

NAAQS SIP Stakeholder Meeting

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Why are we here?

- ▶ To overview the SIP development process
- ▶ To share ADEQ's timetable for SIP development
- ▶ To request stakeholder input
- ▶ To meet an aggressive/expedited timeline

Typical Stages of SIP Development

- ▶ EPA updates federal rules
- ▶ ADEQ proposes revisions to APC&EC Regulations
 - ▶ Public Comment & Response
- ▶ Legislative review
- ▶ APC&EC adopts Regulations
- ▶ ADEQ prepares SIP package
 - ▶ Public Comment & Response
- ▶ ADEQ provides written notice of finalized SIP
- ▶ Governor submits SIP to EPA for approval
- ▶ EPA reviews & publishes proposed approval status
 - ▶ Public Comment & Response
- ▶ EPA publishes final decision

NAAQS SIP to include:

- ▶ 2006 Particulate Matter: $\text{PM}_{2.5}$ (Minor sources)
- ▶ 2012 Particulate Matter: $\text{PM}_{2.5}$
- ▶ 2010 Sulfur Dioxide: SO_2
- ▶ 2010 Nitrogen Dioxide: NO_2
- ▶ 2008 Ozone: O_3
- ▶ 2008 Lead: Pb

Projected Timeframe

- ▶ Rulemaking
 - ▶ Initiated 12/5/14
 - ▶ Public Hearing 1/12/15
 - ▶ Public Comment Period ends 1/27/15
 - ▶ Legislative Committees review 05/15 - 06/15
 - ▶ Adoption 6/26/15
- ▶ SIP Development
 - ▶ SIP Stakeholder Meetings
 - ▶ 1/13/15
 - ▶ 1/28/15
 - ▶ 2/10/15
 - ▶ SIP Draft Completed
 - ▶ March 2015
 - ▶ Public Comment
 - ▶ April 2015
 - ▶ Final SIP
 - ▶ June 2015

Infrastructure SIP Requirements

- Section 110(a)(2)(A) Emission limits and other control measures
- Section 110(a)(2)(B) Ambient air quality monitoring/data system
- Section 110(a)(2)(C) Program for enforcement of control measures
- Section 110(a)(2)(D)(i) - I Prong 1: Interstate transport - significant contribution
- Section 110(a)(2)(D)(i) - I Prong 2: Interstate transport - interfere with maintenance
- Section 110(a)(2)(D)(i) - II Prong 3: Interstate transport - prevention of significant deterioration
- Section 110(a)(2)(D)(i) - II Prong 4: Interstate transport - protect visibility
- Section 110(a)(2)(D)(ii) - Interstate and international pollution abatement
- Section 110(a)(2)(E) Adequate authority and resources
- Section 110(a)(2)(F) Stationary source monitoring system
- Section 110(a)(2)(G) Emergency power
- Section 110(a)(2)(H) Future SIP revisions
- Section 110(a)(2)(J) Consultation with government officials; Public notification; PSD and visibility protection
- Section 110(a)(2)(K) Air quality modeling/data
- Section 110(a)(2)(L) Permitting fees
- Section 110(a)(2)(M) Consultation/participation by affected local entities

Arkansas State Factor Requirement

- ▶ Ark. Code Ann. § 8-4-312. Factors in exercise of powers. In exercising their powers and responsibilities under this chapter, the Arkansas Department of Environmental Quality and the Arkansas Pollution Control and Ecology Commission shall take into account and give consideration to the following factors:
 - ▶ (1) The quantity and characteristics of air contaminants and the duration of their presence in the atmosphere that may cause air pollution in a particular area of the state;
 - ▶ (2) Existing physical conditions and topography;
 - ▶ (3) Prevailing wind directions and velocities;
 - ▶ (4) Temperatures and temperature-inversion periods, humidity, and other atmospheric conditions;
 - ▶ (5) Possible chemical reactions between air contaminants or between such air contaminants and air gases, moisture, or sunlight;
 - ▶ (6) The predominant character of development of the area of the state such as residential, highly developed industrial, commercial, or other characteristics;
 - ▶ (7) Availability of air-cleaning devices;

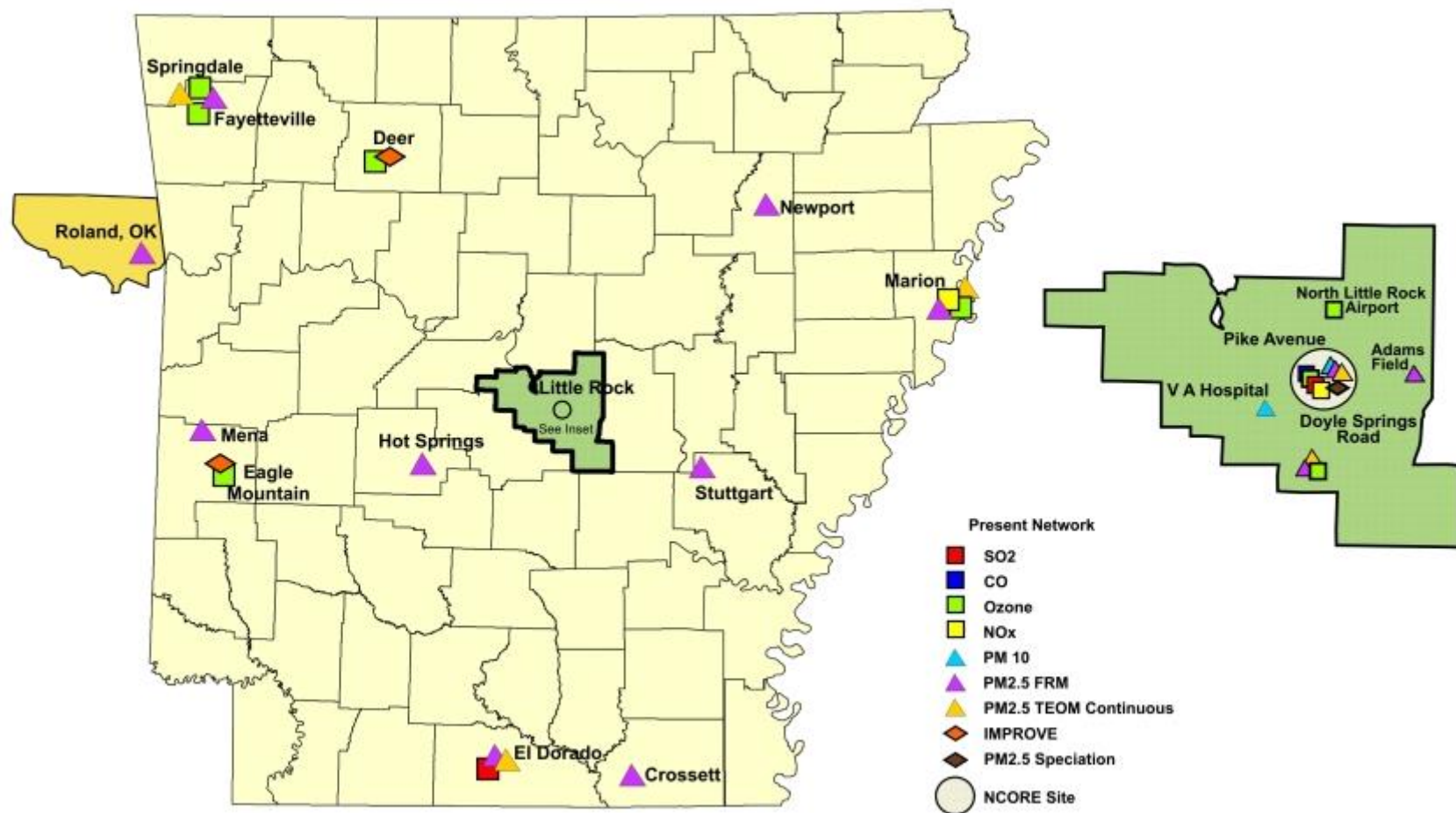
Arkansas State Factor Requirement

- ▶ (8) Economic feasibility of air-cleaning devices;
- ▶ (9) Effect on normal human health of particular air contaminants;
- ▶ (10) Effect on efficiency of industrial operation resulting from use of air-cleaning devices;
- ▶ (11) The extent of danger to property in the area reasonably to be expected from any particular air contaminant;
- ▶ (12) Interference with reasonable enjoyment of life by persons in the area and conduct of established enterprises that can reasonably be expected from air contaminants;
- ▶ (13) The volume of air contaminants emitted from a particular class of air contamination sources;
- ▶ (14) The economic and industrial development of the state and the social and economic value of the air contamination sources;
- ▶ (15) The maintenance of public enjoyment of the state's natural resources; and
- ▶ (16) Other factors that the department or the commission may find applicable.

