

ARIZONA STATE SENATE

RESEARCH STAFF

TO: MEMBERS OF THE JOINT LEGISLATIVE AD HOC
STUDY COMMITTEE ON AIR QUALITY AND
ENERGY



DATE: December 28, 2023

RACHEL ANDREWS
LEGISLATIVE RESEARCH ANALYST
NATURAL RESOURCES, ENERGY & WATER
Telephone: (602) 926 -3171

SUBJECT: 2023 Report of the Joint Legislative Ad Hoc
Study Committee on Air Quality and Energy

Attached is the 2023 report of the Joint Legislative Ad Hoc Study Committee on Air Quality and Energy. This report has been distributed to the following individuals:

President of the Senate

Senator Warren Petersen

Speaker of the House of Representatives

Representative Ben Toma

Committee Members

Senator Sine Kerr, Co-Chair

Senator Frank Carroll

Senator Denise "Mitzi" Epstein

Senator Jake Hoffman

Senator Priya Sundareshan

Representative Gail Griffin, Co-Chair

Representative Oscar De Los Santos

Representative Timothy Dunn

Representative Austin Smith

Representative Anastasia "Stacey" Travers

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Senate Resource Center

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Senate Democratic Staff

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House Democratic Staff

House Research Staff

House Chief Clerk

Joint Legislative Ad Hoc Study Committee on Air Quality and Energy

2023 Report

Background

The Joint Legislative Ad Hoc Study Committee on Air Quality and Energy (Committee) was established to convene and solicit information from experts and the public about local recommendations for attempted compliance with the Environmental Protection Agency rulemaking determinations regarding ozone nonattainment.

The Committee was tasked with considering evidence and testimony regarding: 1) the sources of ozone in Arizona and reasons for nonattainment; 2) the efforts taken to address or mitigate such sources to-date; 3) the feasibility of achieving federal standards; 4) the ozone control measures recommended for inclusion in a state ozone plan; 5) the basis and authority for the proposed recommendations; 6) the impact of these mandates on Arizona workers, families and industries, including but not limited to the impact on affordable energy and consumer products; 7) the effect control measures will have on Arizona's economic competitiveness; (8) the practicality of achieving the recommended proposals, if pursued, and the impact of such measures on ozone levels from all sources, if implemented; 9) the potential for fines and penalties that could be levied on Arizona businesses by the federal government; 10) the consequences that emission control measures have on the reliability and affordability of energy resources; 11) the impact that shifting the state's energy portfolio has on ozone nonattainment levels in Arizona; and 12) any other issue the Committee deems relevant to its investigation.

The Committee is required to submit a report of its findings to the President of the Senate and the Speaker of the House of Representatives by December 31, 2023 and December 31, 2024.

Committee Activity

The Committee held four public meetings in 2023, including April 24, July 13, August 9 and October 16. Please refer to the Committee minutes for a list of the presentations and public testimony.

Appendices

1. April 24, 2023
 - a. Agendas, Committee Minutes, Presentation
2. July 13, 2023
 - a. Agendas, Committee Minutes, Presentations
3. August 9, 2023
 - a. Agendas, Committee Minutes, Presentations
4. October 16, 2023
 - a. Agendas, Committee Minutes, Presentations

APPENDIX A:

April 24, 2023

Agenda, Minutes, Presentations

Interim agendas can be obtained via the Internet at <http://www.azleg.gov/Interim-Committees>

ARIZONA STATE LEGISLATURE

INTERIM MEETING NOTICE OPEN TO THE PUBLIC

JOINT LEGISLATIVE AD HOC STUDY COMMITTEE ON AIR QUALITY AND ENERGY

Date: Monday, April 24, 2023

Time: 1:30 P.M.

Place: SHR 1

Members of the public may access a livestream of the meeting here:

<https://www.azleg.gov/videoplayer/?clientID=6361162879&eventID=2023041042>

AGENDA

1. Call to Order
2. Roll Call
3. Introduction of Committee Members
4. Overview of Committee Purpose
5. Presentations
 - Information on the Ozone Nonattainment Designation for the Maricopa County region
 - Tim Franquist, Environmental Director, Maricopa Association of Governments
 - Audra Koester Thomas, Transportation Planning Program Manager, Maricopa Association of Governments
6. Adjournment

Members:

Senator Sine Kerr, Co-Chair
 Senator Frank Carroll
 Senator Denise "Mitzi" Epstein
 Senator Jake Hoffman
 Senator Priya Sundareshan



Representative Gail Griffin, Co-Chair
~~Vacant~~ Representative Oscar De Los Santos
~~Vacant~~ Representative Timothy M. Dunn
~~Vacant~~ Representative Austin Smith
~~Vacant~~ Representative Anastasia "Stacey" Travers

04/19/2023

04/21/2023

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For questions regarding this agenda, please contact Senate Research Department.

Persons with a disability may request a reasonable accommodation such as a sign language interpreter, by contacting the Senate Secretary's Office: (602) 926-4231 (voice). Requests should be made as early as possible to allow time to arrange the accommodation.

ARIZONA STATE LEGISLATURE

JOINT LEGISLATIVE AD HOC STUDY COMMITTEE ON AIR QUALITY AND ENERGY

Minutes of the Meeting
April 24, 2023
1:30 P.M., SHR 1

Members of the public may access a livestream of the meeting here:

<https://www.azleg.gov/videoplayer/?clientID=6361162879&eventID=2023041042>

Members Present:

Senator Sine Kerr, Co-Chair
Senator Frank Carroll
Senator Denise "Mitzi" Epstein
Senator Jake Hoffman
Senator Priya Sundareshan

Representative Gail Griffin, Co-Chair
Representative Oscar De Los Santos
Representative Timothy M. Dunn
Representative Austin Smith
Representative Anastasia "Stacey" Travers

Staff:

Rachel Andrews, Senate Research Analyst
Fausto Burruel, Senate Assistant Research Analyst
Stephanie Freeman, Senate Research Intern
Blanca Santillan, House Assistant Research Analyst
Abigail Hobson, House Research Intern

Co-Chair Kerr called the meeting to order at 1:33 p.m. and attendance was taken.

Senator Kerr requested that the Committee members introduce themselves.

OVERVIEW OF COMMITTEE PURPOSE

Rachel Andrews, Senate Research Analyst, gave an overview of the Committee.

PRESENTATIONS

Information on the Ozone Nonattainment Designation for the Maricopa County region

Ed Zuercher, Managing Executive Director, Maricopa Association of Governments, distributed and explained a PowerPoint presentation entitled "Ozone Nonattainment" (Attachment A) and answered questions posed by the Committee.

Tim Franquist, Environmental Director, Maricopa Association of Governments, continued with the PowerPoint presentation (Attachment A) and answered questions posed by the Committee.

The Committee offered comments.

Audra Koester Thomas, Transportation Planning Program Manager, Maricopa Association of Governments, continued with the PowerPoint presentation (Attachment A) and answered questions posed by the Committee.

Mr. Franquist answered additional questions posed by the Committee.

The Committee offered additional comments.

Mr. Zuercher answered additional questions posed by the Committee.

The Committee offered additional comments.

Mr. Franquist answered additional questions posed by the Committee.

There being no further business, the meeting was adjourned at 3:43 p.m.

Respectfully submitted,

Brisa Roman
Committee Secretary

(Audio recordings and attachments are on file in the Secretary of the Senate's Office/Resource Center, Room 115. Audio archives are available at <http://www.azleg.gov>)

OZONE NONATTAINMENT





Ad Hoc Study Committee on Air Quality and Energy
April 24, 2023




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1

THE BOTTOM LINE

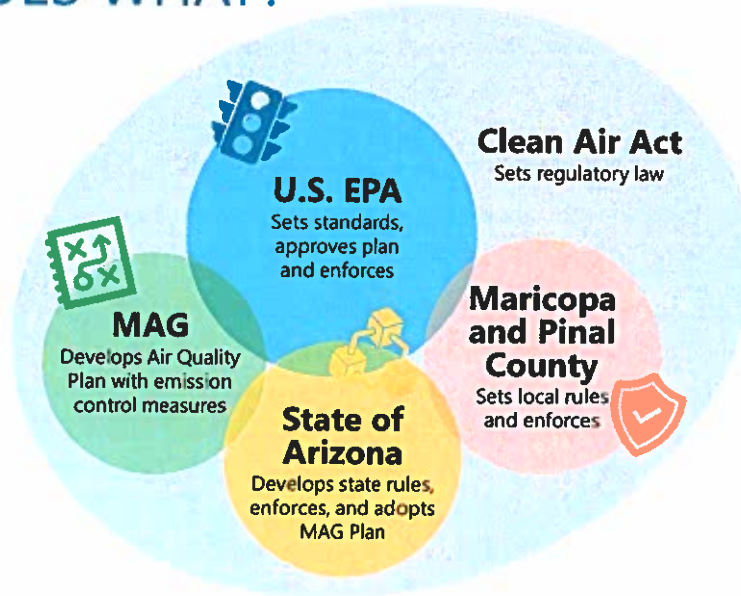
-  The MAG region has been designated Moderate and is on a path to being **recategorized as Serious nonattainment for ozone.**
-  **Ozone endangers public health and negatively impacts economic growth.**
-  Roadway and transit investments included in the **Prop 400E plan** are **critical components of our region's air quality attainment plan.**
-  Need meaningful areawide ozone emission reduction measures and federal engagement to avoid **federal intervention and sanctions.**



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2

WHO DOES WHAT?

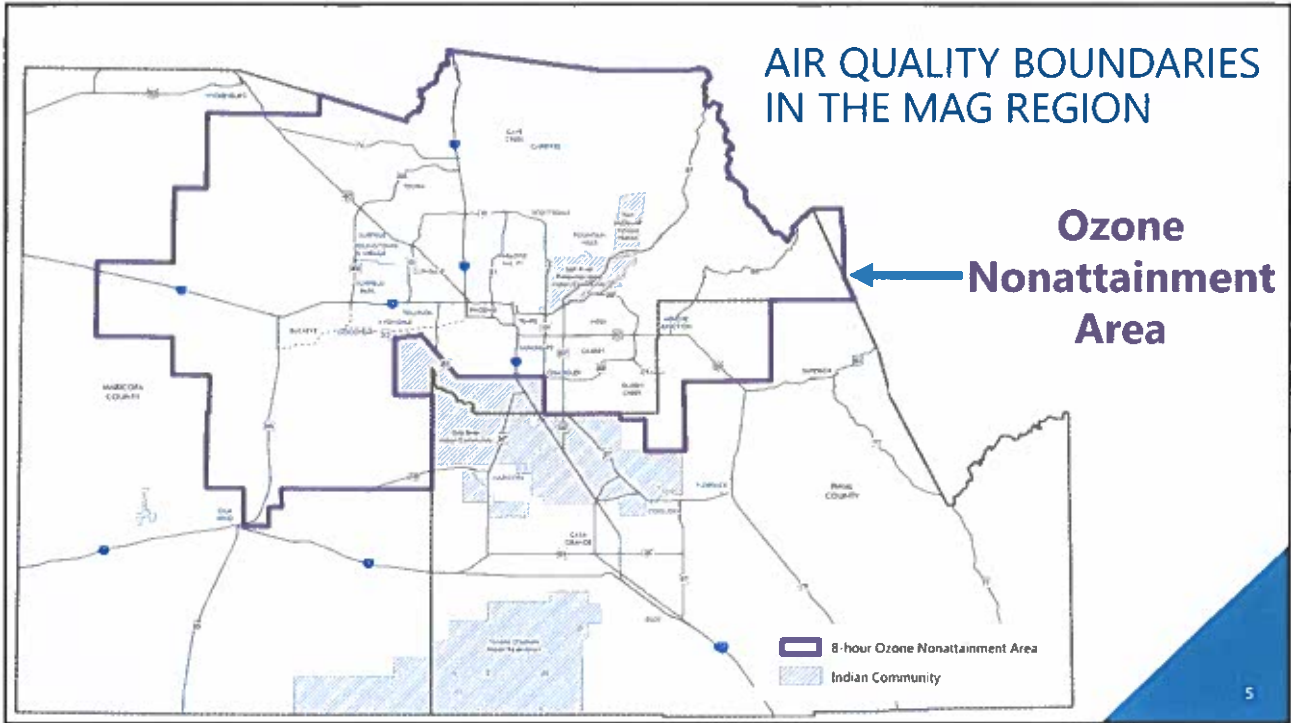


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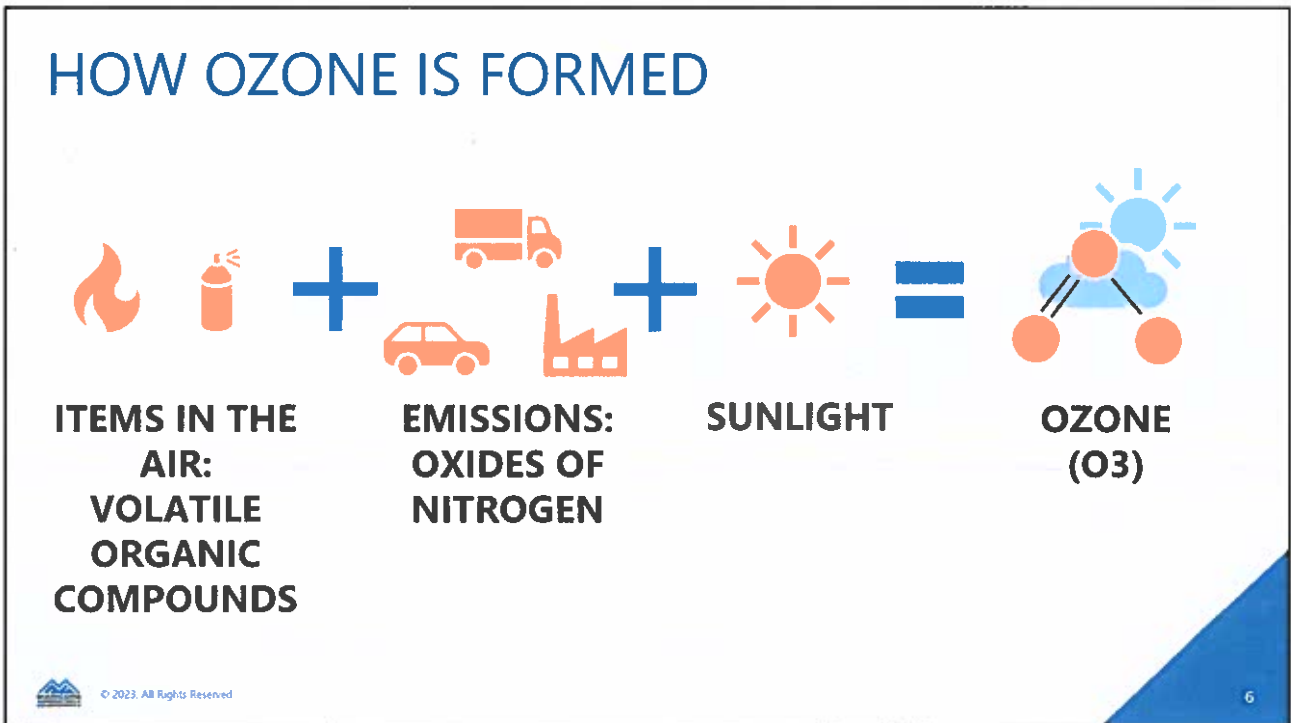
BACKGROUND

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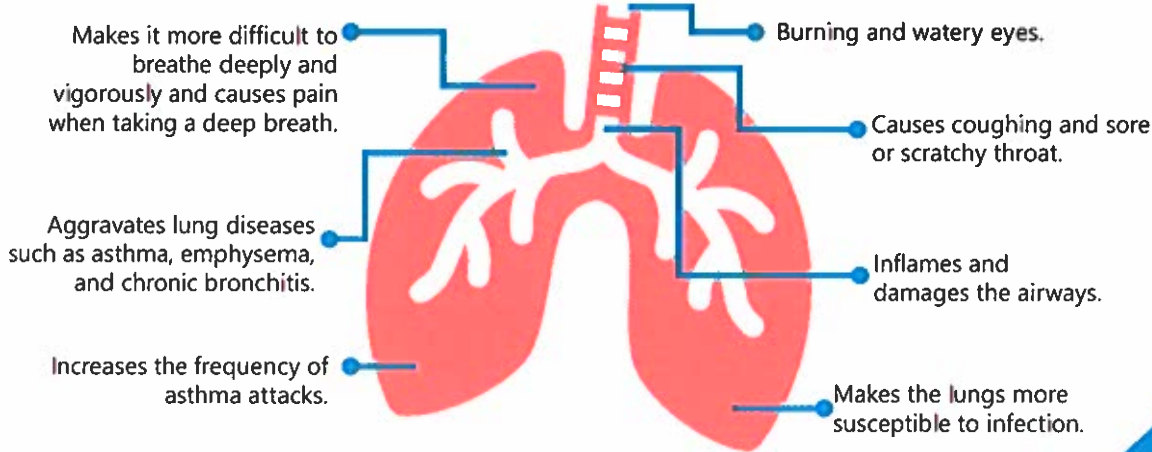


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PUBLIC HEALTH IMPACTS OF OZONE



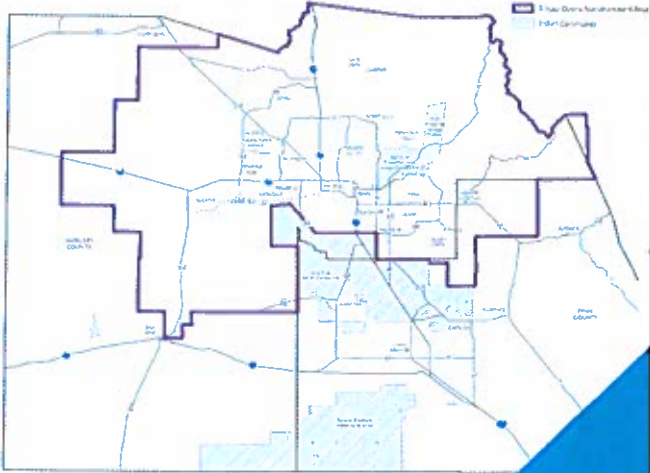
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CURRENT OZONE NONATTAINMENT STATUS

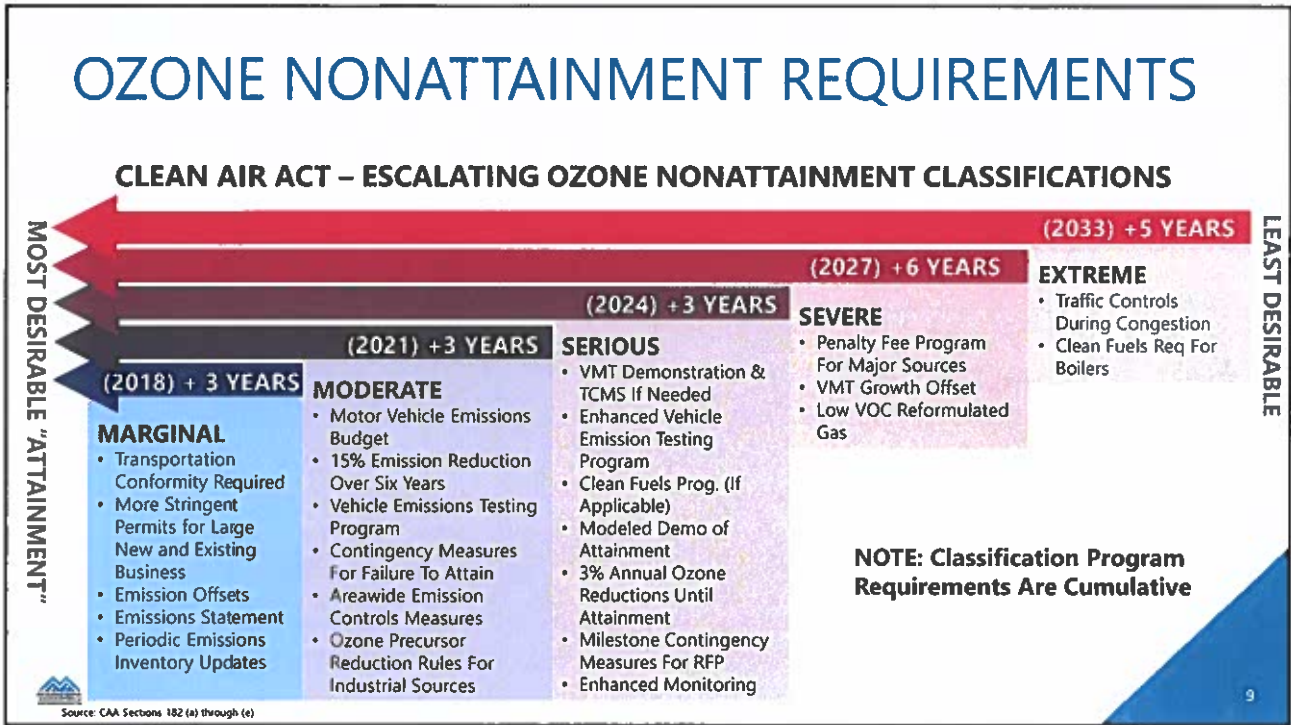
 Federal Standard	 Clean Air Act Nonattainment Designation	 2021	 2022*
70 ppb	Moderate	~75-80 ppb	~77-81 ppb ↑

*2022 ozone season wildfire influence still under analysis

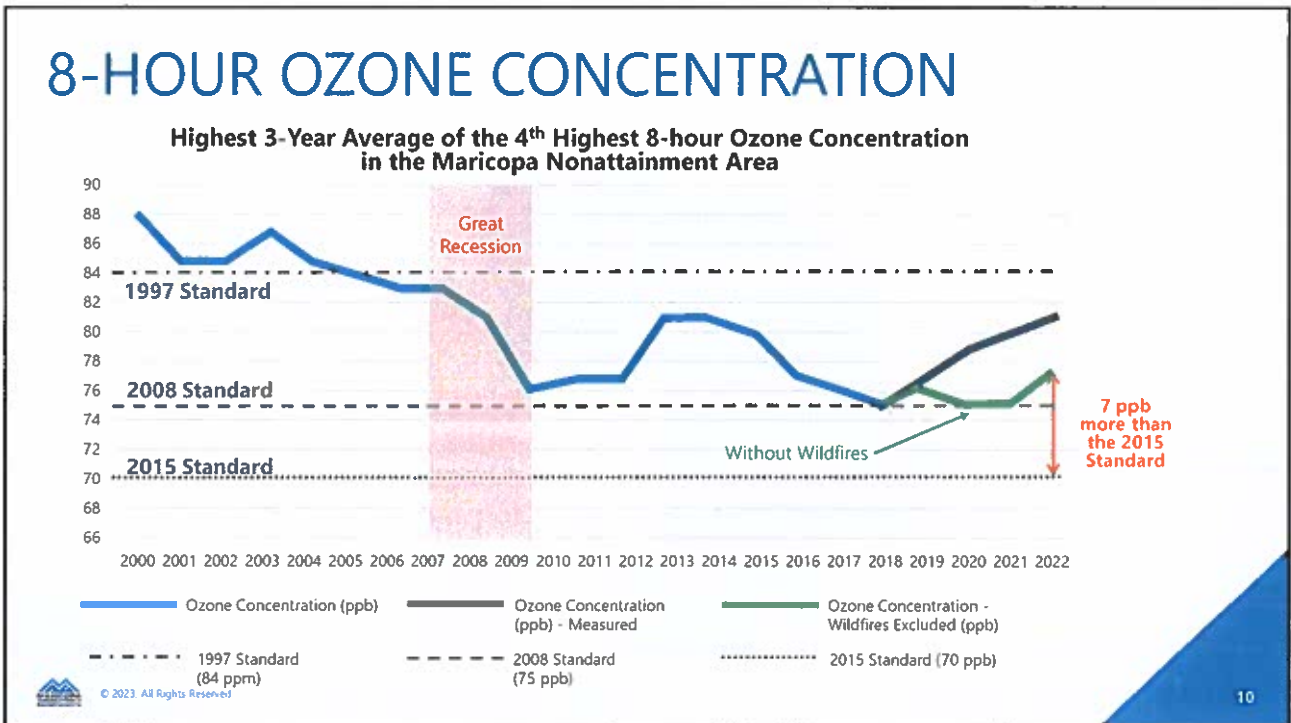


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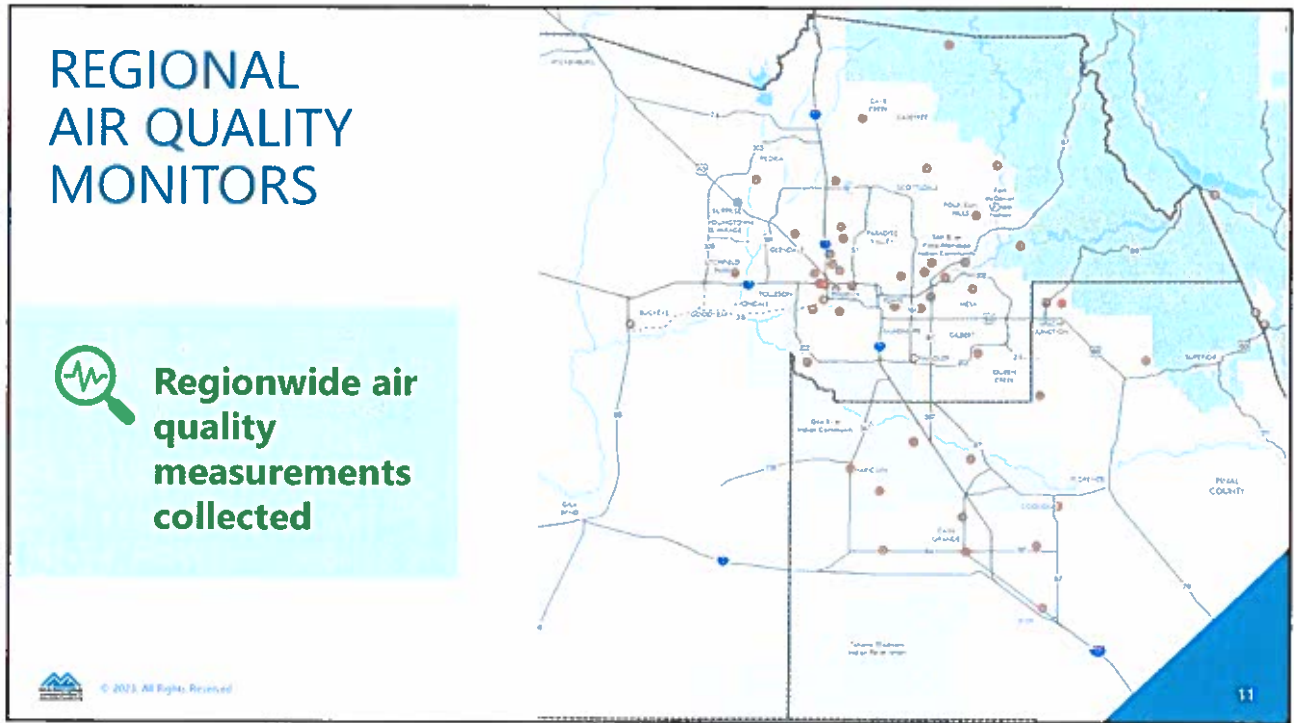
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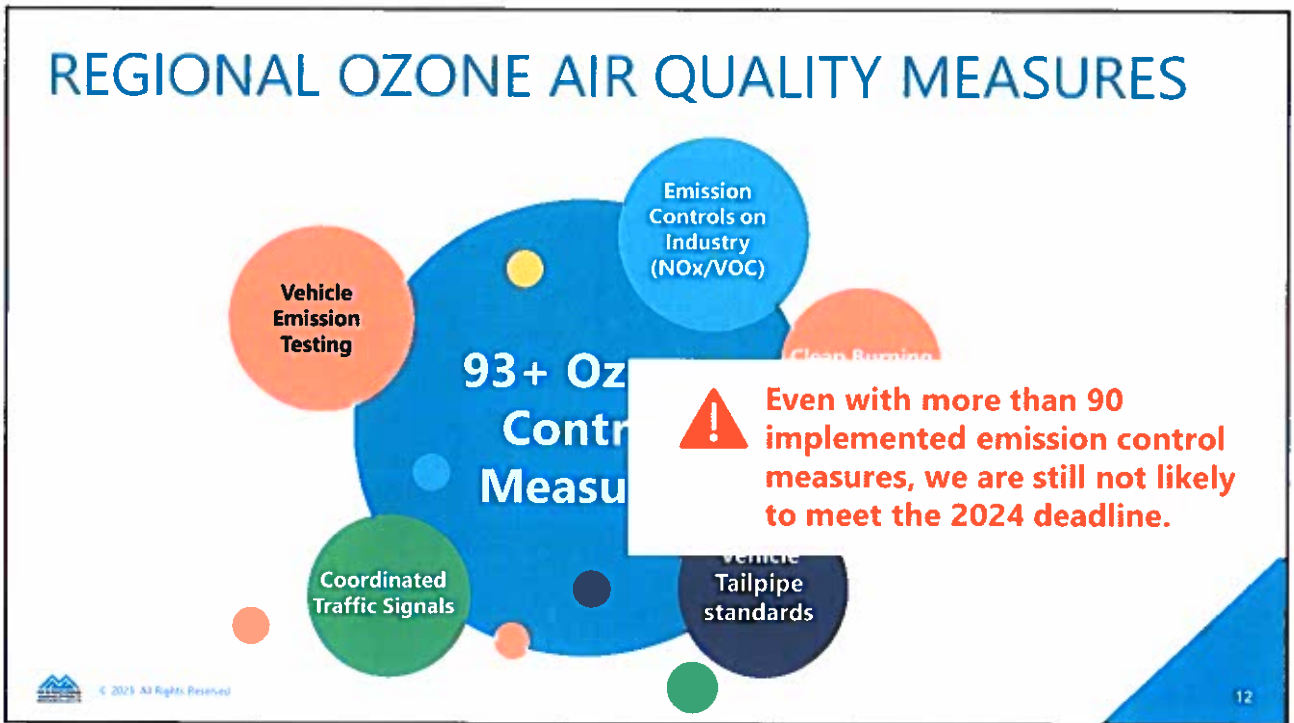
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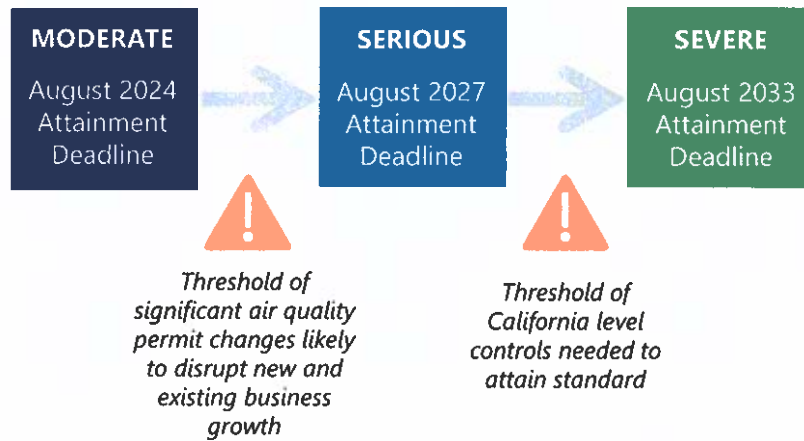


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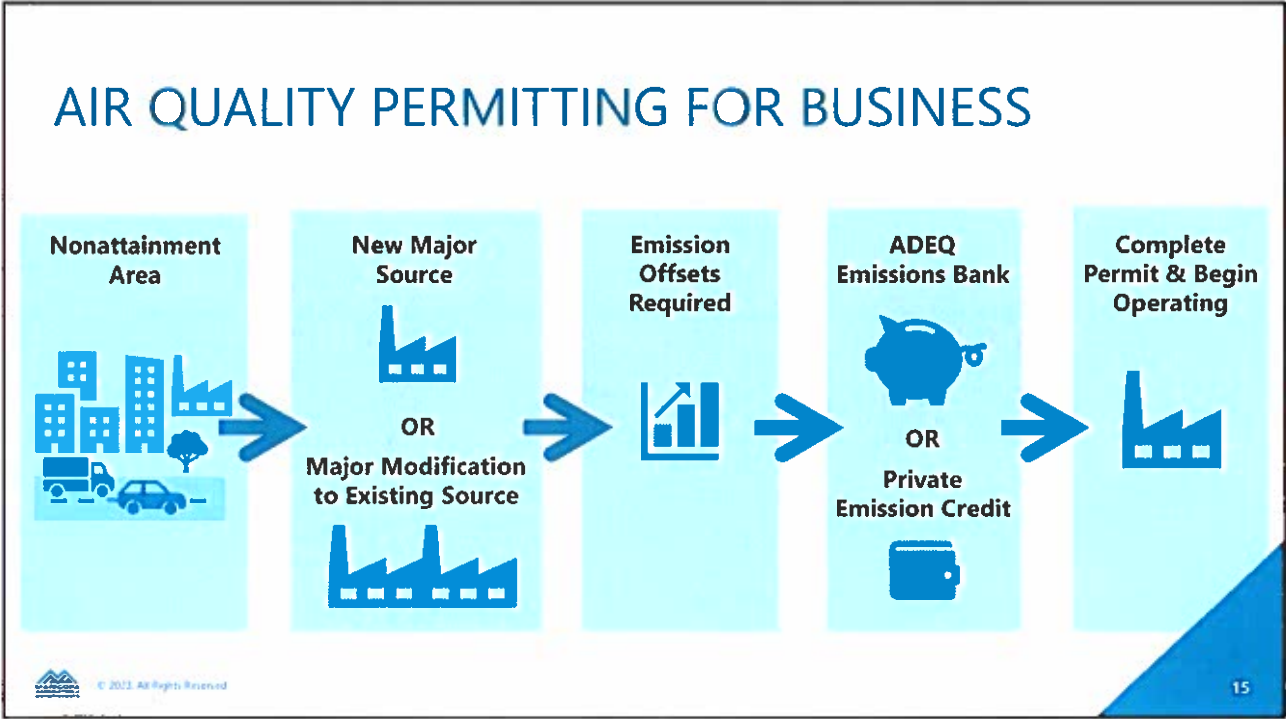


12

CURRENT OZONE ATTAINMENT DEADLINES



OZONE NONATTAINMENT: WHAT DOES IT MEAN FOR BUSINESS?



