



LADCO | LAKE MICHIGAN
AIR DIRECTORS CONSORTIUM

LADCO 2024 Business Meeting Air Planning Discussion

LADCO Air Directors

September 25, 2024

Agenda for Today

- 9:00 US EPA technical updates and discussion
- 10:00 PM_{2.5} and O₃ NAAQS attainment planning and compliance
- Noon Lunch and air quality trends reports
- 1:00 EJ and Permitting discussion
- 2:30 Open Discussion
- 3:30 States-only meeting
- 5:30 Adjourn



Session Objectives

- Get updates on technical work @ EPA
- Set priorities for states and LADCO for NAAQS planning
- Define LADCO's role in upcoming ozone and PM_{2.5} planning
- Identify areas in which the LADCO member states can cooperate on air quality management



A wide-angle photograph of the Chicago skyline at dusk, viewed from across Lake Michigan. The sky is filled with dramatic, dark blue and grey clouds, with some light breaking through. The city lights are beginning to glow, and the water in the foreground is a deep teal color. The Willis Tower is the most prominent building on the right side of the skyline.

Ozone NAAQS Compliance & Attainment

Ozone NAAQS Compliance

Serious NAA Requirements

- Enhanced vehicle I/M, clean fuel fleets, VMT reporting
- Major source threshold = 50 TPY
- NSR offset = 1.2 : 1
- 18% RFP over 6 years
- Milestone contingency measures for RFP
- NSR for existing source modifications
- Enhanced monitoring plan
- Modeled demo of attainment

Ozone Planning Timeline

Moderate -> Serious Bump Ups

- Within 6 months of August 3, 2024 (~Feb 2025)