Examples of Emission Source Categories

- ▶ EGU Point: electric generation facilities burning coal, oil, natural gas
- ▶ NonEGU Point: other large industrial facilities (stacks, flares, fugitives)
- ▶ Nonpoint Area: dry cleaners, gas stations, auto body paint shop
- ▶ Nonroad: ships, planes, agricultural and construction equipment
- ▶ On-Road Mobile: cars, trucks, buses, motorcycles
- ▶ Biogenic: trees, vegetation
- ▶ Events: fires

Arkansas Ambient Air Monitoring Network



ADEQ Use of “Criteria Pollutant Modeling Analysis for Arkansas” Report

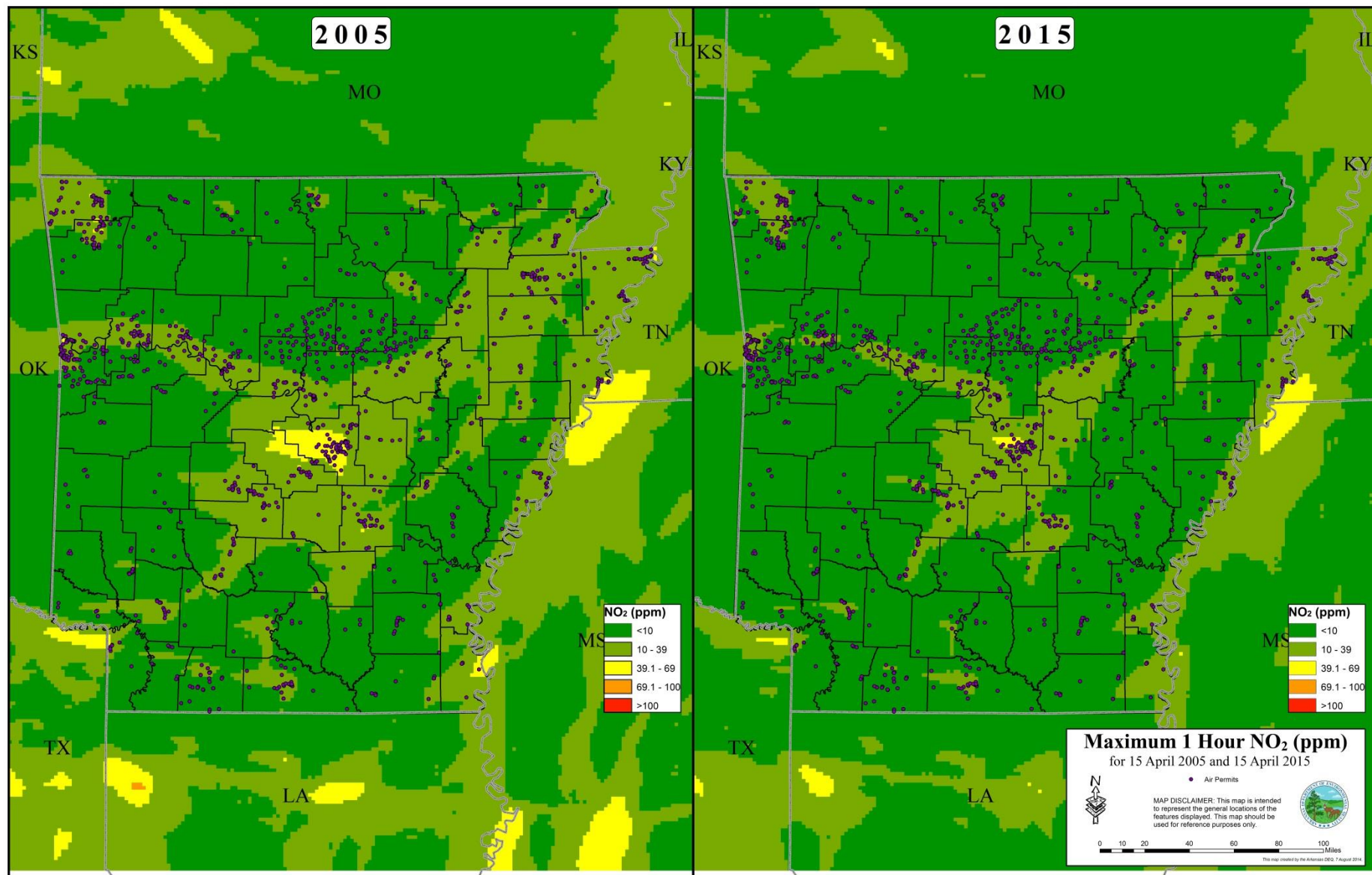
- ▶ Report prepared by ICF International: 7/28/2014
- ▶ “Rolled out” in Public Meeting: 8/20/2014
- ▶ Contains assessment of modeled current and future-year pollutant concentrations
- ▶ Is being used by ADEQ staff to:
 - ▶ Evaluate near-future trends in pollutant concentrations
 - ▶ Estimate pollutant concentrations in unmonitored areas of Arkansas
 - ▶ Assess effectiveness of existing air quality monitoring network

ADEQ Use of “Criteria Pollutant Modeling Analysis for Arkansas” Report

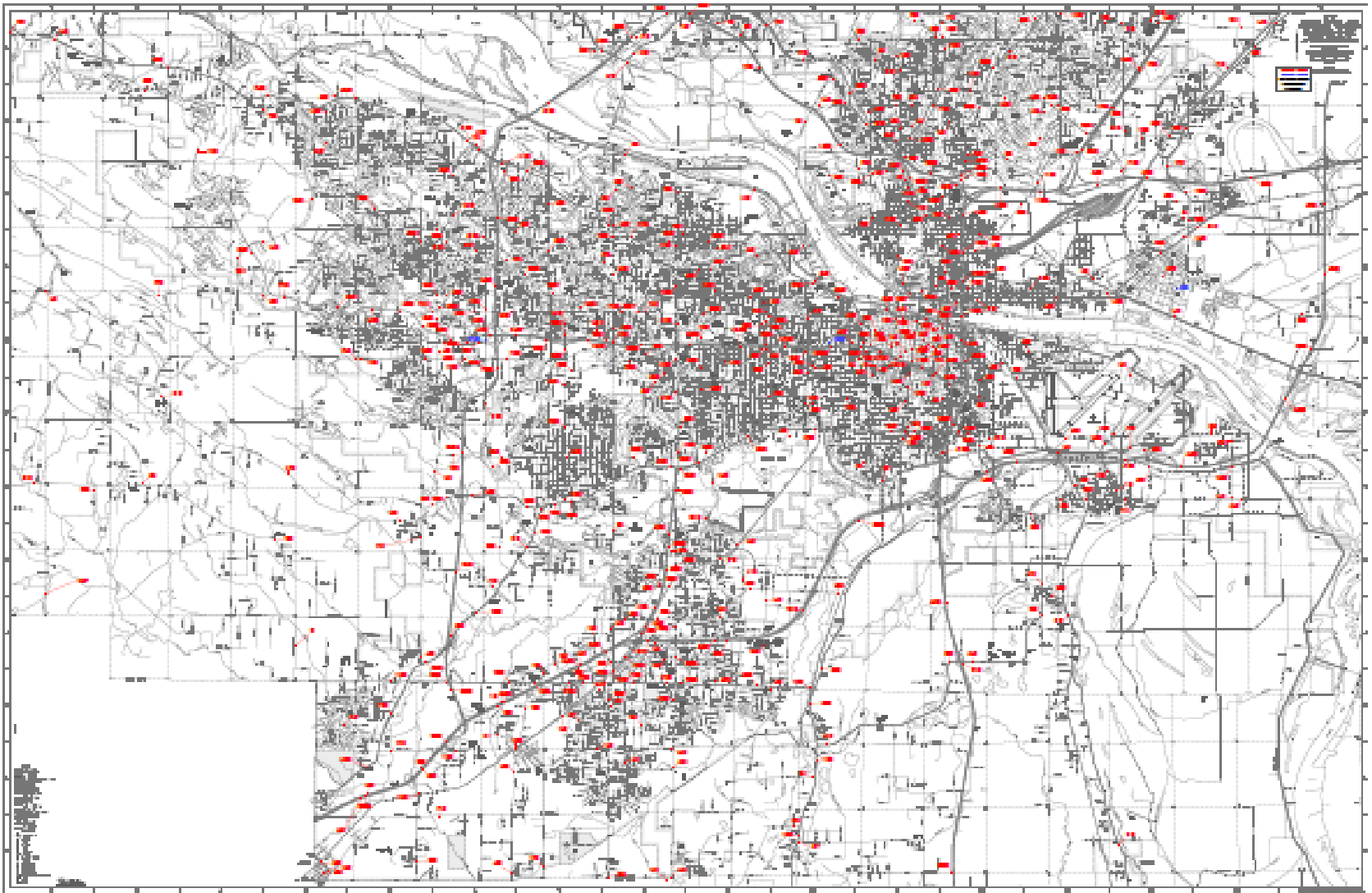
- ▶ Further review and enhancement of the Modeling Analysis might be used to:
 - ▶ Identify areas that are sensitive to increases in pollutant emissions
 - ▶ Establish appropriate locations for new air quality monitors
 - ▶ Develop framework/flowchart for modeling requirements for permits per 19.305(D)(1)