15

EMISSION OFFSETS GET MORE DIFFICULT

	MARGINAL	MODERATE	SERIOUS	SEVERE	EXTREME	
Major Source Threshold	100	100	50	25	10	Marginal to Moderate typically impacts <i>very large industry</i> sources: EGUs, microchip manufacturers, etc. Serious would impact <i>most industrial businesses</i> : concrete batch/hot mix asphalt, data centers, coating operations, etc.
Required Offset	110	115	60	32.5	15	
Major Modification Threshold	40	40	25	25		

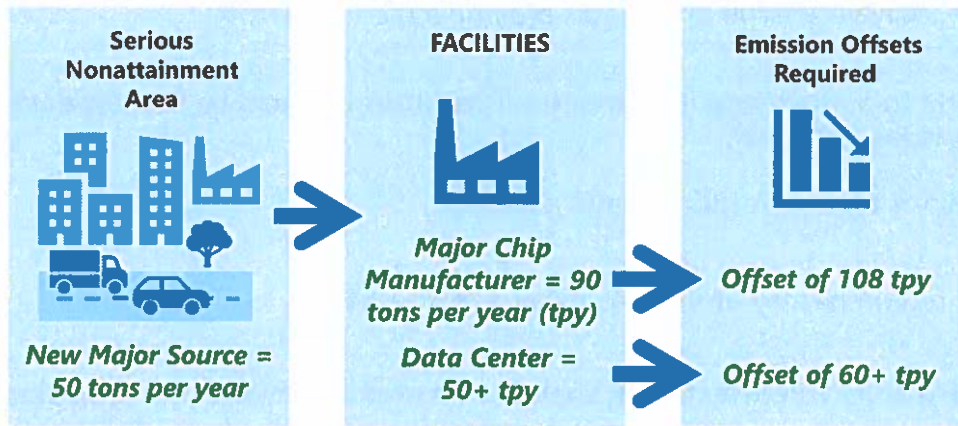
2024 Attainment Date

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LOCAL EMISSIONS OFFSET EXAMPLES

! THESE FACILITIES LIKELY DON'T GET BUILT IN SERIOUS NONATTAINMENT AREA



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AVAILABLE EMISSIONS OFFSETS IN REGION

Regional Ozone Offsets Available for Permitting

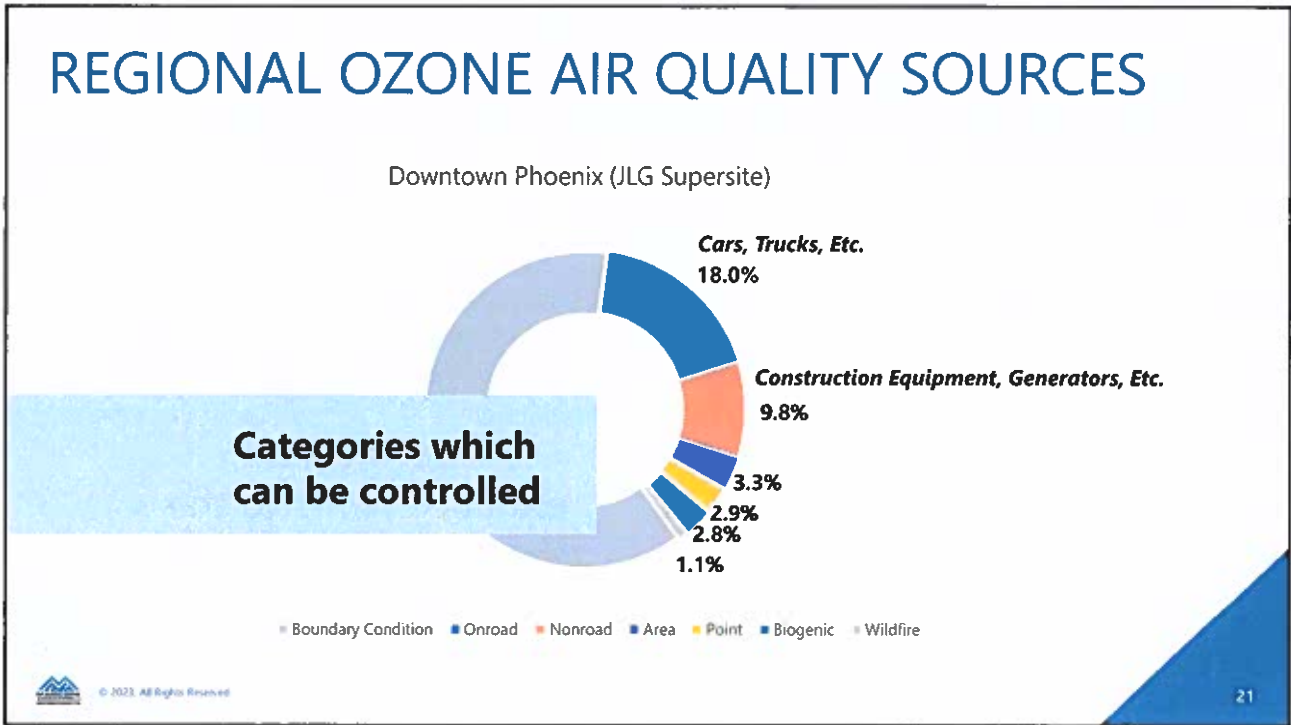


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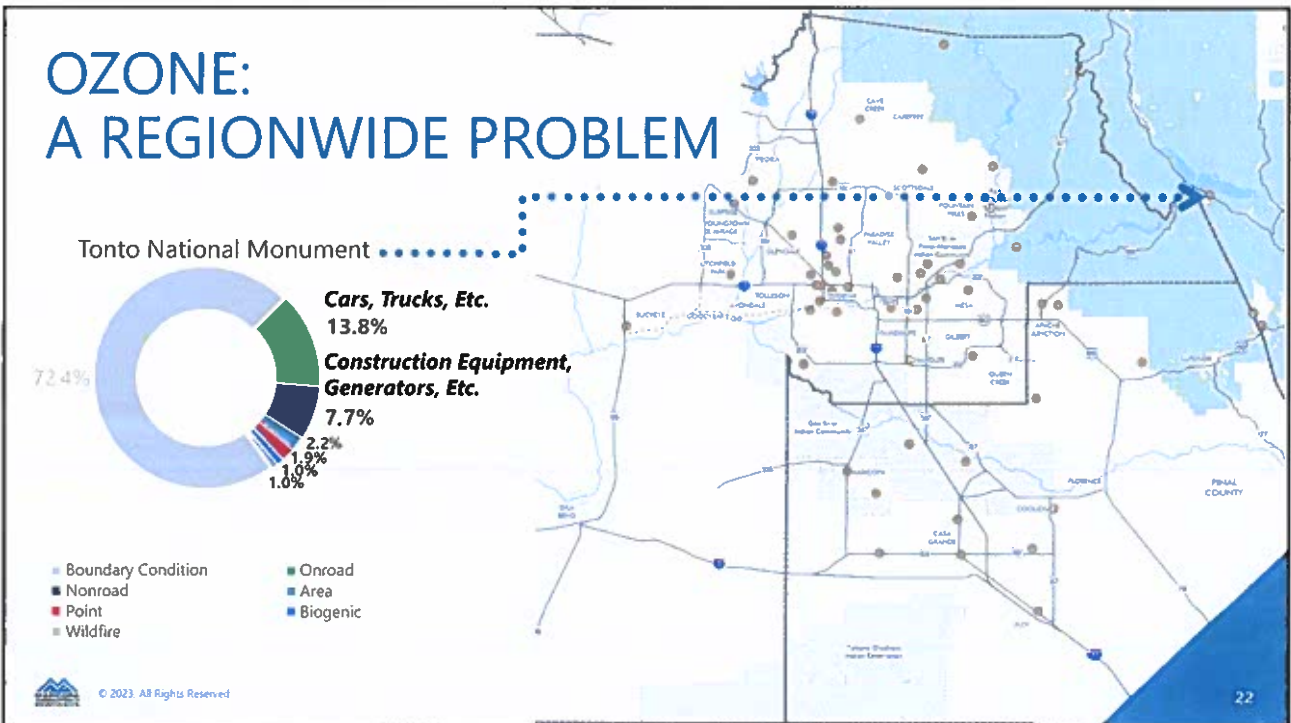
WHAT ARE THE BUSINESS IMPACTS OF MOVING FROM MODERATE TO SERIOUS?

- ▶ Today, only very large businesses are impacted (100+ tpy).
- ▶ Moving to Serious nonattainment will **result in impacts to most industrial businesses** (50+ tpy).
- ▶ Emissions **offsets requirements escalate**.
- ▶ MAG region has **no emissions offsets in the bank**.
- ▶ **Implications will affect new business locates and business expansion.**

ADDRESSING COMPLIANCE WITH THE OZONE STANDARD




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NEW CONTROL MEASURE CATEGORIES




AND



New regulatory requirements.

Investments/
enhancements to the
regional transportation
system.




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23

23

NEW CONTROL MEASURE CATEGORIES




AND



New regulatory requirements.

New regulatory requirements.



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OUR COMPETITIVE ADVANTAGE

These investments have become our region's economic competitive advantage.

Amongst our peers, we have the **lowest travel times and levels of congestion**, and the **highest travel time reliability**.



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URBAN MOBILITY REPORT TRAVEL TIME INDEX (TTI) INRIX DELAY COST PER DRIVER

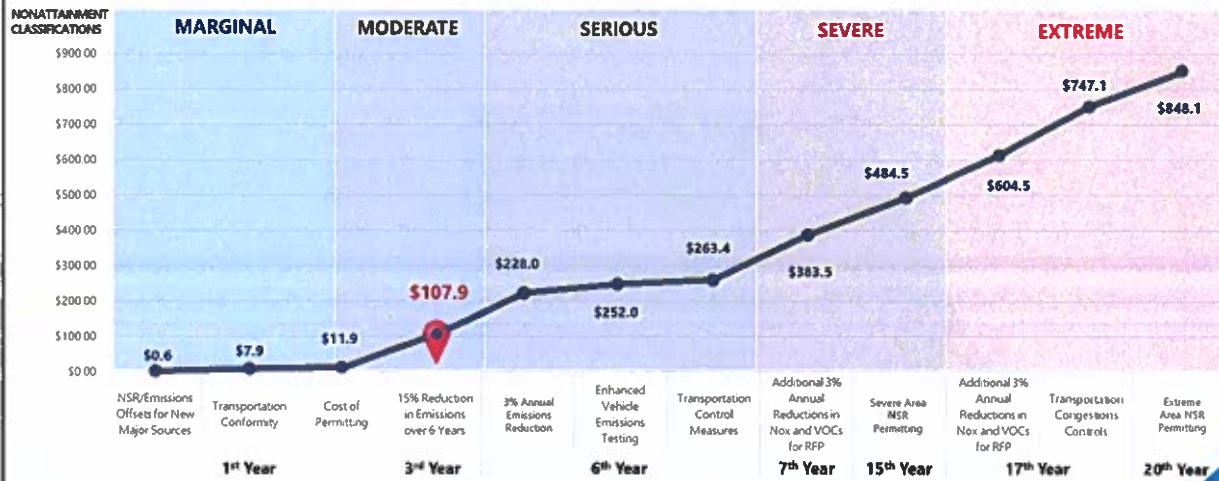
Rank	Urban Area	TTI	Rank	Urban Area	Cost
1	Phoenix, AZ	1.08	1	Phoenix, AZ	\$321
...
12	Houston, TX	1.15	20	Los Angeles	\$968
13	Los Angeles—Long Beach Anaheim, CA	1.16	21	Miami	\$1,028
14	San Francisco, CA	1.16	22	Boston	\$1,223

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OZONE NONATTAINMENT IS EXPENSIVE

Total Cumulative Annual Costs of Ozone Nonattainment (Millions)



Sources:
 "Potential Cost of Nonattainment in the San Antonio Metropolitan Area" - https://www.tnra.org/~/media/Files/11742/Coastal_302_15-01102_Deliverable_1-2_Cost_of_Air_Quality_Analysis_Final_2016.pdf
 "The Potential Cost of an Ozone Nonattainment Designation to Central Texas" - <http://www.epa.gov/epa/air/airquality/central-texas>
 "90-Day Review Background Paper" - <https://www.aaa.gov/sites/default/files/2021-08/90dayreviewbackgroundpaper.pdf>
 "Average Construction Cost for Selected Technology Types" - <https://www.aaa.gov/2018/08/01/average-construction-cost-for-selected-technology-types/>

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OZONE NONATTAINMENT IS EXPENSIVE



Corpus Christi: \$600 million-\$1.7 billion each year

Texas A&M/South Texas Economic Center May 2022 study shows a failure to meet the EPA ozone standards would result in significant permitting and economic impacts.



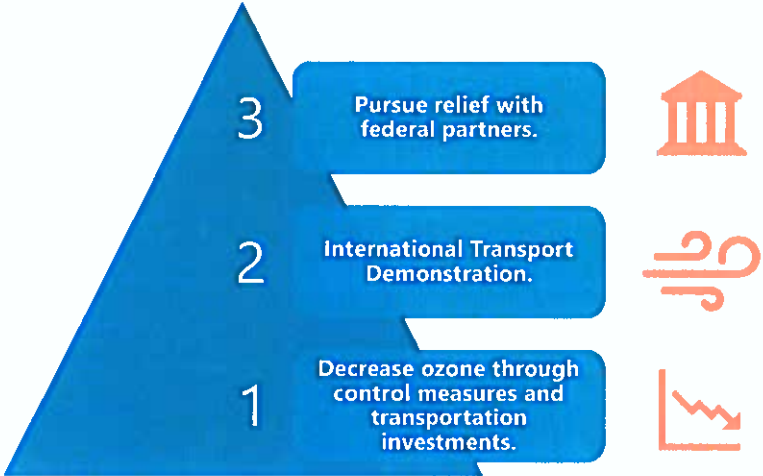
Oklahoma City – Shawnee Combined Statistical Area (CSA): \$9.6-\$15.2 billion over a 20- to 30-year period

Oklahoma City (ACOG) March 2022 study shows high cost for violation of federal air quality standards and ensuing federal regulatory requirements.


COSTS INCLUDE:


- Air quality permits & offsets.
- Increased unit cost per product or service.
- Stringent pollution controls.
- Impacted economic activity due to industrial and road construction delays.
- Missed business development opportunities.


MAG STRATEGY TO ADDRESS COMPLIANCE WITH OZONE STANDARD





**THE
BOTTOM LINE**

 The MAG region has been designated Moderate and is on a path to being **recategorized as Serious nonattainment for ozone.**

 **Ozone endangers public health and negatively impacts economic growth.**

 Roadway and transit investments included in the **Prop 400E plan are critical components of our region's air quality attainment plan.**

 Need meaningful areawide ozone emission reduction measures and federal engagement to avoid **federal intervention and sanctions.**

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APPENDIX B:

July 13, 2023

Agenda, Minutes, Presentations

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ARIZONA STATE LEGISLATURE

INTERIM MEETING NOTICE OPEN TO THE PUBLIC

JOINT LEGISLATIVE AD HOC STUDY COMMITTEE ON AIR QUALITY AND ENERGY

Date: Thursday, July 13, 2023

Time: 3:00 P.M.

Place: SHR 1

Members of the public may access a livestream of the meeting here:

<https://www.azleg.gov/videoplayer/?clientID=6361162879&eventID=2023071000>

AGENDA

1. Call to Order
2. Roll Call
3. Approval of Minutes
4. Presentations
 - Introduction to State Air Quality Planning – State Implementation Plan (SIP)
Daniel Czecholinski, CHMM, Director of the ADEQ Air Quality Division
 - Business Impacts of Air Quality Nonattainment
Danny Seiden, President & CEO Arizona Chamber of Commerce and Industry
5. Public Testimony
6. Adjournment

Members:

Senator Sine Kerr, Co-Chair
 Senator Frank Carroll
 Senator Denise "Mitzi" Epstein
 Senator Jake Hoffman
 Senator Priya Sundareshan

Representative Gail Griffin, Co-Chair
~~Representative Oscar De Los Santos~~
 Representative Timothy M. Dunn
 Representative Barbara Parker
~~Representative Austin Smith~~
 Representative Stephanie Stahl Hamilton
 Representative Anastasia "Stacey" Travers

07/07/2023
 07/10/2023
 07/11/2023
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ARIZONA STATE LEGISLATURE

JOINT LEGISLATIVE AD HOC STUDY COMMITTEE ON AIR QUALITY AND ENERGY

Minutes of the Meeting
July 13, 2023
3:00 P.M., SHR 1

Members of the public may access a livestream of the meeting here:

<https://www.azleg.gov/videoplayer/?clientID=6361162879&eventID=2023071000>

Members Present:

Senator Sine Kerr, Co-Chair
Senator Frank Carroll
Senator Denise "Mitzi" Epstein
Senator Priya Sundareshan

Representative Gail Griffin, Co-Chair
Representative Timothy Dunn
Representative Barbara Parker
Representative Stephanie Stahl Hamilton
Representative Anastasia "Stacey" Travers

Members Excused:

Senator Jake Hoffman

Staff:

Fausto Burruel, Senate Assistant Research Analyst
Emily Bonner, House Research Analyst
Blanca Santillan Ramos, House Assistant Research Analyst

Co-Chair Kerr called the meeting to order at 3:05 p.m. and attendance was noted.

APPROVAL OF MINUTES

Senator Kerr stated that if there are no corrections without objection, the Committee minutes of April 24, 2023 are approved as distributed.

PRESENTATIONS

Introduction to State Air Quality Planning – State Implementation Plan (SIP)

Daniel Czecholinski, Air Quality Division Director, Arizona Department of Environmental Quality, distributed and explained a PowerPoint presentation entitled "Introduction to State Air Quality Planning – State Implementation Plan (SIP)" (Attachment A) and answered questions posed by the Committee.

The Committee offered comments.

Business Impacts of Air Quality Nonattainment

Danny Seiden, President & CEO, Arizona Chamber of Commerce and Industry, distributed and explained a PowerPoint presentation entitled "Business Impacts of Air Quality Nonattainment" (Attachment B) and answered questions posed by the Committee.

The Committee offered comments.

PUBLIC TESTIMONY

Kathryn Atwood, representing self, gave her concerns on the air quality and energy of the state.

Nicole Morales, representing self, gave her concerns on the air quality and energy of the state.

Donie Bond, representing self, gave her concerns on the air quality and energy of the state.

Sandy Bahr, Chapter Director, Sierra Club Grand Canyon Chapter, gave her concerns of the air quality and energy of the state and distributed a letter dated July 13, 2023 (Attachment C).

The Committee offered comments.

Attached is a list noting the individuals who registered their positions on the agenda items (Attachment D).

Attached are forms noting the individuals who submitted a Speaker slip on the agenda items (Attachment E).

There being no further business, the meeting was adjourned at 5:14 p.m.

Respectfully submitted,

Brisa Roman
Committee Secretary

(Audio recordings and attachments are on file in the Secretary of the Senate's Office/Resource Center, Room 115. Audio archives are available at <http://www.azleg.gov>)

Introduction to State Air Quality Planning - State Implementation Plan (SIP)

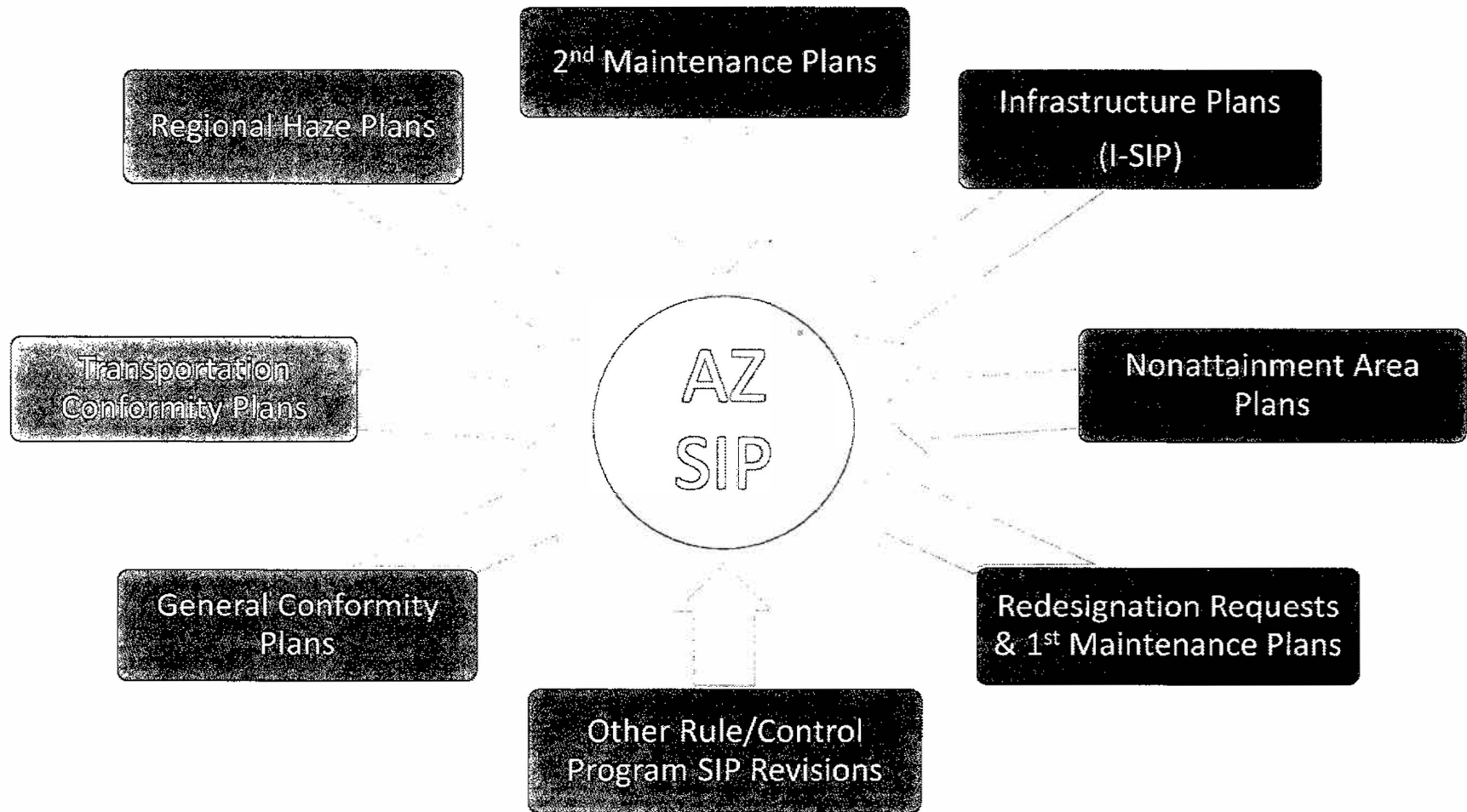
Ad Hoc Study Committee on Air Quality and Energy
July 13, 2023

Daniel Czecholinski, CHMM
Director, Air Quality Division



What is a SIP?

Only one Arizona SIP with many “chapters”



What is a SIP?

- State Implementation Plan (SIP)
 - *“Each State has a SIP containing the control measures and strategies attain and maintain the national ambient air quality standards (NAAQA) EPA”*
- SIP is continually revised (sections added, changed, or removed)
 - Revisions to the SIP are developed by States (and locals), and after a public hearing, submitted to EPA for approval through Federal rulemaking
 - After EPA approval, SIP revisions and associated control measures are enforceable at both the state and federal levels

- EPA compiles Federally-approved SIP
 - “The Federally-approved regulations, source-specific requirements, and nonregulatory provisions (entirely or part of) submitted by each state agency have been compiled by EPA into a “SIP compilation.” –EPA
- EPA approved plan for Arizona (applicable SIP) located in the Code of Federal Regulations at

Ambient Monitoring

Prepare Nonattainment Plan

Prepare I-SIPs

Prepare Maintenance Plan:

Prepare Nonattainment Plans

Conformity Budgets, Den

Prepare Maintenance Plans

Control Measures/Programs

Permits

Conformity SIPs

Conformity Consult and Budgets

Emissions Inventories

Boundary Recommendations

Adopt and Submit to EPA all SIP revisions

Ambient Monitoring

Transportation Conf

Emissions Inventories

Control Measures/Programs

Permits

Consult/Participate, Con

Consult on Transportation Conformity

Participate/Comment, Coi

Advise, Review, Act on Submittals

What is a SIP?

- State Implementation Plan (SIP)
 - *“Each State has a SIP containing the control measures and strategies attain and maintain the national ambient air quality standards (NAAQA) EPA*
- SIP is continually revised (sections added, changed, or removed)
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 - After EPA approval, SIP revisions and associated control measures are enforceable at both the state and federal levels

Where is the SIP?

- EPA compiles Federally-approved SIP
 - “The Federally-approved regulations, source-specific requirements, and nonregulatory provisions (entirely or part of) submitted by each state agency have been compiled by EPA into a “SIP compilation.” –EPA
- EPA approved plan for Arizona (applicable SIP) located in the Code of Federal Regulations at 40 CFR 52.120, “Identification Plan”

WHO DEVELOPS THE SIP?

Agency and Stakeholder Roles in SIP Development and Implementation

ADEQ

Ambient Monitoring

Prepare I-SIPs

Prepare Nonattainment Plans

Prepare Maintenance Plans

Control Measures/Programs

Permits

Conformity SIPs

Conformity Consult and Budgets

Emissions Inventories

Adopt and Submit to EPA all SIP revisions

Certified MPO (MAG, PA)

Prepare Nonattainment Plan

Prepare Maintenance Plan

Conformity Budgets, Den

Boundary Recommendations

Agency and Stakeholder Roles in SIP Development and Implementation

County Agencies (Maricopa, Pima, Pinal)

Ambient Monitoring

Emissions Inventories

Control Measures/Programs

Permits

Federal Highway Administration

Consult on Transportation Conformity

EPA

Advise, Review, Act on Submittals

ADOT

Transportation Conf

Local Political Subdivision and Federal Land Manag

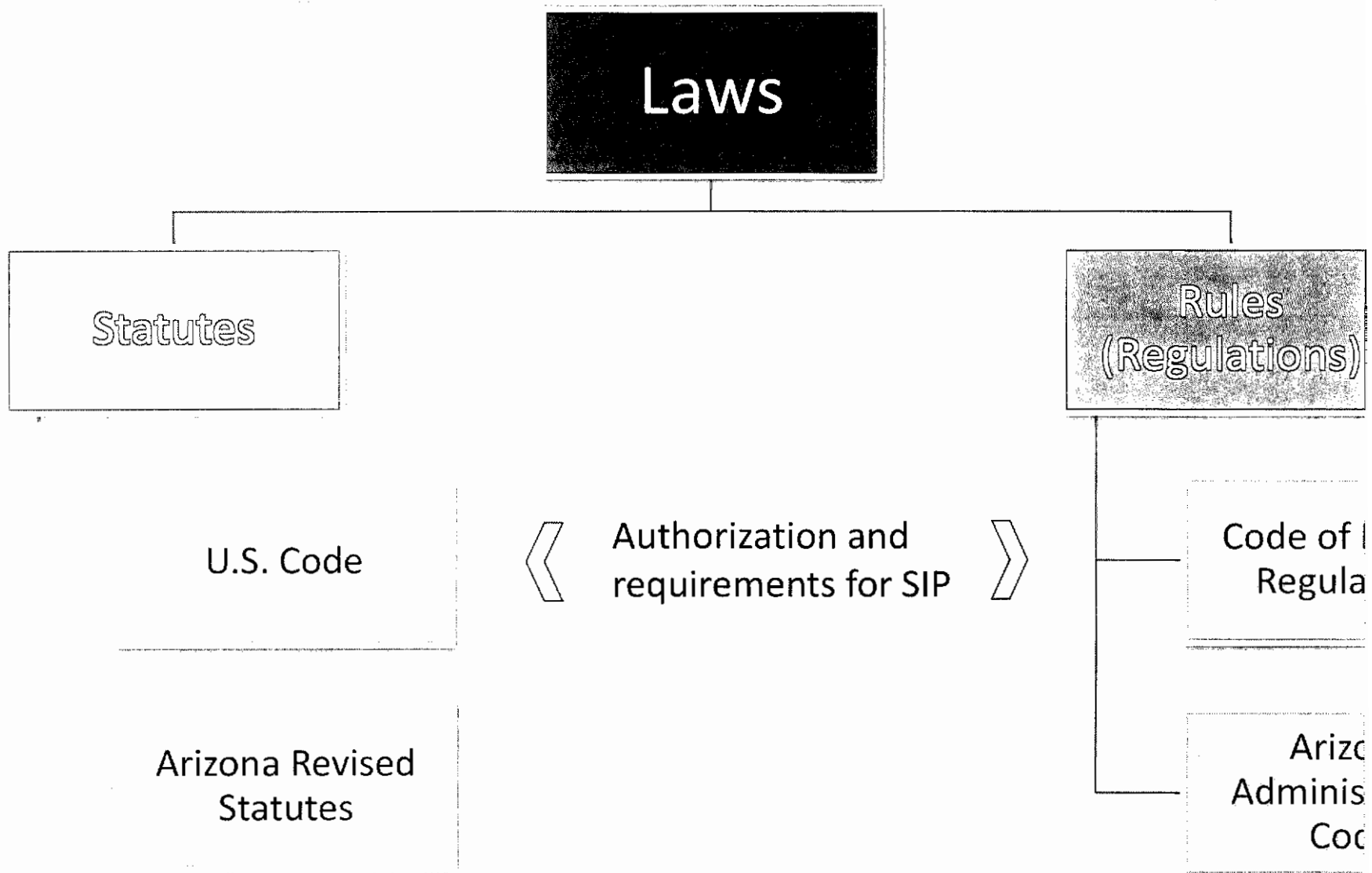
Consult/Participate, Con

Regulated Community and Other Stakeholders

Participate/Comment, Co

SIP REQUIREMENTS

Laws: Statutes and Rules



SIP Requirements – CAA and CFR, Cont'd

Clean Air Act, Title I

Part A

Air Quality & Emissions
Limitations

Part C

Prevention of Significant
Deterioration of Air Quality

Part D

Plan Requirements
Nonattainment Areas

NAAQS

Boundary Designations

Redesignations

Infrastructure SIPs

EPAs SIP Approval Actions

PSD (permitting program)

Nonattainment

Maintenance

Control Program

Transportation/Gen

Nonattainment NSR (p

SIP DEVELOPMENT TIMELINE

SIP Development Timeline for New or Revised NAAQS

- The following is a “Typical” SIP development scenario

Step 1. EPA proposes then finalizes new NAAQS

Step 2. Boundary Designations (identify areas as meeting [attainment] or not meeting [nonattainment] new NAAQS)

- State designation recommendation due within 1 year after new NAAQS
- EPA decision 2 years after new NAAQS