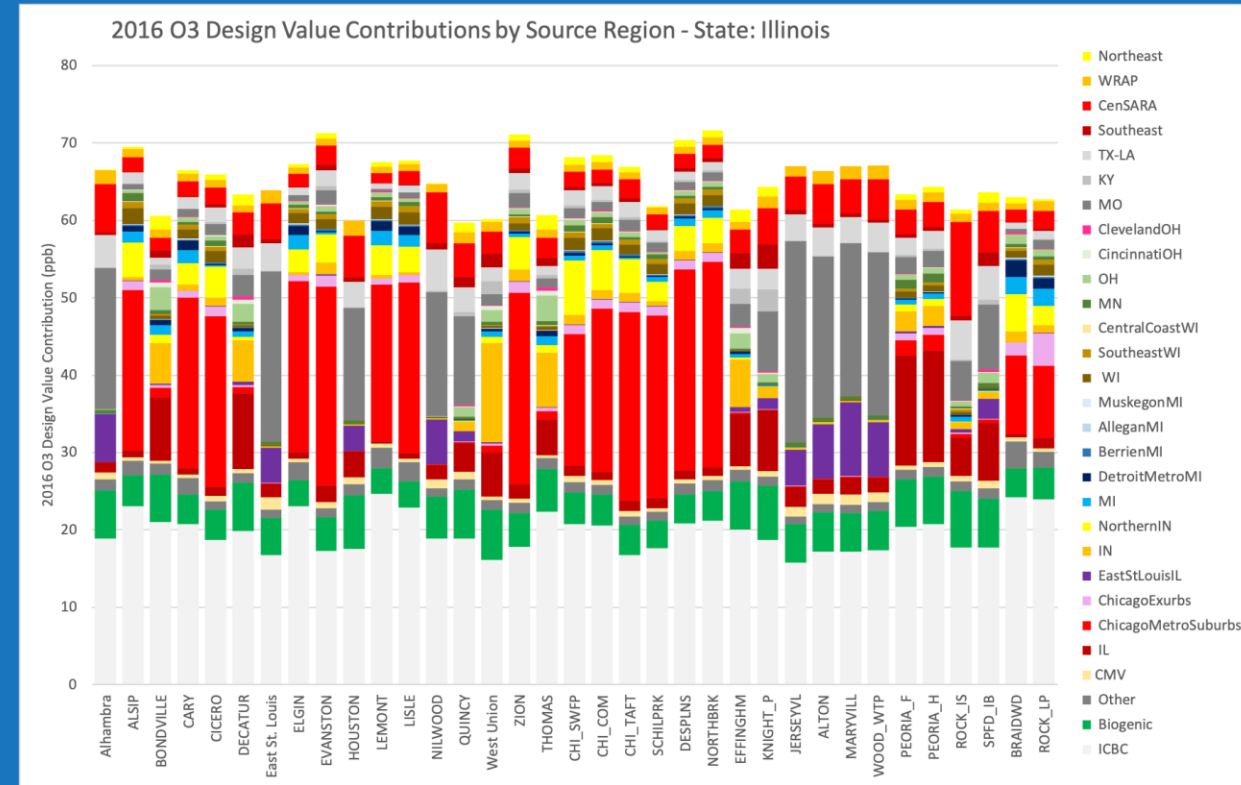
