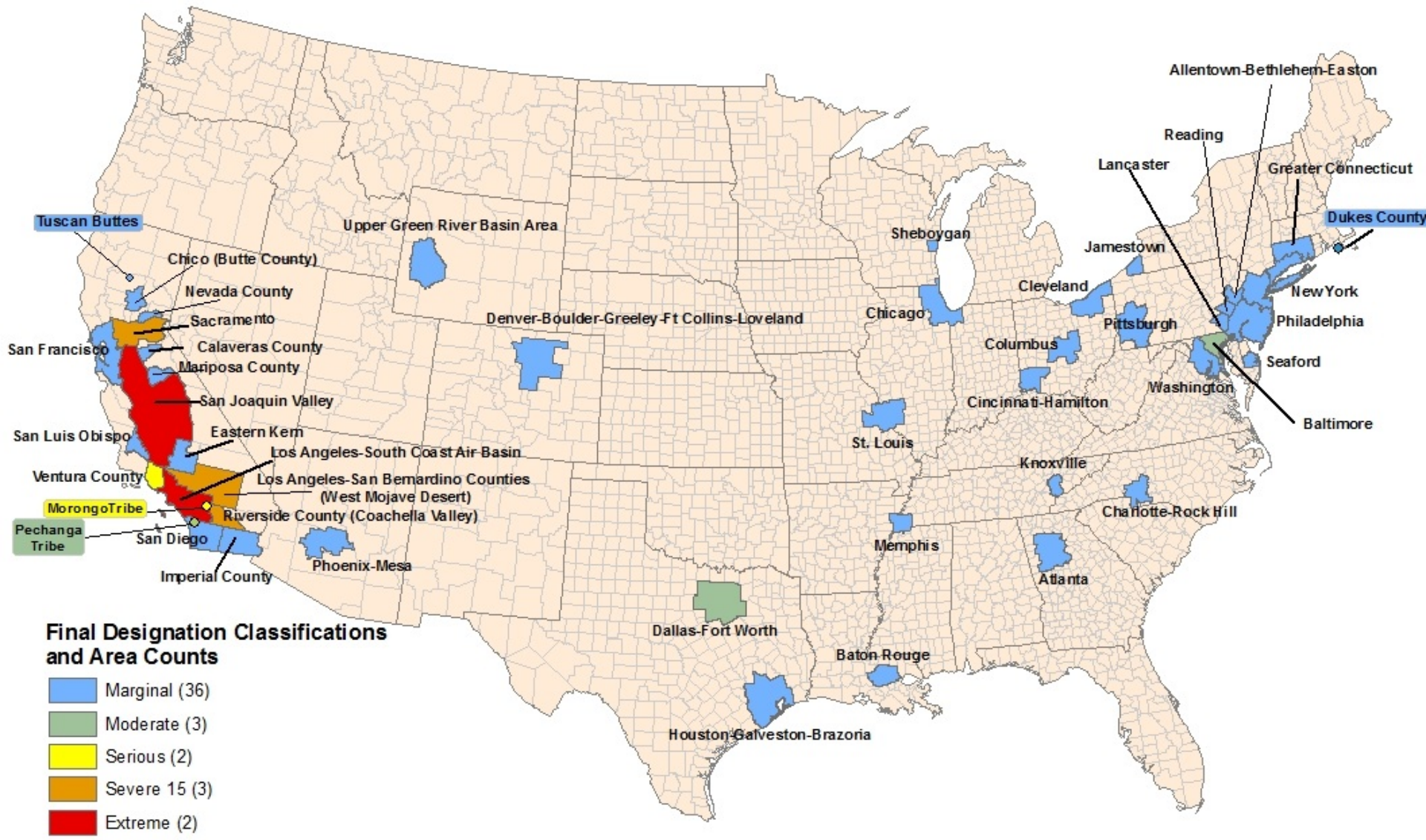
- Published in Federal Register May 21, 2012 (77 FR 30160).
- Established air quality thresholds for each ozone nonattainment area classification.
- Other aspects of the final rule were vacated by DC Circuit Court in *NRDC* decision (12/23/2014).

Initial Area Designations

- 46 initial nonattainment areas.
  - 36 Marginal areas
  - 3 Moderate areas
  - 2 Serious areas
  - 3 Severe areas
  - 2 Extreme areas
- Published in Federal Register May 21, 2012 (77 FR 30088).
- Effective date **July 20, 2012**.

Nonattainment Areas for 2008 Ozone NAAQS by Classification

(Effective July 20, 2012)



Notes:

- EPA has not designated as nonattainment any areas outside the Continental US.
- Map reflects classifications following requests for voluntary bump-up.

2008 Ozone NAAQS Implementation

2008 Ozone NAAQS SIP Requirements Rule (SRR)

- Final rule published March 6, 2015 (80 FR 12263)
- Provides states with final rules and guidance for planning to meet the 2008 ozone NAAQS in designated nonattainment areas.
  - Translates ozone implementation requirements contained in the 1990 Clean Air Act Amendments (written when ozone was a 1-hour standard) into meaningful requirements for the 2008 8-hour ozone NAAQS.
- Revokes the 1997 8-hour ozone NAAQS effective April 6, 2015 in order to provide additional flexibility to areas still working to complete the control requirements of that NAAQS.

Maximum Attainment Dates

- A Dec 23, 2014 D.C. Circuit Court decision vacated the portion of the Classifications Rule that established December 31 of the applicable year as the maximum attainment date for each classification.
- As such, the final Ozone SRR establishes the following attainment dates, based on the effective date of designation:
  - Marginal July 20, 2015
  - Moderate July 20, 2018
  - Serious July 20, 2021
  - Severe July 20, 2027
  - Extreme July 20, 2032

Impact of New Attainment Dates

- Effectively shortens by 1 ozone season the maximum allowable attainment date for all classifications.
- Moderate and above area attainment demonstrations must ensure emissions controls are implemented no later than the beginning of the ozone season that is prior to the attainment date (e.g., beginning of the 2017 ozone season for Moderate areas).
- Marginal area attainment determinations and 1-year attainment date extensions will be based on 2012-2014 air quality data rather than 2013-2015 data.