Step 3. Infrastructure SIP

- Due 3 years after promulgation of new NAAQS

SIP Development Timeline for New or Revised NAAQS, Cont'd

- If there are nonattainment areas

Step 4. Nonattainment Area SIP(s)

- State submittal required generally within 18-36 months after nonattainment (depends on pollutant and classification of area)

Step 5. Attain the NAAQS (nonattainment areas)

- Attainment required generally within 3-20 years after nonattainment design (depends on pollutant and classification of area)

Step 6. Redesignation to attainment request and 1st maintenance plan (nonattainment areas)

- No deadline (state discretion to submit)

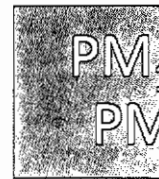
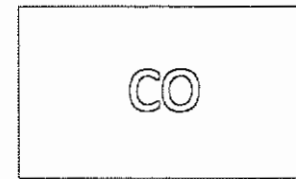
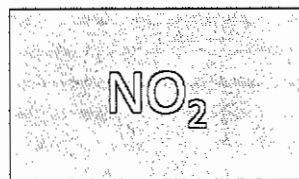
Step 7. 2nd maintenance plan

- Due 8 years after redesignation of nonattainment area to attainment

NATIONAL AMBIENT AIR QUALITY STANDARD

CAA Title I, Part A - NAAQS

- EPA establishes new or revises current NAAQS – CAA § 109
 - Current NAAQS for 6 pollutants (also called “criteria” air pollutants)



- Primary and Secondary NAAQS
 - Primary NAAQS: protection of human health
 - Secondary NAAQS: protection of human welfare (e.g., damage to animals, crops, vegetation, and buildings)
- EPA required to review NAAQS every 5 years to determine if changes needed based on current scientific research

CAA Title I, Part A - NAAQS

Pollutant	Primary/Secondary	Averaging Time	Level ("exceedance")	Form ("violation")
Carbon Monoxide (CO)	primary	8 hours	9 ppm	Not to be exceeded more
		1 hour	35 ppm	
Lead (Pb)	primary and secondary	Rolling 3 month average	0.15 µg/m ³	Not to be exceeded
Nitrogen Dioxide (NO ₂)	primary	1 hour	100 ppb	98th percentile of 1-hour concentrations, averaged
	primary and secondary	1 year	53 ppb	Annual Mean
Ozone (O ₃)	primary and secondary	8 hours	0.070 ppm	Annual fourth-highest dai concentration, averaged c
	primary	1 year	12.0 µg/m ³	annual mean, averaged ov
Particle Pollution (PM)	secondary	1 year	15.0 µg/m ³	annual mean, averaged ov
		24 hours	35 µg/m ³	98th percentile, averaged
	primary and secondary	24 hours	150 µg/m ³	Not to be exceeded more average over 3 years
		24 hours	150 µg/m ³	99th percentile of 1-hour concentrations, averaged
Sulfur Dioxide (SO ₂)	primary	1 hour	75 ppb	99th percentile of 1-hour concentrations, averaged
	secondary	3 hours	0.5 ppm	Not to be exceeded more

SIP Development Example

PREPARING A NONATTAINMENT AREA SIP REVISION

Subpart 1

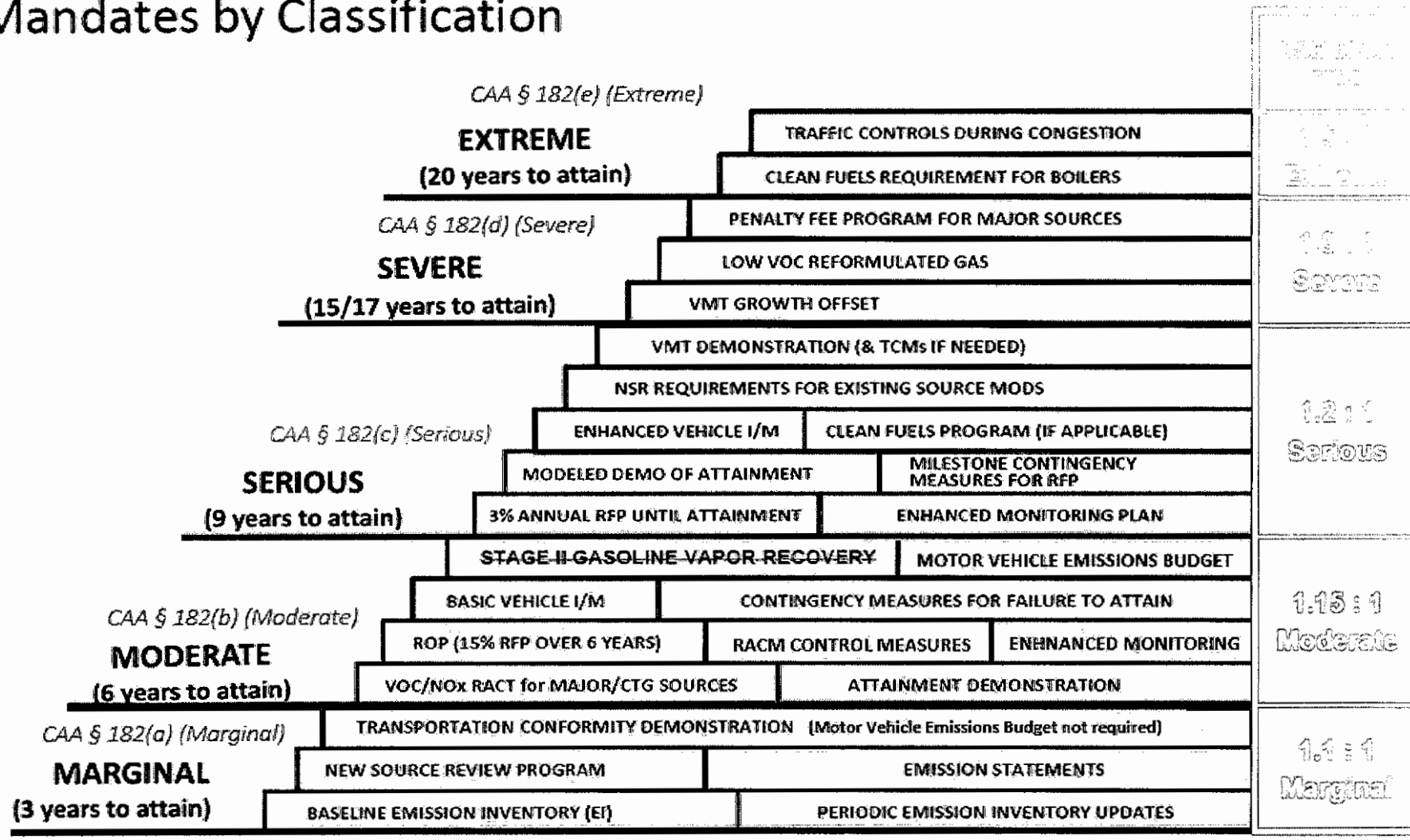
- Subpart 1, Nonattainment Areas in General
 - CAA 172(c) nonattainment plan provisions:
 - Reasonably Available Control Measures (RACM) & shall provide for attainment of NAAQS
 - Reasonable Further Progress (RFP)
 - Inventory (Emissions Inventory)
 - Identification and Quantification
 - Permits for New and Modified Stationary Sources (nonattainment)
 - Enforceable Emissions Limits and Other Control Measures
 - Compliance with Section 110(a)(2) (infrastructure SIP)
 - Equivalent Techniques (modeling, EI, etc.)
 - Contingency Measures

Subpart 1 cont'd

- CAA 176(c) – Transportation & General Conformity
 - Transportation conformity is used to ensure that any federally funded transportation plan, program, or project does not interfere with a state's ability to attain or maintain the NAAQS
 - Similar to Transportation Conformity, which applies to highways and transit projects, General Conformity is applicable to all other federally supported activities to ensure that the actions taken by federal agencies in nonattainment and maintenance areas do not interfere with a state's plans to meet national air quality standards

CAA Part D Subpart 2 - Ozone

Overview of CAA Ozone Nonattainment Area Planning & Control Mandates by Classification



Attain the NAAQS

- Determination of attainment as of attainment date
 - Also known as a “finding of attainment as of attainment date”
 - EPA required to make formal determination within 6 months of statutory attainment date
 - Generally verified by ambient monitoring network data
- Consequences for failure to attain may include
 - New SIP due (9-18 months)
 - New attainment date
 - Bump up to next highest classification (e.g., ozone, CO, PM)
 - New (more stringent) control measures
 - New annual rate of progress (emissions reduction) plans

CAA Title I, Part A – EPA SIP Actions

- Sanctions [CAA 110(m), 179(a) and (b)]
 - Reasons for sanctions (starts sanctions clock)
 - Failure to submit SIP, a SIP element, or submits an incomplete SIP or SI for a nonattainment area
 - EPA disapproval of SIP or SIP element for a nonattainment area
 - State has failed to make any other required submission including an ad maintenance plan or that EPA disapproves submission
 - Failure to implement approved plan
 - Types of sanctions
 - Highway funding
 - Offsets
 - Sanctions clock
 - 18 months → one sanction applied
 - 24 months → both sanctions applied
 - Approval of state correction stops clock

Business Impacts of Air Quality Nonattainment

Joint Legislative Ad Hoc Study Committee on Air Quality & Energy
July 13, 2023

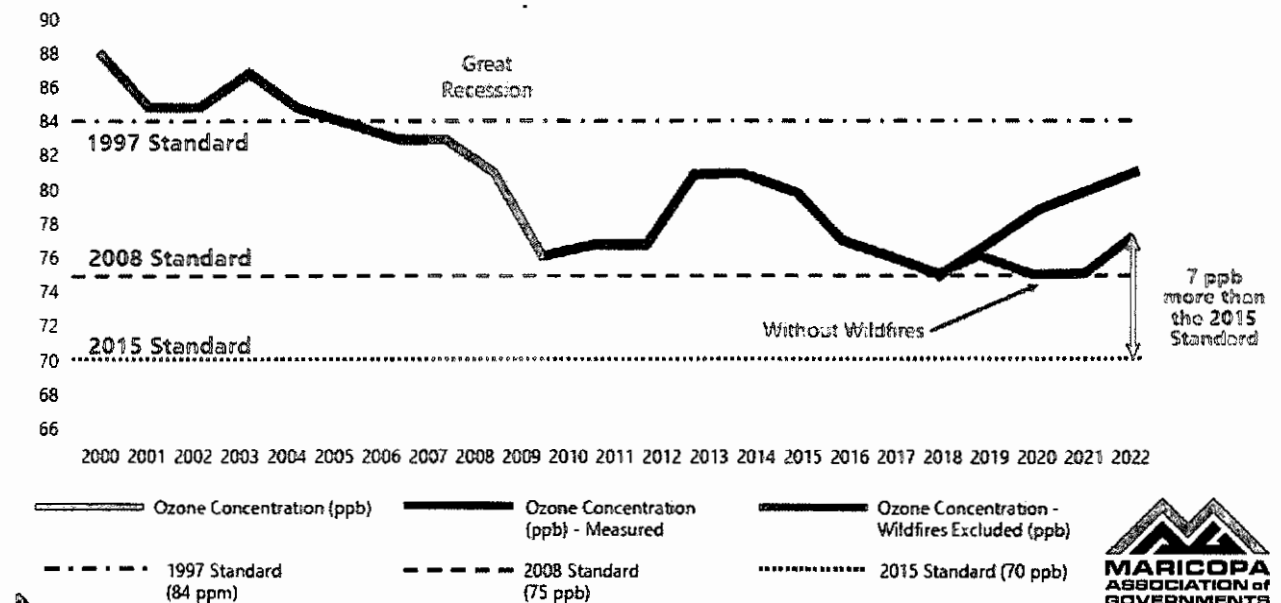
Danny Seiden
President & CEO

- How we got here.
- Current nonattainment status.
- Why this matters to business.
- What can be done & will anything we do solve the larger problem?
- How we move forward.

History

Clean Air Act & EPA Standards

- Established by Congress, the Clean Air Act of 1970 was passed to protect public health and welfare from air pollution caused by a diverse array of sources.
- Requires the EPA to set National Ambient Air Quality Standards (NAAQS) for six common air pollutants including ground-level ozone.



Background

Current Nonattainment Status

- Current Nonattainment Designation: **SEVERE**
- Federal Standard: **70 ppb**
- 2022 approximately **77-81 ppb**
- August 2024 Attainment Deadline: would have to close approximately a **70 ppb** (unattainable at this point)

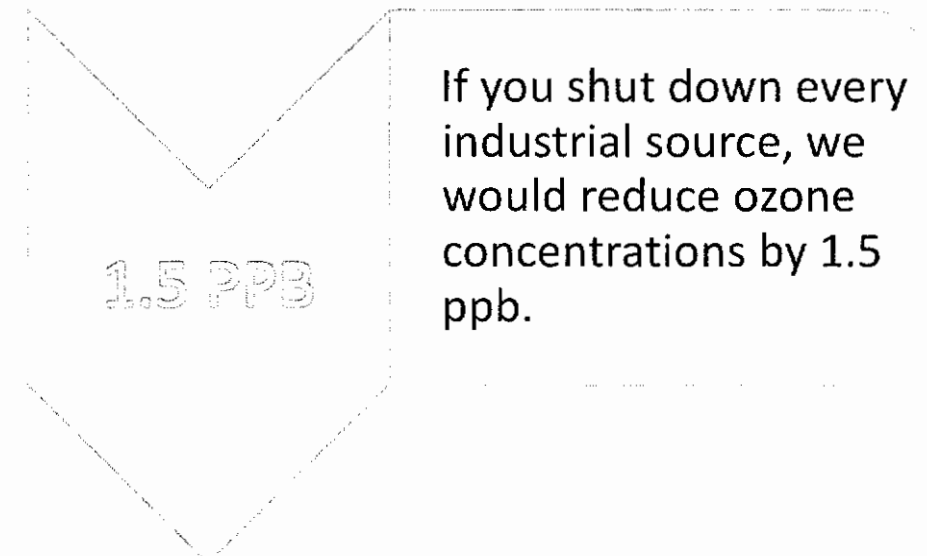
 On track to move to **SERIOUS**



Impact to Business

Economic Impacts of "serious" designation

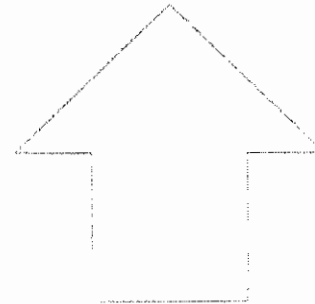
- Most industrial businesses will be impacted.
- Will affect new businesses coming into Arizona & current business expansions.
- The requirements for emission offsets escalate.
- The problem: Maricopa has **ZERO regional offsets** available.



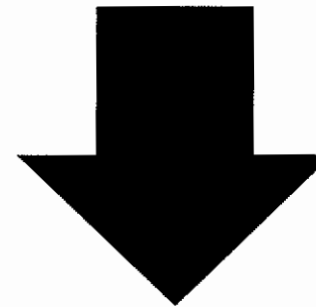
What can be done?

Short term relief needed, but the problem remains

- Business have and will continue to be good community stewards, implementing controls and policies to provide “band aid” fixes.
- EPA rule request for nontraditional emission offsets (under EPA review since 2019).
- Modify international transport requirements.
- Good neighbor provision to allow for regional offsets.



Population in the Phoenix area experienced an increase of 1.6 million people between 2000 and 2020. Local ozone precursor emissions (NO_x, VOC) decreased by 50 percent between 2011 and 2020.



Ozone design values (how you determine compliance with the Clean Air Act) decreased by 13 parts per billion between 2000-2020.

However, the average level of ozone in the region has increased by approximately 2 parts per billion since 2020.

Will short term fixes solve the problem?

Short answer, NO.

- Too much is out of our control.
- All reasonable reduction measures have been implemented.
- Over the past 20 years MAG and the business community have worked with EPA to implement 93 control measures.
- EPA has suggested zero emission vehicles could be a solution. However, MAG modeling shows that *the only way to meet the current ozone standard is to have a 100% zero emission vehicle fleet for the current designation.*

Policy Relief & Leadership Needed

EPA holds all the cards

- Unrealistic, unreasonable & expensive measures won't solve the problem.
- If Congress & the Administration want to achieve goals in onshoring manufacturing, ensuring a local supply chain and protecting national security interests – EPA needs to stop moving the goal posts & leadership must be taken for ozone attainment.
- This is not just an Arizona problem, but the entire Western region.

80%

of our ozone originates from outside the Phoenix-Mesa nonattainment area including more than 50% of CA and 40% of our ozone originates from the Colorado & other Western nonattainment areas.

Key Takeaways

1. There is no silver bullet to solving ozone.
2. We've exhausted all realistic control measures.
3. EPA/Congress must act.
4. EPA cannot keep lowering the goal posts. While the states are still trying to comply with the 2015 requirements there could be a scenario where attainment is not being achieved.

Year	Standard
1997	84 ppm
2008	75 ppb
2015	70 ppb

Future standard on the horizon?

1,080 EPA monitors throughout the country

@ 60 ppb approximately 70% would be in nonattainment

@ 55 ppb approximately 94% would be in nonattainment

Questions?

APPENDIX C:

August 9, 2023

Agenda, Minutes, Presentations

Interim agendas can be obtained via the Internet at <http://www.azleg.gov/Interim-Committees>

ARIZONA STATE LEGISLATURE

INTERIM MEETING NOTICE OPEN TO THE PUBLIC

JOINT LEGISLATIVE AD HOC STUDY COMMITTEE ON AIR QUALITY AND ENERGY

Date: Wednesday, August 9, 2023

Time: 3:30 P.M.

Place: SHR 1

Members of the public may access a livestream of the meeting here:

<https://www.azleg.gov/videoplayer/?clientID=6361162879&eventID=2023081001>

AGENDA

1. Call to Order
2. Roll Call
3. Approval of Minutes
4. Presentations
 - Background Ozone Impacts on the Phoenix-Mesa Ozone Nonattainment Area
Tim Franquist, Environmental Director, Maricopa Association of Governments
 - Arizona and Federal Overview of Background Ozone
Amanda Reeve, Environmental & Regulatory Policy Advisor, Snell & Wilmer
5. Public Testimony
6. Adjournment

Members:

Senator Sine Kerr, Co-Chair
 Senator Frank Carroll
 Senator Denise "Mitzi" Epstein
 Senator Jake Hoffman
 → Senator Juan Mendez
 → ~~Senator Priya Sundareshan~~

Representative Gail Griffin, Co-Chair
 Representative Michael Carbone →
~~Representative Oscar De Los Santos~~ →
 Representative Timothy M Dunn
 Representative Mariana Sandoval →
~~Representative Austin Smith~~ ←
 Representative Anastasia "Stacey" Travers

~~08/03/2023~~
~~08/08/2023~~
 08/09/2023
 sa
 hf

For questions regarding this agenda, please contact Senate Research Department.
 Persons with a disability may request a reasonable accommodation such as a sign language interpreter, by contacting the Senate Secretary's Office: (602) 926-4231 (voice). Requests should be made as early as possible to allow time to arrange the accommodation.

ARIZONA STATE LEGISLATURE

JOINT LEGISLATIVE AD HOC STUDY COMMITTEE ON AIR QUALITY AND ENERGY

Minutes of the Meeting
August 9, 2023
3:30 P.M., SHR 1

Members of the public may access a livestream of the meeting here:

<https://www.azleg.gov/videoplayer/?clientID=6361162879&eventID=2023081001>

Members Present:

Senator Sine Kerr, Co-Chair
Senator Frank Carroll
Senator Denise "Mitzi" Epstein

Representative Gail Griffin, Co-Chair
Representative Michael Carbone
Representative Timothy M. Dunn
Representative Mariana Sandoval
Representative Anastasia "Stacey" Travers

Members Excused:

Senator Jake Hoffman
Senator Juan Mendez

Staff:

Fausto Burruel, Senate Assistant Research Analyst
Emily Bonner, House Research Analyst
Blanca Santillan Ramos, House Assistant Research Analyst

Co-Chair Kerr called the meeting to order at 3:37 p.m. and attendance was noted.

APPROVAL OF MINUTES

Senator Kerr stated that if there are no corrections without objection, the Committee minutes of July 13, 2023 are approved as distributed.

PRESENTATIONS

Background Ozone Impacts on the Phoenix-Mesa Ozone Nonattainment Area

Tim Franquist, Environmental Director, Maricopa Association of Governments, gave an overview on the background ozone impacts on the Phoenix-Mesa ozone nonattainment area and answered questions posed by the Committee.

The Committee offered comments.

Arizona and Federal Overview of Background Ozone

Amanda Reeve, Environmental and Regulatory Policy Advisor, Snell & Wilmer, distributed and explained a PowerPoint presentation entitled "Arizona & Federal Overview of Background Ozone" (Attachment A) and answered questions posed by the Committee.

PUBLIC TESTIMONY

Jeff Caldwell, representing self, stated his concerns with the air quality in the Phoenix-Mesa area.

Merissa Hamilton, representing self, stated her concerns with the air quality in the Phoenix-Mesa area.

Joanna Strother, Senior Director, American Lung Association in Arizona, stated her concerns with the air quality in the Phoenix-Mesa area.

Attached is a list noting the individuals who registered their positions on the agenda items (Attachment B).

Attached are forms noting the individuals who submitted a Speaker slip on the agenda items (Attachment C).

There being no further business, the meeting was adjourned at 5:20 p.m.

Respectfully submitted,

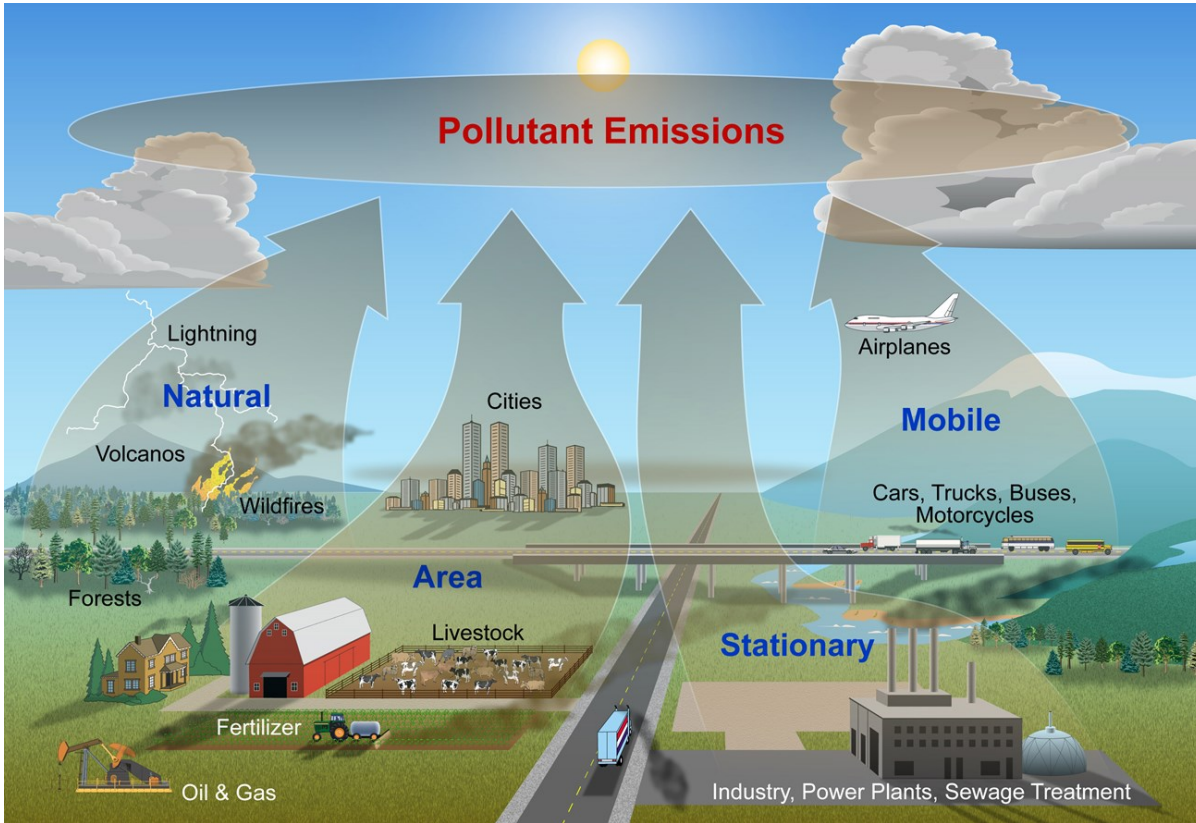
Brisa Roman
Committee Secretary

(Audio recordings and attachments are on file in the Secretary of the Senate's Office/Resource Center, Room 115. Audio archives are available at <http://www.azleg.gov>)

Arizona & Federal Overview of Background Ozone

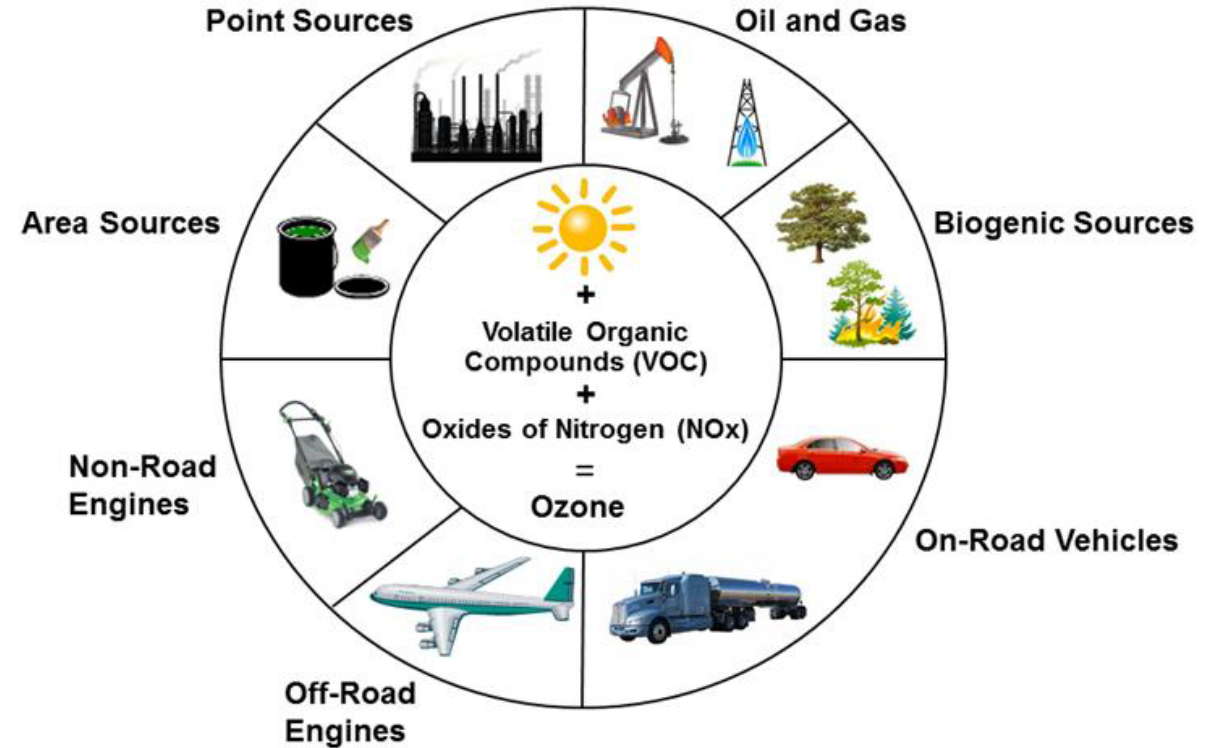
Wednesday, August 9, 2023

Understanding Ozone



Source: [Where Does Air Pollution Come From? - Air](https://www.nps.gov/learn/understand/where-does-air-pollution-come-from/) (U.S. National Park Service) (nps.gov)

OZONE FORMATION



Optimum conditions for the formation of ozone include high temperatures and low winds. Sections are not to scale and are for illustrative purposes only.

Source: North Central Texas Council of Governments, Ozone Formation, <https://www.nctcog.org/trans/quality/air/ozone/ozoneinformation>.

Understanding Background Ozone

- Natural Background (“NB”)
 - The ozone that would exist in the absence of any manmade ozone precursor emissions.
- North American Background (“NAB”)
 - That ozone that would exist in the absence of any manmade ozone precursor from North America (Canada, U.S., Mexico)
- United States Background (“USB”)
 - That ozone that would exist in the absence of any manmade emissions inside the U.S.

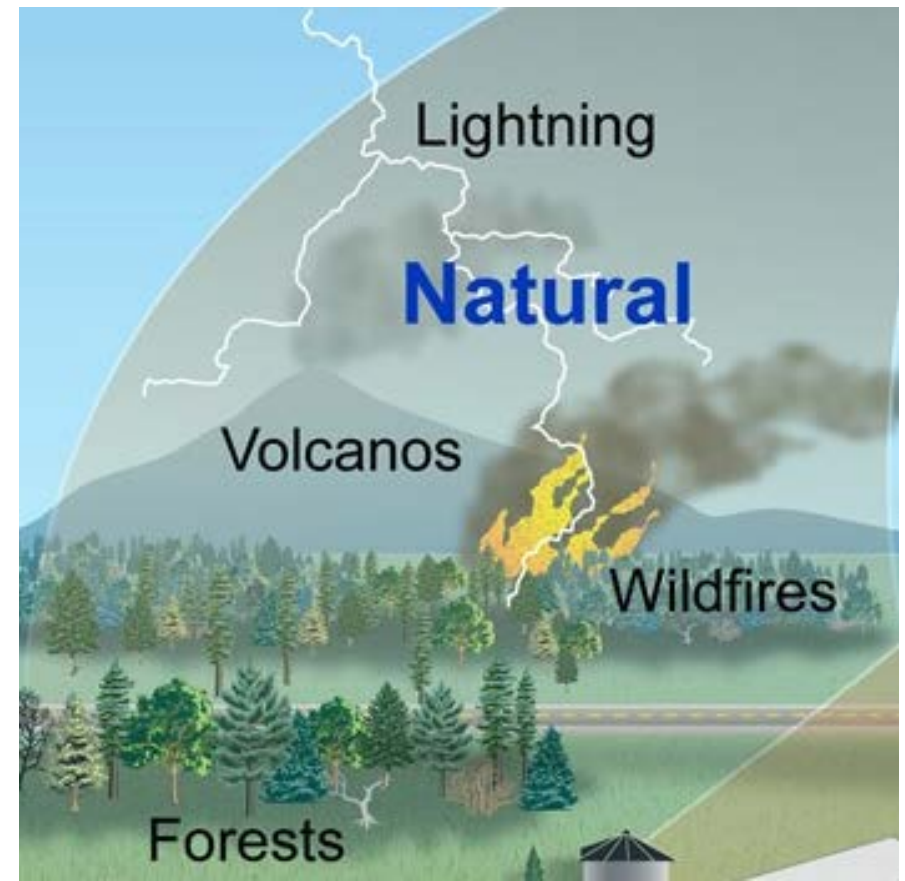
(Source: Environmental Protection Agency. National Ambient Air Quality Standards for Ozone Proposed Rule. 79 FR 75234, 75382. December 17, 2014.)