National Ambient Air Quality Standards (NAAQS)

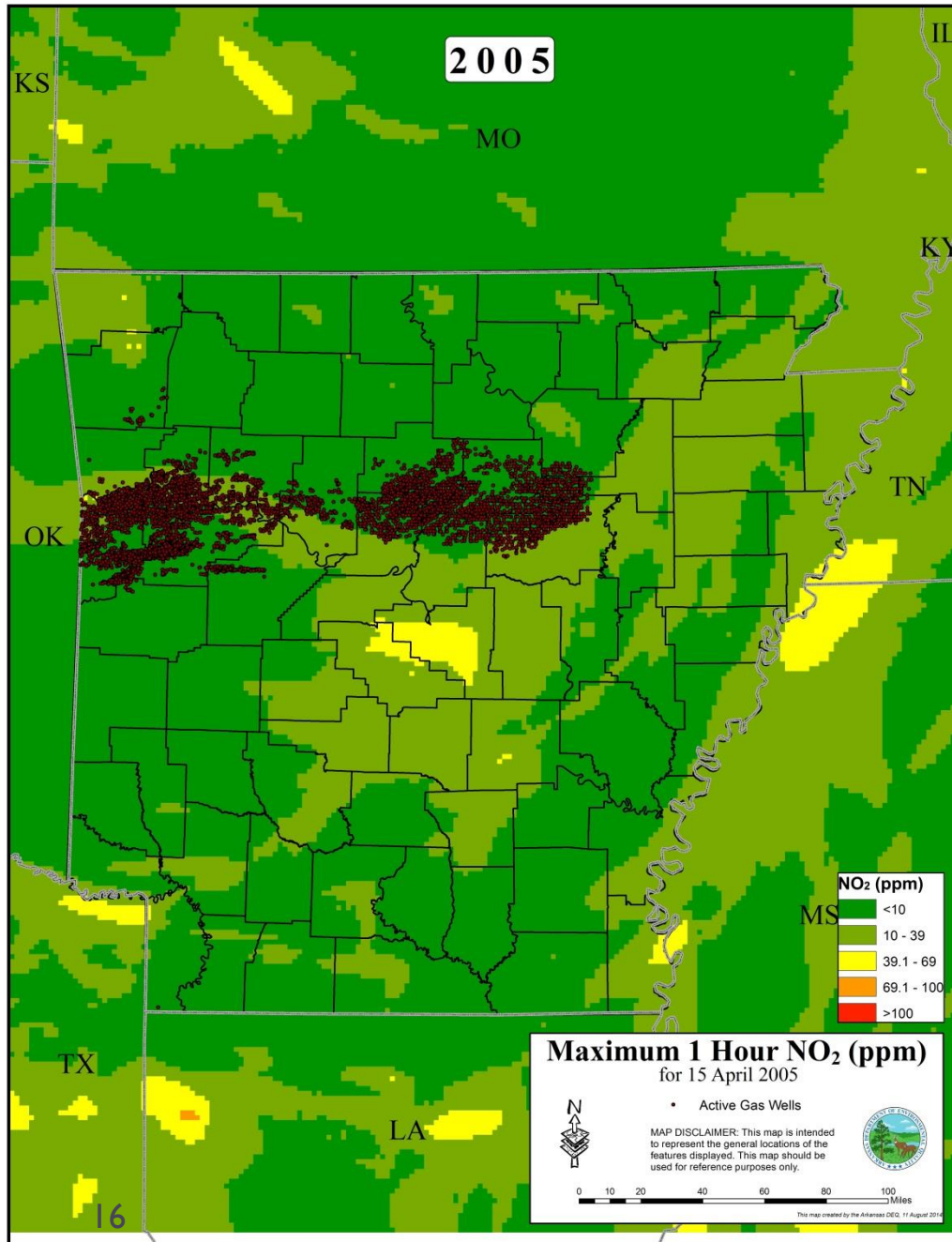
Pollutant [final rule cite]		Primary/ Secondary	Averaging Time	Level	Form
Carbon Monoxide [76 FR 54294, Aug 31, 2011]		primary	8-hour	9 ppm	Not to be exceeded more than once per year
			1-hour	35 ppm	
Lead [73 FR 66964, Nov 12, 2008]		primary and secondary	Rolling 3 month average	0.15 µg/m ³	Not to be exceeded
Nitrogen Dioxide [75 FR 6474, Feb 9, 2010] [61 FR 52852, Oct 8, 1996]		primary	1-hour	100 ppb	98th percentile of 1-hour daily maximum concentrations, averaged over 3 years
		primary and secondary	Annual	53 ppb	Annual Mean
Ozone [73 FR 16436, Mar 27, 2008]		primary and secondary	8-hour	0.075 ppm	Annual fourth-highest daily maximum 8-hr concentration, averaged over 3 years
Particle Pollution Dec 14, 2012	PM _{2.5}	primary	Annual	12 µg/m ³	annual mean, averaged over 3 years
		secondary	Annual	15 µg/m ³	annual mean, averaged over 3 years
		primary and secondary	24-hour	35 µg/m ³	98th percentile, averaged over 3 years
	PM ₁₀	primary and secondary	24-hour	150 µg/m ³	Not to be exceeded more than once per year on average over 3 years
Sulfur Dioxide [75 FR 35520, Jun 22, 2010] [38 FR 25678, Sept 14, 1973]		primary	1-hour	75 ppb	99th percentile of 1-hour daily maximum concentrations, averaged over 3 years
		secondary	3-hour	0.5 ppm	Not to be exceeded more than once per year



Urban Areas and Transportation Corridors are Large Contributors to NO₂ Concentrations