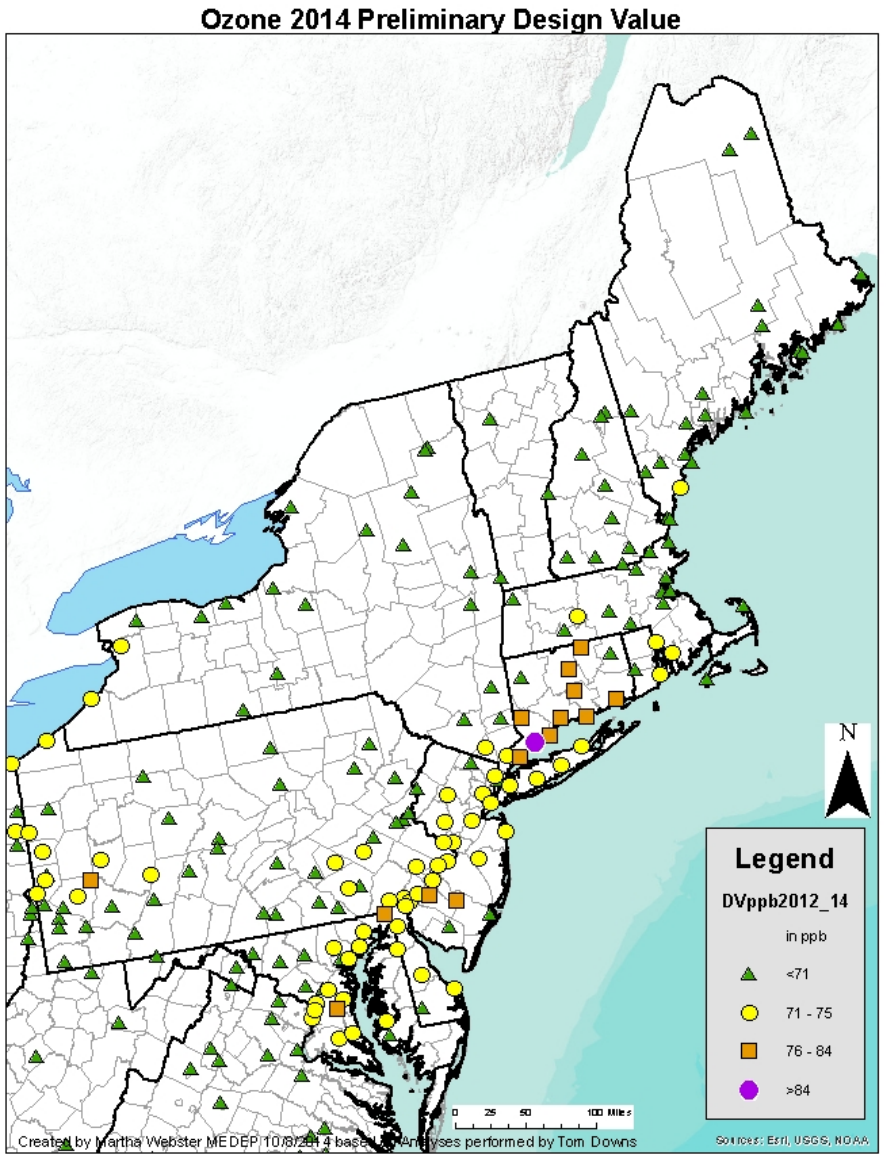
Attainment Date Extensions

- An area that fails to attain the 2008 ozone NAAQS by its attainment date would be eligible for the first 1-year extension if, for the attainment year, the area's 4th highest daily maximum 8-hour average is at or below 0.075 ppm.
  - Area must also meet other applicable requirements per CAA §181(a)(5)
- The area would be eligible for the second 1-year extension if the area's 4th highest daily maximum 8-hour value, averaged over both the original attainment year and the first extension year, is at or below 0.075 ppm.

2014 Preliminary Ozone Design Values

3-Year average of the 4th high concentration for 2012, 2013, 2014

- **> 84 ppb**
- **76 - 84 ppb**
- **71 - 75 ppb**
- **< 71 ppb**



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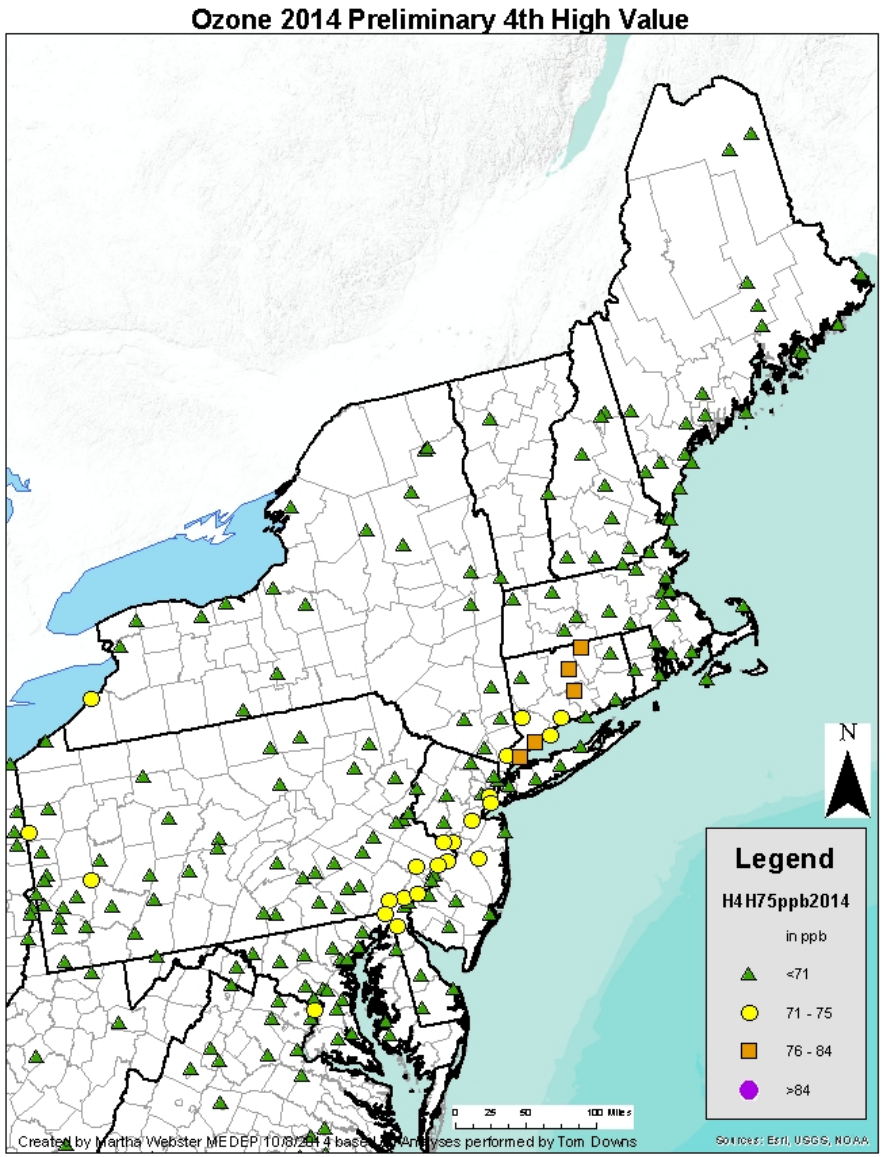
2014 Preliminary 4th High Ozone Values

4th highest daily maximum 8-hour average for 2014

- > 84 ppb
- 76 - 84 ppb
- 71 - 75 ppb
- < 71 ppb



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Next steps for Marginal NAAs

- Attainment deadline for 2008 ozone NAAQS Marginal areas is July 20, 2015
  - 36 of 46 initial nonattainment areas are classified Marginal (effective July 20, 2012)
- Attainment or eligibility for attainment date extension will be judged on monitoring data from 2012-2014
  - 2014 data considered certified after May 1, 2015
- CAA deadline to make final attainment determinations is 6 months after attainment date—January 20, 2016
- All AQ data-related actions require notice and comment rulemaking
- Reclassified areas would generally get 1 year from date of final notice to submit the necessary SIP revisions for the higher classification.