Natural Background Ozone

- Vegetation
- Soils
- Volcanic
- Sea salt
- Lightning
- Wildfires
- Stratospheric Intrusion
- Biogenic emissions of methane (“global methane/CH₄”)



Bob Nichols / USDA / ABC15 Arizona / YouTube



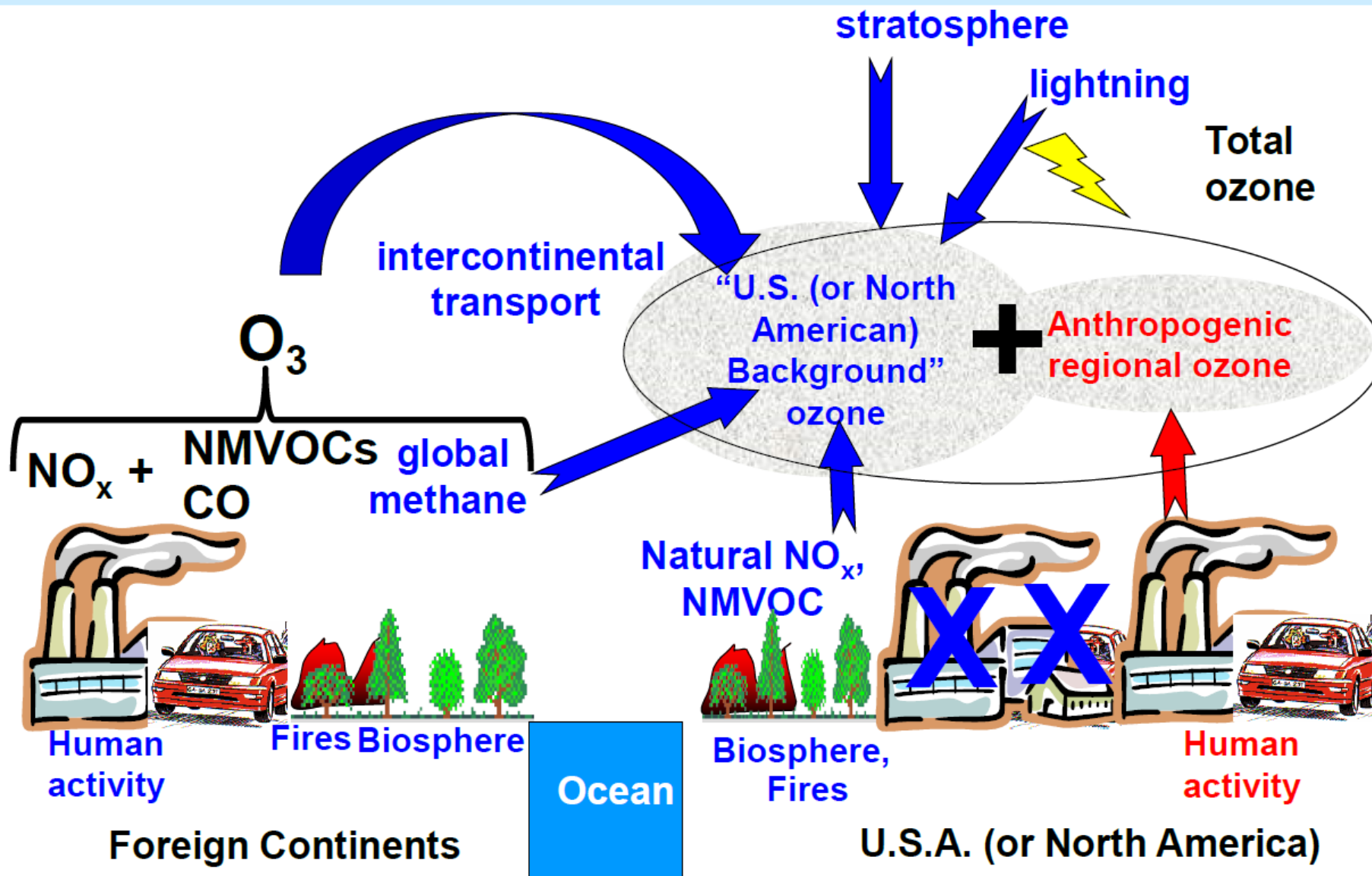
Lightning strikes over the East Valley as a monsoon storm approaches Phoenix on July 22, 2019.

Michael Chow/The Republic



Sea spray aerosol was thought for a long time to be just salt – sodium chloride – and that’s not true. Credit: pxhere

**Total O₃ in surface air over the U.S.A. =
 "U.S. Background O₃" + Anthropogenic regional O₃**



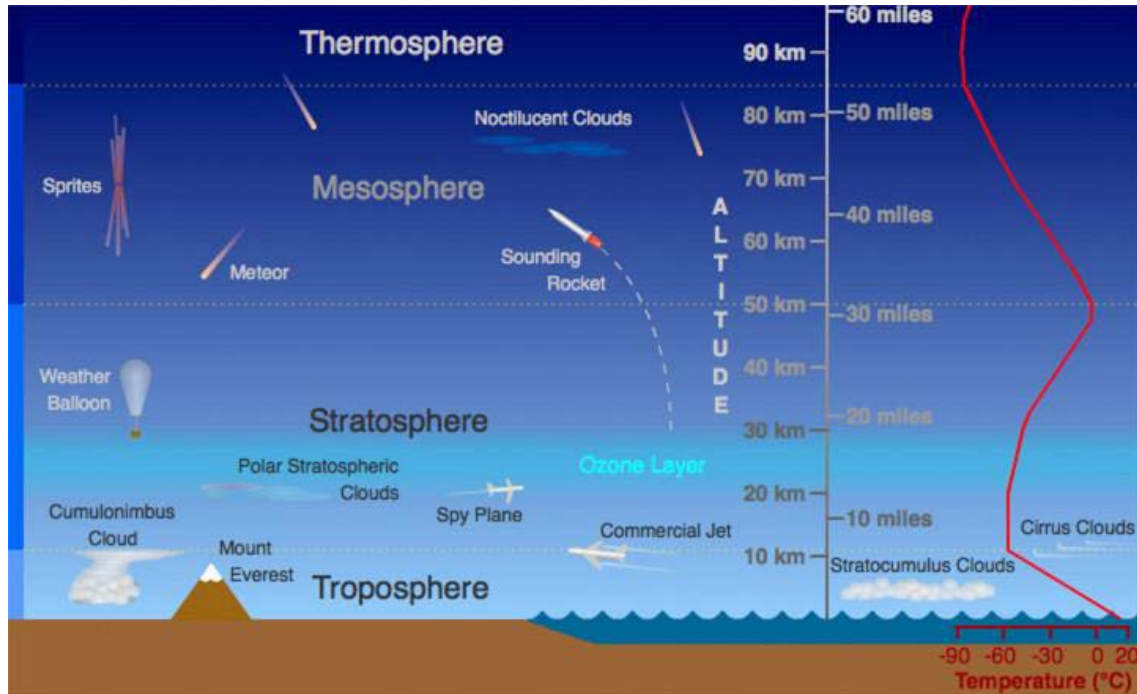
Source: Arlene M. Fiore, "Estimates of Background Ozone and Its Sources From Global Models" presentation from the WESTAR Background Ozone Scientific Assessment Workshop in Denver, Colorado, slide 2, March 28, 2017, https://www.wrapair2.org/pdf/6_Fiore_BOSA_final.pdf.

Stratospheric Intrusion Explained

One of the largest natural sources of O_3 originates from production of O_3 in the stratosphere through interactions between ultraviolet light and molecular oxygen. O_3 exists in large quantities in the stratosphere and natural atmospheric exchange processes can transport stratospheric air into the troposphere. During certain meteorological conditions, discrete plumes of stratospheric air can be displaced far into the troposphere and impact ground-level O_3 concentrations. These events are called stratospheric intrusions and can result in relatively high USB levels of O_3 at the surface, especially at higher-elevation sites.

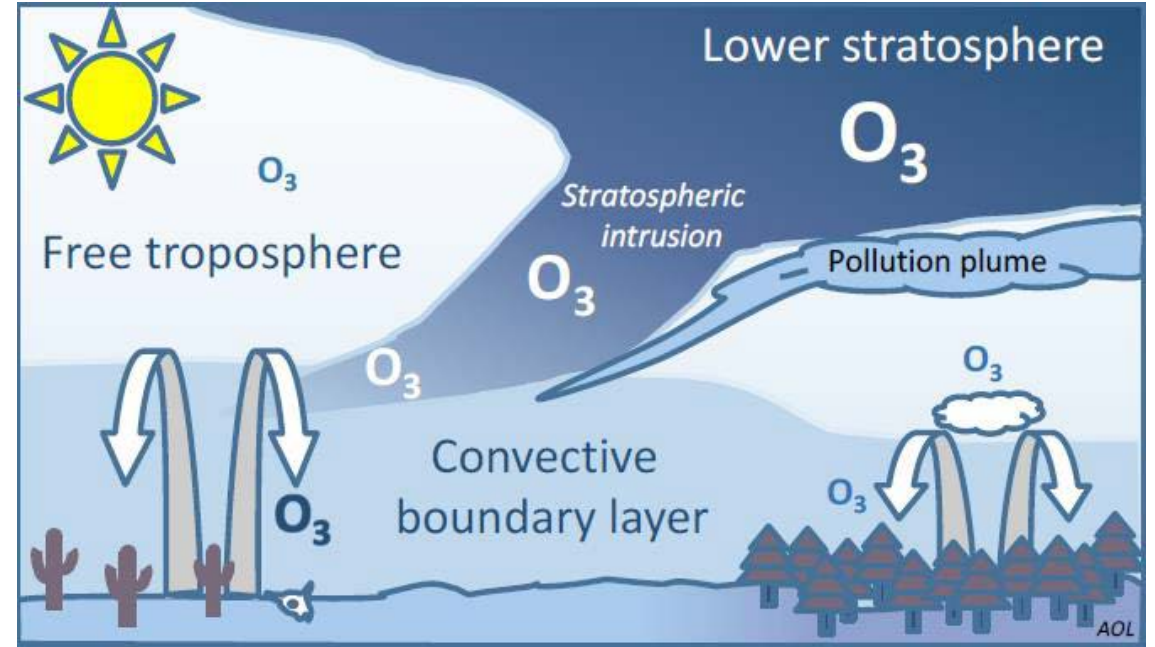
Source: USEPA. [Implementation of the 2015 Primary Ozone NAAQS: Issues Associated with Background Ozone – White Paper for Discussion](#) at p.3, 2015. [EPA-HQ-OAR-2016-0097-0004](#)

Diagram: Earth's Atmosphere Layers



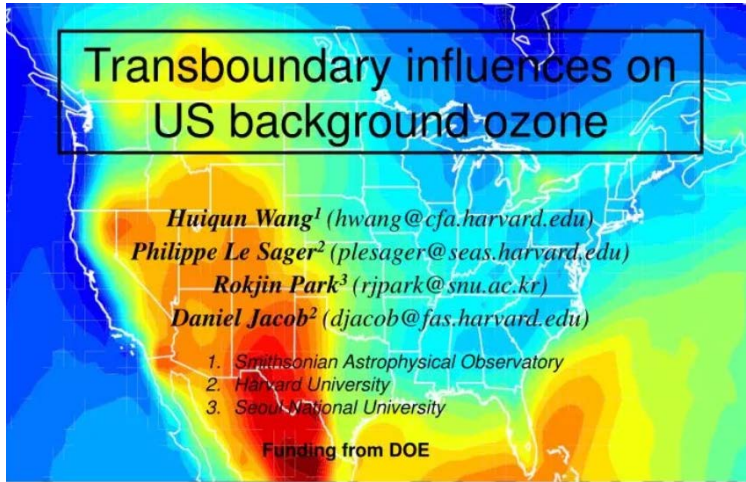
Source: Randy Russell, University Corporation for Atmospheric Research Center for Science Education ("UCAR SciEd"), <https://scied.ucar.edu/atmosphere-layers> at <https://scied.ucar.edu/atmosphere-layers-diagram>.

Illustration: Stratospheric Intrusion Event



Source: Andrew O. Langford, "Stratospheric Contribution to High Surface Ozone in the Southwestern U.S.: Characterizing Exceptional Events Using Soundings, Sampling, Satellites, and Simulations," National Oceanic and Atmospheric Administration, presentation at WESTAR Background Ozone Scientific Assessment Project and Workshop, Denver, Colorado, March 28-29, 2017.

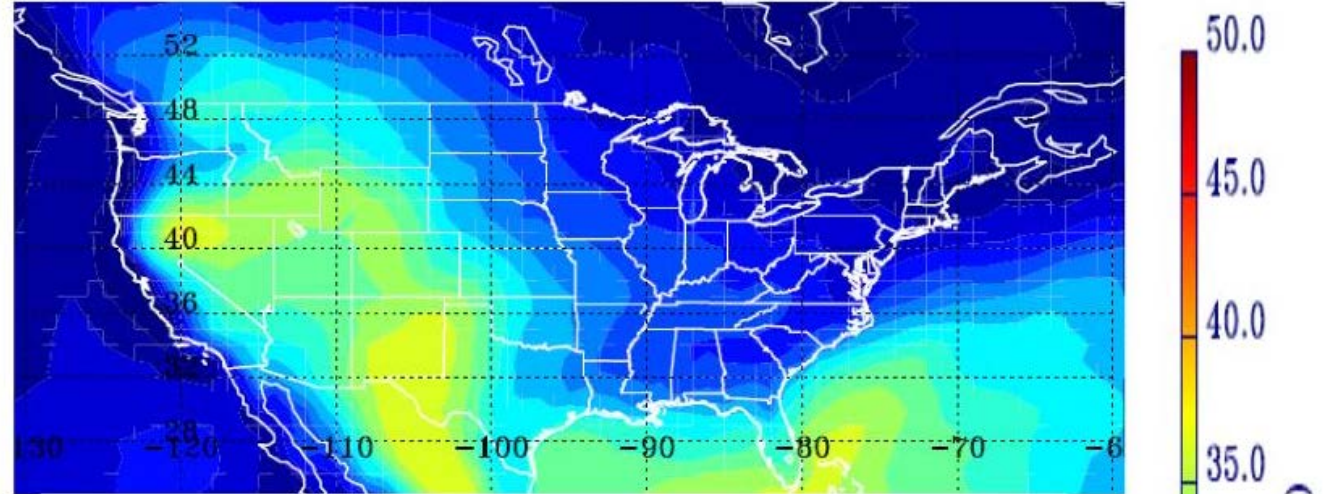
NAB vs USB



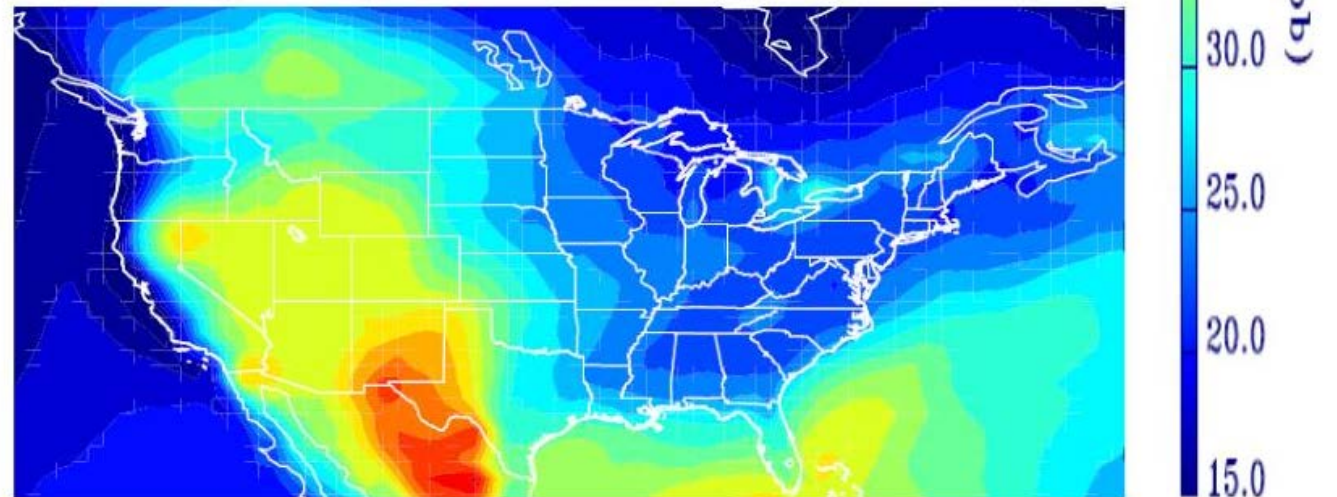
PPT - Transboundary influences on US background ozone
PowerPoint Presentation - ID:5842102 (slideserve.com),
October 25, 2014

JJA mean based on daily-8h-max

NA background (without NA anthropogenic emissions)

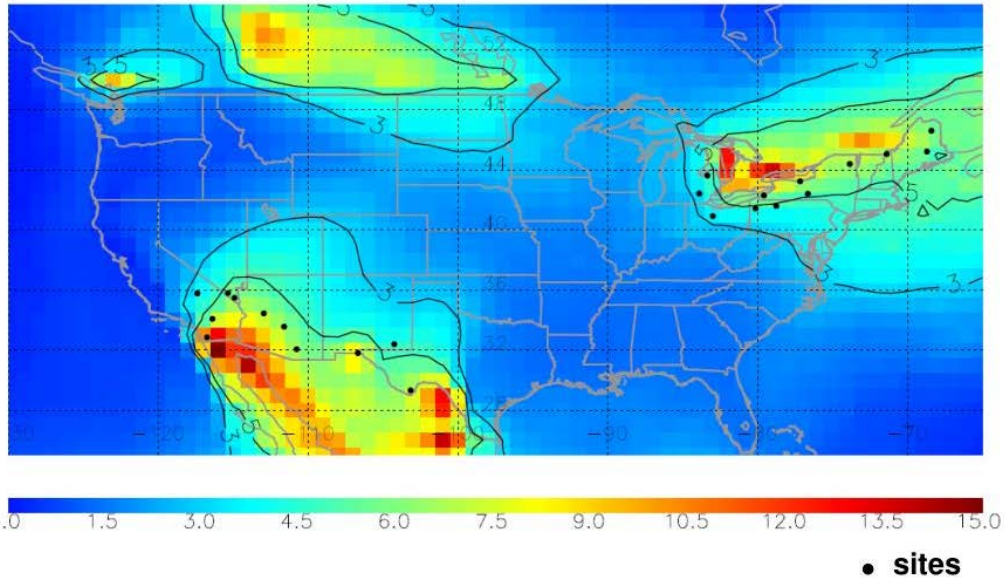


US background (without US anthropogenic emissions)



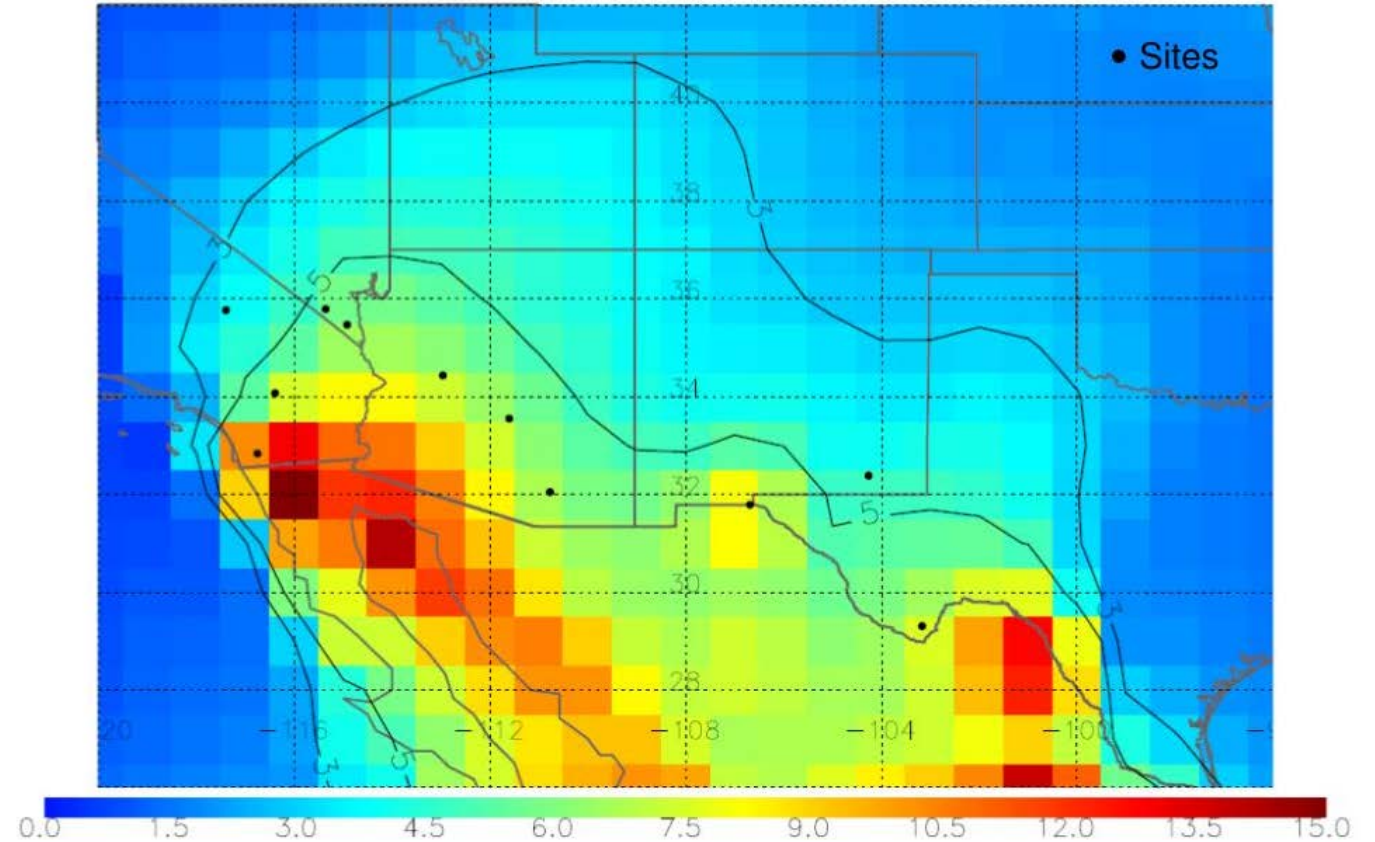
NAB vs USB (Cont.)

Canadian and Mexican Influences (ppb)
JJA mean based on daily-8h-max



Enhancement to NA background is concentrated in the northeast and southwest US

JJA mean daily-8h-max Mexican enhancement (ppb)



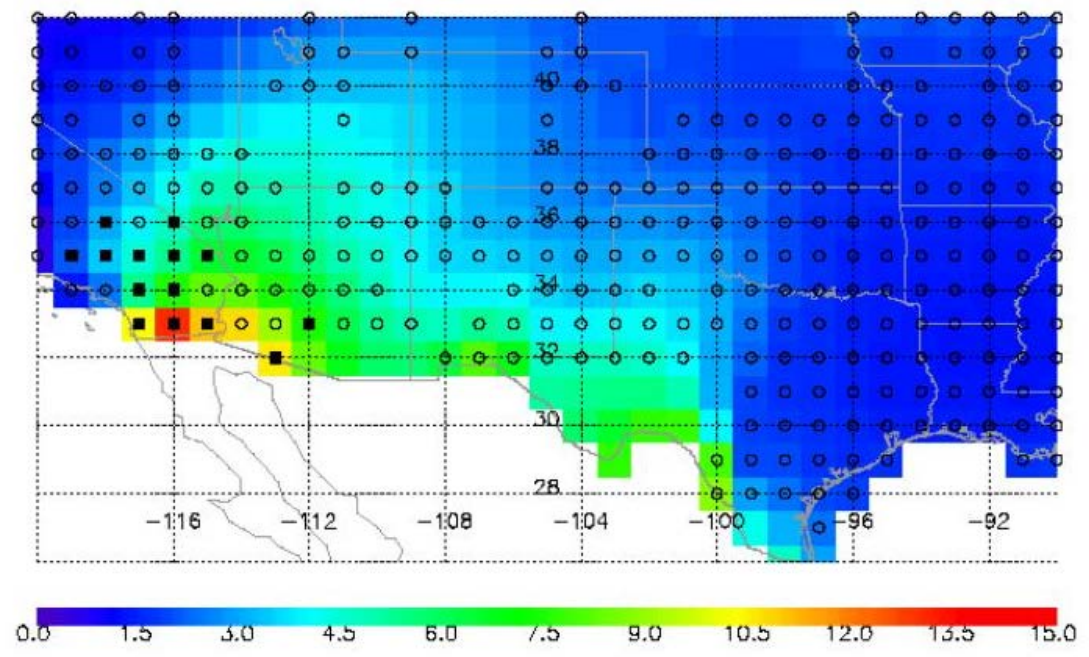
The max JJA mean Mexican enhancement is 13.1 ppb among all US gridboxes.

- Mexican influence is >10ppb on some peak ozone days (>70ppb)
- Mexican influence is always <10ppb on peak ozone days(>70ppb)

Untagged color boxes have max surface ozone <= 70ppb

Color background : JJA mean Mexican influence as before

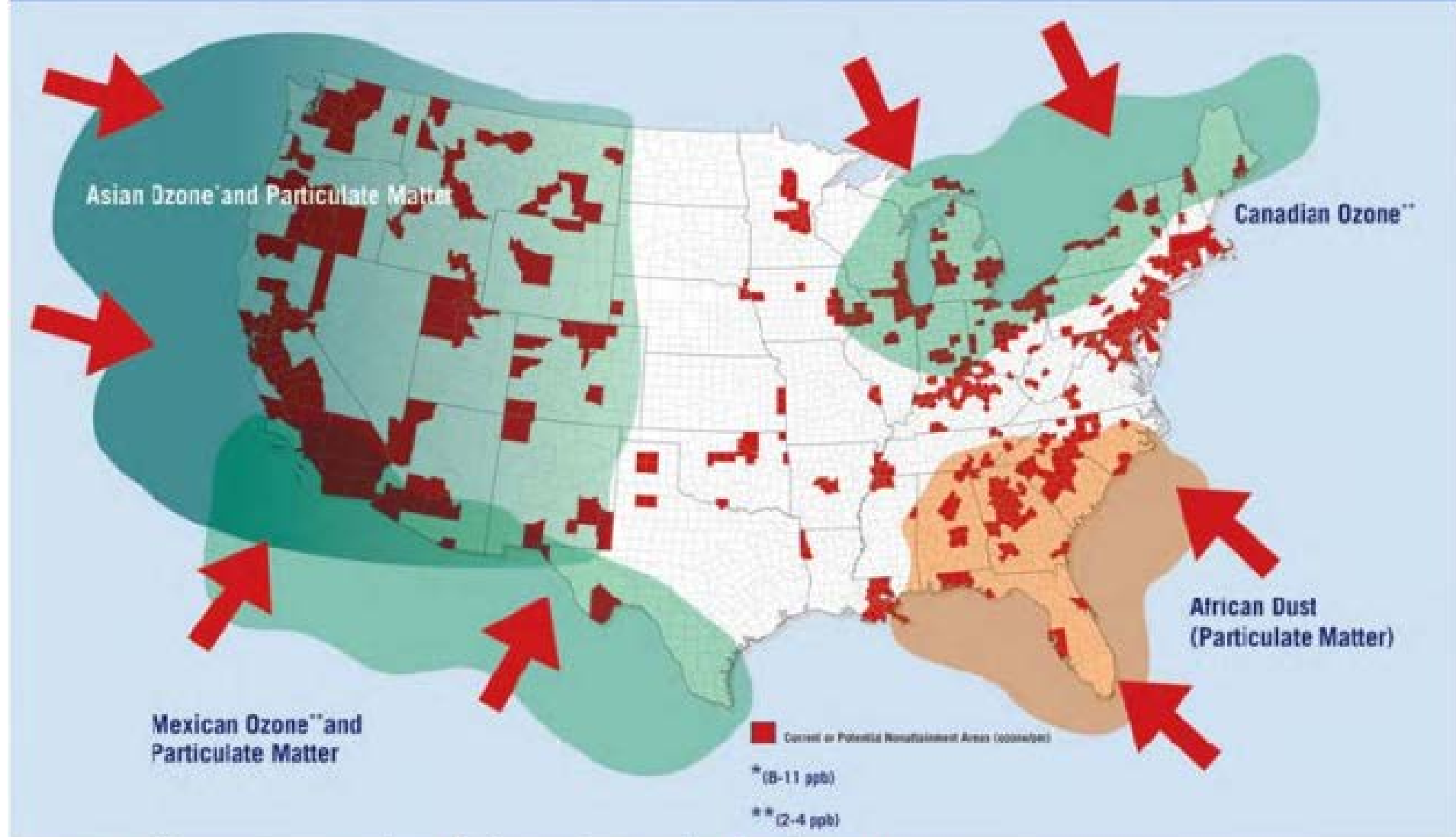
SW US JJA based on daily8hmax



Conclusion

- Transboundary pollutions from Canada and Mexico increase the background surface ozone in the US by 1-13 ppb.
- The max JJA Mean Canadian enhancement is 8.8ppb, with episodic maximum of 34 ppb (at Unionville) in daily-8h-max time series.
- The max JJA mean Mexican enhancement is larger (13.1ppb), but the maximum in daily-8h-max time series is smaller (21ppb, not shown).
- The median US background in the southwest is 30-40ppb, and that in the northeast is 20-25ppb.
- The maximum US background in the southwest is near 55ppb, and that in the northeast is near 50ppb. They occur when the surface ozone is 50-70ppb.
- Canadian and Mexican enhancements maximize when NA background is 10–30ppb.
- For peak ozone cases, the US background can be > 30 and even 40 ppb due to transboundary influences.
- Transboundary pollutions can contribute significantly (up to 23 ppb in the northeast and 18 ppb in the southwest) to peak ozone levels (>80ppb) sometimes.

Impact of Foreign Air Pollutants

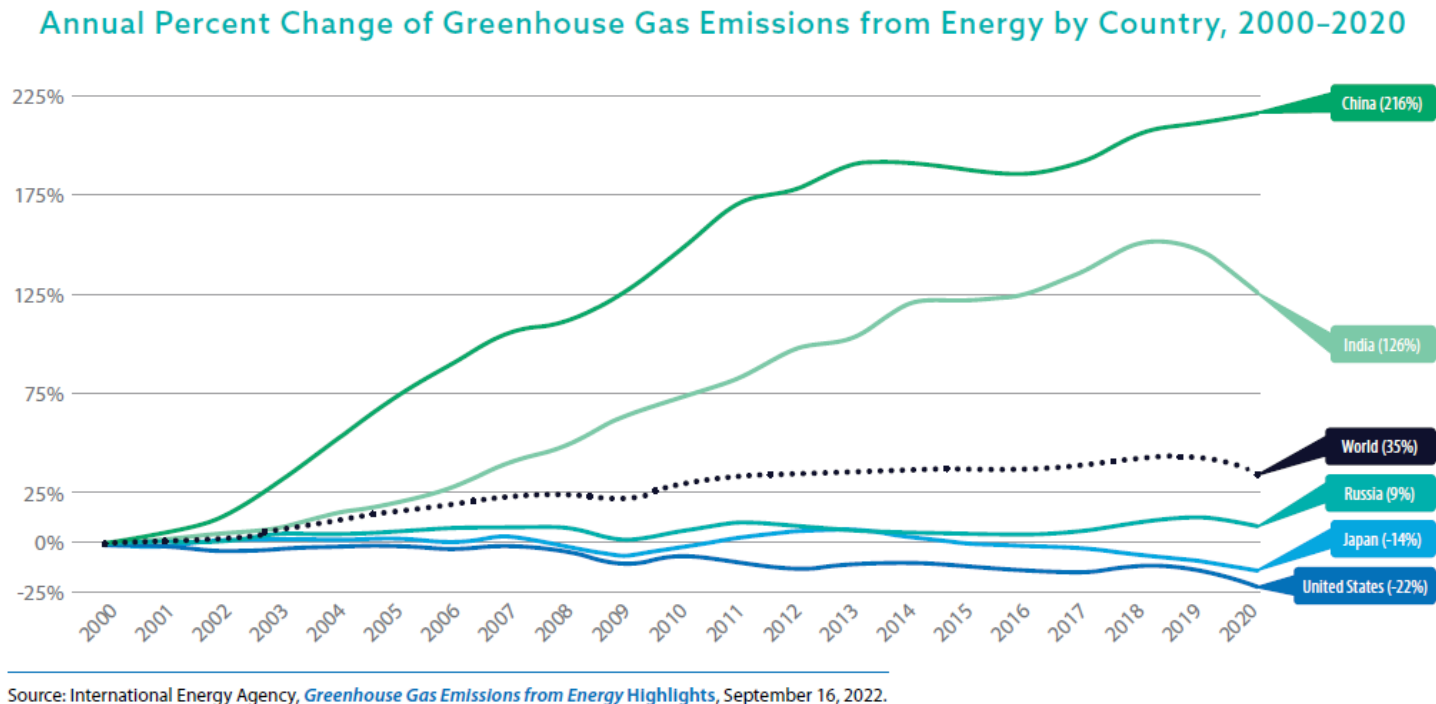


Source: <https://www.uschamber.com/issue-brief/ozone-national-ambient-air-quality-standards>

Impact of Asian Emissions

“...study finds that the western United States reduced its production of ozone-forming pollutants by a whopping 21 percent between 2005 and 2010, but ozone in the atmosphere above the region did not drop as expected in response. The reason: a combination of naturally occurring atmospheric processes and pollutants crossing the Pacific Ocean from China.”

(Source: Rasmussen, C. (2015, August 10). *Nature, Chinese Pollution Offset U.S. West Ozone Gains* (T. Greicius, Ed.). Retrieved from <https://www.nasa.gov/jpl/nature-chinese-pollution-offset-us-west-ozone-gains>.)



