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Ozone NAAQS

Practical Challenges to Air Permitting & Compliance

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Communications Panel Symposium**

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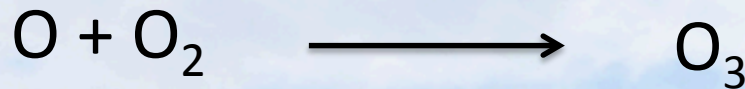
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Overview

- > Background
 - ❖ Ground level ozone formation
 - ❖ History of ozone NAAQS
- > Final NAAQS ruling
- > Timeline and implications of new NAAQS
- > Implications for industry
- > What to do now?

Ground Level Ozone Formation

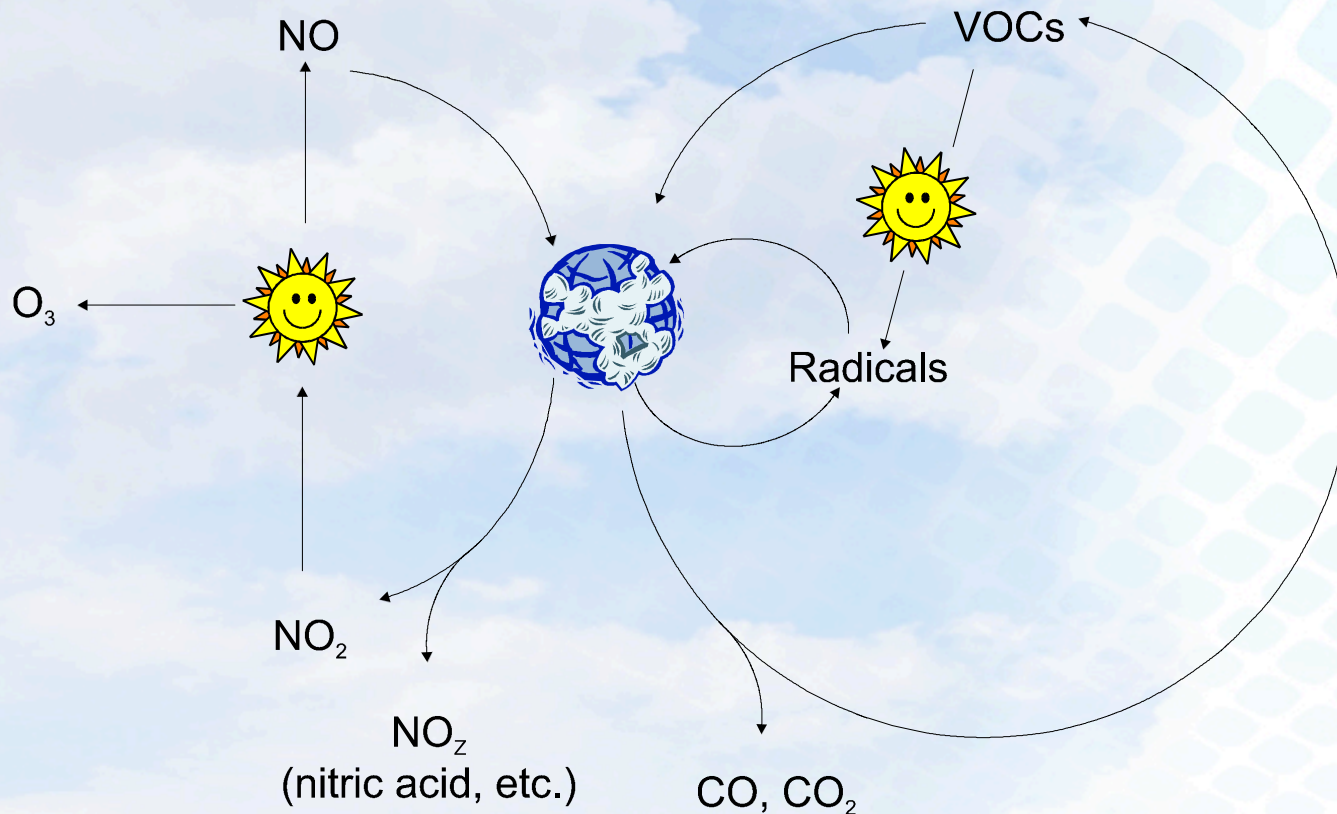
Stratospheric Ozone  Good



Ground-level Ozone  Bad



Ozone Formation from VOC and NOx in the Atmosphere



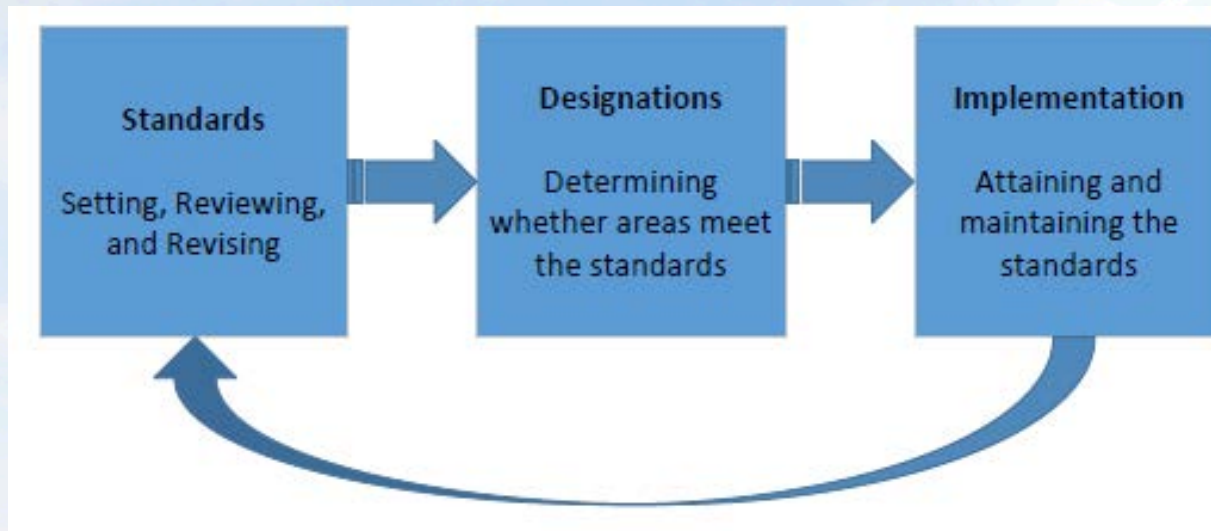
No sunlight \Rightarrow **no ozone production**