Basic SIP Components for Nonattainment Areas

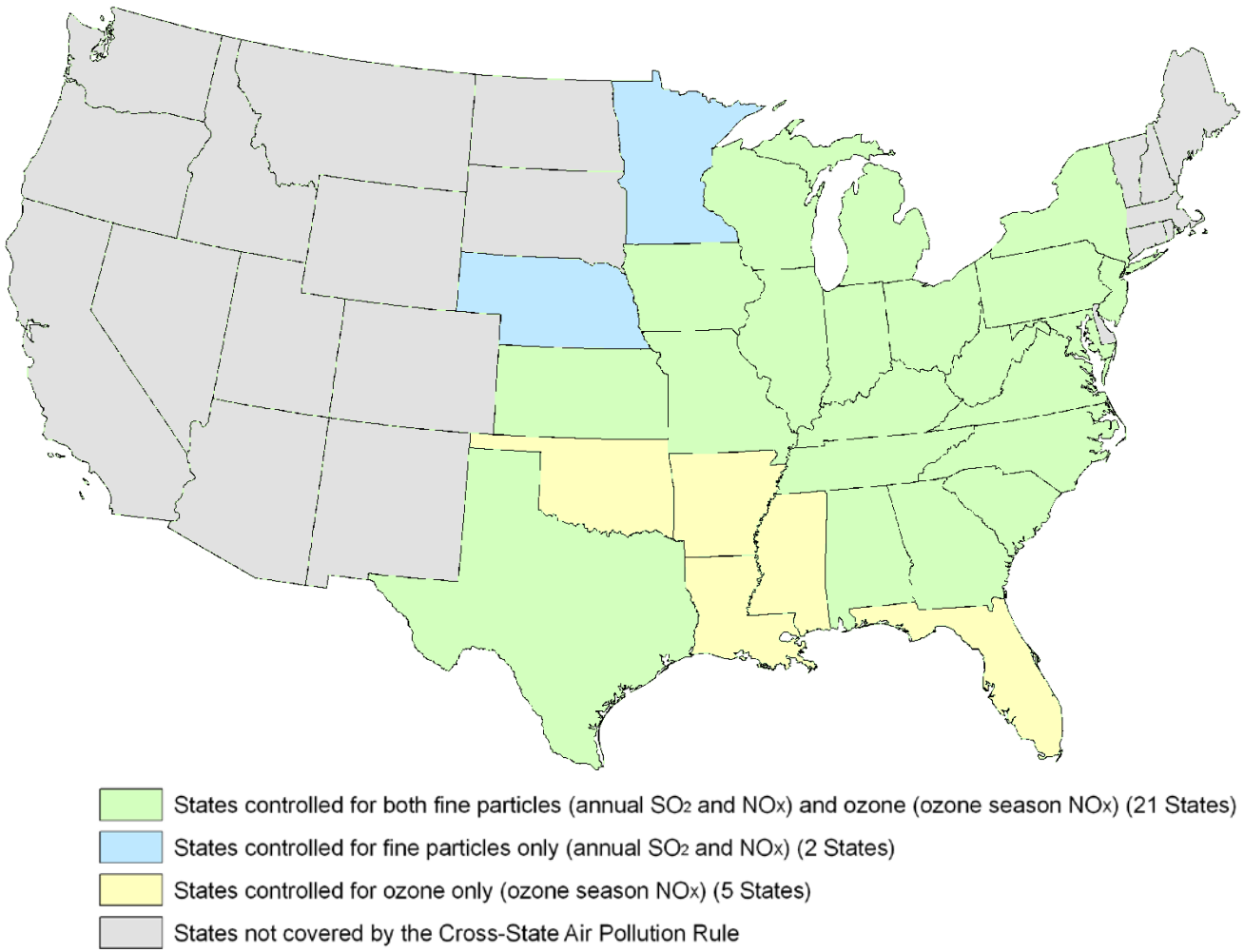
- Emissions inventory and emissions reporting statement rule
- Reasonable further progress (RFP) plan
- Reasonably available control technology (RACT)
- Reasonably available control measures (RACM)
- Attainment demonstration
- Contingency measures
- Nonattainment new source review (NSR) program
- Motor vehicle emissions budget (MVEB) (CAA §176(c))
- As applicable, a variety of area-wide mobile source and stationary source control programs

Cross State Air Pollution Rule (CSAPR)

(Covered at November 13, 2014 CT SIPRAC Meeting)

- CSAPR focuses on attainment/ maintenance of 1997 Ozone and 1997 & 2006 $PM_{2.5}$ NAAQS
- CSAPR will be implemented through a federal rule
- CSAPR establishes new allowances for all programs
  - No carryover of Acid Rain Program, NO_X SIP Call/ NO_X Budget Trading Program (NBP), or CAIR allowances
- On Oct 23, 2014, the D.C. Circuit granted EPA's request to lift the CSAPR stay
- Jan 1, 2015 – Phase 1 of rule will begin
- Jan 1, 2017 - Phase 2 will begin

States Covered by CSAPR



Cross-State Air Pollution Rule includes separate requirements for:

- Annual SO_2 reductions
- Annual NO_x reductions
- Ozone-season NO_x reductions

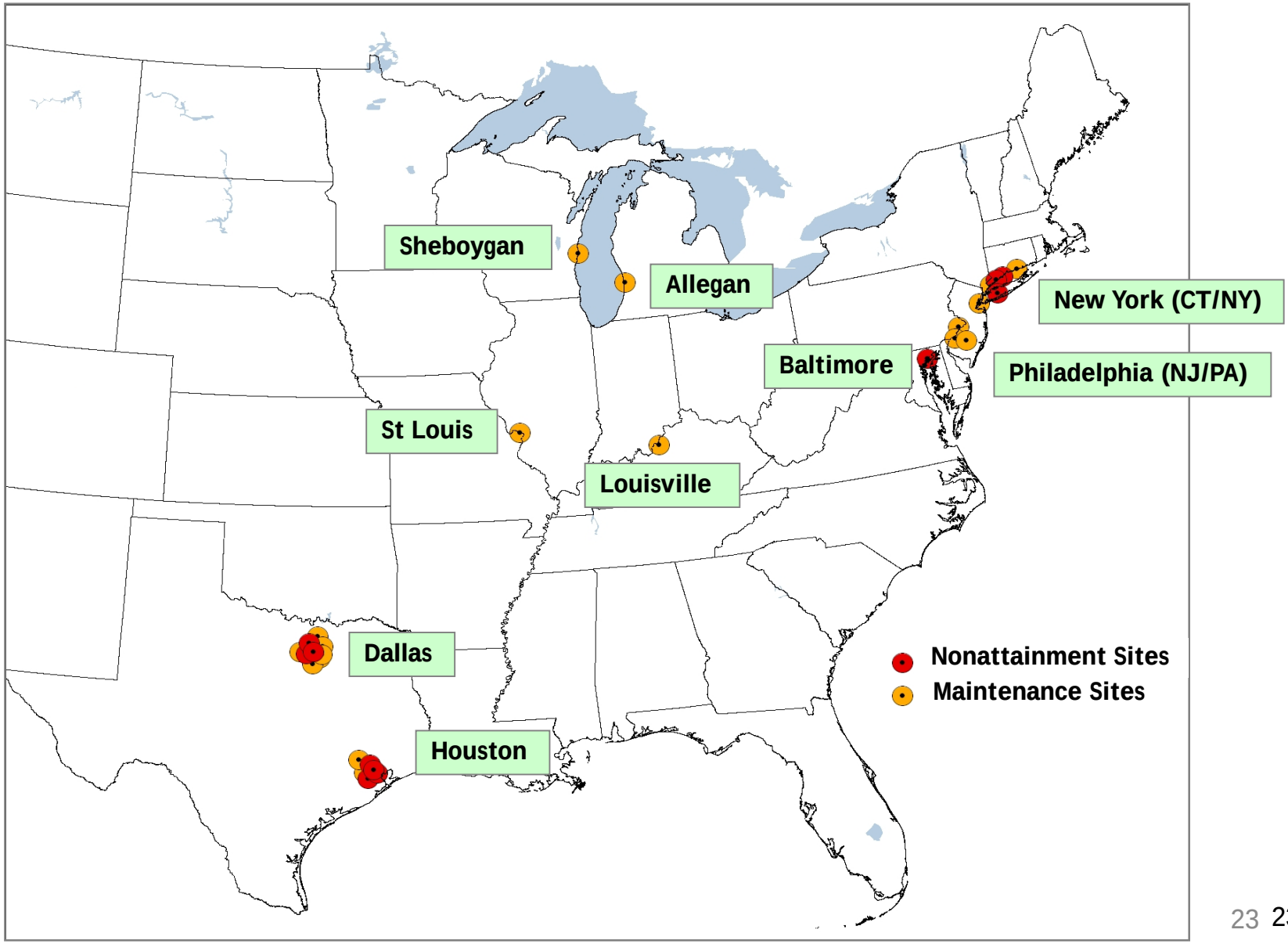
*This map includes states covered in the supplemental notice of proposed rulemaking.