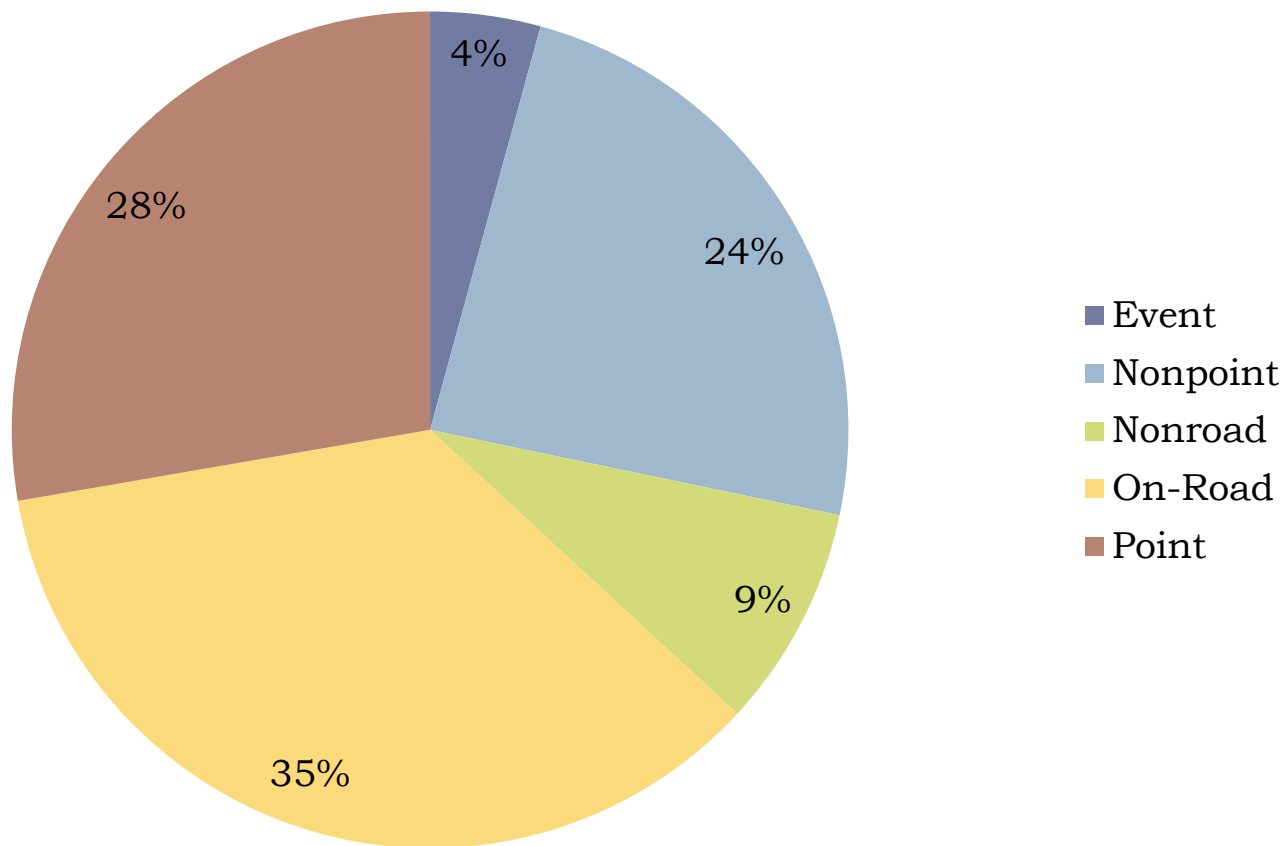
A “Near-Road” NO₂ monitor may be required in the Little Rock area by 2017
Siting would be in an area with a high Annual Average Daily Traffic count



Oil and Gas Exploration activities in the Fayetteville Shale Play may be a significant source of criteria pollutant emissions that is likely underestimated in current emission inventories.

The Arkansas Oil and Gas Commission has issued over 9,000 permits for exploration wells and associated activities.

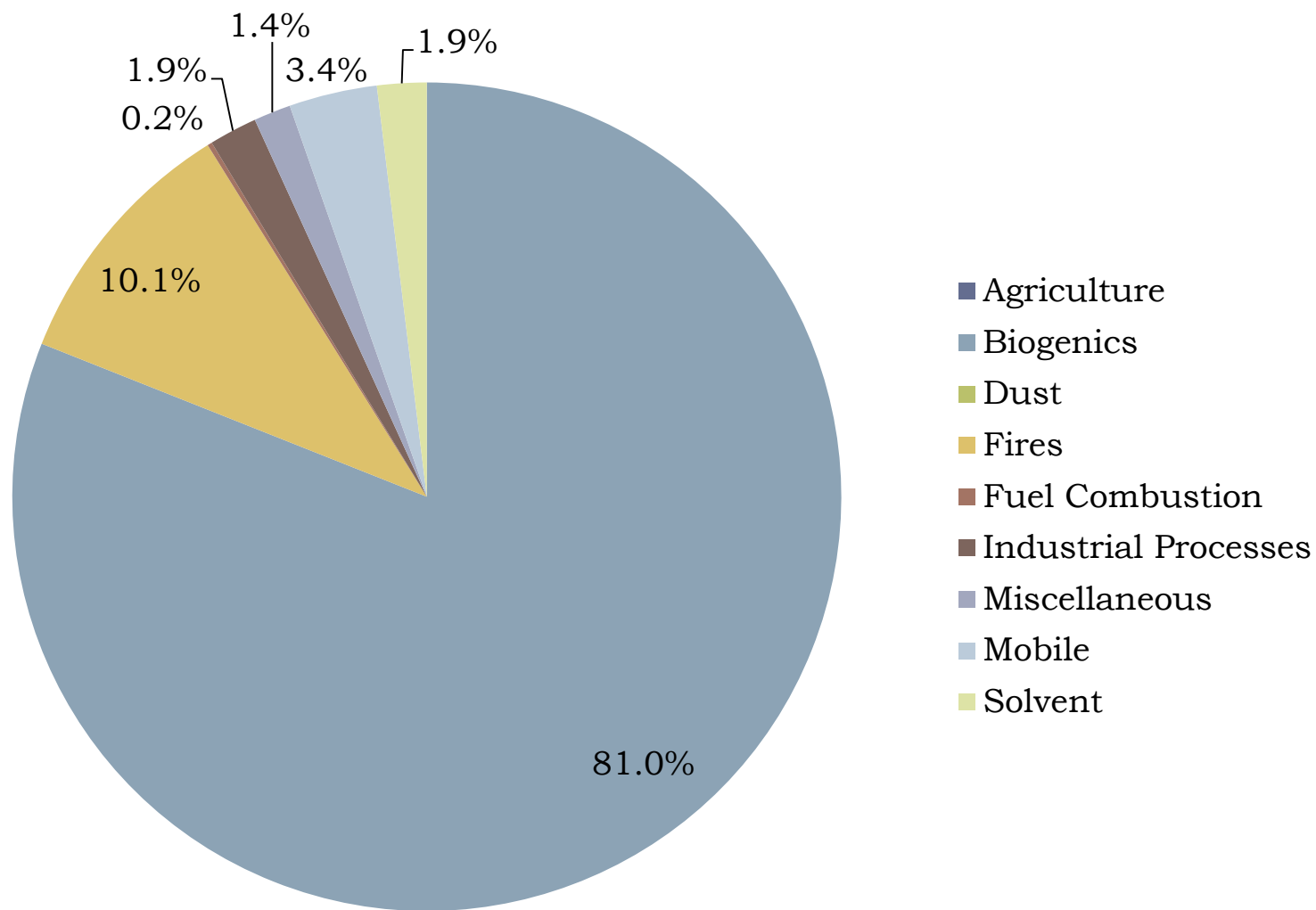
Arkansas 2011 NO₂ Emissions by Data Category