No NOx \Rightarrow **no ozone production**

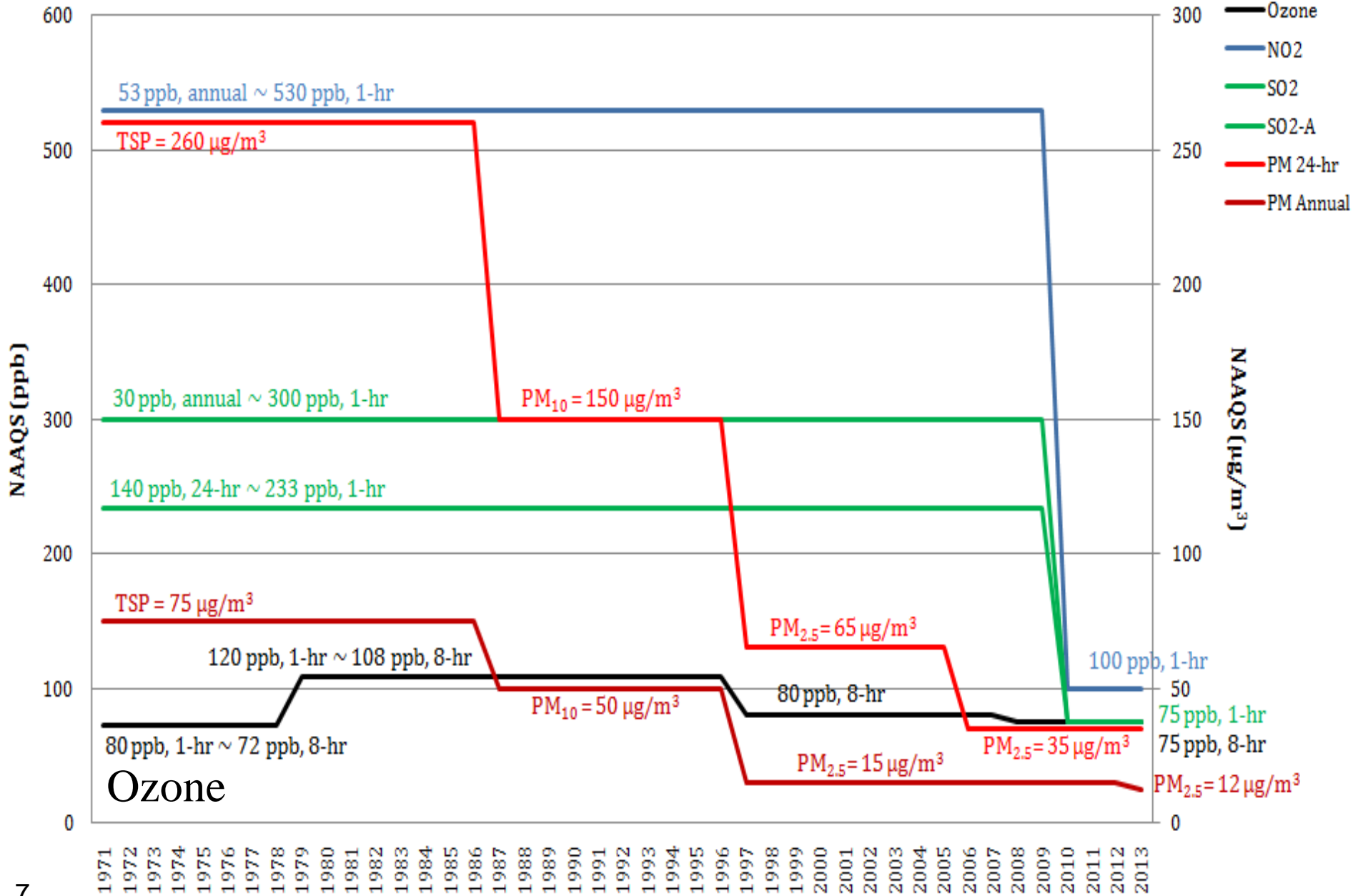
No VOC \Rightarrow **no ozone production**

National Ambient Air Quality Standards (NAAQS)

- > Primary - set at levels “allowing an adequate margin of safety . . . requisite to protect the public health”
- > Secondary - set at levels adequate to protect “human welfare” where welfare is defined in terms of vegetation, soil, visibility, crops, buildings, property, animals, wildlife, weather, transportation



Primary NAAQS, 1971-2014



History of the National Ambient Air Quality Standards for Ozone During the Period 1971-2015

Final Rule / Decision	Primary / Secondary	Indicator	Averaging Time	Level	Form
1971 36 FR 8186 Apr 30, 1971	Primary and Secondary	Total photochemical oxidants	1-hour	0.08 ppm	Not to be exceeded more than one hour per year.
1979 44 FR 8202 Feb 8, 1979	Primary and Secondary	Ozone (O3)	1-hour	0.12 ppm	Attainment is defined when the expected number of days per calendar year, with maximum hourly average concentrations greater than 0.12 ppm, is ≤ 1
1993 58 FR 13008 Mar 9, 1993		EPA decided that revisions to the standards were not warranted at this time			
1997 62 FR 38856 Jul 18, 1997	Primary and Secondary	Ozone (O3)	8-hour	0.08 ppm	Annual fourth highest daily maximum 8-hr concentration, averaged over 3 years
2008 73 FR 16483 Mar 27, 2008	Primary and Secondary	Ozone (O3)	8-hour	0.075 ppm	Annual fourth highest daily maximum 8-hr concentration, averaged over 3 years
2015 80 FR 65292 Oct 26, 2015	Primary and Secondary	Ozone (O3)	8-hour	0.070 ppm	Annual fourth highest daily maximum 8-hr concentration, averaged over 3 years

Final 2015 Ozone NAAQS

- > Primary and Secondary standard to 70 ppb
 - ❖ Fourth-highest daily max averaged across 3 consecutive years
 - ❖ 8-hour averaging time
- > EPA Implementation memo
 - ❖ Guidance available to agencies
 - ❖ Ensuring major source permitting is effective and efficient
 - ❖ Designating areas and background ozone
 - ❖ Interstate ozone transport
 - ❖ California's challenges
 - ❖ Managing monitoring networks
 - ❖ Ozone Advance Program
- > Grandfathering provision for certain preconstruction permits
- > EPA's plans with respect to the Exceptional Events rule
- > Modernization of monitoring requirements
- > Public engagement - updates to O3 monitoring season and AQI