2008 Ozone NAAQS
Interstate Air Pollution Transport

- **Jan 22, 2015** - EPA memo that will help states as they develop SIPS to address cross-state transport of air pollution for the 2008 ozone NAAQS
  - Includes preliminary air quality modeling results following CSAPR approach that characterizes ozone transport.
  - Areas in CT, MD, NY and TX projected to exceed NAAQS in 2018
  - Maintenance concerns in CT, KY, MI, MO, NJ, NY, PA, TX, WI
- No New England state linked to nonattainment or maintenance of 2008 NAAQS in another state
- States linked to nonattainment and maintenance in CT in 2018 include: IL, IN, MD, MI, NJ, NY, OH, PA, VA, WV
- In its Good Neighbor SIP, "a state could either demonstrate that its contribution is below the screening threshold, or it could evaluate the scope of its transport obligation and identify measures to achieve any needed emissions reductions."

•More information at www.epa.gov/airtransport

2018 Projected Nonattainment & Maintenance Sites Outside of California



Next Steps on Ozone Transport

- EPA held a meeting on April 8 in RTP, NC to further discuss this issue with states.
- Identify emissions reductions necessary to eliminate significant contribution to nonattainment and interference with maintenance of the 2008 NAAQS at downwind receptors
- States adopt control measures to achieve reductions
- EPA's role:
  - Facilitate transport SIP development
  - Carry out federal "backstop" role, if necessary
- Proposal of EPA backstop rule, if needed, anticipated fall or winter 2015

Emission Offsets for Nonattainment New Source Review

- Major sources and modifications required to obtain a nonattainment new source review (NNSR) permit need to offset the project's emission increases of the nonattainment pollutant.
- An emission reduction credit (ERC) to be used for NNSR must be:
  - Surplus, permanent, quantifiable, and federally enforceable. (40 CFR 51.165(a)(3)(ii)(C)(*1*)(*i*))
  - ERCs must be from the same nonattainment area, or from another non-attainment area of equal or higher nonattainment classification and the emissions from the other nonattainment area contribute to the non-attainment area in which the proposed activity would take place. (40 CFR 51 Appendix S section IV.D)

Emission Offsets for Nonattainment New Source Review (con't)

- Additionally NNSR ERCs must meet:
  - ERC's created prior to the base year used in the attainment demonstration, must be included in the state's projected inventory. (40 CFR 51.165(a)(3)(ii)(C)(*1*)(*ii*))
  - ERCs must be based on the applicable SIP in effect at the time the application is filed. (40 CFR 51.165(a)(3))
    - ERCs contained in a bank need to evaluated for adjustment when the emission limit changes at the source where the credit was generated.
      - Most common is a change in RACT limit.
      - The adjustment is not limited to RACT.
        - » NO_x limitations can change due to Regional Haze Plans, as part of a strategy to control $PM_{2.5}$ emissions, or complying with a new source review permit.

2012 $PM_{2.5}$ NAAQS Implementation

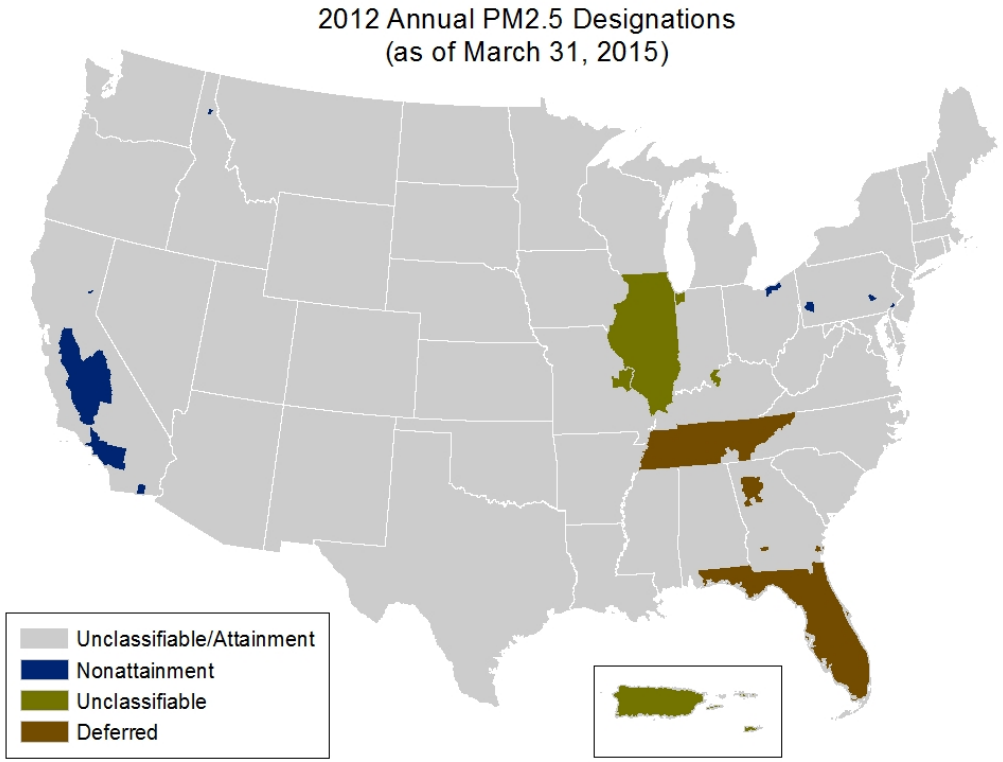
- EPA revised the annual primary $PM_{2.5}$ NAAQS to 12 µg/m^3 from the previous level of 15 µg/m^3 on Dec 14, 2012.
  - EPA retained daily $PM_{2.5}$ standard of 35 µg/m^3 set in 2006.