Source: 2011 NEI V 2 with Biogenics

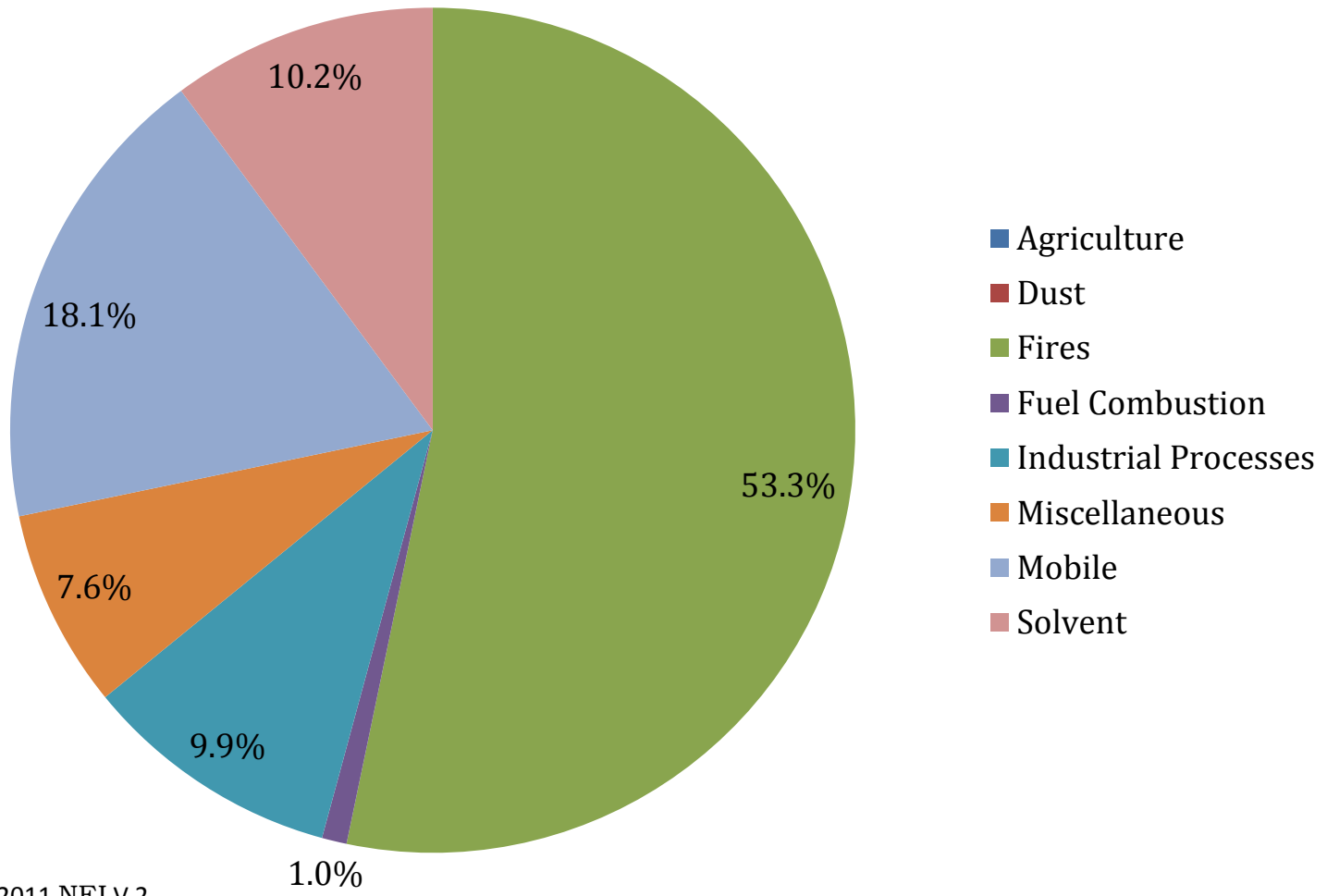
Nonroad NO₂ emissions (9% of total emissions) are likely underestimated