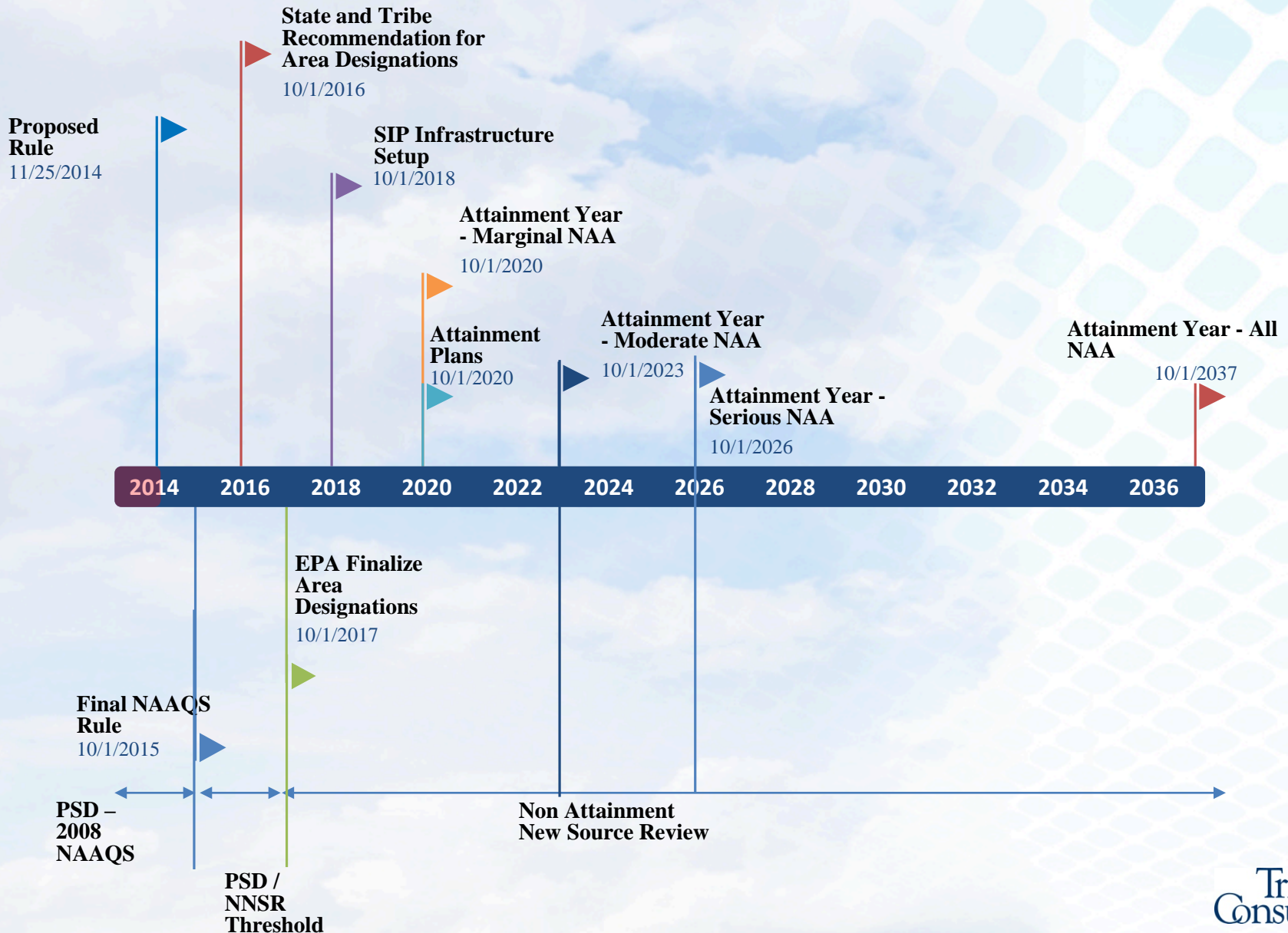
The Timeline (1 of 2)

- > Anticipated schedule key dates - Designations
 - ❖ October 1, 2016 - States/Tribal Areas provide designation recommendations to EPA
 - ❖ June 1, 2017 - EPA responses to designation recommendations
 - ❖ October 1, 2017 - EPA issues final area designations (likely based on 2014-2016 monitoring data)

The Timeline (2 of 2)

- > Anticipated schedule key dates -
Permitting
 - ❖ October 1, 2015 - Grandfathering provision for PSD projects in progress
 - ❖ October 1, 2017 - PSD vs. Nonattainment New Source Review permitting

Final Rule Timeline



What's So Bad About Non-Attainment?