“Asian NO_x emissions have tripled since 1990, contributing as much as 65% to modeled springtime background O₃ increases...over the WUS, outpacing O₃ decreases attained via 50% US NO_x emission controls.”

(Source: Lin, M., et al. (2017, March 1). *U.S. Surface Ozone Trends and Extremes From 1980 to 2014: Quantifying the Role of Rising Asian Emissions, Domestic Controls, Wildfires, and Climate*. Atmospheric Chemistry and Physics. 17, 2943-2970, <https://doi.org/10.5194/acp-17-2943-2017>)

Impact of Asian Emissions (Cont.)

“Peroxyacetyl nitrate (PAN) is an important ozone (O_3) precursor. The lifetime of PAN is approximately 1 month in the free troposphere, and this allows O_3 production to occur in pollution plumes at intercontinental distances from its source...Rapid expansion of economic activities in East Asia has resulted in a substantial increase of O_3 precursor emissions [Itahashi et al., 2014; Reuter et al., 2014] with important consequences for global O_3 concentrations [e.g., Zhang et al., 2008; Cooper et al., 2010; Brown-Steiner and Hess, 2011]. As an important but thermally unstable reservoir for NO_x , peroxyacetyl nitrate (PAN) plays a role in the long-range transport of O_3 because it enables efficient O_3 formation far downwind from pollution sources [Singh and Hanst, 1981; Fischer et al., 2010; Arnold et al., 2015].”

(Source: Zhe, et al. (2016, May 20). *Ozone Export from East Asia: The role of PAN*. Journal of Geophysical Research: Atmospheres. [Ozone export from East Asia: The role of PAN \(wiley.com\)](https://doi.org/10.1029/2015JD023401))

“Over the past few decades, anthropogenic emissions of ozone precursors have fallen in North America and Europe as a result of air-quality legislation, while they have risen in East Asia....report observations of an increase in free tropospheric column ozone over the western United States: they attribute this lack of change over the western United States to the combined influence of rising emissions in China and increasing downward transport of ozone from the stratosphere.”

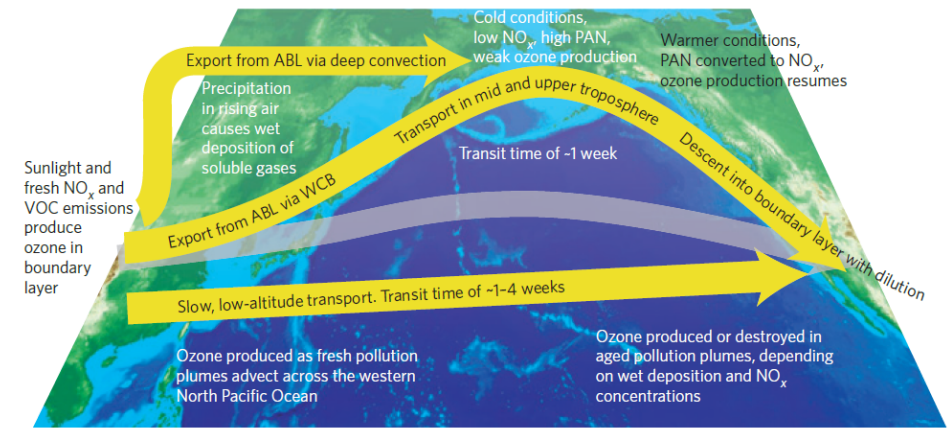


Figure 1 | Intercontinental transport processes. In winter and spring, the transport of pollution from East Asia to western North America typically occurs via mid-latitude cyclones that loft surface ozone and its precursors to the middle and upper troposphere, followed by descent in dry airstreams embedded within the cyclone over western North America. In summer, deep convection is typically the dominant mechanism for lofting pollutants from the surface over East Asia, but weaker descent and enhanced photochemical destruction mean that East Asian pollution has less impact in surface air over western North America. Slower, low-altitude transport also occurs in all seasons. Verstraeten and colleagues² show that over the western United States, reductions of free tropospheric ozone as a result of tighter regulations have been compensated by a combination of ozone transported from China and downward transport from the stratosphere. VOC, volatile organic compounds; ABL, atmospheric boundary layer; PAN, peroxyacetyl nitrate; WCB, warm conveyor belt. Figure reproduced with permission from ref. 13, United Nations.

(Source: Doherty, R.M. (2015). *Ozone Pollution From Near and Far*. Nature Geoscience. Figure 1. Retrieved from <https://doi.org/10.1038/ngeo2497>)

In USEPA's Own Words

“Ambient data analyses have shown that mid-tropospheric O₃ concentrations in remote areas, within the U.S. and globally, have been increasing over the past two decades...Whether this trend continues is largely dependent upon global changes in emissions of methane, as well as changes in other manmade O₃ precursor emissions outside of the U.S., which are highly uncertain.”

“NO_x emissions are expected to continue to decline in North America and Europe out to 2030 and then stabilize. NO_x emissions in East and South Asia, however, are expected to continue to increase.”

“USEPA conducted modeling which ‘identified 12 sites (out of 1,165 sites analyzed) in rural portions of the inter-mountain western U.S. that had relatively small modeled response to large regional reductions in NO_x and VOC emissions. The EPA concluded that the O₃ levels at these 12 sites were strongly influenced by USB (e.g., international emissions, stratospheric O₃, wildfire emissions) or by interstate O₃ transport from domestic manmade sources located outside the region.”

(Source: U.S. Environmental Protection Agency. (2015) *Implementation of the 2015 Primary Ozone NAAQS: Issues Associated with Background Ozone – White Paper for Discussion*, at pp.8-9, Docket ID: EPA-HQ-OAR-2016-0097-004. <https://www.regulations.gov/document?D=EPA-HQ-OAR-2016-0097-0004>)

Table 2A-6. Monitors with Limited Response to Regional NOx and National VOC Emissions Reductions in the 2025 and Post-2025 Baselines

Name	Site ID	State	County	Altitude (m)	Monitor Type	Predominant O3 Sources	2009-2013 DV	Baseline DV
Chiricahua NM	40038001	Arizona	Cochise	1570	CASTNET	Mexican border	72	67
Grand Canyon NP	40058001	Arizona	Coconino	2152	CASTNET	California + Other sources	71	66
Yuma Supersite	40278011	Arizona	Yuma	51	SLAMS	Mexican border + California	75	66
El Centro-9 th st	60251003	California	Imperial	-	SLAMS	California + Mexican Border	81	68
Yosemite NP	60430003	California	Mariposa	5265	CASTNET	California + Other sources	77	67
Sequoia and Kings Canyon NP	61070006	California	Tulare	1890	Non-EPA Federal (NPS)	California + Other sources	81	69
Weminuche Wilderness Area	80671004	Colorado	La Plata	2367	Non-EPA Federal (USFS)	Southwest region + Other sources	72	68
Great Basin NP	320330101	Nevada	White Pine	2060	CASTNET	California + Other sources	72	66
BLM land near Carlsbad	350151005	New Mexico	Eddy	780	SLAMS	Central region + Southwest region + Mexican border	70	67
Big Bend NP	480430101	Texas	Brewster	1052	CASTNET	Mexican border	70	68
BLM Land/Carlsbad	483819991	Texas	Randall	780	SLAMS	Central region + Mexican border + Other sources	73	66
Zion NP	490530130	Utah	Washington	1213	Non-EPA Federal (NPS)	California + Other sources	71	66

Source: U.S. Environmental Protection Agency. (2015). *Regulatory Impact Analysis of the Final Revisions to the National Ambient Air Quality Standards for Ground-Level Ozone.*EPA-452/R-15-007.

Challenges In Addressing USB

There are a several challenges involved in a constructive discussion of background O₃ and its implications:

- Definitions can vary.
- Impacts can vary across space and time.
- Difficult to measure. Estimates requires modeling.
- Models, while valuable, are imperfect.

- Background formed by a variety of sources.
- Role of sources vary across space and time.
- Multiple background sources often interact.

- CAA provisions vary by background type.
- Attribution demonstrations desirable (difficult).
- Resource limitations exist (at all levels).

(Source: U.S. Environmental Protection Agency. (2016) Background Ozone Workshop. [Presentation].
Docket ID No: [EPA-HQ-OAR-2016-0097-0003](#))

“Another challenging aspect of the O₃ issue is the involvement of sources of O₃ and O₃ precursors beyond those from domestic, anthropogenic sources.”

(Source: U.S. Environmental Protection Agency. National Ambient Air Quality Standards for Ozone Proposed Rule. 79 Fed. Reg. 75234, 75242. Dec. 17, 2014. [2014-28674.pdf \(govinfo.gov\)](#))

- **Limitation to everyone’s modeling is that there is not an emissions inventory for Asia**

“The EPA recognizes, however, that “background” O₃ levels,...., may present a challenge to air agencies in preparing clean air plans. That is, O₃ and O₃- forming pollution from natural and international sources could prevent ambient levels from reaching attainment levels in locations where the impacts of such sources are large relative to the impact of controllable man-made sources of NO_x and VOC emissions within the U.S., especially in locations with few remaining untapped opportunities for local emission reductions.

(Source: U.S. Environmental Protection Agency. National Ambient Air Quality Standards for Ozone Proposed Rule. 79 Fed. Reg. 75234, 75382. Dec. 17, 2014. [2014-28674.pdf \(govinfo.gov\)](https://www.govinfo.gov/proc/full/2014-28674.pdf))

“Policy tools are available...to apply to areas experiencing exceedances of the O₃ NAAQS that are appreciably impacted by USB O₃.”

(Source: U.S. Environmental Protection Agency. (2015) *Implementation of the 2015 Primary Ozone NAAQS: Issues Associated with Background Ozone – White Paper for Discussion*, at pp.8-9, Docket ID: EPA-HQ-OAR-2016-0097-004. <https://www.regulations.gov/document?D=EPA-HQ-OAR-2016-0097-0004>)

Not an EPA approved relief mechanism

Facebook event encourages Spokane residents to 'blow smoke away to Canada' with box fans

“After much deliberation and mathematical calculation, we have figured that it is absolutely possible for us to blow this smoke away with high powered fans,” the Facebook event description reads.



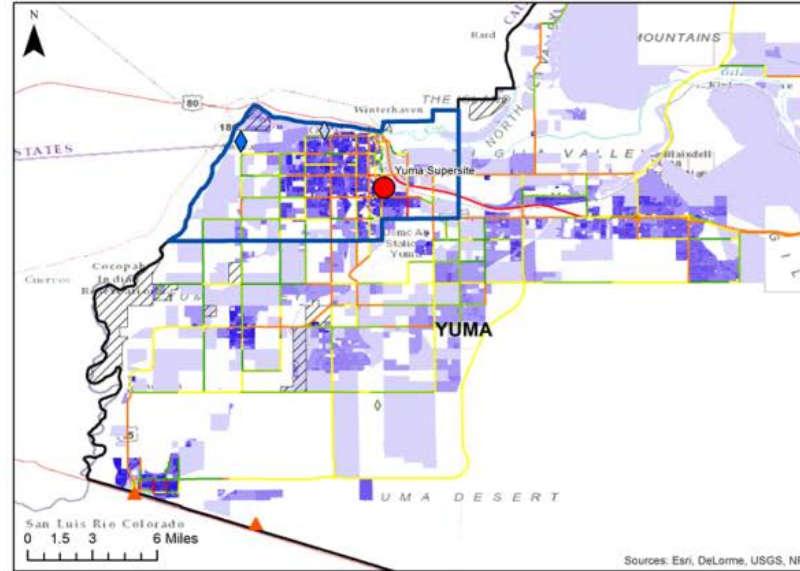
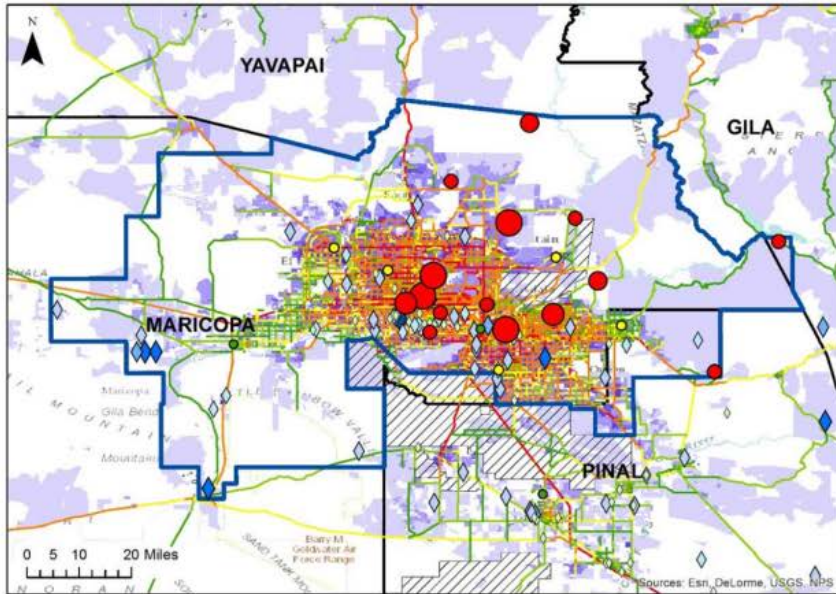
(Source: KREM2 News, Spokane, WA. [Facebook event encourages Spokane residents to 'blow smoke away to Canada' with box fans | krem.com](https://www.krem.com/story/news/local/spokane-residents-encouraged-to-blow-smoke-away-to-canada-with-box-fans/2018/08/21/). 2018, Aug. 21)

Policy Tools: Clean Air Act Relief Mechanisms

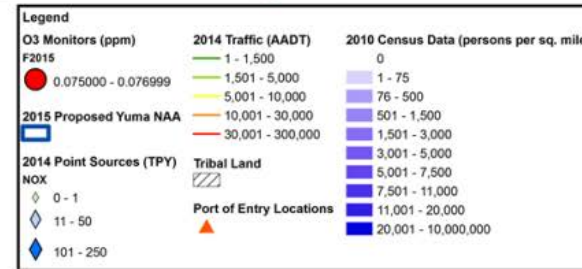
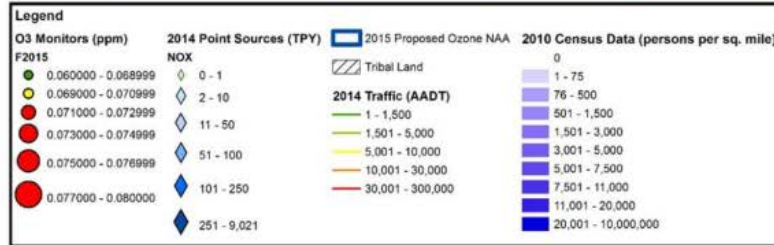
- **CAA §107(d): Small NAA Boundaries** for Sites Minimally Impacted by Nearby Sources
 - “a limited area associated with a reasonable jurisdictional boundary.”
- **CAA §110(a)(2)(D): Good Neighbor Provision**
 - Control measures to mitigate polluting upwind neighbors
- **CAA §179B: International Transport Demonstration**
 - Attainment would be achievable “but for” the influence of international emissions.
- **CAA §182(h): Rural Transport Area (“RTA”)**
 - A NAA that is perpetually treated with the classification of Marginal
- **CAA §179B: Exceptional Events (“EE”) Exclusion**
 - “not reasonably controllable or preventable and is either a natural event or one caused by human activity that is unlikely to recur at a particular location.”

(Source: U.S. Environmental Protection Agency. (2015) *Implementation of the 2015 Primary Ozone NAAQS: Issues Associated with Background Ozone – White Paper for Discussion*, at pp.8-9, Docket ID: EPA-HQ-OAR-2016-0097-004. <https://www.regulations.gov/document?D=EPA-HQ-OAR-2016-0097-0004>)

Small NAA Boundaries



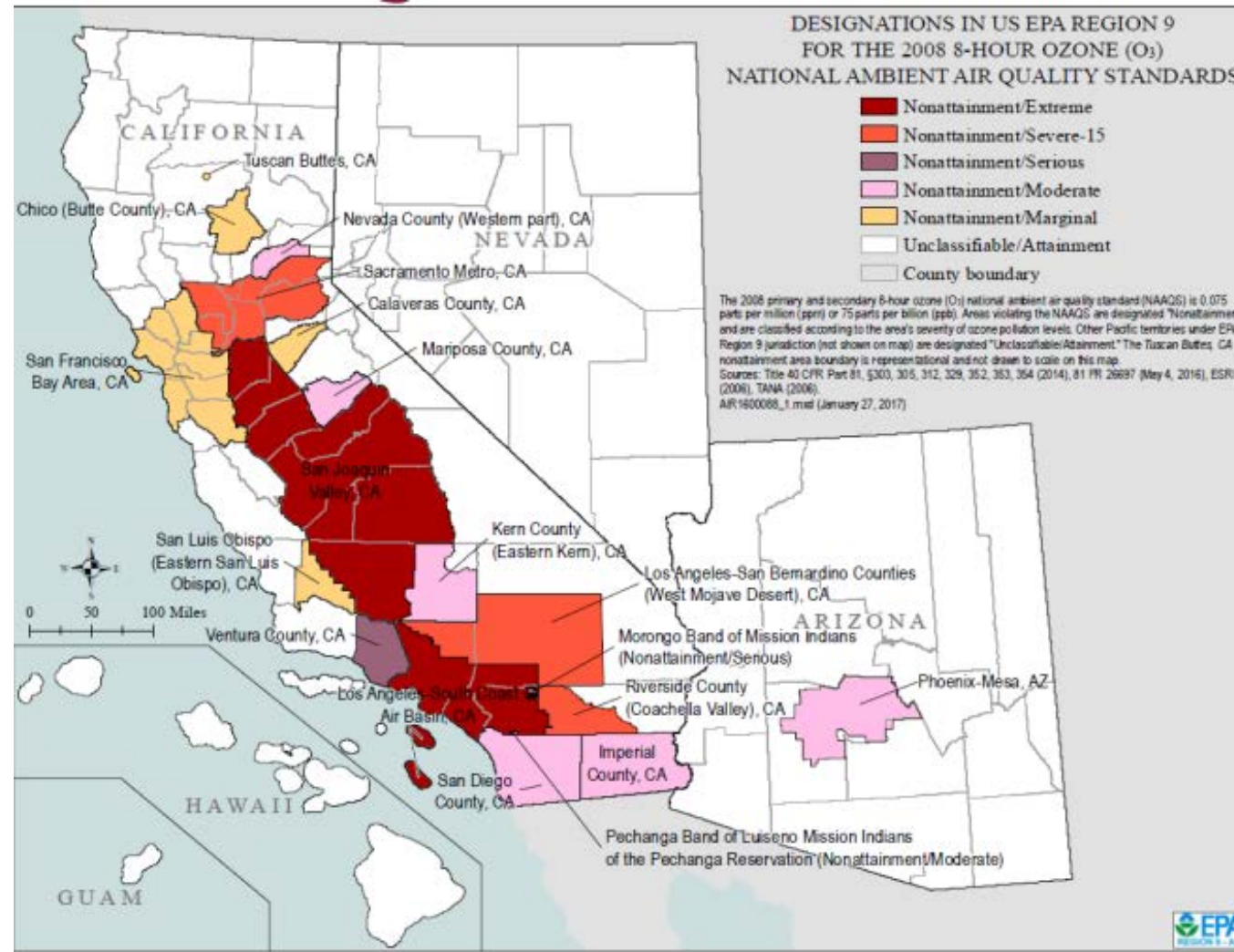
(Source: Arizona Department of Environmental Quality. 2016. 2015 Ozone NAAQS Boundary Recommendations)



As required by the Clean Air Act, the EPA will designate an area as Nonattainment if there are certified, quality-assured air quality monitoring data showing a violation of the 2015 ozone standards or if the EPA makes a determination that the area is contributing to a violation of the standards in a nearby area.

(Source: Strauss, A., Acting Regional Administrator, USEPA, letter to Governor Ducey, responding to Boundary Recommendations. December 20, 2017)

Good Neighbor Provision



Source: <https://www3.epa.gov/region9/air/maps/pdfs/air1100018-7.pdf>

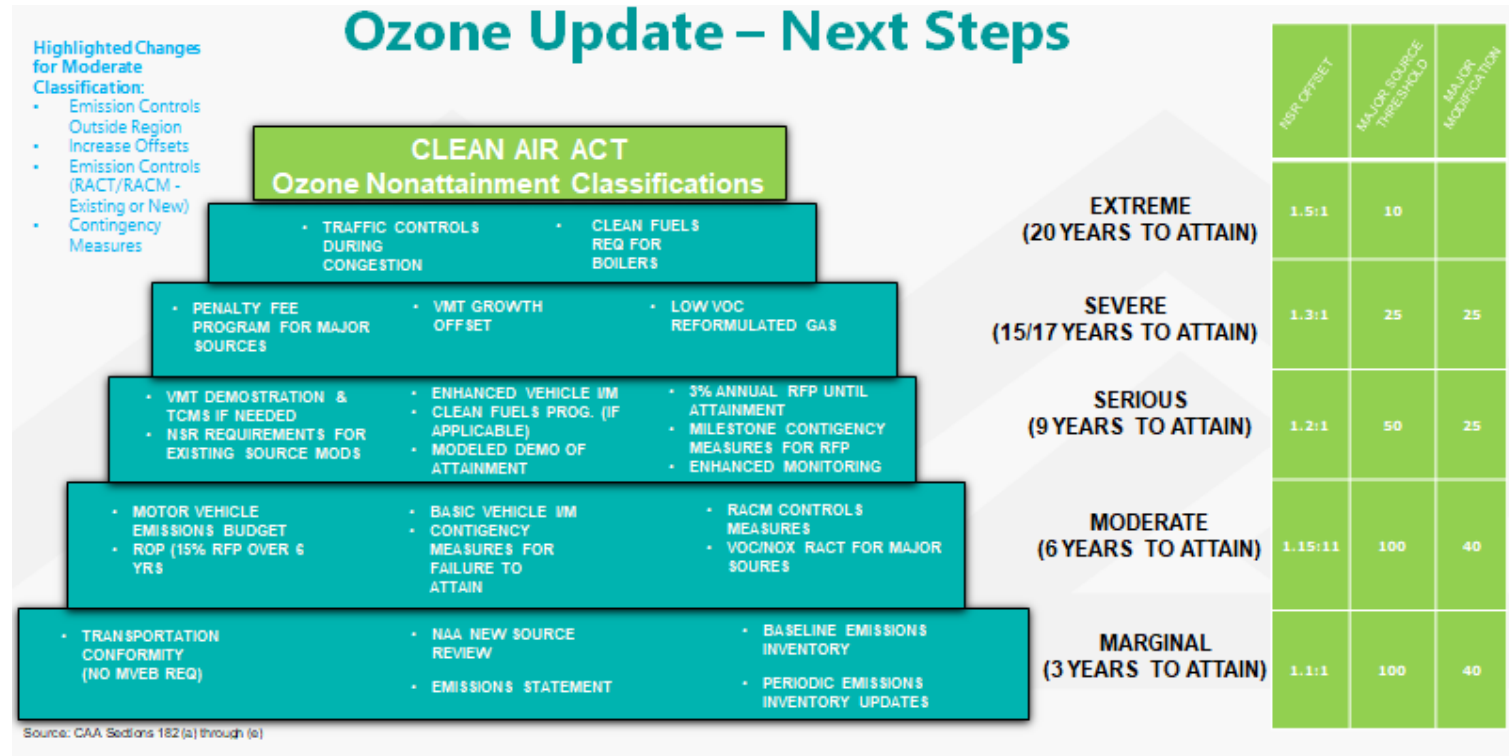
International Transport Demonstration

- Costly “But For” demonstration
 - Can only be submitted after 3 yrs of not meeting NAAQS

- NAA Designation

- Subject to control measures

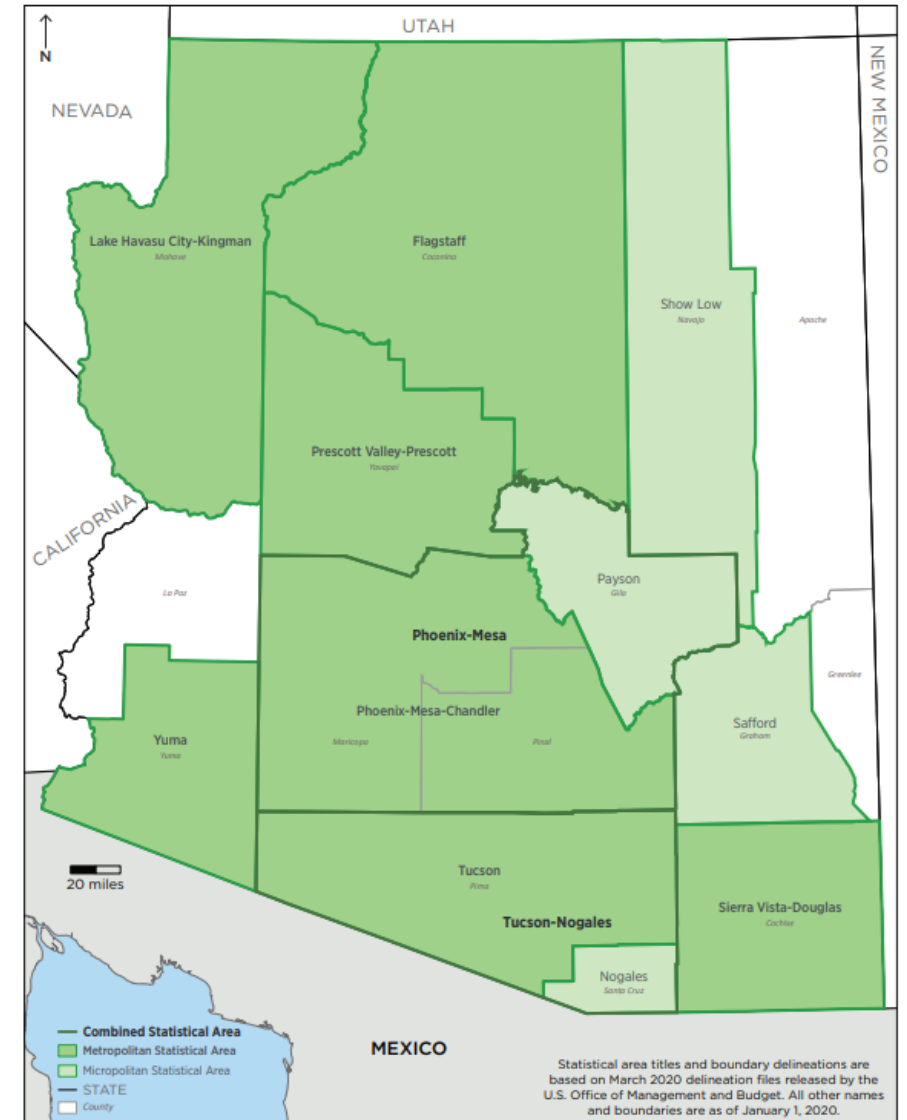
- No real relief



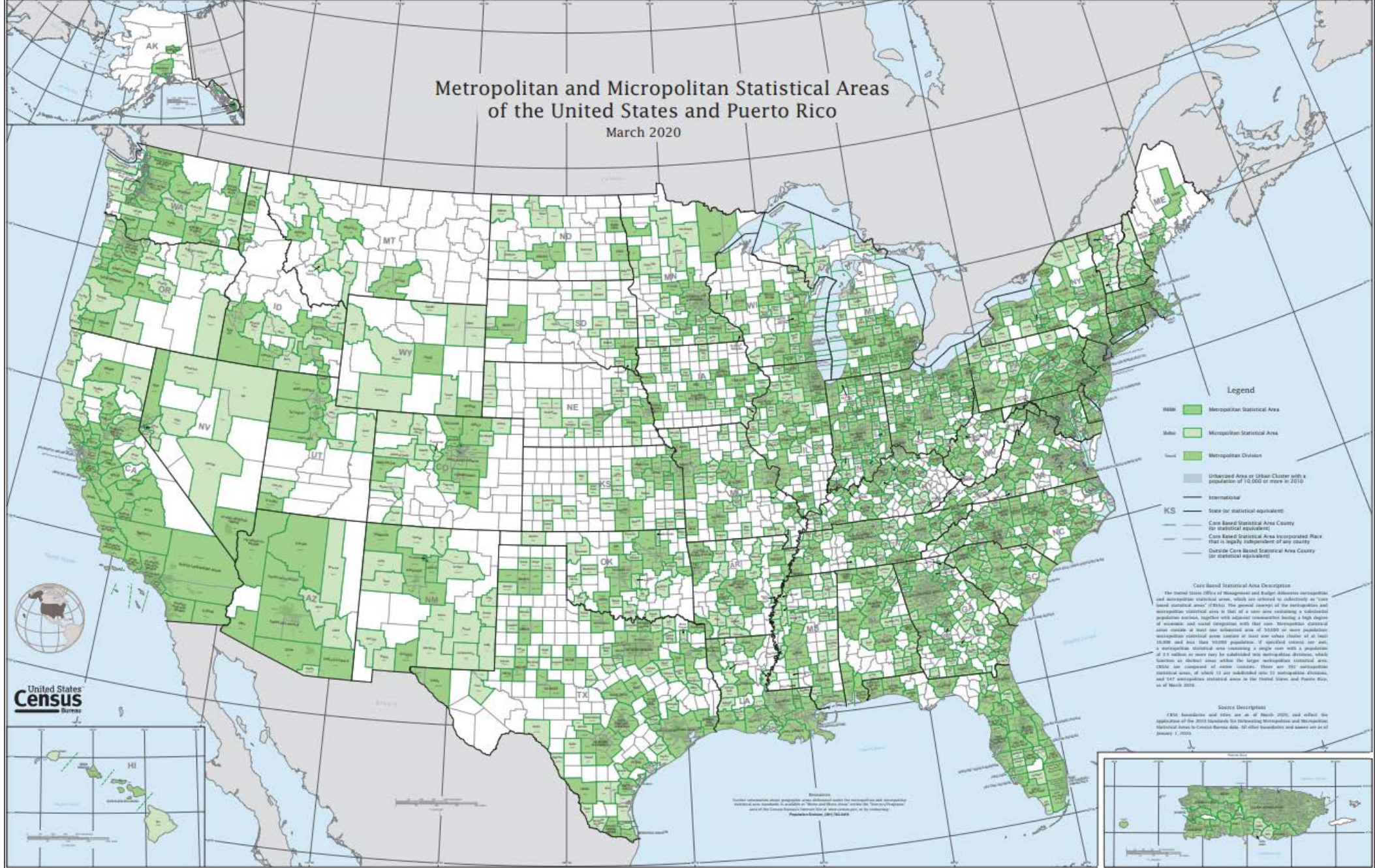
Rural Transport Area

- NAA Designation “Marginal” classification
 - Only granted to an ozone NAA that does not include, and is not adjacent to, a Metropolitan Statistical Area (“MSA”)
- Subject to control measures
- No real relief

Arizona: 2020 Core Based Statistical Areas and Counties

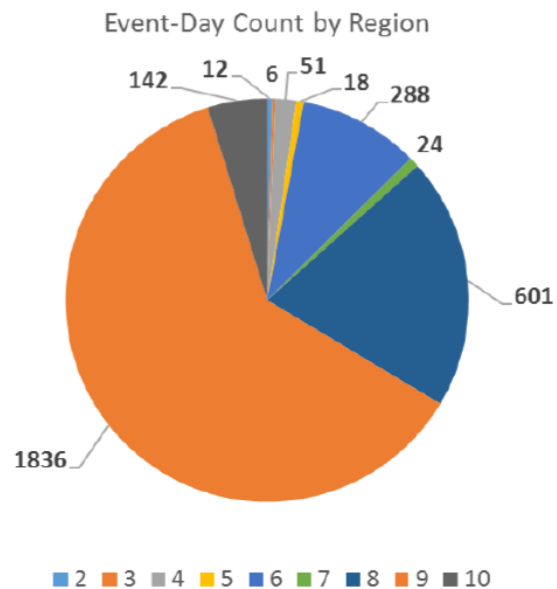


Source: Metropolitan and Micropolitan Statistical Areas of the United States and Puerto Rico (census.gov)