Arkansas 2011 VOC Emissions by Sector

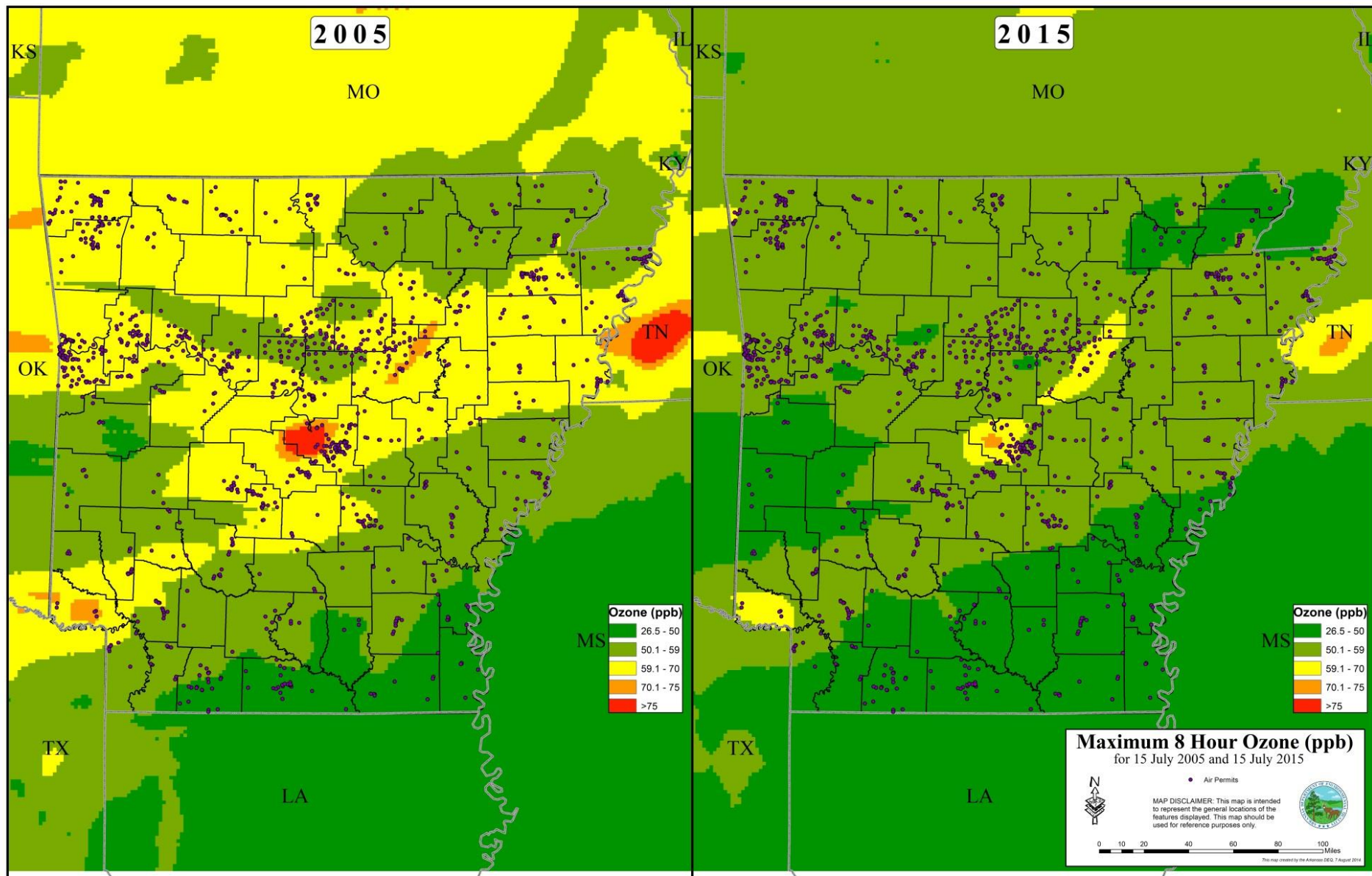


Source: 2011 NEI V 2 with Biogenics

Arkansas 2011 VOC Emissions by Sector Excluding Biogenics

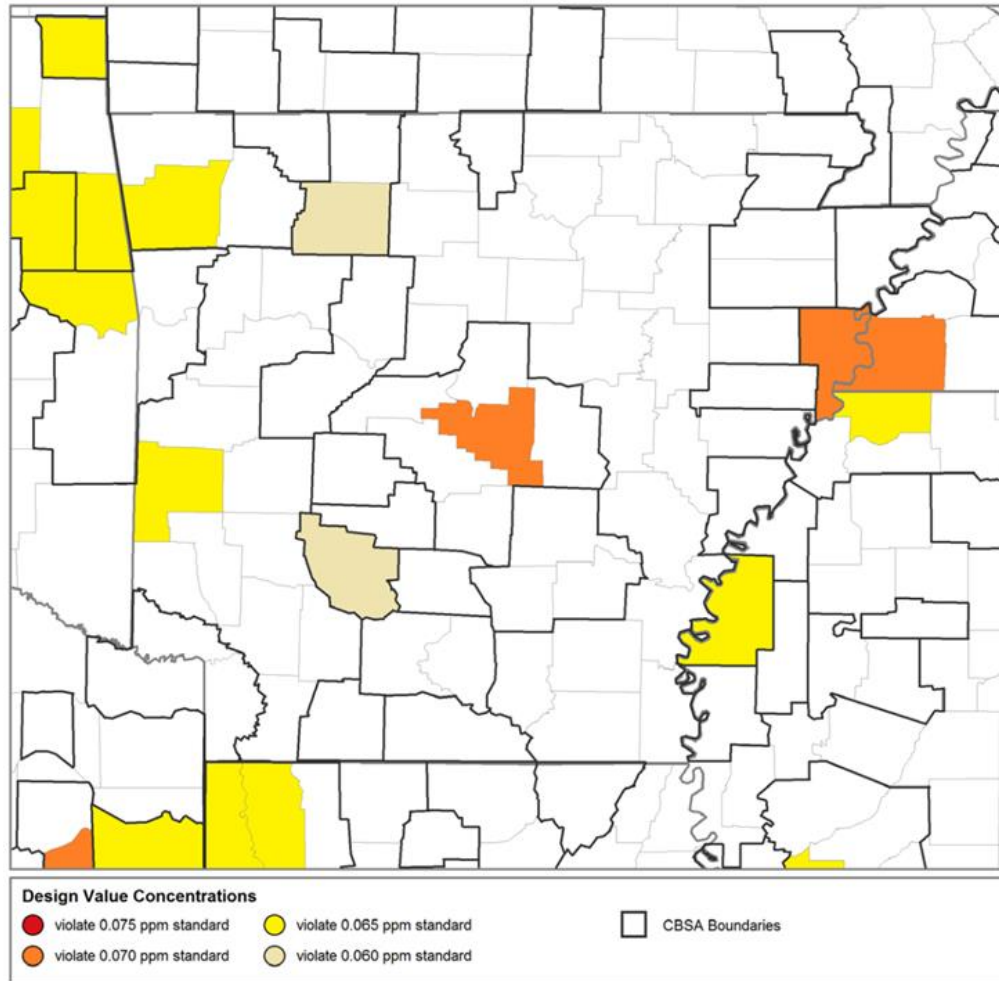


Source: 2011 NEI V 2

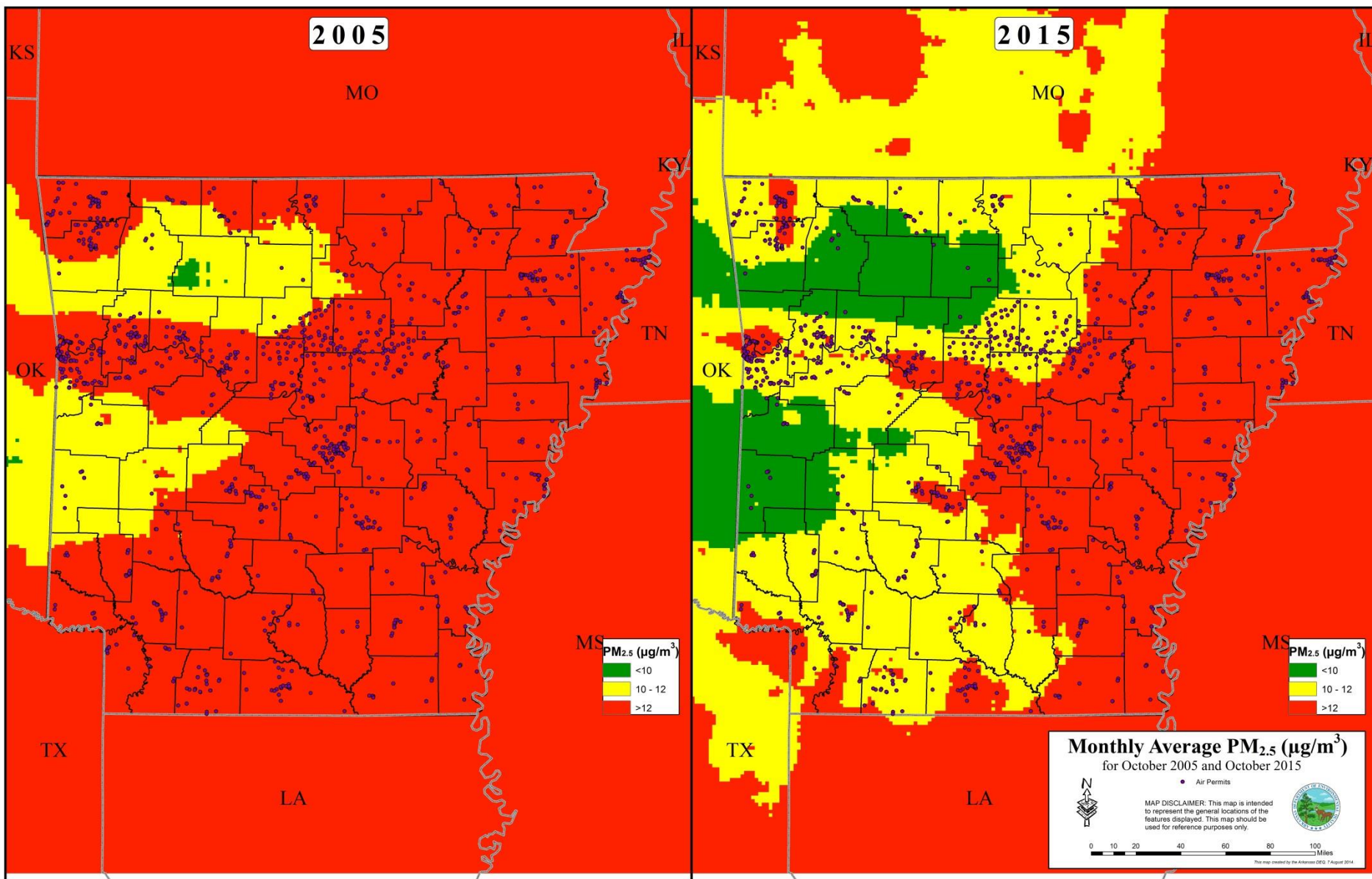


Future 8-Hour ozone concentrations show progress but more may be needed if the ozone NAAQS is revised to a more stringent level.

Preliminary 2014 8-Hr Ozone Design Values



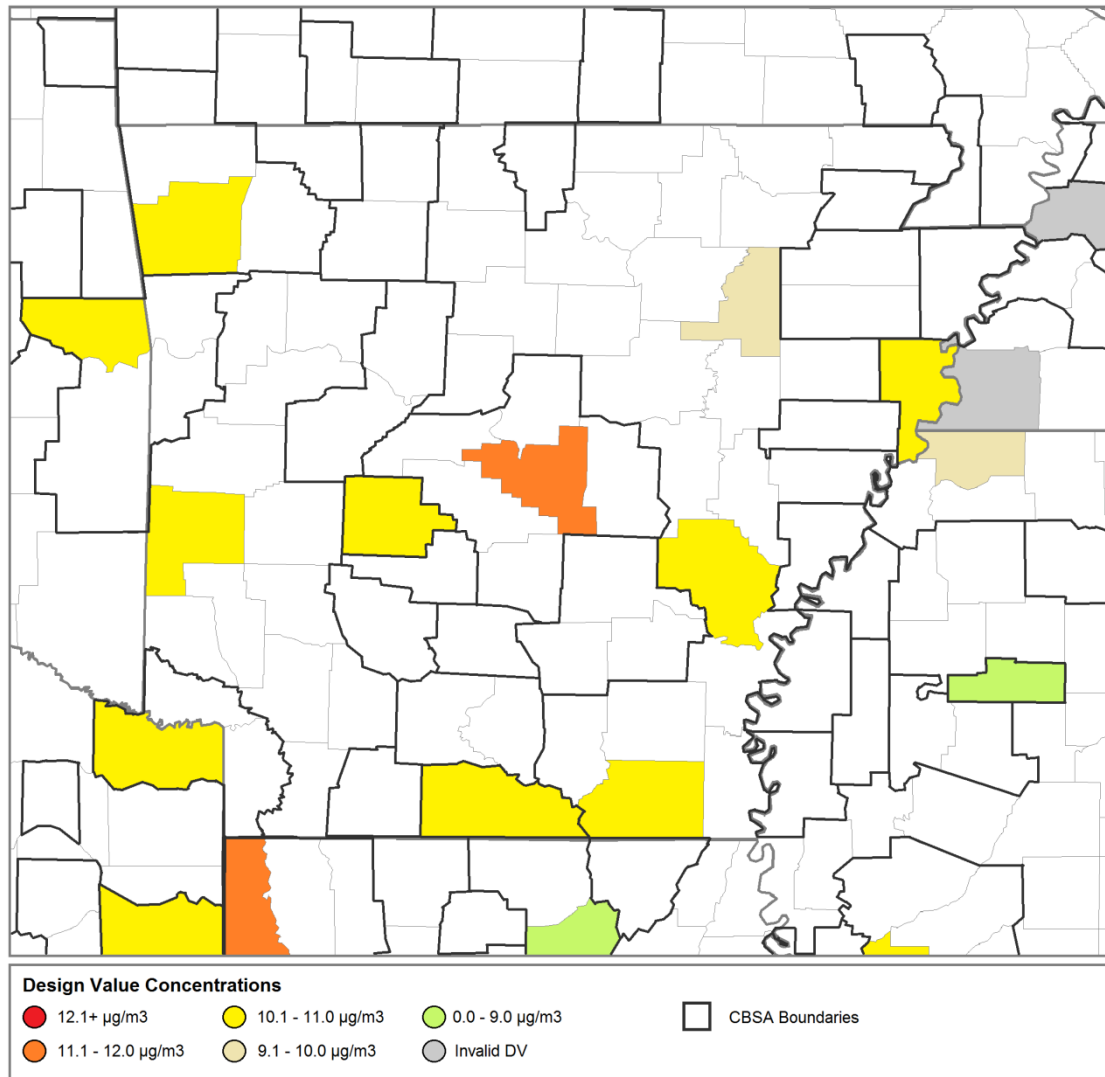
New Ozone NAAQS Proposal Could Affect More Arkansas Counties