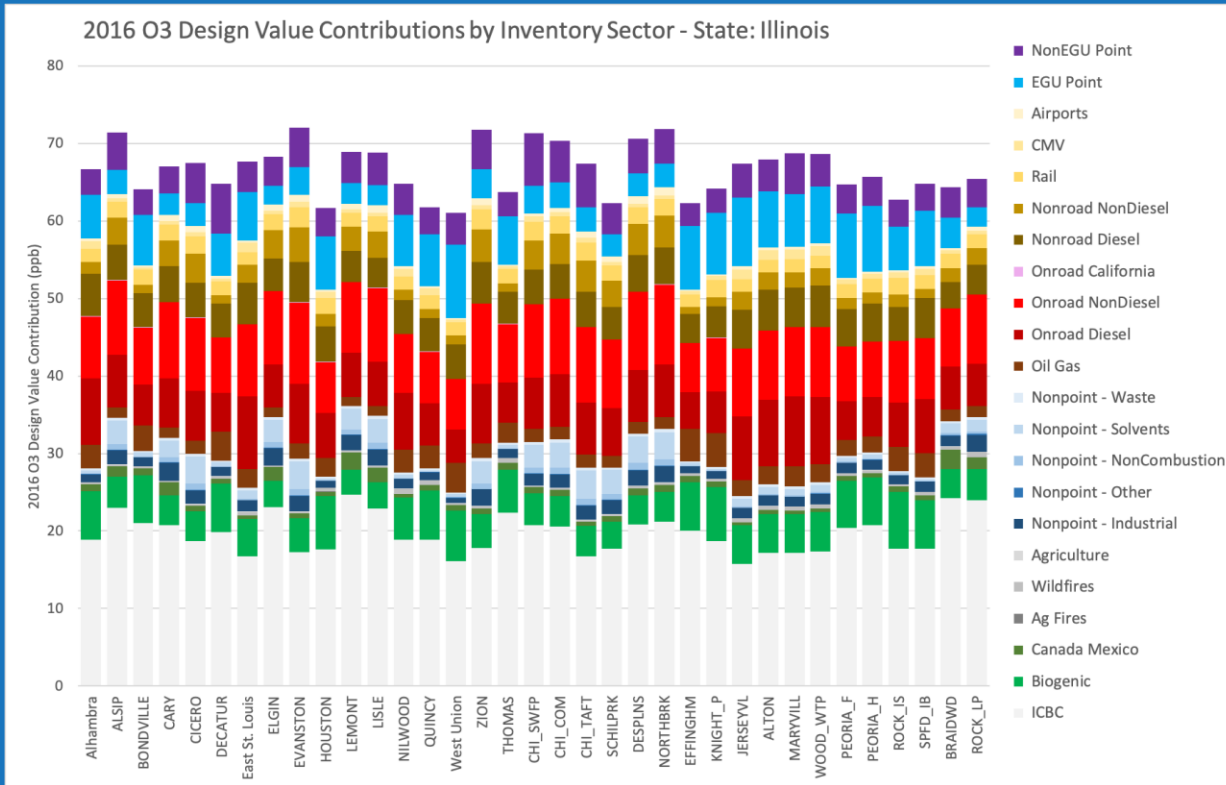
NAA SIP