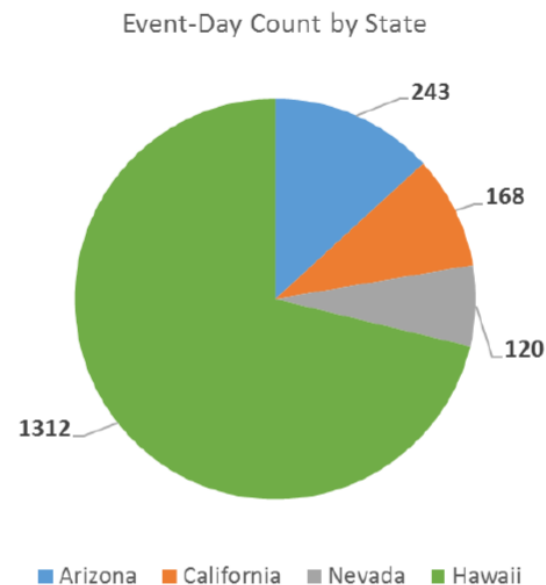
Exceptional Events

EVENT-DAY COUNT 2011-2015



- Region 9: 67%
- Region 8: 20%
- Region 6: 10%

REGION 9 EVENT-DAY COUNTS



- Hawaii: 71%
- Arizona: 13%
- California: 9%
- Nevada: 7%
- Only 6 event days affect O₃ designations

(Source: McKaughan, C., Associate Director, Air Division, U.S. EPA Region 9. (2017) Exceptional Events Update. [Presentation]. Association of Air Pollution Control Agencies 2017 Spring Meeting, March 27-29, 2017. Retrieved from <https://www.cleanairact.org/events/documents/McKaughan-AAPCASpringMeetingPresentationonExceptionalEvents.final.pdf>)

July 5, 2011 Haboob
~ Photo Courtesy: Daniel Bryant ~



State of Arizona Exceptional Event Documentation for the
Events of July 2nd through July 8th 2011, for the Phoenix PM10
Nonattainment Area

Produced by:

Arizona Department of Environmental Quality
Maricopa County Air Quality Department
Maricopa Association of Governments

Final Report
March 8, 2012



- 214 pages
- 615 hours
 - (ADEQ, MCAQD & MAG staff time)
- ? Contractor hours unknown
- **\$100,000 est. cost**

Cooperative Federalism Works

Exceptional Event Challenges

EPA's involvement has been critical to the success of Arizona's Exceptional Event Documentation:

- EPA Region IX has had early and frequent involvement during development of AZ demonstrations;
- EPA has changed the Exceptional Events Guidance based upon comments;
- Note: ADEQ and EPA have only been working on the easiest demonstrations ("low hanging fruit");
- EPA has worked with Arizona to streamline the documentation for the "easy" demonstrations:

Phoenix Event	Total Staff Hours/Event	Staff Cost Estimate/Event	Contractor Cost Estimate/Event	Subtotal Cost Estimate
July 2-8, 2011	615	\$31,000	\$75,000	\$100,000
17 Additional Events	175	\$8,800	\$25,000	\$575,000
Total Estimated Costs for Phoenix Exceptional Events To Date				\$675,000

Note: "Total staff hours/event" include time estimates from ADEQ, MCAQD and MAG

Source: ADEQ 2013 Fact Sheet prepared for U.S. Senator Flake

When We Work Together, We Come Up With Solutions

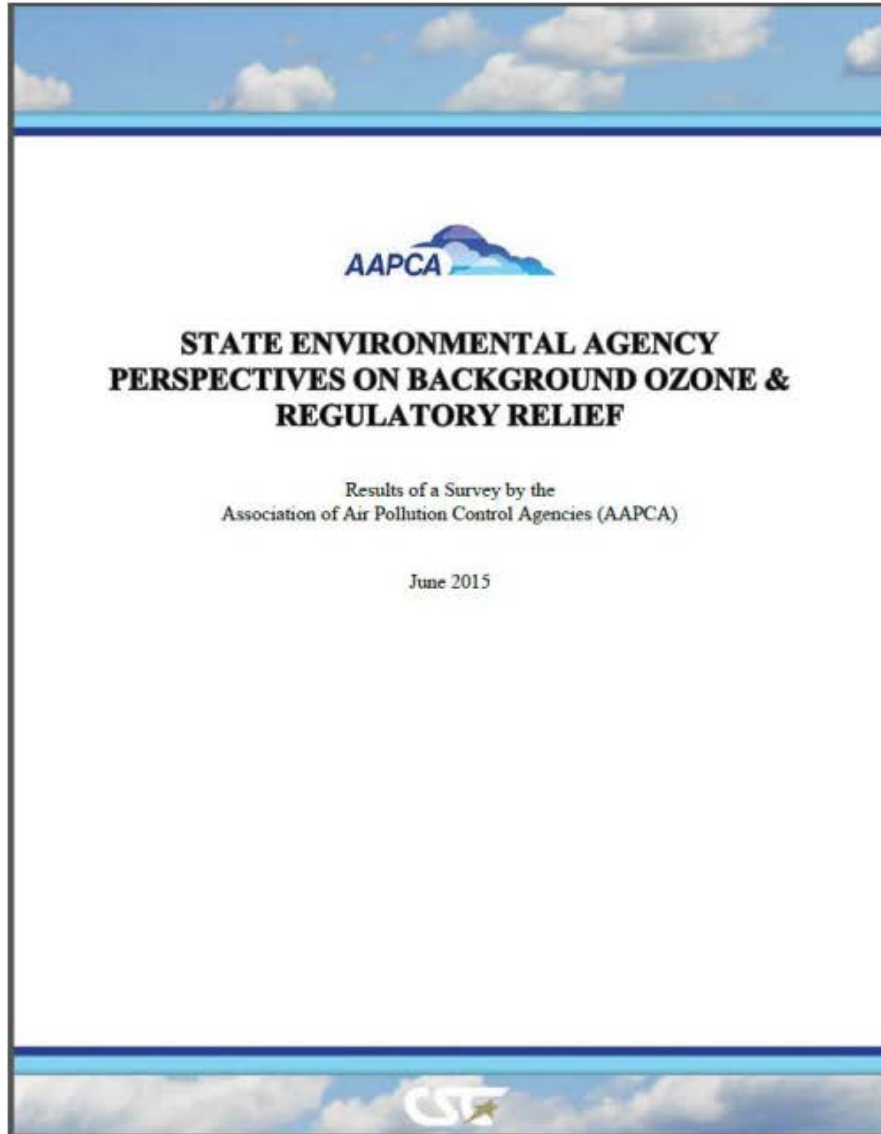
Arizona Improvements and Costs



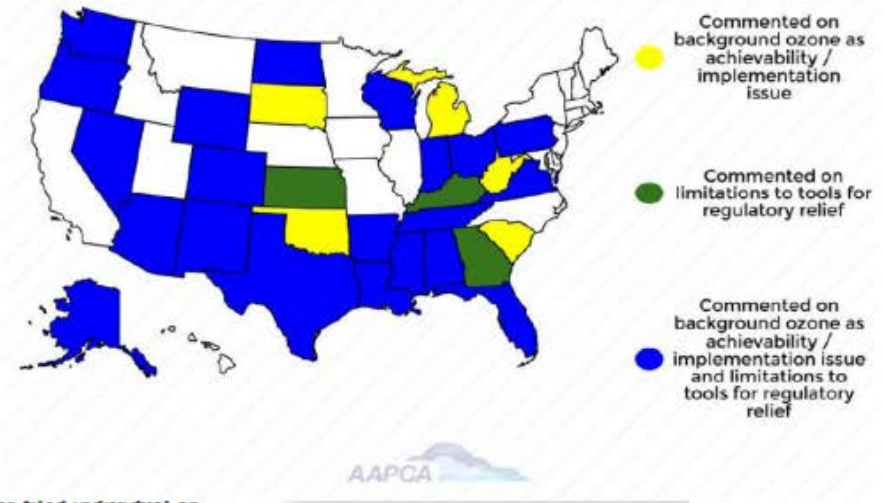
- ADEQ and EPA Region 9 **already implemented 50% streamlining** in preparation time (from 2011 to 2017).
- ADEQ spent over **\$800K** to prepare **50 EE** demonstrations for 2011-2012.
- It still costs about **\$20K per event** and requires on average about **150-200 hours** to research, prepare, review and submit each demonstration package.
- EPA has **approved** 17 of 55 demonstration packages (**~30%**).
- This means over **\$750K** and about **7,500 hrs** of effort **wait in inventory or have “rolled off”**.
- It is likely that more EE demonstrations will exceed their shelf-life.
- In the spirit of **Continuous Improvement**, what else can we do to further streamline both the creation and the review of Exceptional Event demonstrations?

(Source: Busby, B., Arizona Department of Environmental Quality. Exceptional Event Documentation: ADEQ Streamlining Efforts & Rule Discussion. [Presentation]. Association of Air Pollution Control Agencies, 2017 Spring Meeting, March 27-29, 2017, available at: [PowerPoint Presentation \(cleanairact.org\)](https://www.cleanairact.org/))

Other State's Frustrations



State Environmental Agency Comments on Background Ozone & Limitations of Current Tools for Regulatory Relief

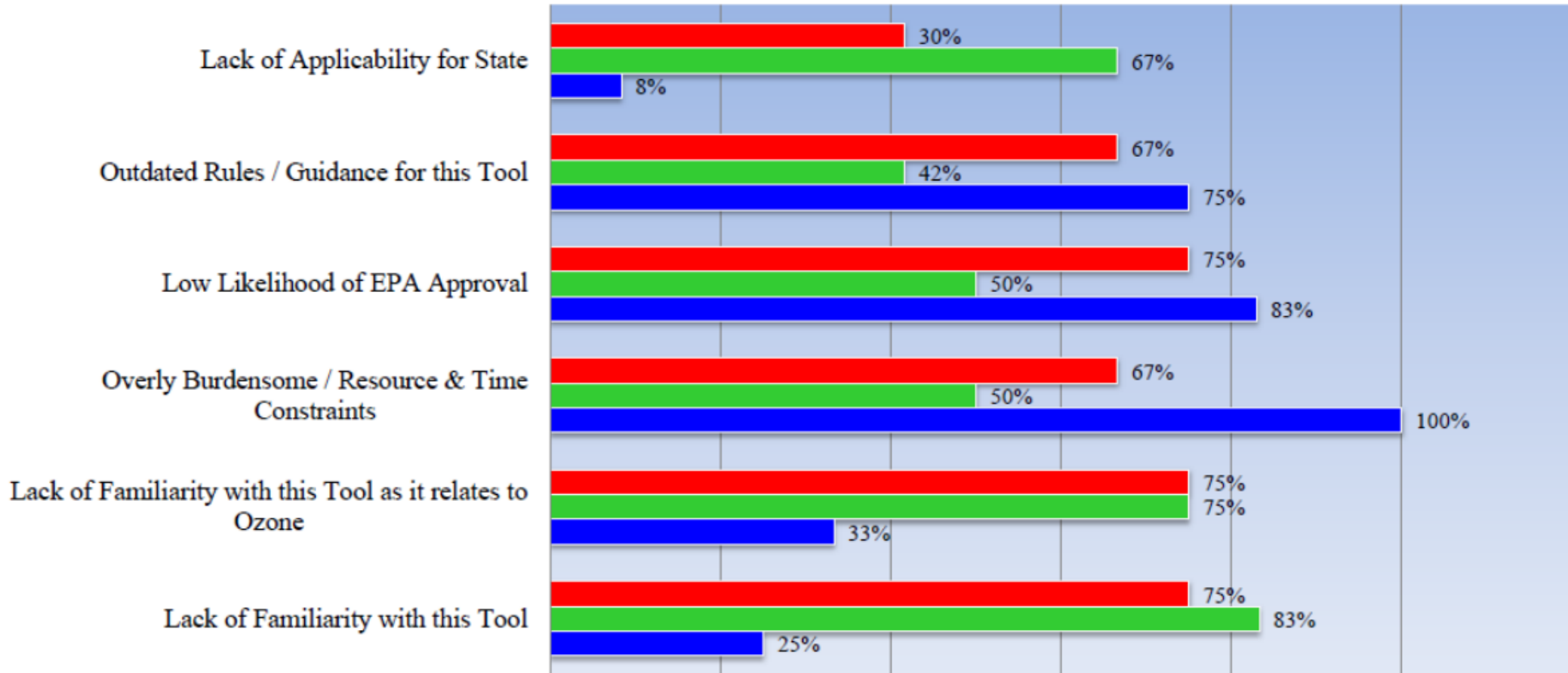


- 44 state environmental agencies filed individual or joint comments on EPA's proposed revision to ozone NAAQS.¹⁶
 - Comments from 26 state agencies raised background ozone as an achievability or implementation challenge.
 - Comments from 24 states identified limitations to the tools identified by EPA for regulatory relief.
 - Comments from 21 states raised both background ozone as an achievability or implementation challenge and identified limitations to the tools identified by EPA for regulatory relief.
- Among states that identified limitations to tools for regulatory relief:
 - 22 states commented on limitations to the use of CAA section 319 for excluding "exceptional event" data.
 - 16 states commented on limitations to the use of CAA section 179B for demonstrating attainment "but for" international emissions.
 - 17 states commented on limitations to the use of CAA section 182(h) for rural transport area determinations.

AAPCA June 2015 Report

Limitations of Tools to Address Background Ozone

■ Rural Transport Areas (Section 182(h)) ■ International Transport (Section 179B) ■ Exceptional Event Exclusions (Section 319)

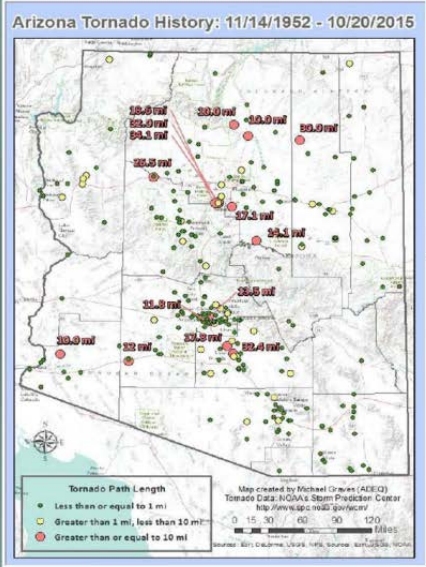


State Responses (Total: 12)

Air Quality Challenges For Arizona: *Climate*

Tornados & High Winds

Figure 2: A map of Arizona showing the touchdown locations for all 242 officially observed tornadoes since November 1952. Each point represents a tornado. Tornadoes are classified by their path length: small green points represent tornadoes with path lengths less than or equal to 1 mile; yellow, medium-sized points represent tornadoes with path lengths between a mile and 10 miles; large red points represent tornadoes with path lengths 10 miles or greater. Tornadoes 10 miles or greater also have their path length labeled in red.



Source (all images) : http://static.azdeq.gov/aqd/aqcode2_8.pdf



Figure 18. The tornado with the second longest path length in Arizona's tornado record (32.00 miles) leveled a town in the Bellemont, AZ area. 26 rail cars were damaged. It was rated an EF2 tornado. Source: KPHO/KTVK News



Figure 16. An aerial photo taken of two tornado scars near Bellemont, AZ. These tornadoes were two of a total of eight tornadoes that occurred on October 6, 2010. Source: NOAA National Weather Service

Prescribed Fires & Wildfires



Figure 5: Visual comparisons between the Government Prairie (top left) and McCracken (top right) prescribed burns carried out in Arizona's Kaibab National Forest versus the 2004 Willow wildfire (bottom left) and 2011 Willow wildfire (bottom right). Note the difference in fire intensity, fire behavior, and smoke output between prescribed fires and wildfires. Image source: www.azdeq.gov (top left and right). Photos: www.azdeq.gov (bottom left) and www.azdeq.gov (bottom right)

Source: http://static.azdeq.gov/aqd/aqcode2_9.pdf

Dry Conditions

Arizona is unique...

Out of all the states in the United States, Arizona has the least amount of dense fog days per year. Most of Arizona averages less than 5.5 dense fog days per year; portions of north-central Arizona and the northeast corner of the state average slightly more (see Figure 5 below). This is due to Arizona's dry climate. Compared to the rest of the country, the conditions for fog formation do not occur very often in Arizona.

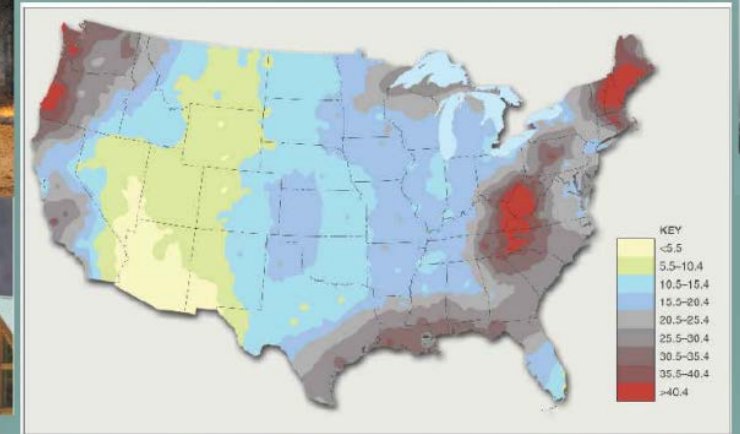


Figure 5. A map showing the average number of days of dense fog per year in the United States. Source: NOAA

Source (all images): http://static.azdeq.gov/aqd/aqcode2_2.pdf

Lightning, Microbursts & Monsoons

Lightning and Winds and Hail, Oh my!

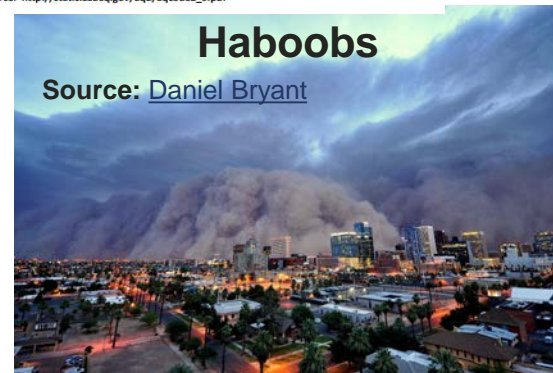


Spectacular and dangerous weather phenomenon, known as a microburst, spotted over Phoenix, Arizona, Monday, July 18 (Credit: Chopperguy Photographer Jerry Ferguson and Pilot Andrew Park)

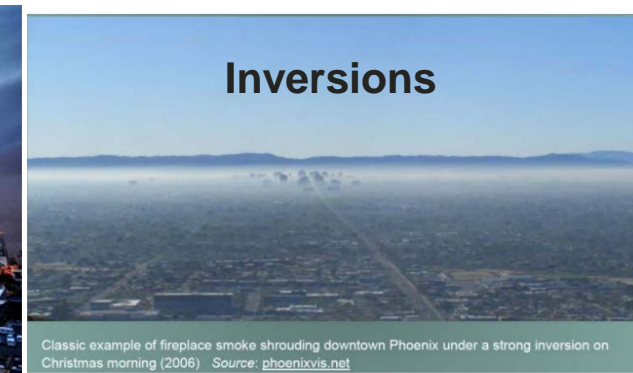
Source: http://static.azdeq.gov/aqd/aqcode1_3.pdf

Haboobs

Source: [Daniel Bryant](http://www.azdeq.gov)



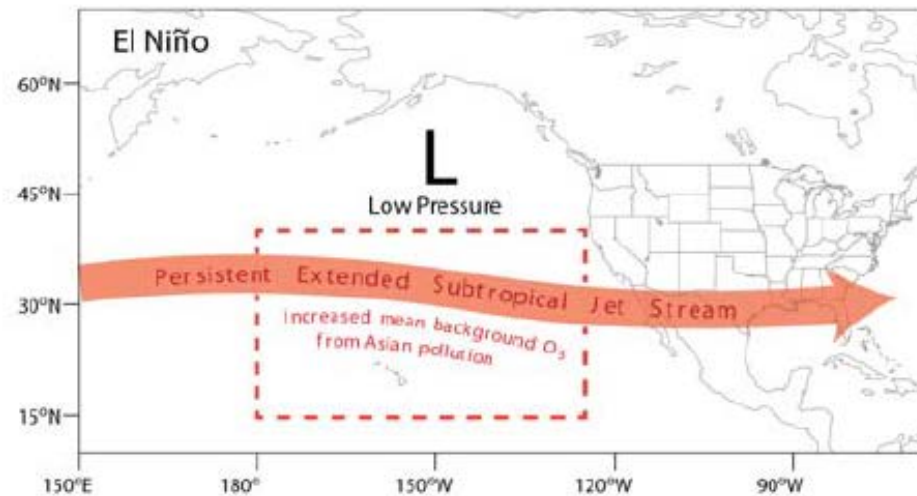
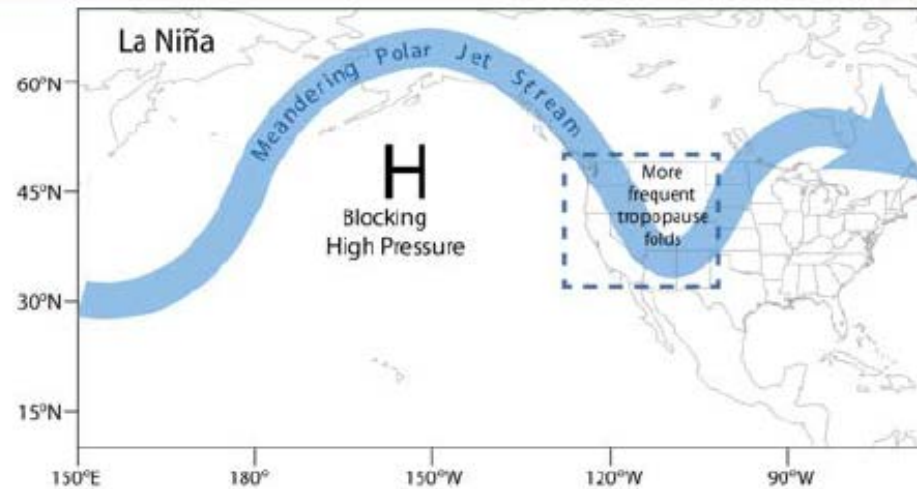
Inversions



Classic example of fireplace smoke shrouding downtown Phoenix under a strong inversion on Christmas morning (2006) Source: [phoenixvis.net](http://www.phoenixvis.net)

Figure 17: ENSO Influence on Ozone

Meteorological Influence on Ozone

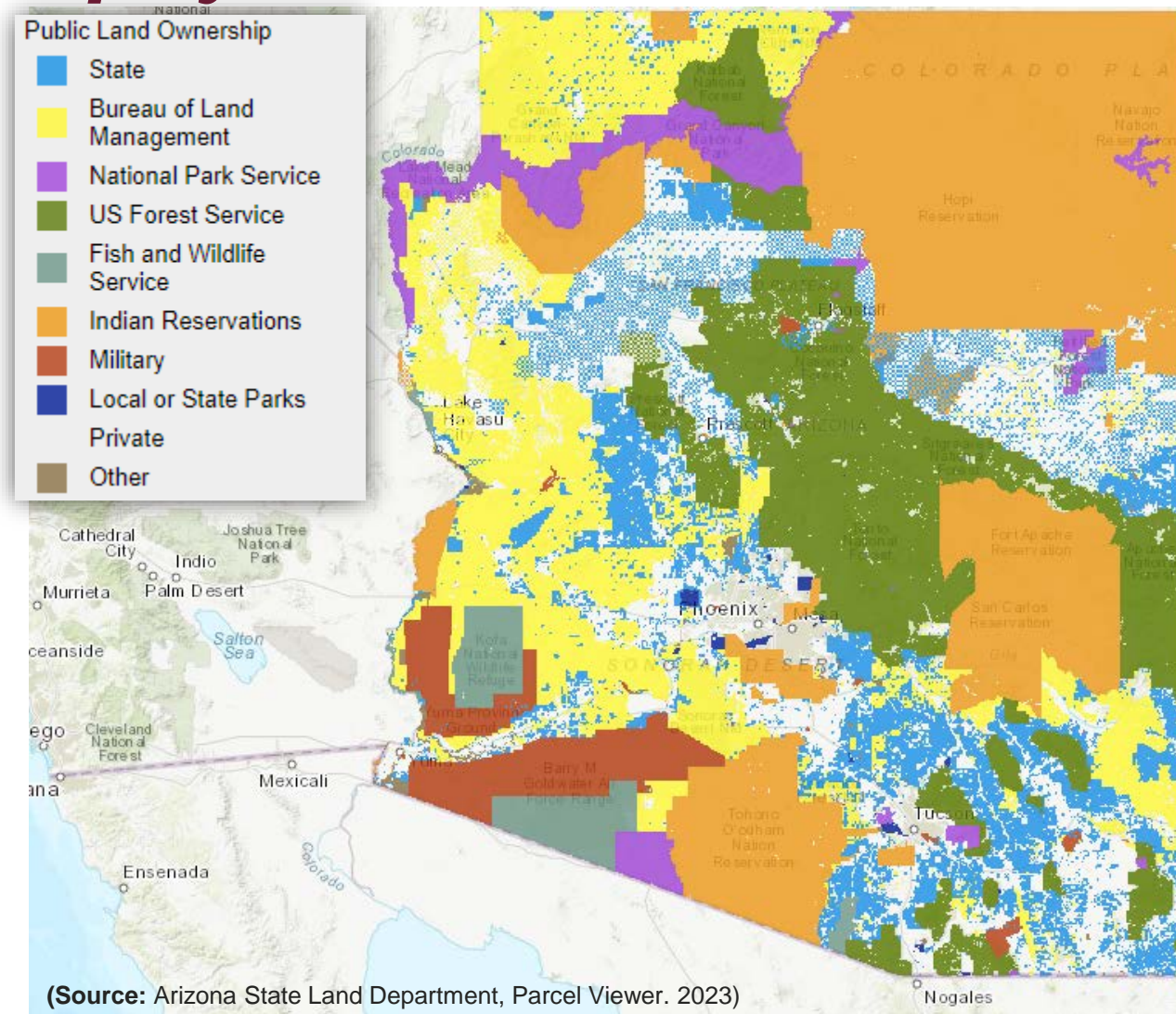


Slide 22

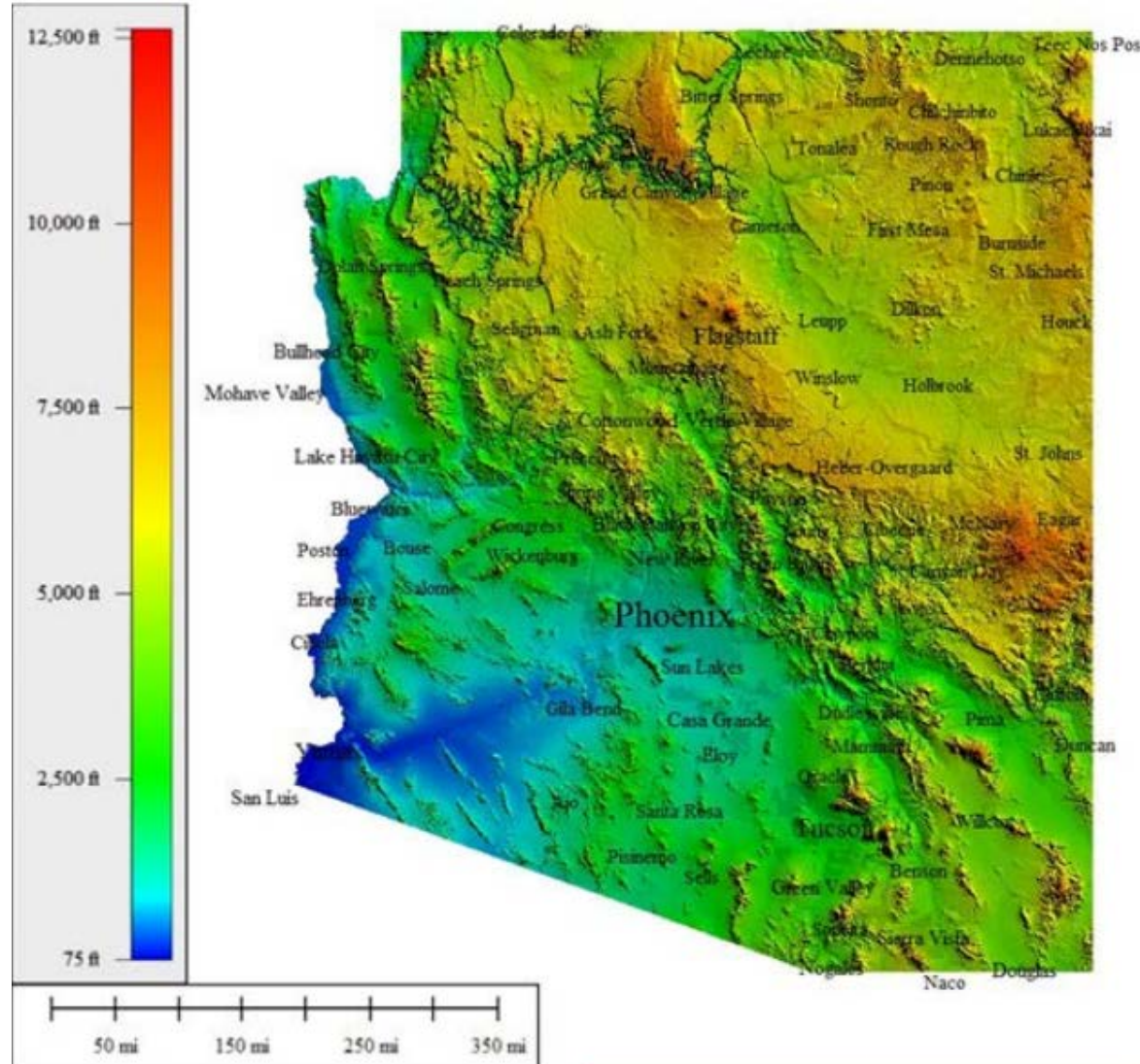
Source: Franquist, T., Air Quality Division Director, Arizona Department of Environmental Quality. (2016, April). AMC Environmental Issues Breakfast. [Presentation]. Arizona Manufacturers Council & Arizona Chamber of Commerce and Industry Environmental Issues Breakfast Meeting. Slide 26. Retrieved from <https://azchamber.com/events/presentations/april-2016-environmental-issues-breakfast/>

Air Quality Challenges For Arizona: *Geography*

- Intermountain Western U.S. Region
 - “...generally, refers to locations in AZ, CO, NM, NV, UT, WY, and the high-elevation portions of eastern CA.”
(Source: USEPA. Implementation of the 2015 Primary Ozone NAAQS: Issues Associated with Background Ozone – White Paper for Discussion at p.3, fn.10, 2015. EPA-HQ-OAR-2016-0097-0004)
- International Border with Mexico
- Interstate Border with California
- Land Ownership & Administration