- **Implementation:**

o Dec 18, 2014 – EPA issued final designations for most areas of the country for the 2012 annual fine particle standard

o March 31, 2015 – EPA issued additional final area designations

o Attainment plans due 18 months from the effective date of designations



Standards of Performance for New Residential Wood Heaters, New Hydronic Heaters and New Forced-Air Furnaces: Final Rule

- March 16, 2015 - Final New Source Performance Standards (NSPS) for Residential Wood Heaters published
- The original NSPS were promulgated in 1988.
- The updates, which are based on improved wood heater technology, strengthen the emissions standards for new woodstoves, while establishing the first ever federal air standards for several types of previously unregulated new wood heaters, including outdoor and indoor wood-fired boilers (also known as hydronic heaters), and indoor wood-burning forced air furnaces.

More info at: www2.epa.gov/residential-wood-heaters

How does the 2015 rule differ from the 1988 rule?

- 1988 only regulated adjustable burn rate wood heaters (wood stoves and some pellet stoves)

- 2015 rule regulates:
  - Adjustable stoves
  - Single burn-rate stoves
  - Pellet stoves
  - Fireplace inserts (wood stoves that fit into a fireplace)
  - Hydronic heaters
  - Forced air furnaces

- Sets new certification requirements

- Sell-through provisions - Wood stoves certified under the 1988 standards and current voluntary program-qualified hydronic heaters may be sold until December 31, 2015

What are the benefits and costs of the 2015 rule?

- Reduces emissions of about **8,300 tons** of fine particles, a **68 percent reduction** over estimated emissions without the rule.
- Reduces emissions of about **9,300 tons** of VOCs, a **68 percent reduction** over estimated emissions without the rule.
- Reduces emissions of about **46,100 tons** of CO, a **62 percent reduction** over estimated emissions without the rule.
- Benefits of **$3.4 billion to $7.6 billion** annually
  - This includes the value of avoiding asthma attacks, non-fatal heart attacks, emergency room visits for asthma, lost work days, and premature deaths, among other effects.
- Costs of **$46 million** annually
- $74 to $165 in health benefits for every dollar spent

What is not regulated by this final rule?

- Doesn't regulate masonry heaters
- Doesn't regulate existing heating devices currently in use
- Doesn't regulate fireplaces, pizza ovens, barbecues, chimeneas, fire pits, or new or existing heaters fueled solely by oil, gas, or coal
- Doesn't regulate efficiency or carbon monoxide (CO) but does require testing and reporting
- Doesn't require temporary hangtags

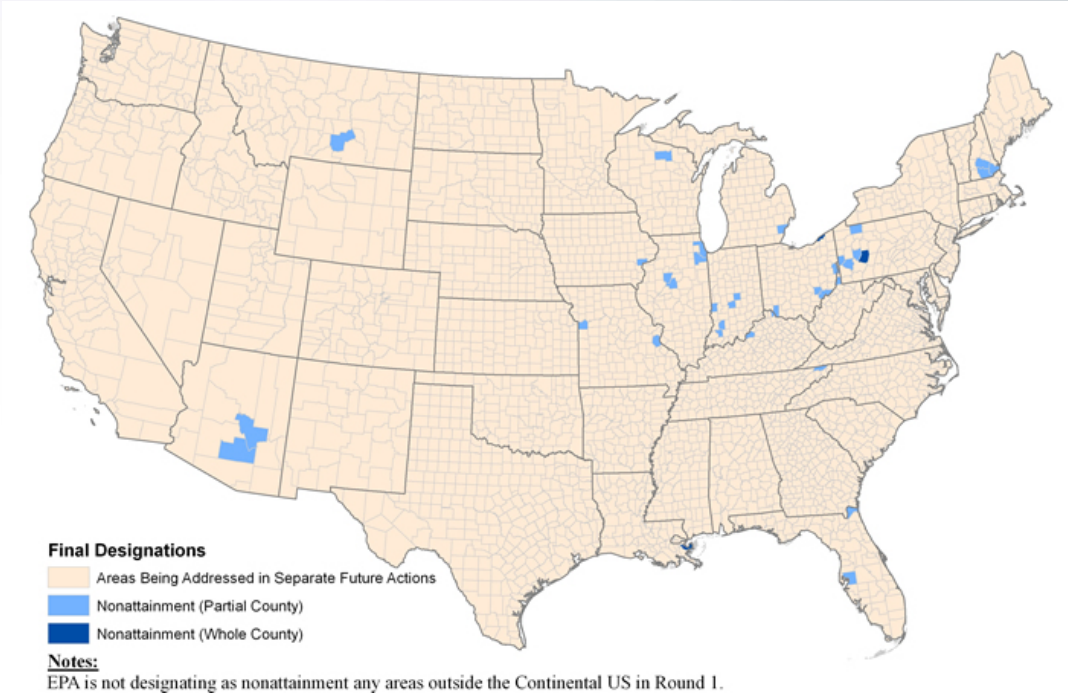
Final Rule – Summary of Standards

Wood-Fired Heating Device	Step	Effective Date *after F.R. Notice	Particulate Matter Emission Standard	Test Fuel
Wood stoves & Pellet Stoves (both adjustable and single burn rate) (both catalytic & non-catalytic)	1	60 days (May 15, 2015)	4.5 g/hr	Cribwood or Cordwood
	2	5 years (May 15, 2020)	2.0 g/hr	Cribwood
			2.5 g/hr	Cordwood
Hydronic Heaters	1	60 days (May 15, 2015)	0.32 lbs/MBtu weighted average AND 18.0 g/hr individual test run cap OR EPA "Phase 2" Qualified	Cribwood or Cordwood
	2	5 years (May 15,2020)	0.10 lbs/MBtu for each burn rate	Cribwood
			0.15 lbs/MBtu for each burn rate	Cordwood
Forced Air Furnaces		60 days (May 15, 2015)	New work practice and operational standards, including providing information on best operating practices in owner's manuals	N/A
	1	Small: 1 year (May 16, 2016) Large: 2 years (May 15, 2017)	0.93 lbs/MBtu weighted average	Cordwood
	2	All: 5 years (May 15, 2020)	0.15 lbs/MBtu for each burn rate	Cordwood

2010 SO_2 NAAQS Implementation

- Revised primary SO_2 standard: June 2010 (75 ppb/1-hr)

- Initial nonattainment area designations, based on violating monitors, were effective Oct 4, 2013
  - 29 areas in 16 states designated (*Only NH in Region 1*)
  - Attainment plans due April 2015



More info at: www.epa.gov/airquality/sulfurdioxide/designations/data.html

2010 SO_2 NAAQS Area Designations

- On March 2, 2015, the U.S. District Court for the Northern District of California accepted, as an enforceable order, an agreement between the EPA and Sierra Club and NRDC to resolve litigation concerning the deadline for completing the designations.
- The court's order directs EPA to complete designations for all remaining areas in the country in up to three additional rounds: the first round by July 2, 2016, the second round by December 31, 2017, and the final round by December 31, 2020.