- 12 months after bump up (~Feb 2025)

Serious Area Attainment Date

- August 3, 2027

LADCO 2016 CAMx Source Apportionment



Contributions of sectors and states at ozone monitors
[Download results spreadsheet](#)

These results show the relative contributions of NOx and VOC emissions to ozone design values at receptors

Evaluating Surface Ozone Sensitivity to Emissions Changes in the Great Lakes Region

- Numerical sensitivity modeling with CAMx to understand the most effective control strategies for each NAA
 - Objective: Estimate the response of surface ozone (O₃) concentrations to reducing the emissions of nitrogen oxides (NO_x) and/or volatile organic compounds (VOC) from different inventory sectors
 - Goal: Identify optimal O₃ mitigation strategies for nonattainment/maintenance areas in the LADCO region
- [Project Webpage](#)

Ozone Control Modeling Summary

Source Apportionment

- On-road non-diesel = 12-15%
- On-road diesel = 8-14%
- Non-EGU point = 5-10%
- Nonroad diesel = 6-8%
- Nonroad non-diesel = 2-6%
- EGU point = 4-13%
- Solvents = 4-5%

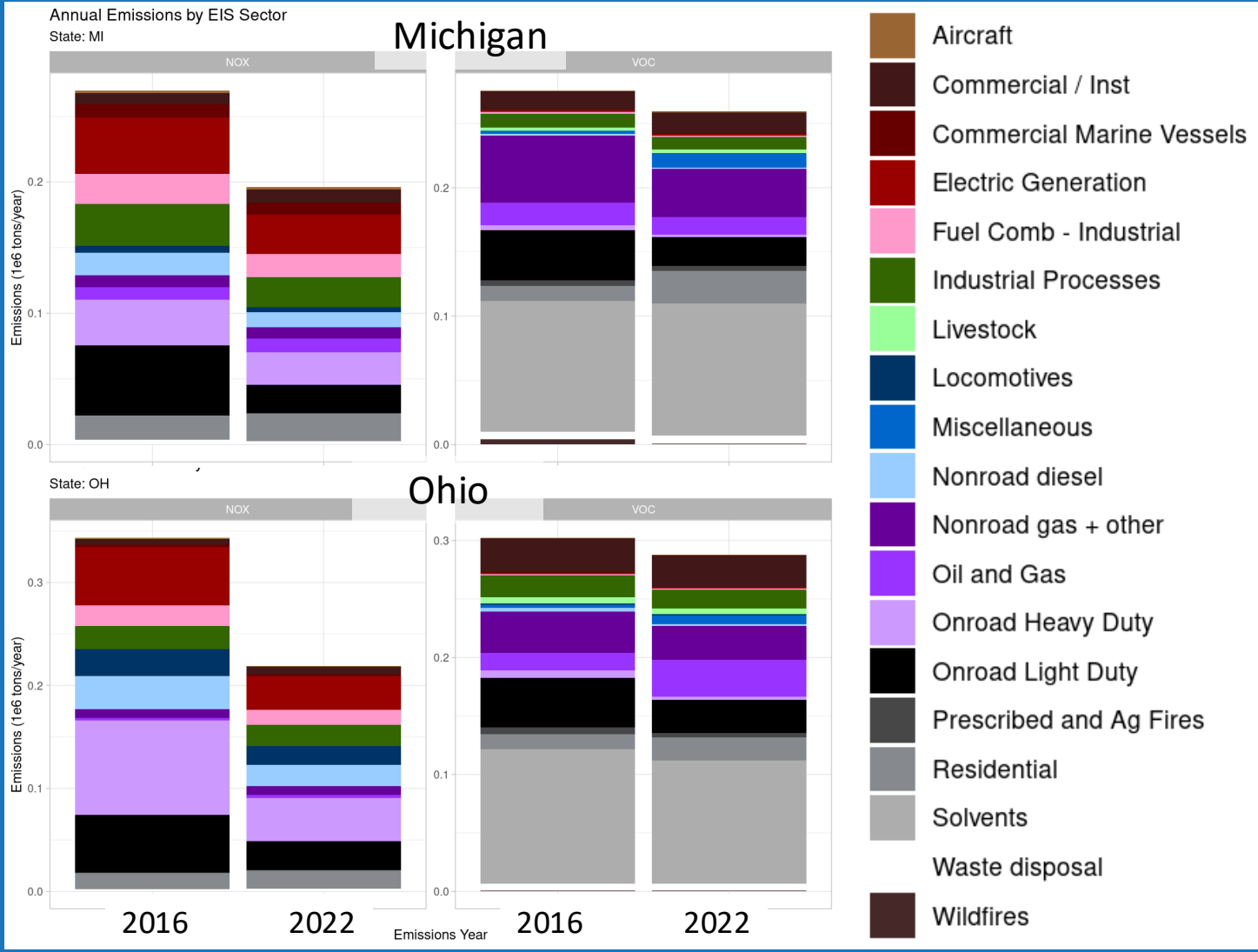
HDDM

- NOx reductions will be impactful in every NAA
- VOC reductions are needed everywhere but Western MI
- Mobile sources (on- and off-road) are impactful in every NAA
- Volatile chemical products for VOCs