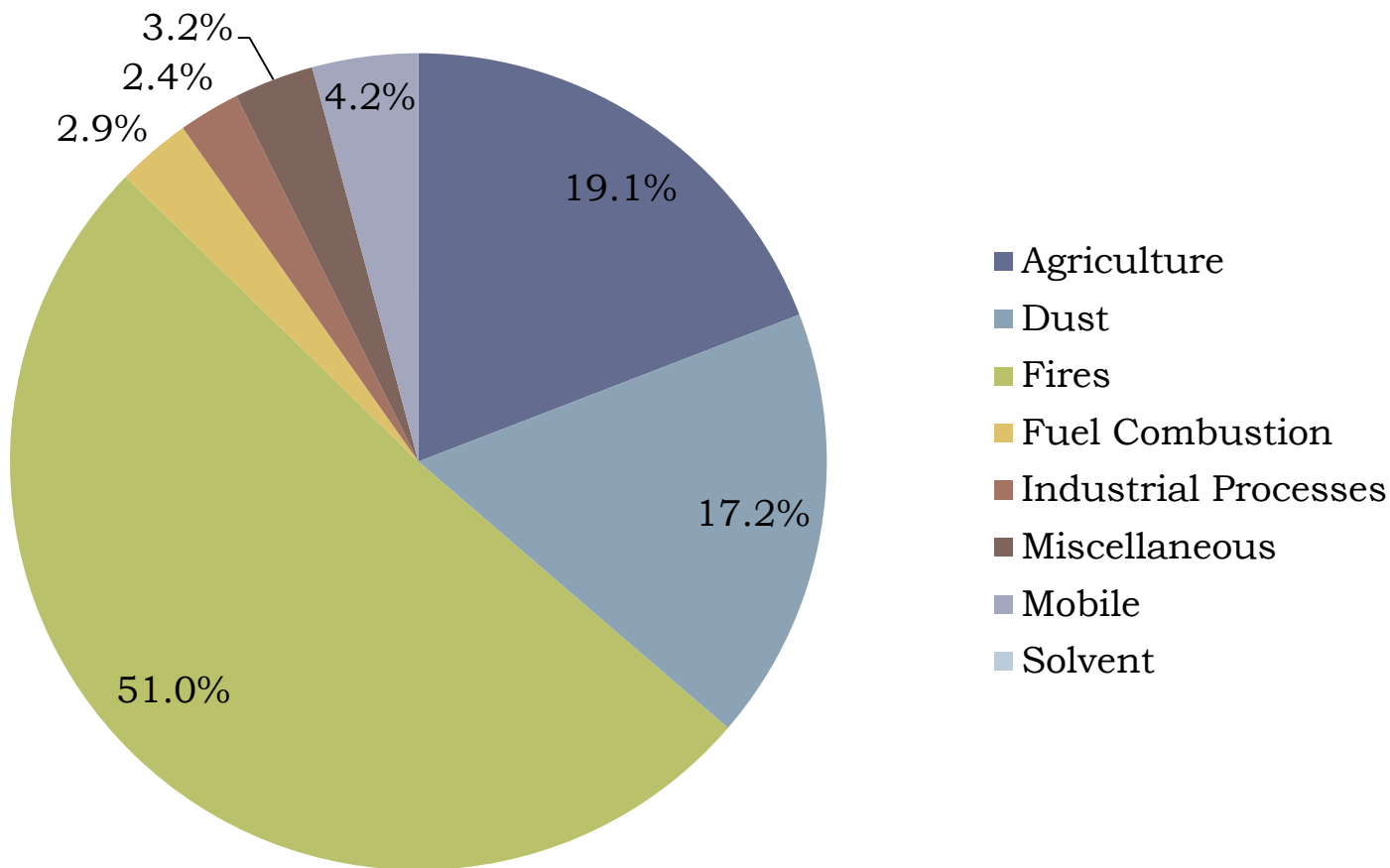
Seasonally high concentrations of PM_{2.5} have a large influence on the annual standard



2013 Annual PM_{2.5} Design Values



Arkansas 2011 PM_{2.5} Emissions by Sector



Source: 2011 NEI V 2 with Biogenics

70% of the particulate matter in smoke from fires is PM_{2.5}

Arkansas Smoke Management Guidelines



Arkansas
Forestry
Commission

www.forestry.state.ar.us



GUIDELINES FOR WHEN TO BURN
AND HOW TO MANAGE SMOKE

BEFORE YOU BURN, CALL 1-800-830-8015

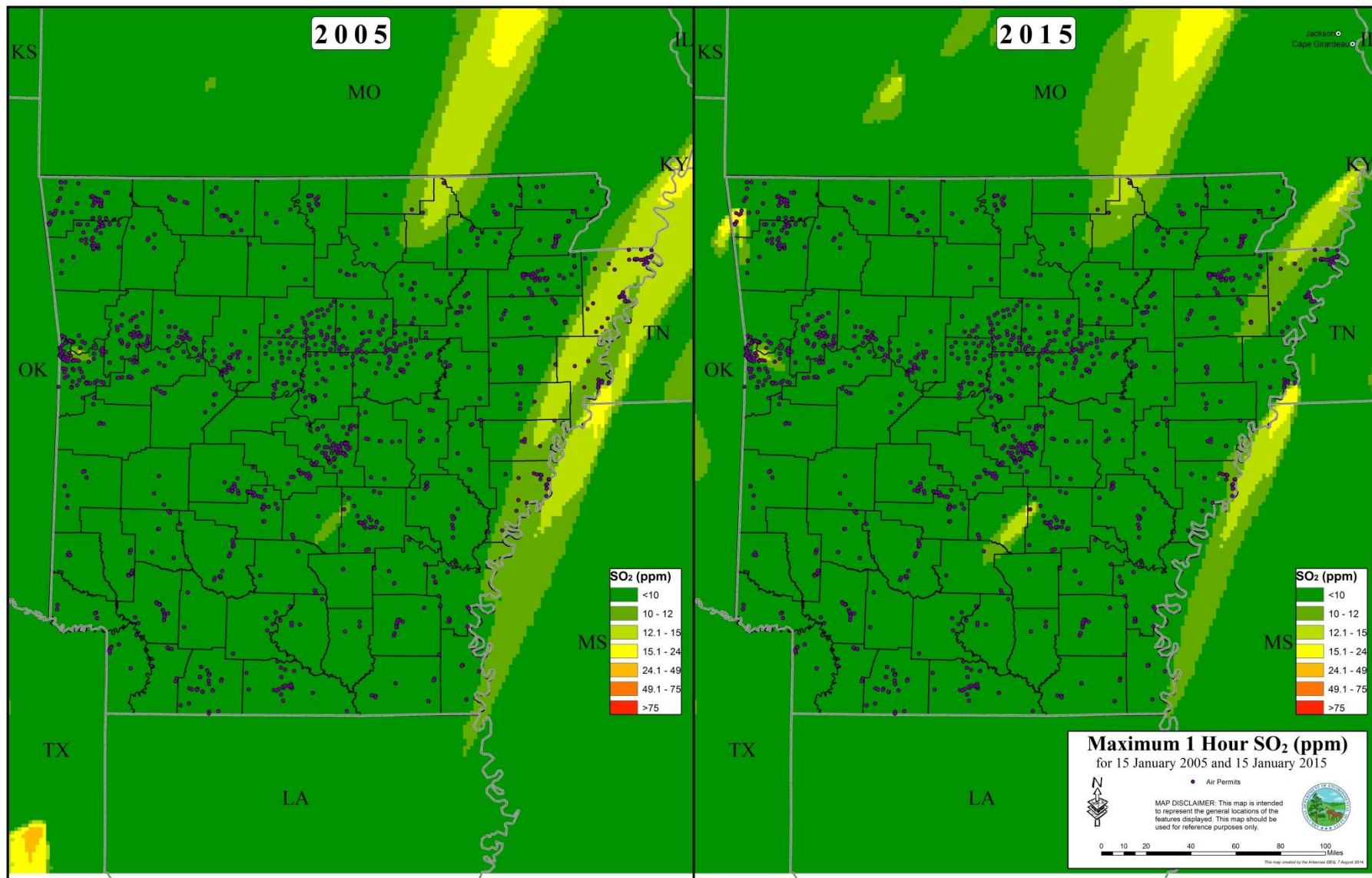
A Collaborative Effort with the Arkansas Forestry Commission and Others