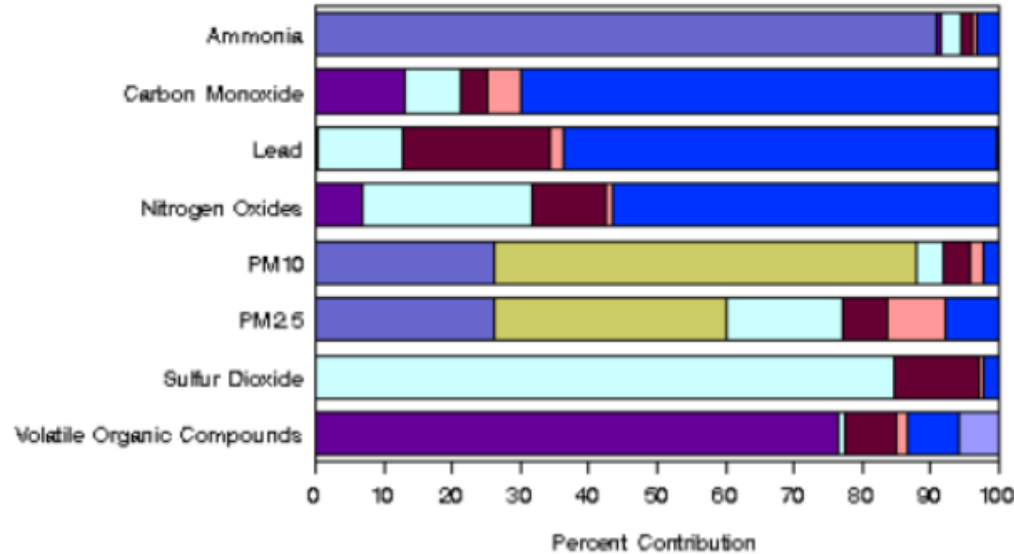


Air Quality Challenges For Arizona: *Topography*

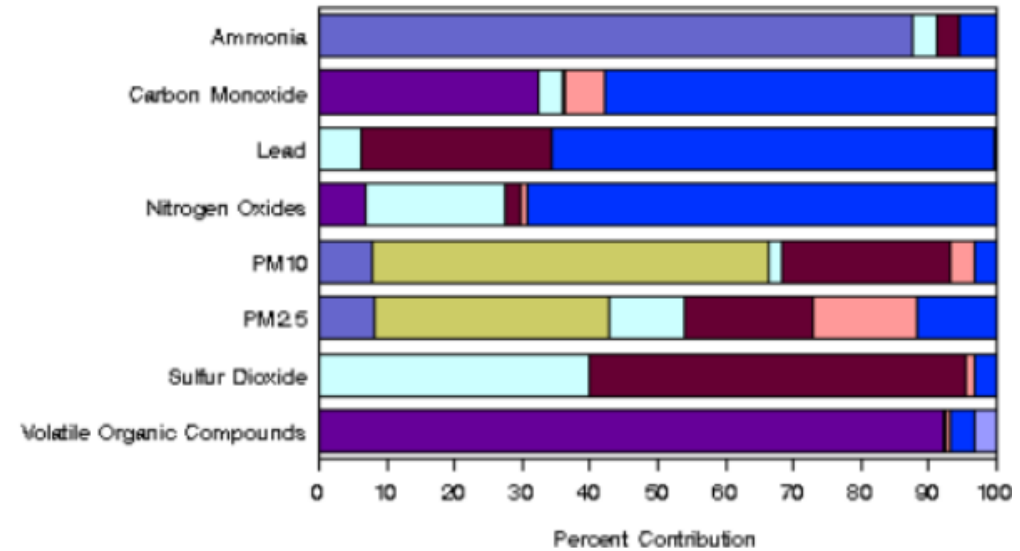


Air Quality Challenges For Arizona: *Pollutant Sources*

National Multipollutant Emissions Comparison by Source Sector
in 2014



Multipollutant Emissions Comparison by Source Sector
in Arizona in 2014



<https://www.epa.gov/air-emissions-inventories/multi-pollutant-comparison>

2017 National Emissions Inventory (“NEI”) Data for the State of Arizona

ST	TIER	POLLUTANT	EMISSIONS	UNIT OF MEASURE
AZ	Natural Resources	Volatile Organic Compounds	831,261.65	TON
AZ	Miscellaneous	Volatile Organic Compounds	126,707.70	TON
AZ	Solvent Utilization	Volatile Organic Compounds	52,331.90	TON
AZ	Highway Vehicles	Volatile Organic Compounds	48,382.75	TON
AZ	Off-Highway	Volatile Organic Compounds	20,165.56	TON
AZ	Storage & Transport	Volatile Organic Compounds	8,707.48	TON
AZ	Fuel Comb. Other	Volatile Organic Compounds	2,402.63	TON
AZ	Other Industrial Processes	Volatile Organic Compounds	2,279.32	TON
AZ	Waste Disposal & Recycling	Volatile Organic Compounds	1,947.21	TON
AZ	Fuel Comb. Elec. Util.	Volatile Organic Compounds	417.60	TON
AZ	Fuel Comb. Industrial	Volatile Organic Compounds	379.12	TON
AZ	Petroleum & Related Industries	Volatile Organic Compounds	217.03	TON
AZ	Metals Processing	Volatile Organic Compounds	118.89	
AZ	Chemical & Allied Product Mfg	Volatile Organic Compounds	112.95	

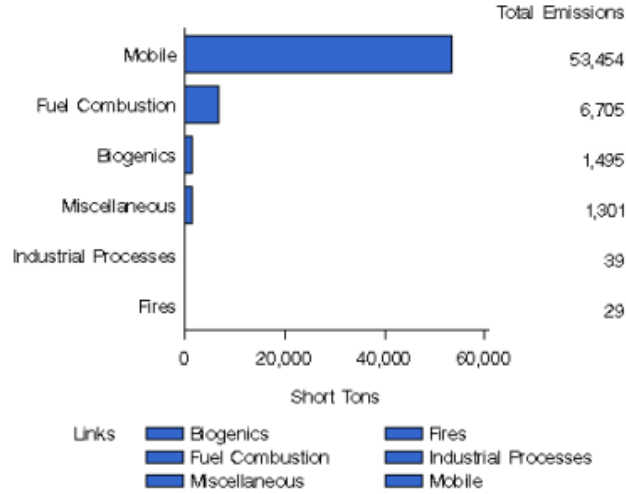
STATE	TIER	POLLUTANT	EMISSIONS	UNIT OF MEASURE
AZ	Highway Vehicles	Nitrogen Oxides	82,699.25	TON
AZ	Off-Highway	Nitrogen Oxides	43,573.38	TON
AZ	Fuel Comb. Elec. Util.	Nitrogen Oxides	20,314.42	TON
AZ	Natural Resources	Nitrogen Oxides	16,680.68	TON
AZ	Miscellaneous	Nitrogen Oxides	7,240.05	TON
AZ	Fuel Comb. Industrial	Nitrogen Oxides	5,973.94	TON
AZ	Other Industrial Processes	Nitrogen Oxides	4,353.78	TON
AZ	Fuel Comb. Other	Nitrogen Oxides	4,181.35	TON
AZ	Waste Disposal & Recycling	Nitrogen Oxides	336.41	TON
AZ	Metals Processing	Nitrogen Oxides	226.44	TON
AZ	Chemical & Allied Product Mfg	Nitrogen Oxides	138.17	TON
AZ	Petroleum & Related Industries	Nitrogen Oxides	9.14	TON
AZ	Solvent Utilization	Nitrogen Oxides	7.52	TON
AZ	Storage & Transport	Nitrogen Oxides	5.96	TON

Source: [2017 National Emissions Inventory \(NEI\) Data | US EPA](#)

NOx Emissions by Source Sector

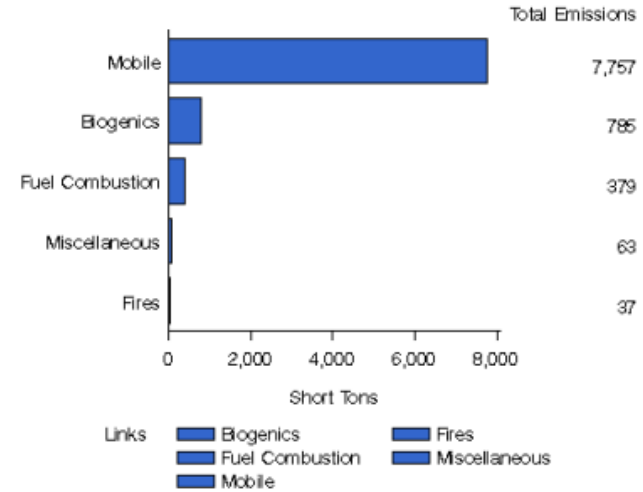
Maricopa County

Nitrogen Oxides Emissions by Source Sector
in Maricopa County, Arizona (NEI 2014 v1)



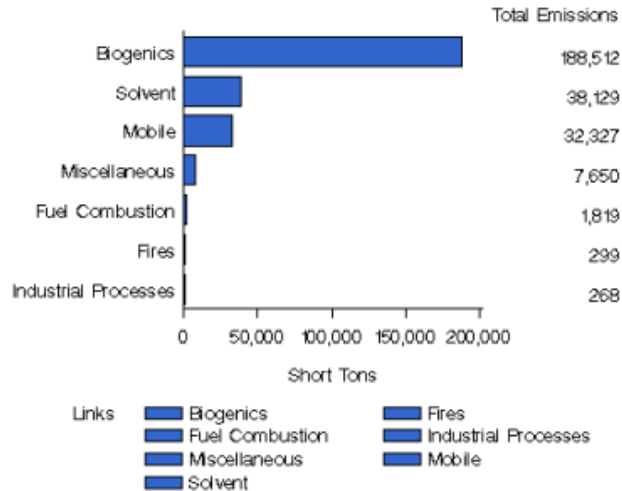
Yuma County

Nitrogen Oxides Emissions by Source Sector
in Yuma County, Arizona (NEI 2014 v1)

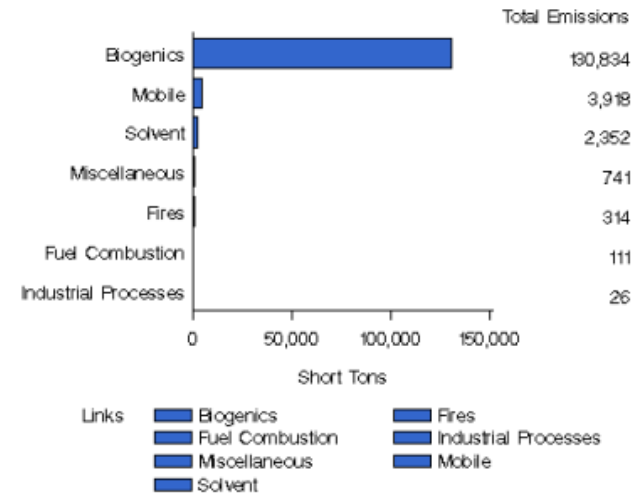


VOC Emissions by Source Sector

Volatile Organic Compounds Emissions by Source Sector
in Maricopa County, Arizona (NEI 2014 v1)



Volatile Organic Compounds Emissions by Source Sector
in Yuma County, Arizona (NEI 2014 v1)



Source: <https://www.epa.gov/air-emissions-inventories/air-emissions-sources>

NO_x Emissions by Source Sector (2017)

Maricopa County

TIER	EMISSIONS
Highway Vehicles	34,921.70
Off-Highway	16,298.59
Fuel Comb. Industrial	2,939.36
Fuel Comb. Elec. Util.	2,380.52
Fuel Comb. Other	2,189.58
Natural Resources	822.40
Other Industrial Processes	108.27
Miscellaneous	74.67
Metals Processing	74.66
Waste Disposal & Recycling	71.71
Storage & Transport	5.63
Solvent Utilization	3.97

Yuma County

TIER	EMISSIONS
Highway Vehicles	3,585.11
Off-Highway	2,573.13
Natural Resources	627.76
Fuel Comb. Elec. Util.	179.43
Fuel Comb. Other	81.48
Fuel Comb. Industrial	58.29
Miscellaneous	46.07
Waste Disposal & Recycling	11.00
Other Industrial Processes	0.81

Source: [2017 National Emissions Inventory \(NEI\) Data | US EPA](#)

VOC Emissions by Source Sector (2017)

TIER	EMISSIONS
Natural Resources	172,731.80
Solvent Utilization	28,475.94
Highway Vehicles	22,793.06
Off-Highway	7,558.95
Storage & Transport	3,615.05
Other Industrial Processes	1,554.36
Fuel Comb. Other	1,466.86
Miscellaneous	1,439.40
Waste Disposal & Recycling	944.34
Fuel Comb. Industrial	188.86
Metals Processing	71.99
Fuel Comb. Elec. Util.	57.94

TIER	EMISSIONS
Natural Resources	38,923.84
Highway Vehicles	2,599.18
Solvent Utilization	2,249.50
Off-Highway	1,076.10
Storage & Transport	571.66
Miscellaneous	564.58
Waste Disposal & Recycling	141.59
Fuel Comb. Other	52.45
Other Industrial Processes	17.85
Fuel Comb. Elec. Util.	7.64
Fuel Comb. Industrial	4.47

Figure 21: Yuma 2014 Point Sources

Figure 4-4 Permitted NOx Point Sources

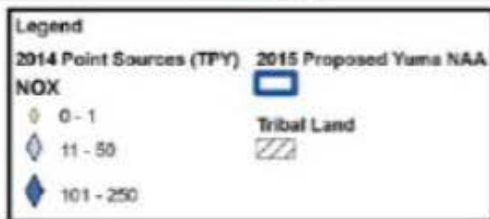
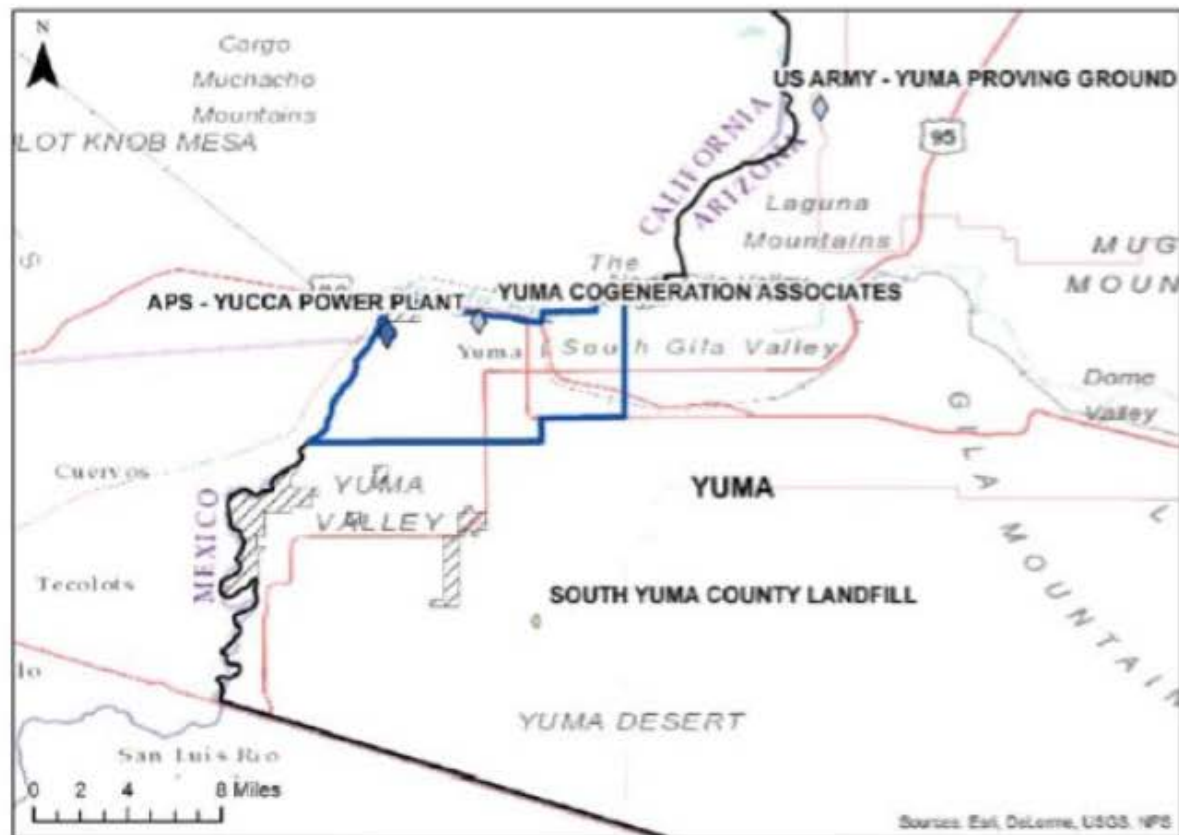
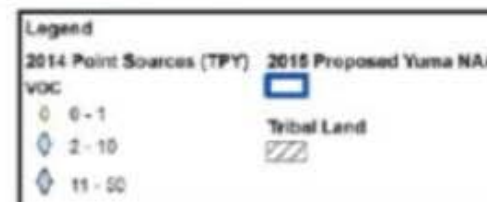
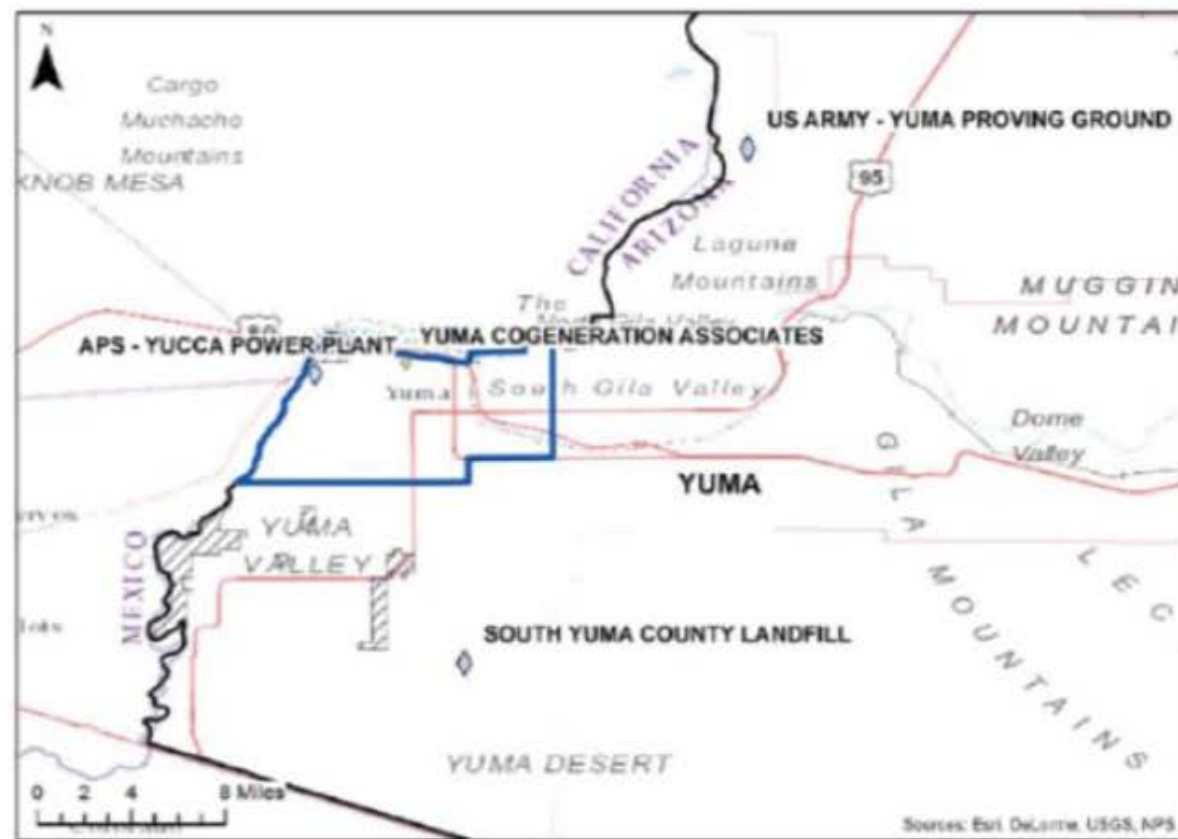


Figure 4-5 Permitted VOC Point Sources



Source: Arizona Department of Environmental Quality. (2016, August 30). 2015 Ozone NAAQS Boundary Recommendations. pp. 43-45. Retrieved from http://static.azdeq.gov/aqd/gov_ozone_boundary_rec.pdf.

Air Quality Challenges For Arizona: *Design Value*

Design Values for Ozone & Ozone Exposure



Four Days
Above Ozone
Standard
(4th High)

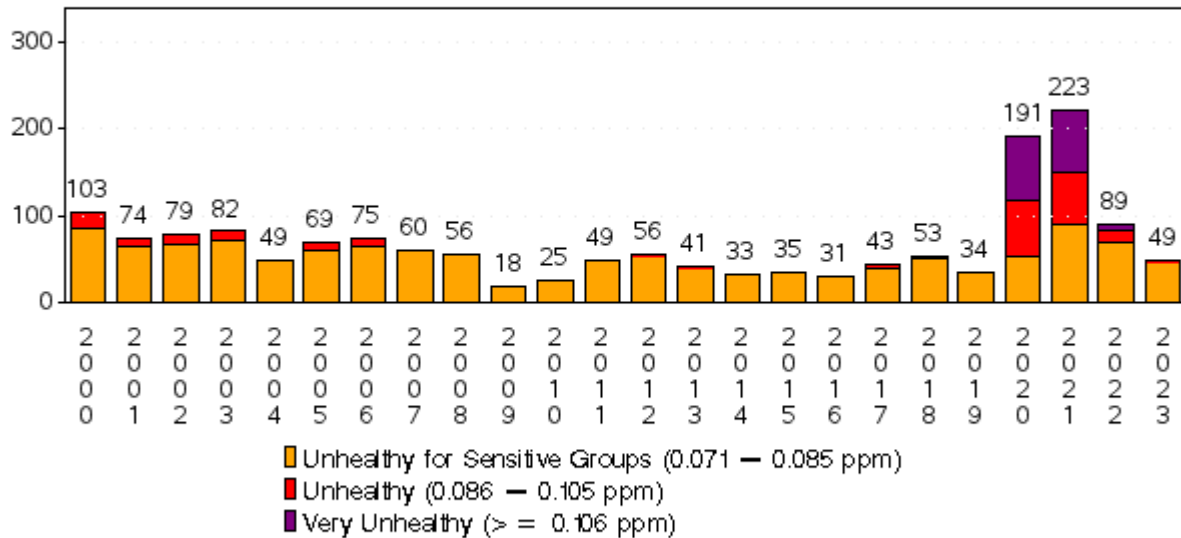


365 Days
Above Ozone
Standard

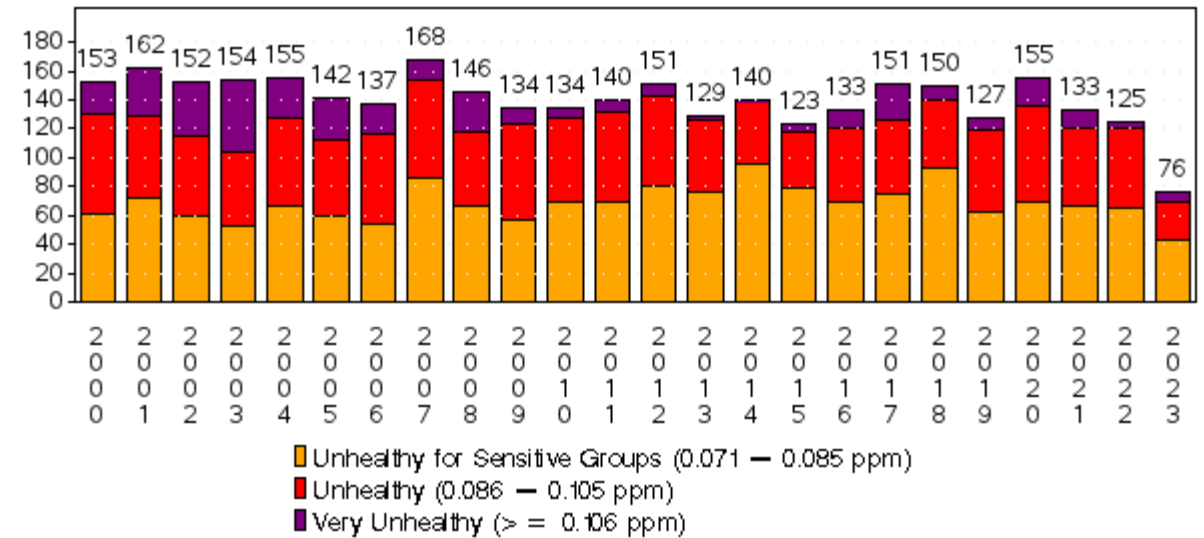
Both airsheds are same level of
nonattainment

Comparison: AZ - CA O₃ Exceedances 2023 and Historically

Number of Days 8-hr Ozone Daily Max > 0.070 ppm
2000-2023
in Phoenix-Mesa-Scottsdale, AZ



Number of Days 8-hr Ozone Daily Max > 0.070 ppm
2000-2023
in Riverside-San Bernardino-Ontario, CA



Note: Based on ALL sites
Source: U.S. EPA AirData <<https://www.epa.gov/air-data>>
Generated: August 8, 2023

Note: Based on ALL sites
Source: U.S. EPA AirData <<https://www.epa.gov/air-data>>
Generated: August 8, 2023

Arizona's Overarching Ozone Challenges

- Disadvantaged Populations
 - Areas without minimal point source pollutant emissions impacted by stringent regulatory measures
- Pollutant emission sources outside regulatory authority
- Lack of Emission Reduction Credits
- Lack of sufficient Relief Mechanisms
- **AN OUTDATED CLEAN AIR ACT**
 - Last updated in 1990.
Needs to be modernized.

Figure 22: Arizona 2019 Unemployment Rates by County

Map Title: Unemployment rates by county, not seasonally adjusted
Map Type: Arizona County Map
Month/Year: May/2019

County	May 2019
Apache County	8.9
Cochise County	5.5
Coconino County	5.0
Gila County	5.3
Graham County	4.7
Greenlee County	4.2
La Paz County	5.8
Maricopa County	3.9
Mohave County	5.5
Navajo County	6.8
Pima County	4.4
Pinal County	4.8
Santa Cruz County	6.7
Yavapai County	4.3
Yuma County	17.1

Source: U.S. Department of Labor, Bureau of Labor Statistics. (2019, May). Local Area Unemployment Statistics Map. Retrieved from <https://data.bls.gov/lausmap/showMap.jsp?jsessionid=23B3DDD92FC39BC3EB1198D22DE4050B>.

The Purpose of the Clean Air Act

THE CLEAN AIR ACT¹

TITLE I—AIR POLLUTION PREVENTION AND CONTROL

PART A—AIR QUALITY AND EMISSION LIMITATIONS

FINDINGS AND PURPOSES

SEC. 101. (a) The Congress finds—

(3) that air pollution prevention (that is, the reduction or elimination, through any measures, of the amount of pollutants produced or created at the source) and air pollution control at its source is the primary responsibility of States and local governments; and

Thank you

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Amanda A. Reeve

Environmental & Regulatory Policy Advisor,
Snell & Wilmer
areeve@swlaw.com

APPENDIX D:

October 16, 2023

Agenda, Minutes, Presentations

REVISED

REVISED

REVISED

Interim agendas can be obtained via the Internet at <http://www.azleg.gov/Interim-Committees>

ARIZONA STATE LEGISLATURE

INTERIM MEETING NOTICE OPEN TO THE PUBLIC

JOINT LEGISLATIVE AD HOC STUDY COMMITTEE ON AIR QUALITY AND ENERGY

Date: Monday, October 16, 2023

Time: 3:00 P.M.

Place: SHR 1

Members of the public may access a livestream of the meeting here:

<https://www.azleg.gov/videoplayer/?clientID=6361162879&eventID=2023101010>

AGENDA

1. Call to Order
2. Roll Call
3. Approval of Minutes
4. Presentations
 - Michelle Wilson, Regulatory Compliance Administrator
Weights and Measures Services Division, Arizona Department of Agriculture
Cleaner-Burning Gasoline Summary
 - Gordon Schremp, Senior Energy Advisor, Nemequ Analytics LLC
Overview of Arizona's Fuel Supply
5. Public Testimony
6. Adjournment

Members:

Senator Sine Kerr, Co-Chair
 Senator Frank Carroll
 Senator Denise "Mitzi" Epstein
 Senator Jake Hoffman
 Senator Priya Sundareshan

Representative Gail Griffin, Co-Chair
~~Representative Oscar De Los Santos~~
 Representative Timothy M Dunn
 Representative Austin Smith
 Representative Stephanie Stahl Hamilton
 Representative Anastasia "Stacey" Travers

40/12/2023
 10/16/2023
 hf

For questions regarding this agenda, please contact Senate Research Department.
 Persons with a disability may request a reasonable accommodation such as a sign language interpreter, by contacting the Senate Secretary's Office: (602) 926-4231 (voice). Requests should be made as early as possible to allow time to arrange the accommodation

ARIZONA STATE LEGISLATURE

JOINT LEGISLATIVE AD HOC STUDY COMMITTEE ON AIR QUALITY AND ENERGY

Minutes of the Meeting
October 16, 2023
3:00 P.M., SHR 1

Members of the public may access a livestream of the meeting here:

<https://www.azleg.gov/videoplayer/?clientID=6361162879&eventID=2023101010>

Members Present:

Senator Sine Kerr, Co-Chair
Senator Frank Carroll

Representative Gail Griffin, Co-Chair
Representative Timothy M. Dunn
Representative Austin Smith
Representative Stephanie Stahl-Hamilton

Members Excused:

Senator Denise "Mitzi" Epstein
Senator Jake Hoffman
Senator Priya Sundareshan

Representative Anastasia "Stacey" Travers

Staff:

Rachel Andrews, Senate Research Analyst
Fausto Burruel, Senate Research Assistant Analyst
Emily Bonner, House Research Analyst
Blanca Santillan Ramos, House Research Assistant Analyst

Co-Chair Kerr called the meeting to order at 3:08 p.m. and attendance was noted.

APPROVAL OF MINUTES

Senator Kerr stated that without objection, the Joint Legislative Ad Hoc Study Committee on Air Quality and Energy minutes of August 9, 2023 stand approved.

PRESENTATIONS

Michelle Wilson, Regulatory Compliance Administrator
Weights and Measures Services Division, Arizona Department of Agriculture
Cleaner-Burning Gasoline Summary

Michelle Wilson, Regulatory Compliance Administrator, Arizona Department of Agriculture, Weights and Measures Services Division, distributed and explained a PowerPoint entitled "Cleaner-Burning Gasoline Summary" (Attachment A). Ms. Wilson answered questions posed by the Committee.

Gordon Schremp, Senior Energy Advisor, Nemequ Analytics LLC
Overview of Arizona's Fuel Supply

Gordon Schremp, Senior Energy Advisor, Nemequ Analytics LLC, distributed and explained a PowerPoint entitled "Arizona Fuel Supply Chain 101" (Attachment B). Mr. Schremp answered questions posed by the Committee.

Senator Carroll offered comments.

Mr. Schremp offered comments.

PUBLIC TESTIMONY

Lezley Shepherd, representing self, offered comments regarding the fuel topics discussed.

Catherine Reheis-Boyd, President and CEO, Western States Petroleum Association, offered comments regarding the fuel topics discussed.

Sandy Bahr, Director, Sierra Club, Grand Canyon Chapter, offered comments regarding the fuel topics discussed.

Attached is a list noting the individuals who registered their positions on the agenda items (Attachment C).

Attached are forms noting the individuals who submitted a Speaker slip on the agenda items (Attachment D).

There being no further business, the meeting was adjourned at 5:04 p.m.

Respectfully submitted,

Jenn Dickey
Committee Secretary

(Audio recordings and attachments are on file in the Secretary of the Senate's Office/Resource Center, Room 115. Audio archives are available at <http://www.azleg.gov>)



Cleaner-Burning Gasoline Summary

October 16, 2023
Michelle Wilson

Weights and Measures Services Division (WMSD) Overview



- Mission: ensure equity in the marketplace and protect air quality
- 24 staff positions, including 14 inspectors and two field supervisors
- License more than 120,000 entities, including commercial devices (grocery scales, fuel dispensers, etc.), public weighmasters, and registered service agencies and representatives
- We conduct marketplace inspections and respond to consumer complaints
- Enforce two air quality programs (cleaner burning gasoline, and gasoline station vapor recovery)

Arizona Cleaner-Burning Gasoline (CBG)

- Program adopted in the late 1990's to protect air quality.
- Required in federally-approved State Implementation Plan. Any changes must be approved by EPA.
- We cannot remove requirements without demonstrating that there will not be an impact to air quality.
- CBG is a 'boutique' fuel. This means it is a unique fuel approved for use under the Clean Air Act by EPA to meet local air quality needs.