NOx

VOC

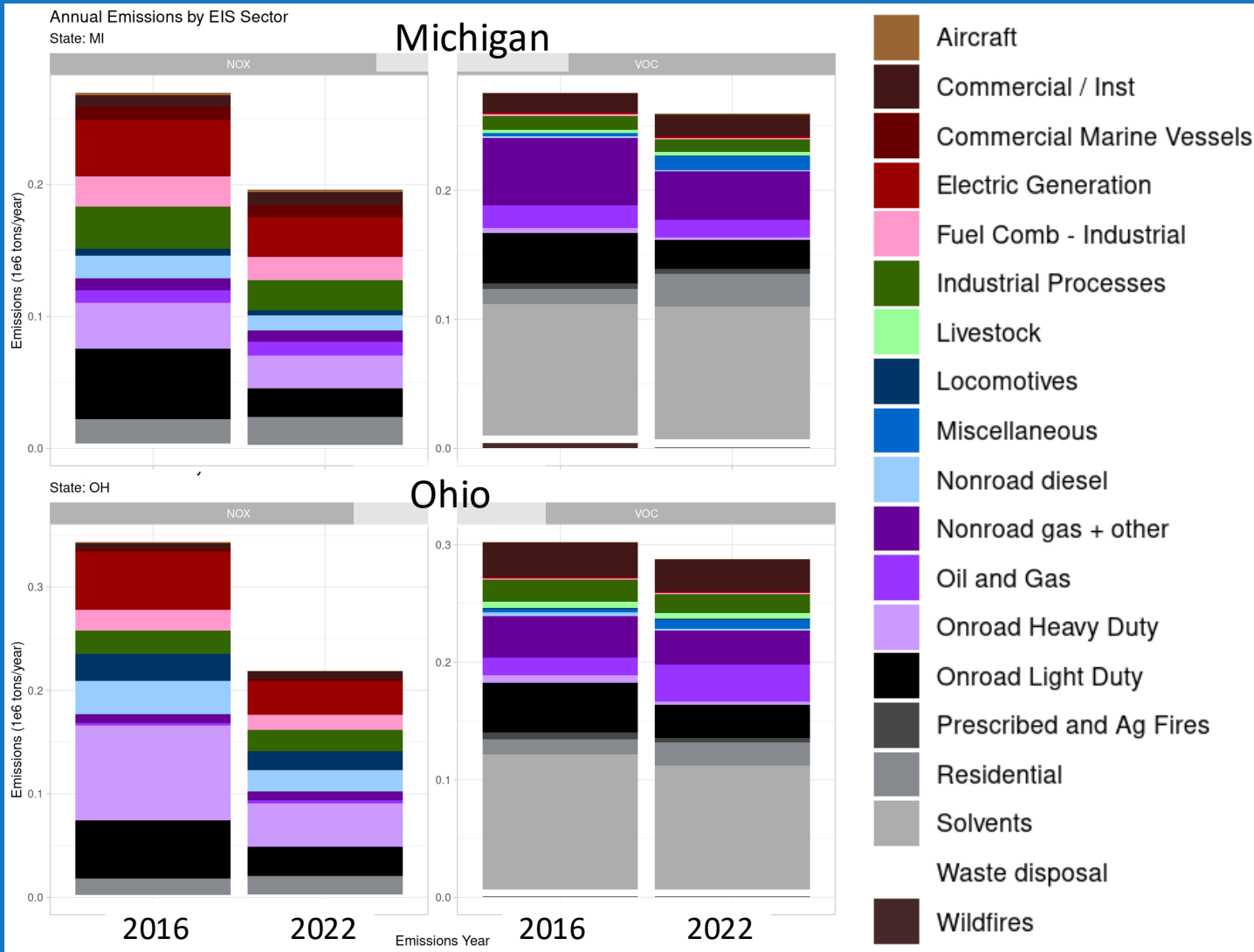
Ozone Precursor Emissions Changes



- 2016 -> 2022
- NOx reductions:
 - Onroad light duty
 - Onroad heavy duty
 - EGUs
 - Industrial point
 - Nonroad diesel
- VOC reductions:
 - Onroad light duty
 - Nonroad gas
 - Solvents

NOx

VOC



Ozone Precursor Emissions Changes

- 2016 -> 2022
- NOx increases:
 - Residential fuel use
 - Oil and gas in states with production
- VOC increases
 - Residential fuel use
 - Oil and gas

Ozone Attainment Support @ LADCO

- Now – Dec 2024
 - 2022 WRF TSD
 - Air quality modeling protocol
 - 2022 emission modeling
- Winter 2024
 - 2022 CAMx modeling
 - 2026 OTB controls emissions modeling
- Spring 2025
 - 2026 CAMx modeling and attainment test
- Fall 2025
 - Serious area NAA SIP TSD
- February 2026
 - Serious area NAA SIP due