ROUND 1 – Areas Associated with 68 Power Plants & New Monitored Violations

- By July 2, 2016, EPA will designate two groups of areas:
  1. areas that have monitored violations of the 2010 SO_2 standard based on 2013 – 2015 air quality data
     a) Based on preliminary data, EPA has identified 6 counties with monitors that are newly violating the standard
  2. areas that contain any stationary source not announced for retirement that according to EPA's Air Markets Database emitted in 2012 either (a) more than 16,000 tons of SO_2, or (b) more than 2,600 tons of SO_2 and had an average emission rate of at least 0.45 lbs SO_2/MMbtu.
     a) EPA has identified 69 sources that meet these criteria

Schedule:

- By Sept 18, 2015, States may submit updated recommendations and supporting information for area designations to EPA
- Approx. Jan 22, 2016, EPA notifies states concerning any intended modifications to their recommendations (120-day letters)
- Approx. Feb 3, 2016, EPA publishes public notice with 30-day comment period of state recommendations and EPA's intended modifications
- Approx. April 8, 2016, States submit additional information, if desired, to demonstrate why an EPA modification is inappropriate

ROUND 2 – Modeled Areas and Areas w/o Monitors

- By Dec 31, 2017, designations for areas that have not begun operating a new SO_2 monitoring network meeting EPA's anticipated final rule titled, "Data Requirements Rule for the 1-hour SO_2 primary NAAQS"
  - This rule would direct air agencies to provide data to characterize current air quality in areas with large sources of SO_2 through air quality modeling or new monitoring.
  - Per proposed SO_2 DRR, States submit air quality modeling results for selected areas by Jan 13, 2017
  - Then by no later than Sept 1, 2017, EPA notifies states concerning any intended modifications (120-day letters)

ROUND 3 – New Monitored Areas/All Remaining Areas

- By Dec 31, 2020, designations for all remaining areas
  - Per proposed SO_2 DRR, States begin operating new monitoring network by Jan 1, 2017
  - By May 1, 2020, States certify 2019 monitoring data (to calculate 2017-2019 design value)
  - Then by no later than Sept 2, 2020, EPA notifies states concerning any intended modifications (120-day letters)

2015 Ozone NAAQS

Proposed

Ozone Standards

Health-based: 65-70 ppb

Welfare-based: 65-70 ppb

Current standard: 75 ppb.

- On Nov 25, 2014, EPA proposed to strengthen the national ambient air quality standards for ground-level ozone, based on extensive scientific evidence about ozone's effects on public health and welfare.
  - Proposed standards reflect strong scientific evidence – including more than 1,000 new studies.
  - Existing and proposed federal measures are leading to substantial reductions in ozone nationwide, which will help improve air quality and help many areas meet any revised standard.
- EPA is also proposing to:
  - update the Air Quality Index (AQI) for ozone;
  - make certain updates to monitoring requirements
- Comment period closed March 17, 2015
- **Final Rule** to be signed by October 1, 2015

Setting Ozone Standards – Primary Standard

- Proposing health-based standard of **65-70 ppb** (8-hr average).
  - Took comment on lower levels including 60 ppb and on the proposed decision that the current standard does not protect public health with an adequate margin of safety

- Proposing to retain the averaging time and form of the standard.

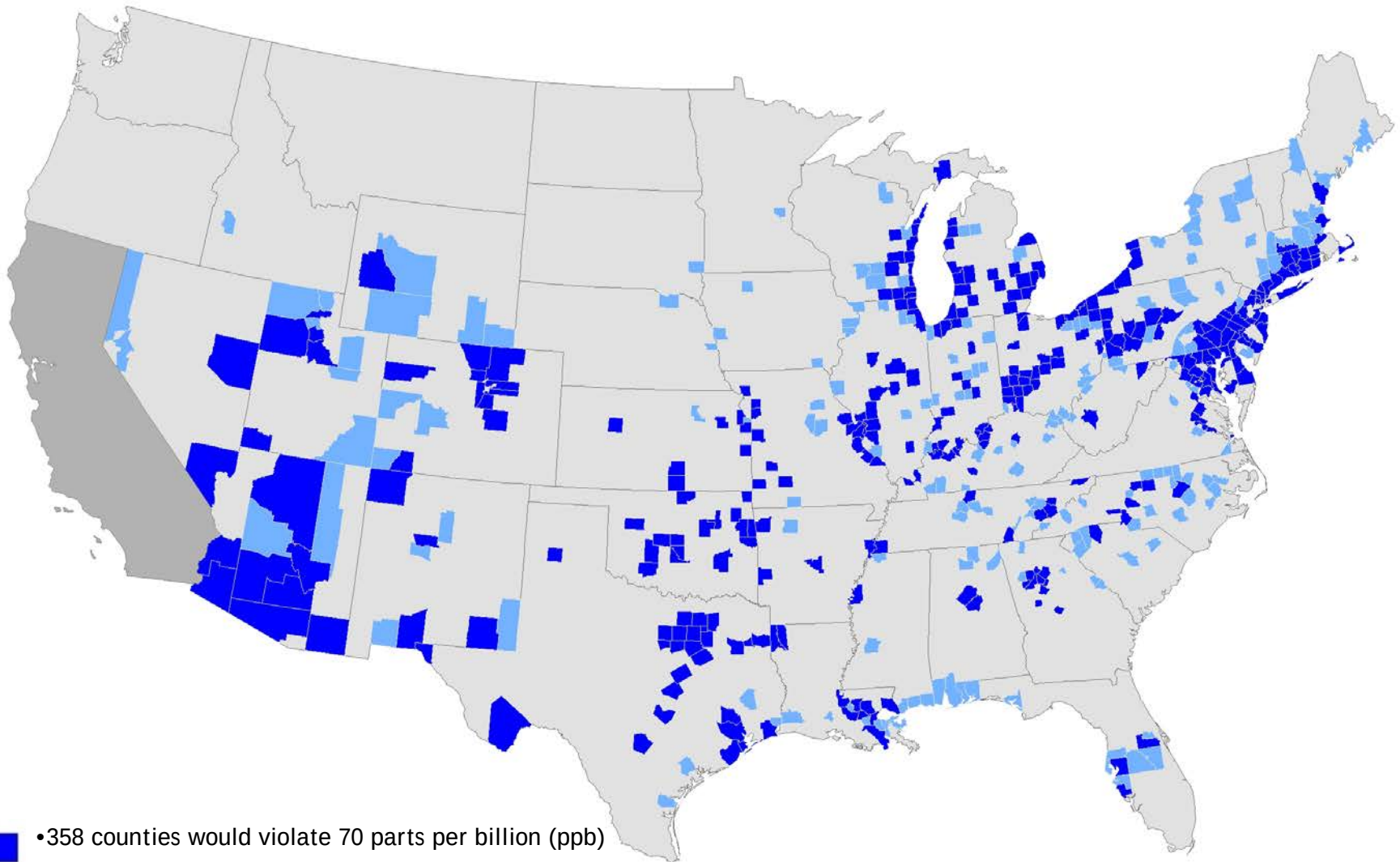
- CASAC and EPA staff experts concluded that the scientific evidence supports a standard within a range of 60 to 70 ppb.

- The Administrator did not include a standard of 60 ppb in the proposed range, because of increasing uncertainty in the scientific evidence at lower ozone concentrations.

Setting Ozone Standards – Secondary Standard

- Proposing to define a target level of protection for public welfare in terms of a cumulative, seasonal metric (W126) index value within the range of 13 to 17 ppm-hrs (3-year average).
- Proposing **secondary** ozone standard to protect public welfare to a level within the range of 65 ppb to 70 ppb.
  - Analyses show that a standard in this range would provide protection equivalent to a W126 index value of 13 to 17 ppm-hrs.