- > Non-Attainment New Source Review Permitting
 - ❖ Additional permitting requirements come into effect
 - ❖ Idea is to minimize additional impact to air quality in an area already negatively impacted
- > State Regulatory Requirements
 - ❖ Implementation of Reasonably Available Control Technology (RACT) for certain source categories
 - ❖ Facility specific requirements
- > Title V Major Source Threshold
 - ❖ Typically reduced for VOC and NO_x

Major Source Definitions

Non-Attainment NSR and Title V

Pollutant	Nonattainment Classification	NA-NSR and Title V Major Source Thresholds	Offset Ratio for NA-NSR Permitting
Ozone	Marginal	100 tpy of VOC or NO _x	1.1 to 1
	Moderate	100 tpy of VOC or NO _x	1.15 to 1
	Serious	50 tpy of VOC or NO _x	1.2 to 1
	Severe	25 tpy of VOC or NO _x	1.3 to 1
	Extreme	10 tpy of VOC or NO _x	1.5 to 1

EPA has not yet released the thresholds for the classification categories for the 2015 Ozone NAAQS, and has indicated the thresholds will be established as part of future implementation guidance/rulemaking

8-Hour 2008 Ozone Nonattainment Areas

As of June 17, 2016

EXTREME

Los Angeles-South Coast Air Basin, CA
San Joaquin Valley, CA

SEVERE

Los Angeles-San Bernardino Counties, CA
Riverside Co, (Coachella Valley), CA
Sacramento Metro, CA

SERIOUS

Morongo Band of Mission Indians
Ventura County, CA

MODERATE

Atlanta, GA
Baltimore, MD
Chicago-Naperville, IL-IN-WI
Dallas-Fort Worth, TX
Denver-Boulder-Greeley-Ft. Collins-Loveland, CO
Greater Connecticut, CT
Imperial County, CA
Kern Co (Eastern Kern), CA
Mariposa County, CA
Nevada Co. (Western part), CA
New York-N. New Jersey-Long Island, NY-NJ-CT
Pechanga Band of Luiseno Mission Indians
Phoenix-Mesa, AZ
San Diego County, CA