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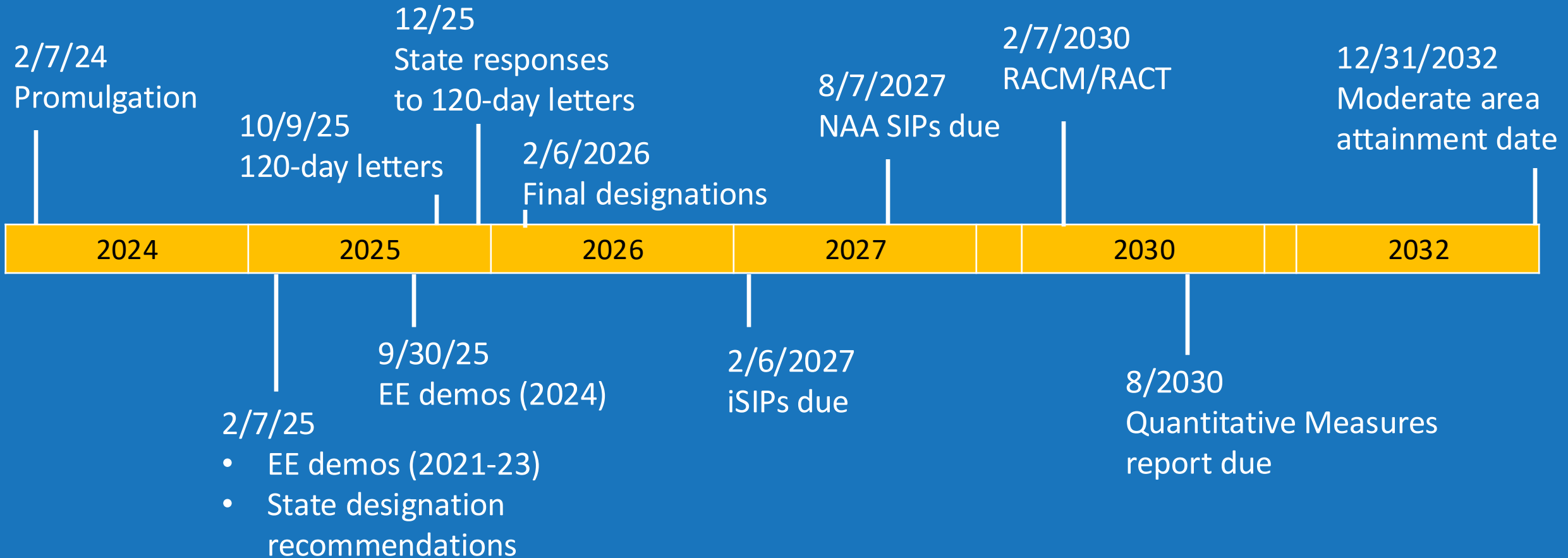
PM_{2.5} NAAQS Compliance & Attainment

PM_{2.5} NAAQS Compliance

- PM_{2.5} SIP Implementation Rule
 - Finalized July 2016 ([EPA Link](#))
- Monitoring – CAA §110(a)(2)(B)
- Permitting
- Enforcement - CAA §110(a)(2)(C)
- Environmental Justice considerations
 - Designations
 - Monitoring
 - Permitting



Annual PM_{2.5} NAAQS Planning Timeline



PM_{2.5} Attainment Support @ LADCO

- Now – Spring 2025
 - 2022 Air Quality Modeling
 - EE demo support
 - PM_{2.5} chemistry research
- Spring 2025
 - 2032 CAMx modeling and PM attainment test
- Spring-Summer 2025
 - Precursor significance testing
- 2027
 - Q1/Q2: NAA SIP TSD
 - August: NAA SIP due