UA Cooperative Ext. Crop Residue Study Scope

- ▶ Post-harvest crop residue burning alternatives have the potential to be a cost-effective way to reduce PM_{2.5} levels
- ▶ Research current regulatory requirements for crop residue management in other states
- ▶ Identify & evaluate the pros and cons of each crop residue management option in relation to economics, air quality and total environmental impact/footprint
- ▶ Provide recommendations on crop residue management methods, and under what circumstances each method may be preferable to the others
- ▶ Provide recommendations for statutes or regulations that would benefit the State of Arkansas for crop residue management based on protecting air quality and the environment, while factoring in economics

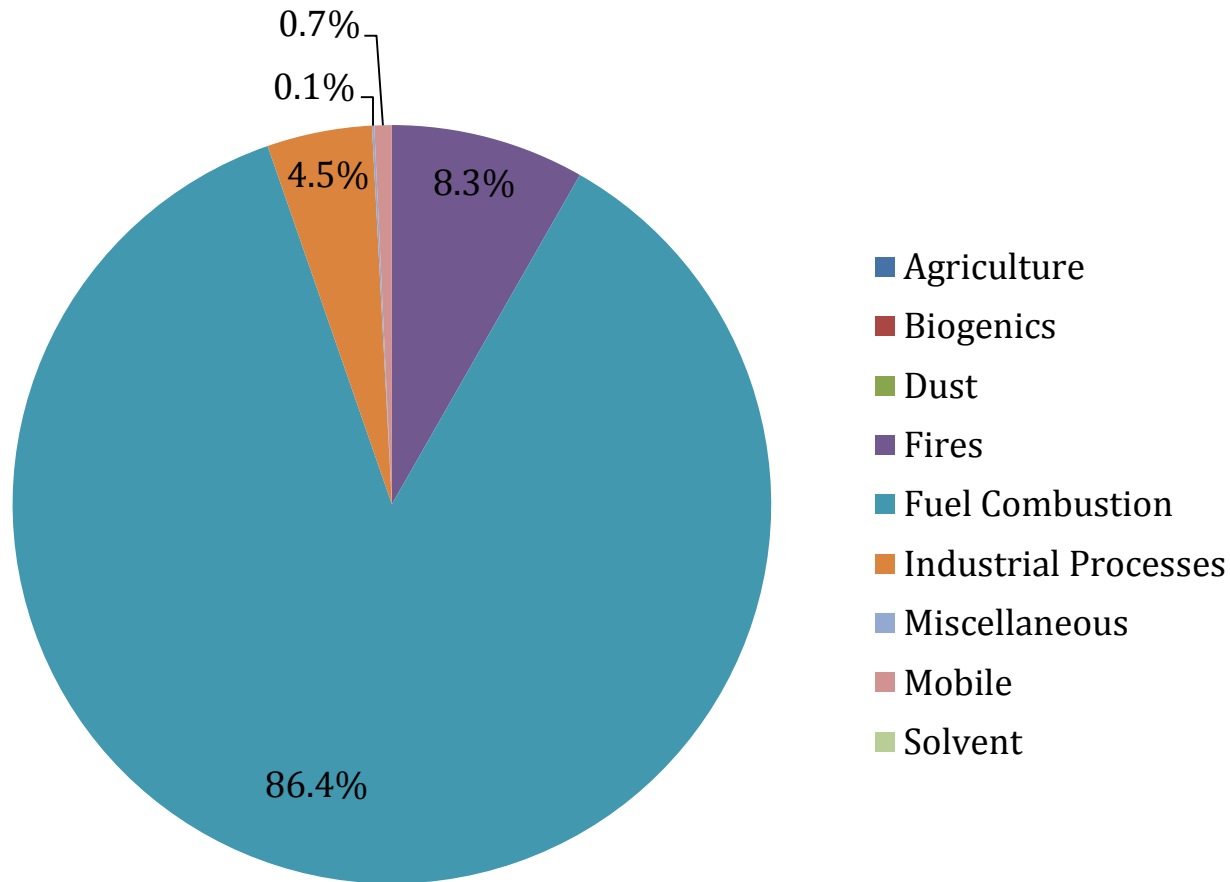
UA Cooperative Ext. Crop Residue Study

- ▶ **Tasks**
 - ▶ Research and develop potential policy for crop residue management
 - ▶ Survey of current crop residue management practices
 - ▶ Plot scale studies
 - ▶ Field scale observation
- ▶ **Research & policy task deliverable**
 - ▶ 7/15/15
- ▶ **Final report**
 - ▶ 1/2018



SO₂ emissions from fuel combustion at power plants should be significantly reduced by current and future federal regulatory programs. Source-oriented monitoring may be required at some of these facilities.

Arkansas 2011 SO₂ Emissions by Sector



Emissions Inventory Improvements

- ▶ Currently, ADEQ collects detailed emissions data from Point Sources and uses EPA emission estimates for Nonpoint sources. Data for On-Road, Nonroad, Nonpoint, and Event sources is not as robust as data from Point Sources.
- ▶ Future Considerations for Emissions Inventory Improvements might include:
 - ▶ On-Road and Nonroad: Collection of local data inputs for each county
 - ▶ Nonpoint: Collection of local data and emission estimates for Nonpoint sources/minor source (non-Title V); Residential impact from wood burning stoves and fireplaces
- ▶ Events:
 - ▶ Wildland Fires: Collection, analysis, and submittal of prescribed fire and wildfire occurrence data to EPA for use in emissions modeling
 - ▶ Agricultural Burning: Conducting surveys of agricultural burning practices in the state to verify EPA inputs for emissions modeling
- ▶ Improved emission inventory data would provide additional insight into which sources are contributing to elevated concentrations of criteria pollutants. This knowledge would provide a better understanding of what emission source types should be the focus of any future emission reduction policies.

Innovative Programs

▶ **Go RED!**

- ▶ Diesel engine retrofits and upgrades to reduce emissions



- ▶ Public/private partnership to improve fuel efficiency and the environmental performance of the goods movement supply chains



- ▶ Voluntary program to save money and protect our climate through superior energy efficiency



- ▶ Keeps public informed about potentially harmful ground-level ozone days



- ▶ A partnership that emphasizes burning the right wood, the right way, in the right wood-burning appliance to protect your home, health, and the air we breathe

Innovative Program Ideas

- ▶ Idling reduction
 - ▶ State and local government
 - ▶ Municipalities
 - ▶ Schools
 - ▶ Businesses
- ▶ Residential wood stove/fireplace efficiency initiatives
- ▶ Energy efficiency grants
- ▶ Weatherization programs

How can you help?

- ▶ Provide workable ideas & recommendations to include in an approvable plan
- ▶ Include how those ideas/recommendations can be accomplished
- ▶ Let us know what worked in other states
- ▶ Economic Analysis Assistance
- ▶ Submit initial ideas to ADEQ by 1/6/2015
- ▶ Participate in the next stakeholder meetings
- ▶ Comment on the rulemaking by 1/27/15
- ▶ This is a process, the SIP can and will be updated

For additional Information:

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