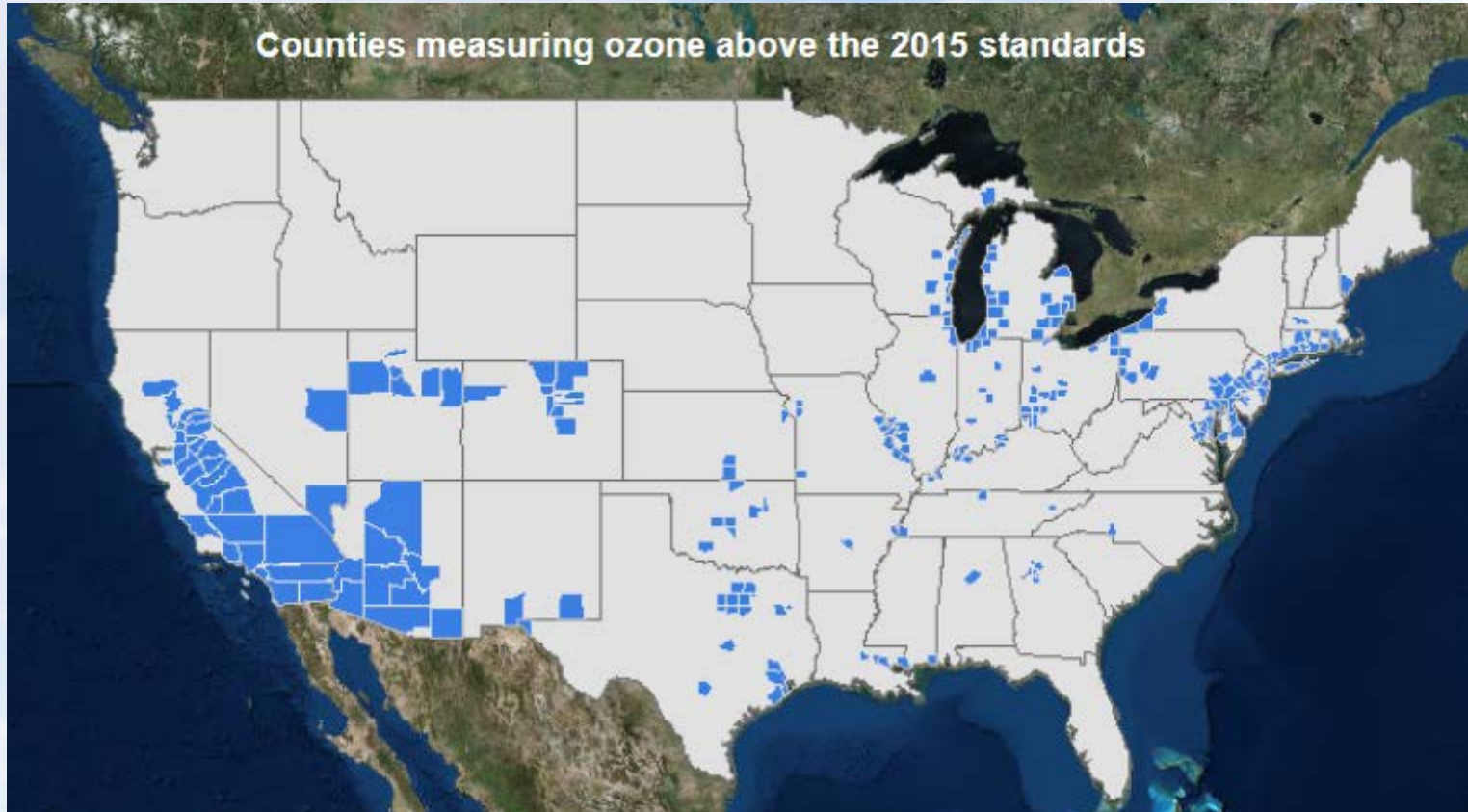
MARGINAL

Allentown-Bethlehem-Easton, PA
Baton Rouge, LA
Calaveras County, CA
Chico (Butte County), CA
Cincinnati, OH-KY-IN
Cleveland-Akron-Lorain, OH
Columbus, OH
Dukes County, MA
Houston-Galveston-Brazoria, TX
Jamestown, NY
Lancaster, PA
Memphis, TN-MS-AR (TN portion)
Philadelphia-Wilmington-Atlantic City, PA-NJ-MD-DE
Pittsburgh-Beaver Valley, PA
Reading, PA
San Francisco Bay Area, CA
San Luis Obispo (Eastern San Luis Obispo), CA
Seaford, DE
Sheboygan County, WI
St. Louis-St. Charles-Farmington, MO-IL
Tuscan Buttes, CA
Upper Green River Basin Area, WY
Washington, DC-MD-VA

Will My Area Be Determined Non-Attainment?

- > EPA has provided both interactive maps and monitor lists based on 2012-2014 ambient monitoring data
 - ❖ County List
 - ◆ <http://www3.epa.gov/airquality/ozonepollution/pdfs/20151001datatable20122014.pdf>
 - ❖ Interactive Map
 - ◆ http://ozoneairqualitystandards.epa.gov/OAR_OAQPS/OzoneSliderApp/index.html#
- > Designations Likely Based on 2014-2016 Ambient Monitoring Data
 - ❖ Initial designation recommendations by States/Trial areas in October 2016 likely based on 2013-2015 data
 - ❖ Data trends from 2013 onward important

Monitors Not Meeting 2015 Ozone Standard Based on 2012-2014 Data



PSD vs. Non-Attainment Permitting

Federal NSR



PSD

(attainment pollutants)

- Application of BACT
- NAAQS Analysis
- PSD Increment Analysis
- Class I Area Impacts Analysis
- Additional Impacts Analysis

NNSR

(nonattainment pollutants)

- Application of LAER
- Emission Offsets
- Alternate Site Analysis
- Environmental Justice Review

PSD vs. Non-Attainment NSR Permitting?