Counties Where Measured Ozone is Above Proposed Range of Standards (65 – 70 parts per billion)



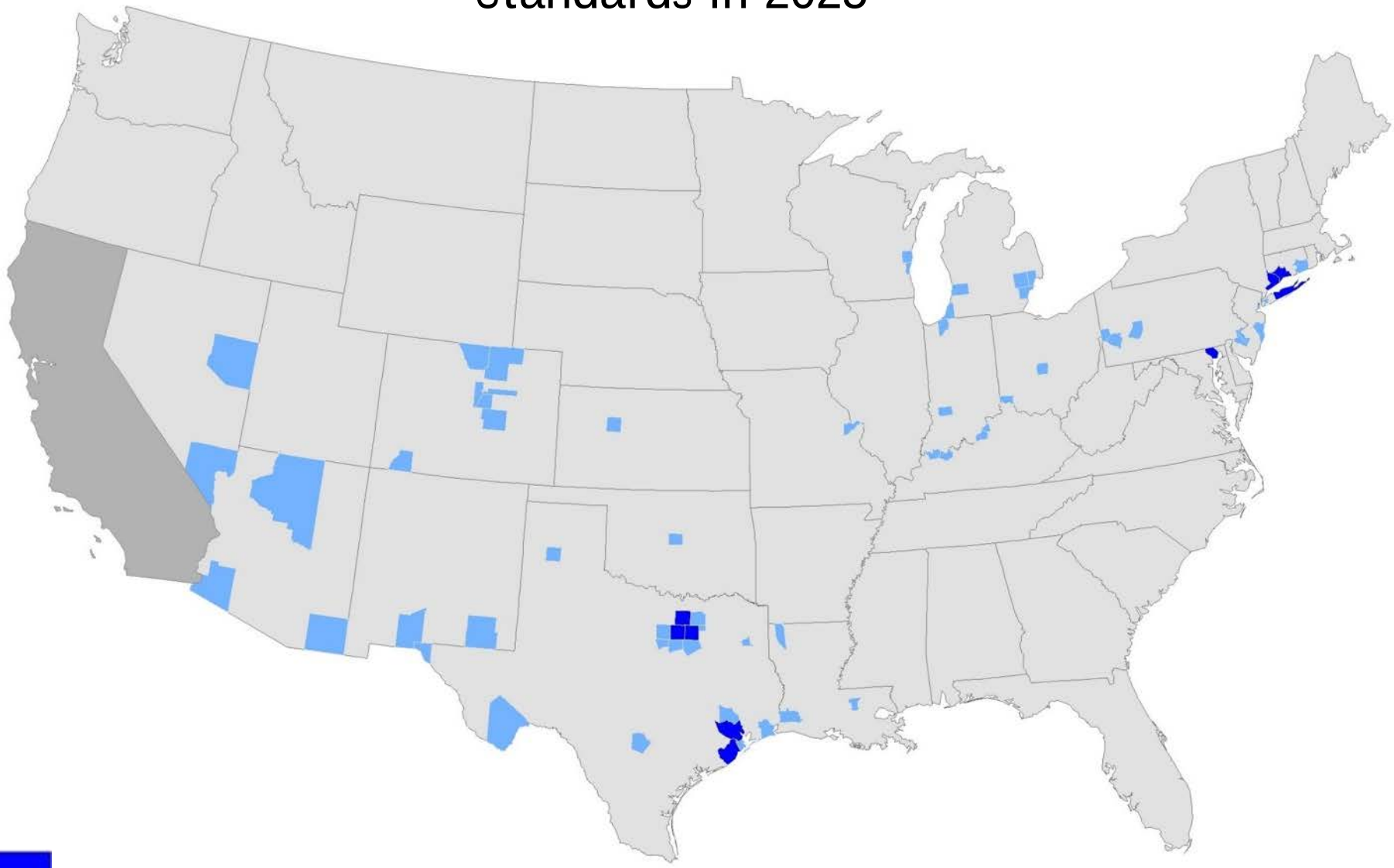
- 358 counties would violate 70 parts per billion (ppb)
- 200 additional counties would violate 65 ppb for a total of 558

- Based on 2011 – 2013 monitoring data

Existing and Proposed Federal Rules Will Help Reduce Ozone Pollution

- Rules intended to reduce ozone precursors such as NOx and VOCs, along with rules that will reduce these pollutants as a co-benefit of reducing toxic emissions and carbon pollution, will help most areas of the country meet a revised primary and secondary ozone standard in the range of 65-70 ppb by 2025.
- These federal programs include:
  - Requirements to reduce the interstate transport of ozone
  - The Mercury and Air Toxics Standards
  - Mobile Source-Related Standards, especially the Tier 3 emission control requirements for motor fuels and vehicles
  - Regional Haze Best Available Retrofit Technology Emission Standards
  - Emissions Standards for Reciprocating Internal Combustion Engines
  - Emissions Standards for Industrial, Commercial and Industrial Boilers, and
  - The Clean Power Plan

EPA Projects Most Counties Would Meet the Proposed Range of Standards in 2025



- 9 counties outside of California would violate 70 parts per billion (ppb)
- 59 additional counties outside of California would violate 65 ppb for a total of 68

- Because several areas in California are not required to meet the existing standard by 2025 and may not be required to meet a revised standard until sometime between 2032 and 2037, EPA analyzed California separately. Details are available in the Regulatory Impact Analysis for this proposal.

Tentative timeline for designations and implementation

Designation Schedule	
State and Tribe Designation Recommendations	October 2016
Final Designations	October 2017 - (Air quality data years: 2014 –2016)
Implementation Schedule	
Infrastructure SIPs due	October 2018
Attainment Plans due	October 2020 - Moderate areas October 2021 - Serious and above areas
Attainment Schedule by Classification	
Classification	Schedule (Years to attain after final designation)
Marginal	3 years (~end of 2020)
Moderate	6 years (~end of 2023)
Serious	9 years (~end of 2026)