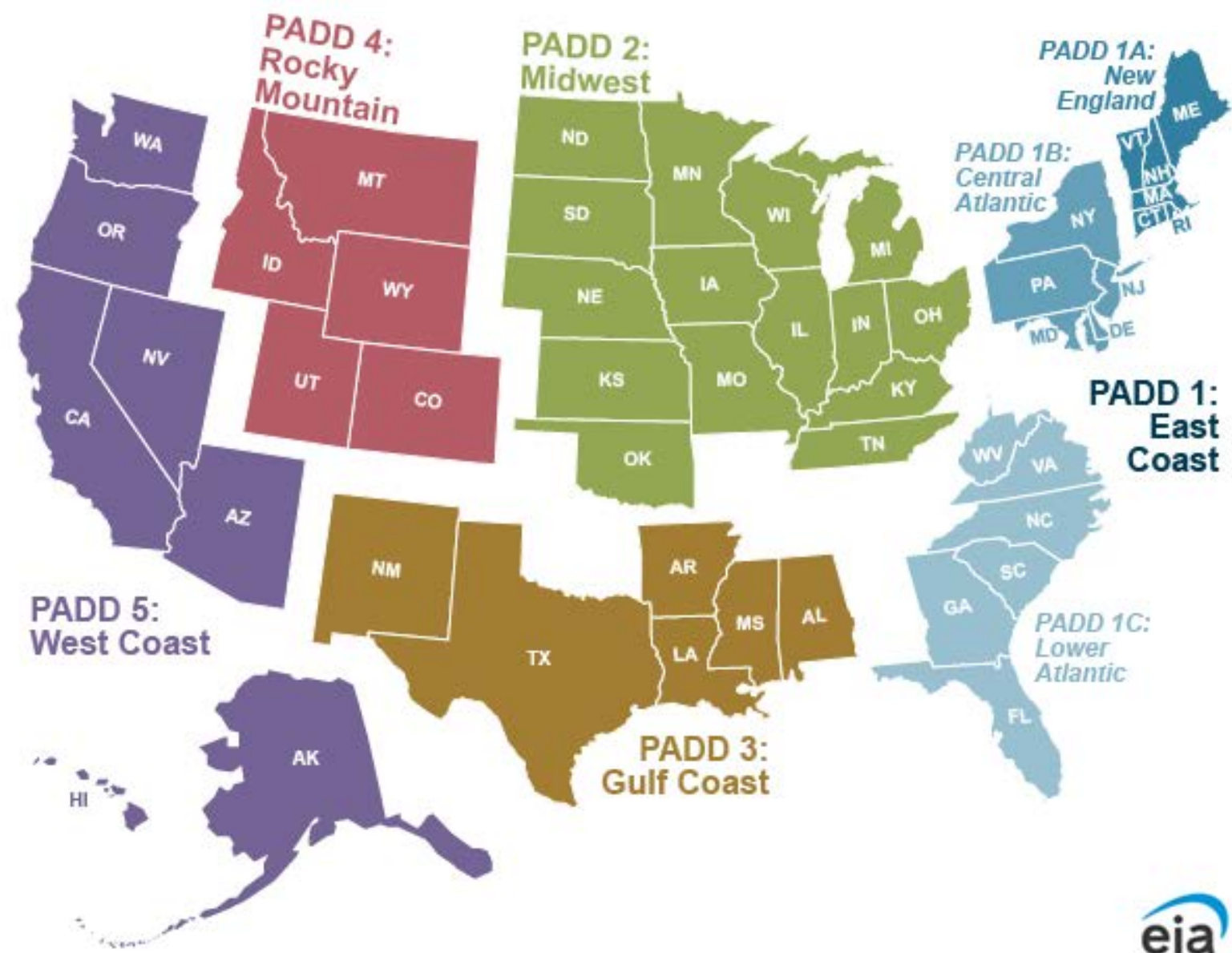
More about Boutique Fuels...

- States are preempted from adopting fuel standards that are regulated by EPA under the Clean Air Act
- EPA may waive this preemption through approval of the fuel program into a State Implementation Plan (SIP)
- Approval into a SIP requires a demonstration that the state fuel program is necessary to achieve the National Ambient Air Quality Standards

Energy Policy Act

- The Energy Policy Act of 2005 amends the CAA by placing restrictions on the EPA's authority to waive preemption:
 - Cannot increase the total number of fuels approved into SIPs above the number approved as of September 1, 2004.
 - EPA must make a finding after consultation with DOE that the fuel does not cause supply or distribution interruptions or have a significant adverse impact on fuel producibility in the affected or contiguous areas.
 - The fuel type must already be in a SIP in the applicable PADD, with the exception of 7.0 psi RVP fuel type.

Petroleum Administration for Defense Districts (PADD)



Boutique Fuel List

Not shown on this list is CARB Phase 3, which is incorporated into the California SIP and may be a potential fuel option if it meets all other criteria.

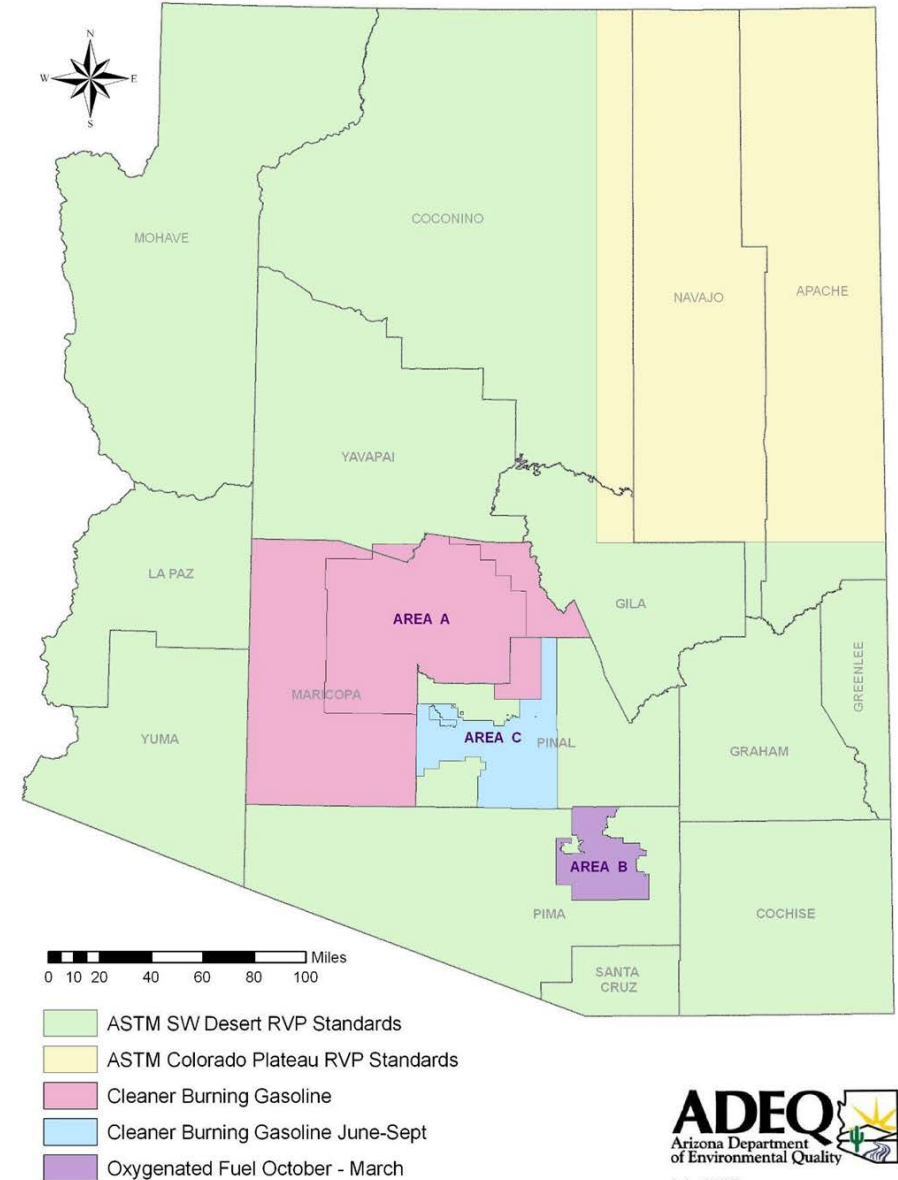
Type of Fuel Control	PADD**	Region - State	Counties
RVP of 7.8 psi	2	5 - IN	Clark and Floyd
	3	6 - TX (May 1-Oct. 1)*	95 counties in East Texas***
RVP of 7.0 psi	2	5 - MI	Lenawee, Livingston, Macomb, Monroe, Oakland, St. Clair, Washtenaw and Wayne
	3	4 - AL ²	Jefferson and Shelby
	3	6 - TX	El Paso
Low Emission Diesel	3	6-TX	110 counties in Central and East Texas****
Cleaner Burning Gasoline (Summer)	5	9 - AZ (May 1 - Sept 30)	Maricopa, Pinal (part) and Yavapai (part)*****
Cleaner Burning Gasoline (Non-Summer)	5	9 - AZ (Oct 1- Apr 30)	Maricopa, Pinal (part) and Yavapai (part)*****
Winter Gasoline (aromatics & sulfur)	5	9 - NV ²	Clark

Arizona CBG standards found nowhere else...

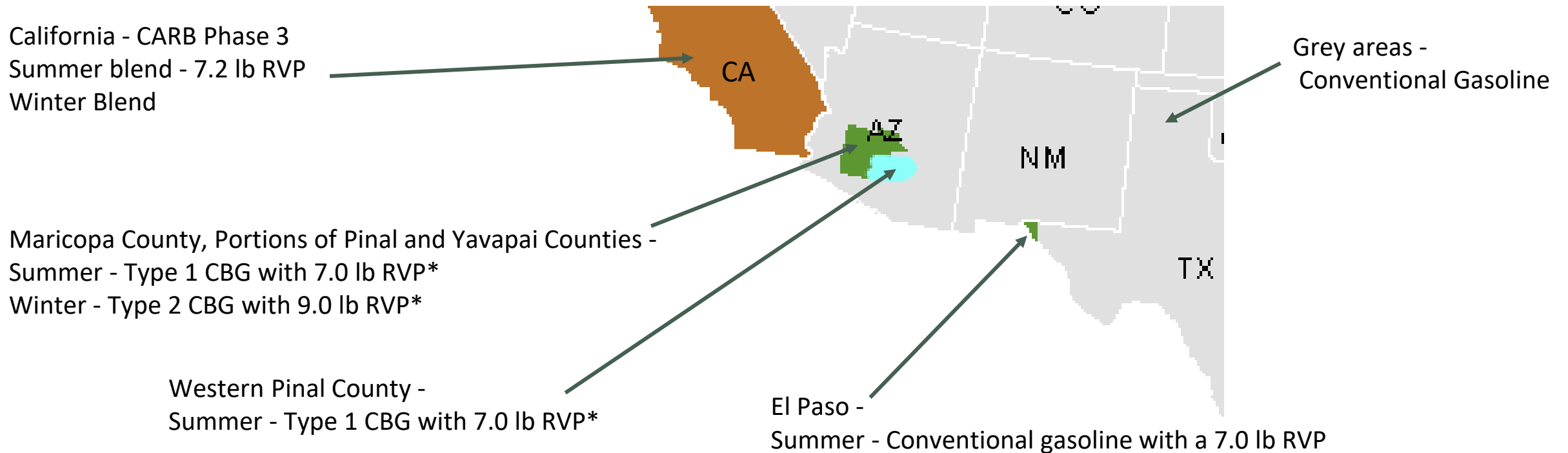
Cleaner burning gasoline (CBG) is required in the CBG-covered area:

- Pink area on map (Maricopa County with portions of Pinal and Yavapai Counties) year round.
- Blue area on map (eastern Pinal County) June 1 through September 30.
- There are different standards for the summer and winter:
- Summer blend meets standards similar to 1999 Federal Reformulated Gasoline standards with a lower summer Reid Vapor Pressure (RVP)
- Winter blend meets standards similar to 1997 California CARB Phase 2 standards with a lower winter RVP

Gasoline Standards in Arizona

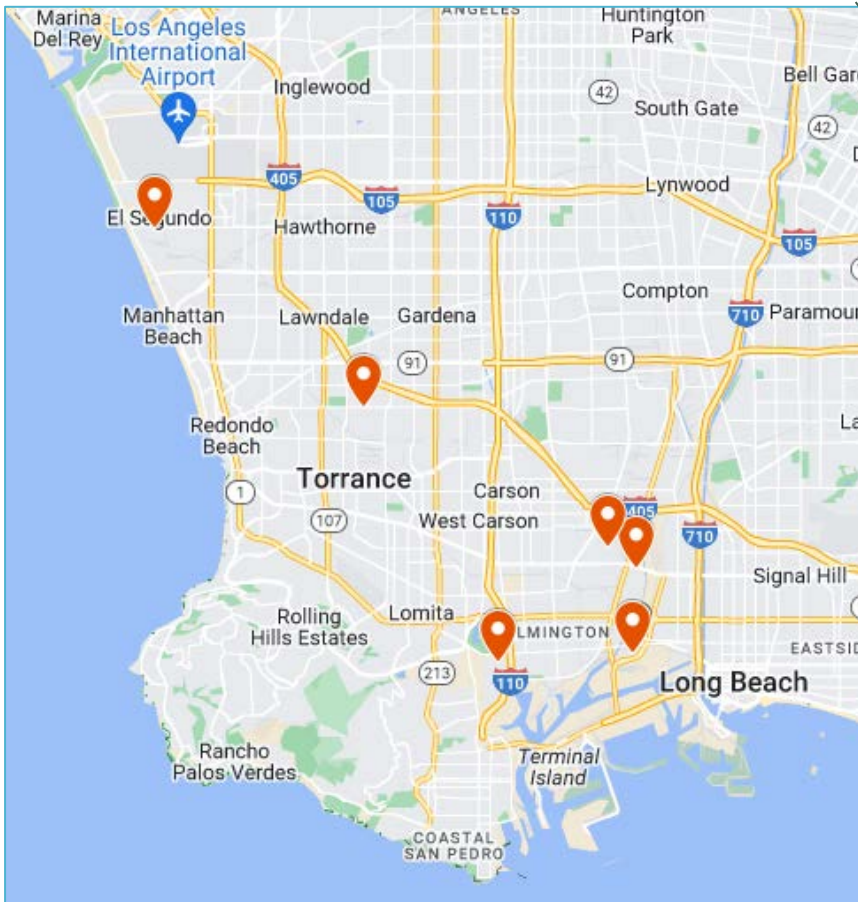


Gasoline Formulations in Surrounding Areas



*Type 1 gasoline = Meets either 1999 Federal RFG or 1997 CARB Phase 2 standards with a 7.0 lb RVP
Type 2 gasoline = Meets 1997 CARB Phase 2 standards with a 9.0 lb RVP

All refineries that produce CBG for Arizona are located out of state



6 refineries in the Los Angeles area and 4 refineries in Texas and New Mexico produce most of the CBG for Arizona. Approximately 70% of CBG typically comes from just 4 of these refineries.



Pipelines transport fuels from the refineries into Arizona...it can take 3 to 7+ days

Pipeline from Los Angeles area to Phoenix

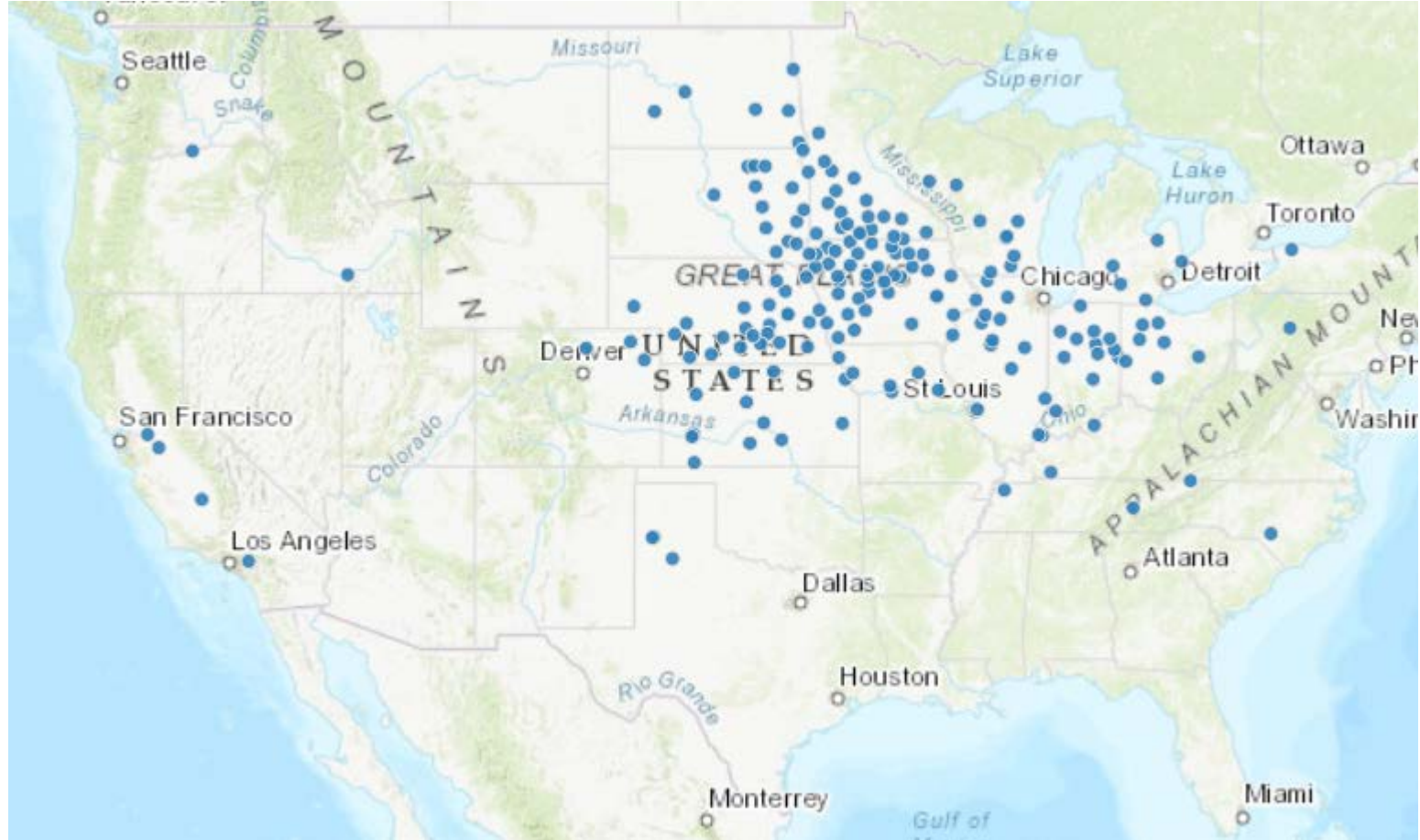
Two Pipelines from El Paso area:
1) to Phoenix; and 2) to Tucson



In Arizona most gasoline contains 10% ethanol...

Ethanol is shipped by rail from production facilities located outside of Arizona.

Without ethanol, the unblended unleaded gasoline that is shipped by pipeline does not meet the octane requirements for sale in Arizona.



What does this mean?

- CBG is required to protect air quality under a federal State Implementation Plan.
- It is a unique gasoline blend not sold elsewhere.
- With the exception of required federal and state taxes, gasoline pricing is market-based, and prices are not set by government agencies.
- The gasoline production and transportation system is very robust; however, when unforeseen problems occur that impact production and transport, supply is impacted.
- When there are disruptions in supply, it decreases availability while demand generally remains the same. Typically this leads to increased prices.
- Since it is a unique blend of gasoline, it cannot be acquired from surrounding areas in Arizona or from other surrounding states to make up the shortfall.

Has Arizona evaluated if we can use gasoline that is sold in other areas?

- Gasoline standards have changed significantly since the CBG program was adopted. Newer standards are more stringent, providing a benefit to air quality.
- From 2017 to 2019, ADEQ, MAG, and WMSD worked with stakeholders to evaluate if alternative gasoline standards could be adopted that would continue to provide the same air quality benefits as the boutique CBG program.
- A variety of potential gasoline formulations were evaluated and presented in the summary of results at: [December 5 2019 Document](#)

Gasoline Formulation Results

The study showed the following:

1. A non-boutique gasoline with equivalent or better air quality emissions was not identified. Conventional gasoline with the RVP that is used outside of the CBG-covered area in the remainder of the state would not be acceptable due to increased air pollutant emissions.

1. The following boutique gasoline formulations would be acceptable:

Summer blend:

- A. Conventional gasoline with a 7.0 lb RVP
- B. CARB Phase 3 gasoline

Winter Blend:

- A. CARB Phase 3 gasoline (evaluation of this gasoline ongoing)

Currently any acceptable gasoline formulations for the CBG-covered area will continue to require a gasoline formulation that is different than the rest of the state.

Questions?



Contact the Weights and Measures Services
Division at:

dwm@azda.gov

Michelle Wilson or Vince Wolpert



Arizona Fuel Supply Chain 101

Gordon Schremp

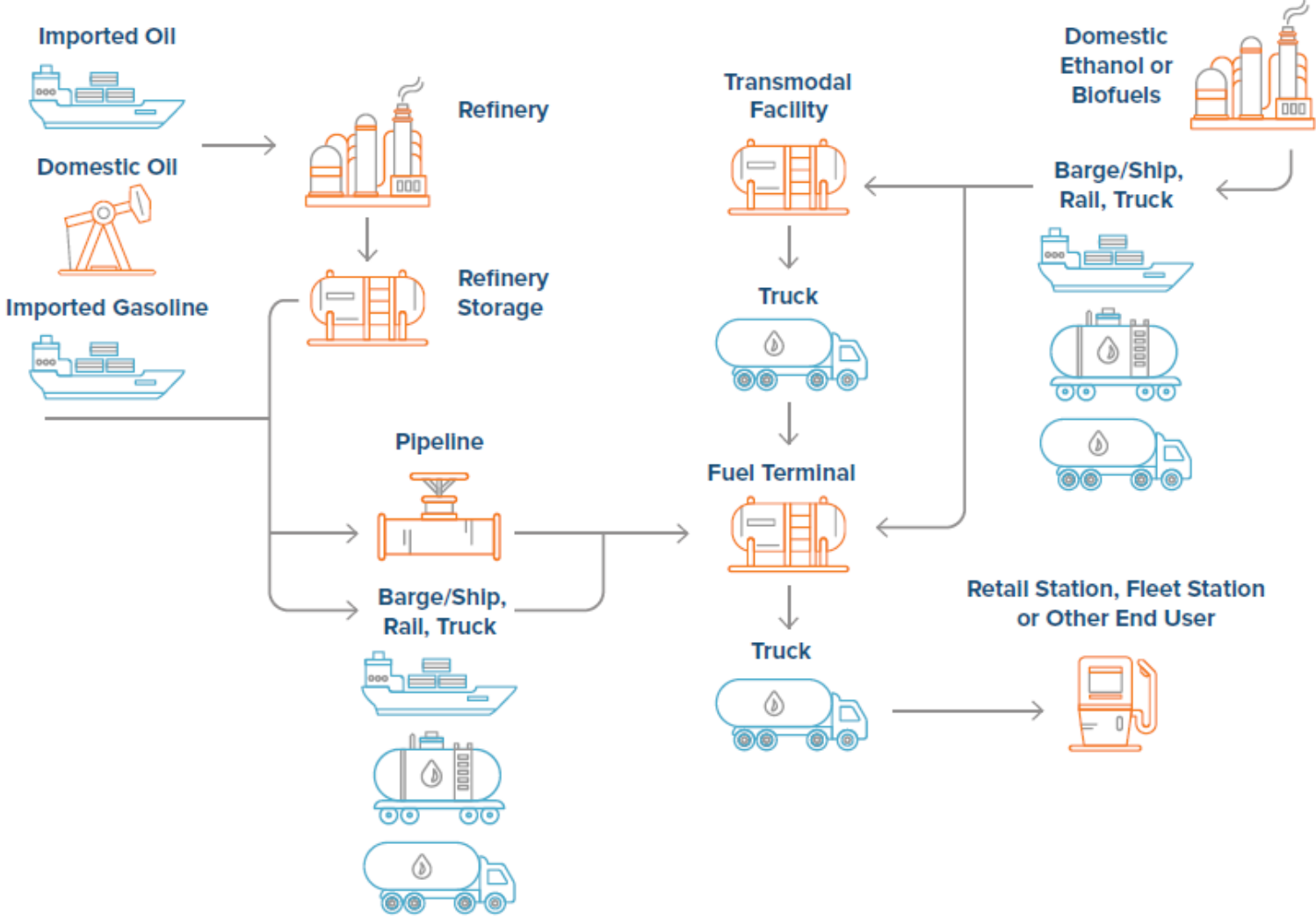
Based on a report by Nemequ Analytics LLC, September 6, 2023

Purpose of research

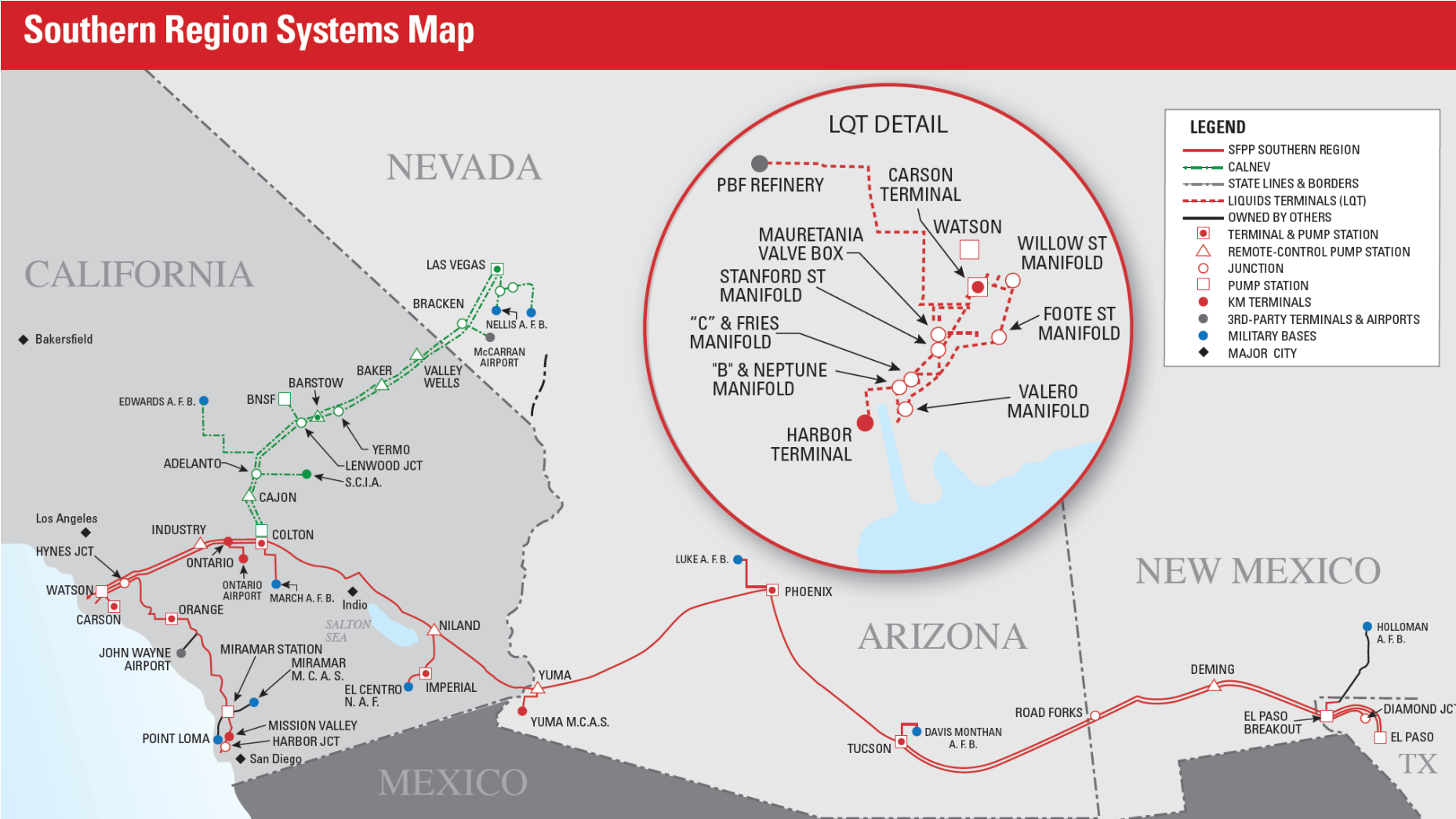
- Develop transportation fuel overviews for Arizona and Nevada
- Provide consequence assessments of potential impacts related to changes to gasoline specifications
- All information in this project will be publicly available and not proprietary to any market participant



From oil to gasoline



Kinder Morgan – Southern CA to Phoenix & West Texas to Phoenix & Tucson



Kinder Morgan – Phoenix Terminal Capabilities

Phoenix Terminal

49 North 53rd Ave
Phoenix, AZ 85043

Phone: (602) 278-8564
Fax: (602) 269-8518

» Specifications

- 83 total acres
- 61 refined petroleum products tanks
- Total storage capacity = 1,956,200 barrels
- Range of tanks = 10,000–90,000 barrels

» Products

- Conventional gas, AZCBG gas, EPA ULSD, turbine, biodiesel, ethanol

» Logistics

Inbound:

- KM 20" Colton to Phoenix pipeline; Watson area origin
- KM 12"/16" El Paso to Phoenix pipeline
- Truck and rail ethanol offloading
- Biodiesel rail offloading

Outbound:

- Major roadways: I-10
- KM 6" pipeline to Luke AFB
- Connection to Sky Harbor Airport jet fuel pipeline



» Loading Racks

- Eleven truck loading racks
- Toptech TMS6 rack automation
- Midgrade blending
- Ethanol storage and sequential rack blending
- EPA detergent additive systems
- Diesel red dye injection services

» Other

- Biodiesel community storage and blending up to 5%
- Diesel lubricity additive



Kinder Morgan – Tucson Terminal Capabilities

Tucson Terminal

3841 E Refinery Way
Tucson, AZ 85713

Phone: (520) 514-1065
Fax: (520) 790-3396

» Specifications

- 160 total acres
- 44 refined petroleum products tanks
- Total storage capacity = 1,080,000 barrels
- Range of tanks = 6,000–80,000 barrels

» Products

- Conventional gas, EPA ULSD, turbine, ethanol, export gas

» Logistics

Inbound:

- KM 12" El Paso to Tucson pipeline
- Truck and rail ethanol offloading

Outbound:

- Major roadways: I-10
- KM 6" pipeline to Davis Monthan AFB



» Loading Racks

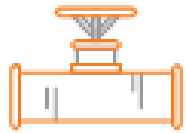
- Six truck loading racks
- Toptech TMS6 rack automation
- Midgrade blending
- Ethanol storage and sequential rack blending
- EPA detergent additive system
- Diesel red dye injection services

» Other

- Diesel lubricity additive



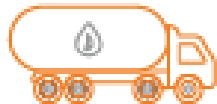
Pipeline Constraints



Capacity constraints ("Pipeline Space" held by producers/suppliers)



Pipeline schedules



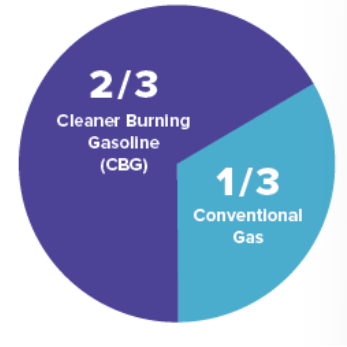
Alternative source of supply is over land by truck, comes at a cost



Arizona Fuel Standards

- **Gasoline (3.01 billion gallons in 2022)**

- Arizona Cleaner Burning Gas
- Conventional Gas
- E15 sales are allowed with certain conditions
- Volatility standards change throughout the year, highest during the winter & lowest during summer



- **Ultra Low Sulfur Diesel (ULSD) (1.1 billion gallons in 2022)**

- Federal standard
- Coming from West and East lines, many refiners supply this EPA diesel

- **Commercial Jet Fuel (620 million gallons in 2022)**

- International standard, same in all states



About AZ Gasoline

- Arizona's Cleaner Burning gasoline (AZ CBG) volatility standards (a measure of how easily gasoline evaporates) are:
 - Lower than CA, except in Mar, Apr, Oct
 - *Significantly* lower than conventional during the entire year
- The lower the volatility, the more difficult & expensive to produce
 - Butane is less expensive blending component with good qualities
- Pentane is another blending component with similar good properties but high volatility.
 - RVP specifications limit is use as a blending component during the summer season for California reformulated gasoline and Arizona CBG
- Can't change blends without technical analysis and approval by US EPA
 - Noncompliance with federal CAA ozone standards in metro area require US EPA's approval for proposed changes in gasoline formulation



Changing Fuel Standards

- Process to change fuel standards is lengthy (multi-year) & complex involving regional, state and federal jurisdictions
- Technical analyses are required (emissions estimates/modeling, cost benefit, etc.)
- New modeling analyses should be considered
- Requires SIP revision, EPA approval takes years
- CAA Anti-backsliding provisions potentially prevent eliminating CBG
- Capital investments could be required by producers and suppliers, some may choose not to invest



Diverse Supply Chain Vulnerabilities

- **CA policies:** Scoping Plan-related regulations could affect SW markets
 - Current regs have increased cost of producing gasoline
 - CA policymakers are examining limiting fuel exports to AZ
 - Scoping Plan: Electrification, more regulatory overlay could increase cost in AZ, premature consolidating of refineries
- Nearly all fuels are delivered to Arizona via pipeline systems
 - **All 3 pipeline systems are either at or near capacity**, a temporary closure of one system cannot be compensated for by increased throughput through the other two systems.
- **There are no AZ refineries.** Refinery maintenance and outages for out of state suppliers & **pipelines**
 - Regular maintenance
 - Unplanned outages
 - Weather event



Continue the Conversation

- Fuel formulations and supply is a complex policy topic
 - Require multi-state analysis, federal reviews
 - Doesn't resolve supply chain issues
- Goals are to maintain affordable, reliable fuel in Arizona and avoid unintended consequences for Arizonans
- WSPA encourages continued analysis that assesses supply and economic outcomes to ensure that policies meet stated goals