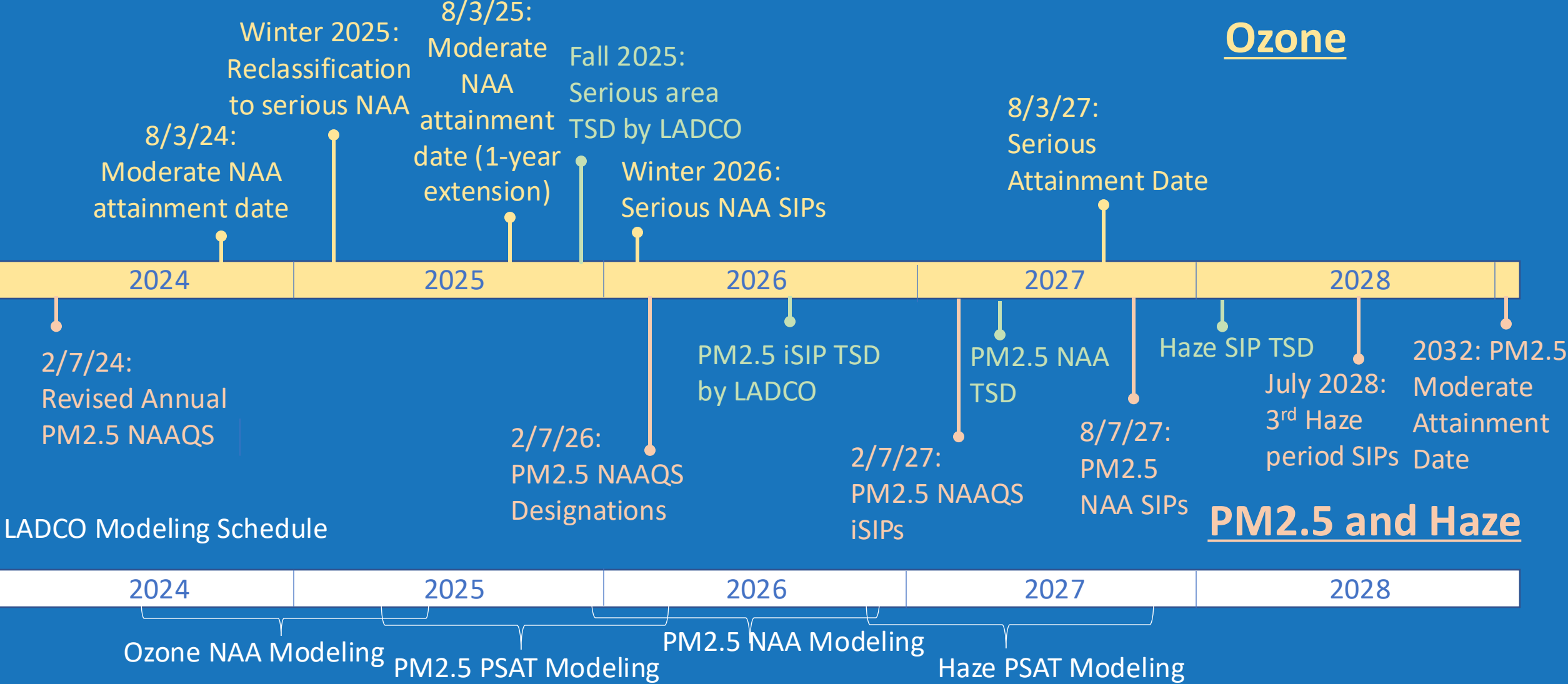


Ozone and PM_{2.5} NAAQS Attainment Planning

- Attainment principles
 - Ozone is a summertime pollutant
 - PM_{2.5} attainment in our region is primarily driven by wintertime ammonium nitrate
 - Summer organic aerosols (VOC)
- Coordination among the states on identifying sources of emissions and control strategies
 - Focus on co-benefits (NO_x and VOC emissions)
 - Share ideas

NO_x and VOC emissions reductions will benefit both ozone and PM_{2.5} attainment

Ozone, PM_{2.5}, and Haze Planning Timelines: 2024-2028



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Environmental Justice and Permitting

EJ and Permitting

- Open discussion between US EPA and LADCO states on current and ongoing issues with integrated Environmental Justice considerations in air quality planning



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Open Discussion

Air Quality Sensors

Key Points Raised by the LADCO States

- Sensors produce a lot of data and are relatively easy to deploy but they have a cost in data management, QA, and with communication about the data to the public
- Need for correction factors for devices other than Purple Air
- Need simple guidance for community siting/use/interpretation of sensors
- Need a standardized data format and AQS-like location for sensor data
- EPA and SCAQMD sensor handbooks are useful resources for air agencies
- Significant alignment challenges exist for comparing sensors with regulatory monitors
- Community users could benefit from a resource/training on using monitoring plans to help with the design and use of sensors
- EPA should understand the full resource requirements of sensors, agencies are being strained by responding to community users of sensors
- Regulatory community should consider developing a consistent response to private sectors air quality reports based on sensor data, such as IQ Air

LADCO held an open conversation with our members on August 28 to hear their thoughts on air quality sensors.

States Only Session

Thanks to US EPA for participating in the meeting today!



Meeting Summary

1. Summary and take-aways
2. Action Items