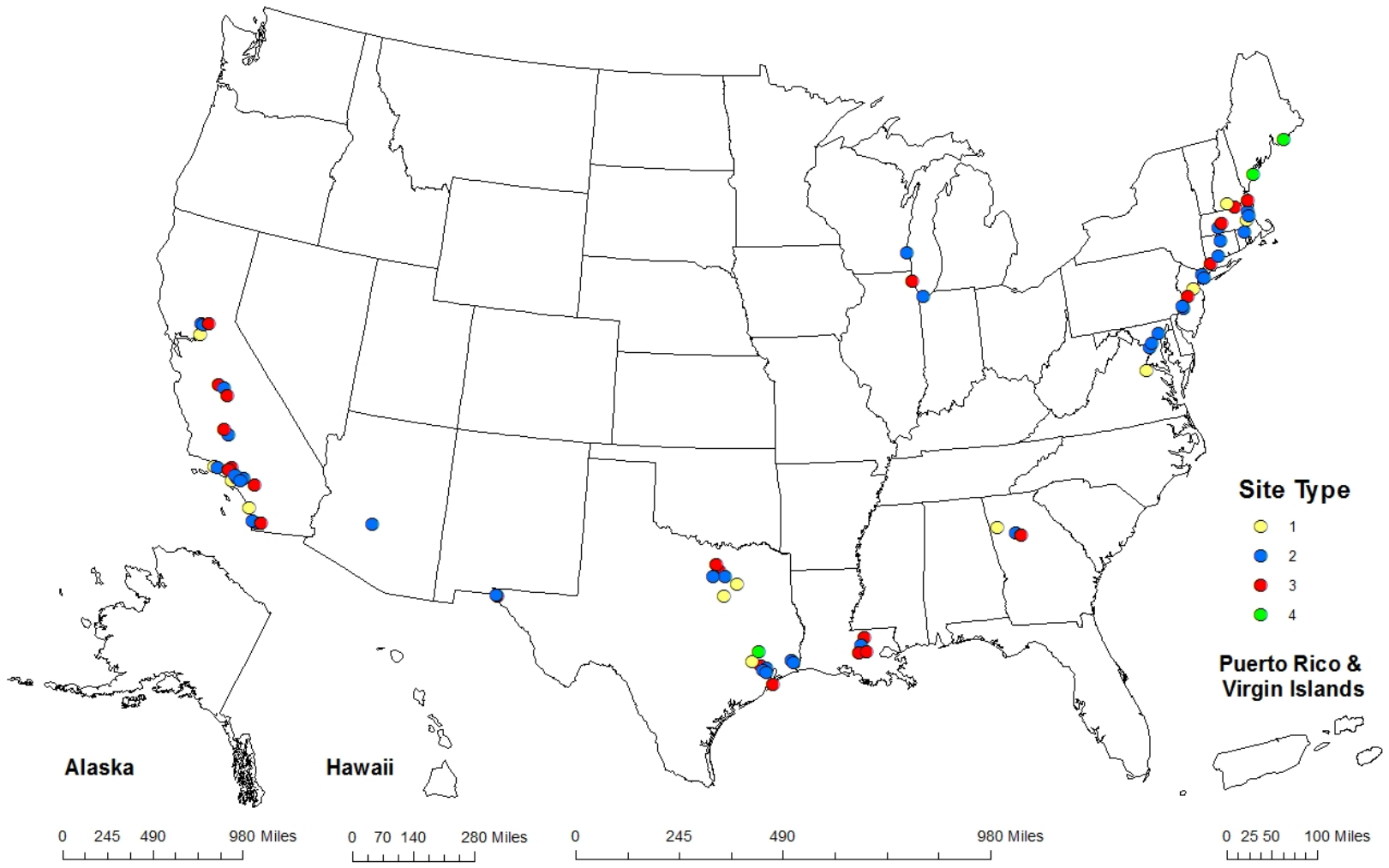
Proposed Changes to the Air Quality Index

AQI Category	Index values	Current Breakpoints (2008 AQI) (ppb, 8-hour avg)	Proposed Breakpoints (ppb, 8-hour avg)
Good	0 - 50	0 - 59	0 – (49 to 54)
Moderate	51 – 100	60 – 75	(50 – 55) – (65 to 70)
Unhealthy for Sensitive Groups	101 - 150	76 - 95	(66 to 71) - 85
Unhealthy	151 - 200	96 - 115	86 - 105

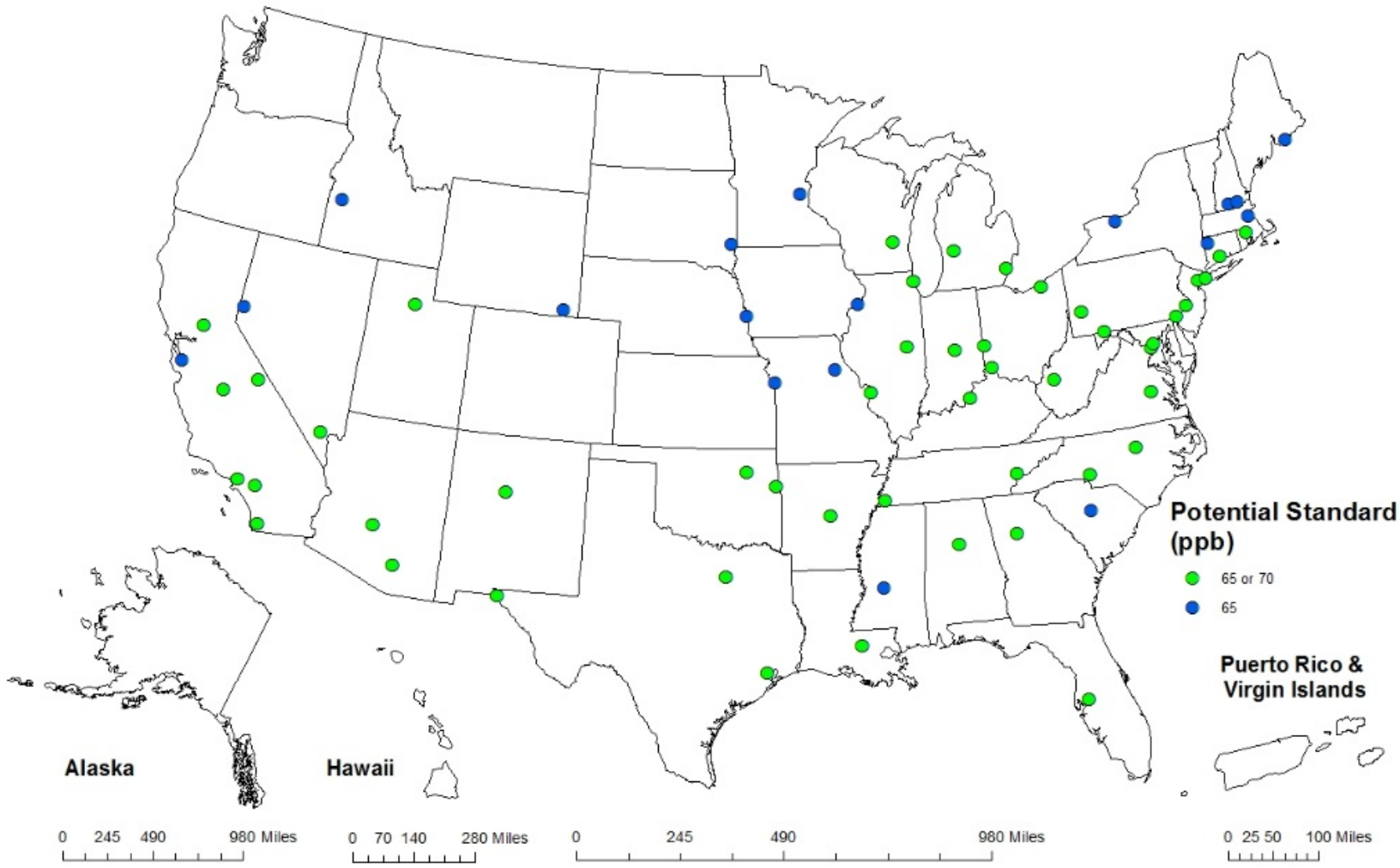
Proposed Changes to Monitoring Requirements

- **Ozone monitoring season**
  - Proposing to extend the ozone monitoring season for 33 states, to match the times of year when data show ozone can approach unhealthy levels, and to alert the public;
  - Ozone season in CT, MA, NH & RI would include March, and run March 1 thru Sept 30.
- **Photochemical Assessment Monitoring Stations (PAMS)**
  - Revising PAMS applicability to all ozone non-attainment areas with NCore sites – uses existing network infrastructure.

Current PAMS Network



Potential Revised Network



- Map based on 2011-2013 ozone design values
- PAMS requirements will be based on 2014-2016 data

Questions