- > A PSD permit issued before an area's designation date of October 1, 2017, should remain effective
 - ❖ <http://www2.epa.gov/sites/production/files/2015-07/documents/extend14.pdf>
 - ◆ No extension granted
 - ◆ Careful consultation with permitting authority important
 - ❖ **Evaluate project schedules carefully!**

Ozone NAAQS

PSD Grandfathering Provisions

- > EPA included a grandfathering provision for pending PSD permits. Grandfathering applicable to:
 - ❖ Facilities that received a completeness letter from the state agency for their PSD permit application as of October 1, 2015
 - ❖ A public notice for a draft permit or preliminary determination was published prior to the effective date of the new ozone standard (December 28, 2015)
 - ❖ Timing is critical!
Applicants are required to address new promulgated NAAQS if the standard became effective prior to the issuance date of a final PSD permit, except as allowed under grandfathering provision (*EPA Memo April 1, 2010*)

Ozone NAAQS

PSD Permitting

- > Must demonstrate source will not cause or contribute to a violation of the NAAQS or PSD increment
- > For ozone, EPA proposed a two Tier method: Model Emissions Rates for Precursors (MERPs) and Significant Impact Level (SIL)
- > MERPs - Level of emissions of precursors that are not expected to contribute significantly to O₃ concentrations.
- > SIL - Modeling-based PSD threshold to evaluate air quality impacts. Used as a screening tool by reviewing authorities.
- > August 2016 - EPA guidance memorandum identifies recommended SIL for Ozone
 - ❖ 1.0 ppb 8-hr avg recommended as case-by-case SIL
 - ❖ Public comment through September 30, 2016
- > Draft Appendix W revisions to go final ~October 2016

Practical Permitting Implications (1 of 2)

- > Project Source/Control Considerations
 - ❖ LAER vs. BACT for VOC/NO_x Emission Sources
 - ❖ LAER = “Most stringent emission limitation contained in any state implementation plan (SIP) or achieved in practice (AIP)” ...**Irrespective of cost**
 - ❖ Consider that BACT = LAER for some source types (control technology may be the same, but emission rate likely different)
 - ❖ YES - LAER is expensive...but so is PSD modeling!

Practical Permitting Implications (2 of 2)

> Project Location Considerations

- ❖ Offsets for increases of ozone (precursors NO_x or VOC) are required:
 - ◆ Reduce emissions of NO_x/VOC elsewhere at the facility (if feasible), or
 - ◆ Purchase the “reduction credits” from another company (if available)
 - Note VOC ERCs are scarce in the NE due to gas conversion projects
 - ◆ Creditable offsets must be obtained at the appropriate ratio and same NA area, depending on nonattainment classification of area
- ❖ Site Justification - Alternative Sites Analysis
- ❖ Environmental Justice Review (in some states)

Implications for State Standards

- > After designations, states with non-attainment areas are required to propose state implementation plans (SIPs) that will help achieve compliance with the NAAQS
- > SIP must provide for the implementation of all reasonably available control measures (RACM) including such reductions in emissions from existing sources as may be obtained through the adoption of reasonably available control technology (RACT)

- ❖ RACM can apply to mobile, area, and stationary sources
- ❖ RACT is applicable to stationary sources

Control technology that is reasonably available, and both technologically and economically feasible. Usually applied to existing sources in nonattainment areas; in most cases is less stringent than new source performance standards.

Ozone NAAQS

What Do I Do Now? (1 of 2)

- > Understand ozone trends in your area
 - ❖ Ozone ambient monitoring data for 2015 and 2016 will be important
- > The designation process is a public process
 - ❖ Review local permitting authority monitoring data reports, designation recommendations, etc.
 - ❖ A nonattainment determination should not come as a “surprise”

Ozone NAAQS

What Do I Do Now? (2 of 2)

- > Dust off those project plans?
 - ❖ There could be a decreasing window of opportunity to permit a project before an area is declared nonattainment
 - ❖ Large projects of VOC/NO_x emissions in the future could be held to more stringent permitting evaluation requirements
 - ◆ Nonattainment NSR
 - ◆ Ozone impacts analysis as part of PSD

Questions?

