

Air Management Advisory Group Quarterly Meeting

September 5, 2024



Hybrid Meeting Guidelines

- Please sign in if attending in person.
- Attendees in the room can raise their hand and will be called on.
- Online attendees should use the raise hand feature and will be called upon by the meeting host
- The host will attempt to respond to all messages received
- Participants will join the meeting with their video disabled. We ask that you keep your video disabled for the duration of the meeting, unless called on by the host.

Air Management Advisory Group Quarterly Meeting Agenda

- Hiring and Administrative Updates
- Proposed guidance, rules and legislative update
- Spring Regulatory Agenda
- SIP Actions
- Permit Numbering
- Construction Permits
- Member Updates
- PM2.5 – Data
- PM2.5 – Exceptional Events
- Ozone – Season Update
- Ozone – Reclassification/Permitting
- Ozone – Litigation Update

Hiring and Administrative Update

Gail Good, Air Management Director

Proposed Guidance, Rules and Legislative Update

Ron Binzley, Permitting Section Manager

Brianna Denk, Air Quality Planning and Standards Section Manager

Maria Hill, Compliance, Enforcement & Emissions Inventory Section Manager

Proposed/Final DNR Rules

Proposed DNR rule	Description	Phase
AM-05-22 Compliance Demonstration Rule	Updates to NR 439 testing, monitoring, recordkeeping, reporting requirements for compliance Rulemaking to Revise Chapter NR 439 Wisconsin DNR	Rule Signed by Governor 08/22/2024
AM-10-23 NSR Fee Rule	Updates to construction permit fees to assure compliance with Clean Air Act requirements and to meet business needs of permitted sources. NR410 Rulemaking Wisconsin DNR	Public Comment Period Closed 09/04/2024

Proposed/Final DNR Guidance

Guidance Title	Description	Phase
Permit Guidance for RNG Processors	Guidance on how to determine air permit needs when installing renewable natural gas (RNG) systems associated with digesters. AM641.pdf (widen.net)	Finalized 06/10/2024

NR 410

- EIA phase concluded on 4/2/24
- Public comment period concluded on 9/4/24
- Public hearing was held on 8/29/24
- Rule will be presented to NRB in December

[NR410 Rulemaking | Wisconsin DNR](#)

Remaining Schedule for NR 439

Milestone	Estimated Date
Rule approved by Governor	8/22/24
Rule referred to standing committees (Legislature)	1/15/25
Rule Referred to JCRAR	4/14/25
Rule signed by Secretary (DNR) and filed with LRB	6/20/25
Rule published in the Administrative Register	7/28/25
Rule becomes effective	8/1/25

JCRAR = Joint Committee for Review of Administrative Rules

LRB = Legislative Reference Bureau

[Rulemaking to Revise Chapter NR 439 | Wisconsin DNR](#)

State Implementation Plan (SIP) Actions

SIP Action	Description	Status
Alignment SIP (SIP Notebook)	Alignment SIP requests that EPA renumber and revise provisions in Wisconsin's SIP to match the provisions being implemented in the state in the NR400 series and ch. 285.	EPA proposed approval: 5/16/2024 No comments were received Expect EPA final approval soon
NR428 Rule Updates (Part 1)	Updates to NR428 NOx regulations were effective in the state in April 2024. The DNR subsequently submitted rule updates to EPA for inclusion into the SIP.	EPA proposed approval: 7/17/2024 EPA received no comments
Regional Haze SIP- Round 2	The DNR submitted the Round 2 Regional Haze SIP revision to EPA by the statutory due date in July 2021.	EPA proposed partial approval, partial disapproval: 8/9/2024 Comment period closes: 9/9/2024
2015 Ozone NAAQS Infrastructure SIP	2015 ozone infrastructure SIP was submitted to EPA in September 2018. EPA subsequently approved all but one element of the SIP.	EPA proposed approval: 9/30/2020 EPA final approval: 8/30/2024

Proposed EPA Rules/Guidance

Proposed EPA rule/guidance	Docket	Comments due
Revisions to Regulations Related to Project Emissions Accounting	EPA-HQ-OAR-2022-0381	07/02/2024
Non-Regulatory Docket: Power Plant GHG: Regulating Existing Gas Plants	EPA-HQ-OAR-2024-0135	05/28/2024
Non-Regulatory Docket: Regional Haze Round 3	EPA-HQ-OAR-2023-0262	06/28/2024
Proposed Disapproval of Missouri's 2015 Ozone Transport SIP	EPA-R07-OAR-2021-0851	9/20/2024

Finalized EPA Rules/Guidance

Finalized EPA rule/guidance	Link	Date finalized
Review of Final Rule Reclassification of Major Sources as Areas Sources Under Section 112 (MM2A Rule)	EPA Pre-publication notice and fact sheet	Rule Signed 9/4/24

Spring 2024 Regulatory Agenda

- The White House Office of Management and Budget released its Spring 2024 Regulatory Agenda on July 5, 2024.
- Dates in the regulatory agenda are often imprecise but can signal agency priorities and the sequencing of upcoming rules.
- The regulatory agenda does not cover all upcoming EPA regional actions or priorities.

Spring 2024 Regulatory Agenda

Rule	Proposal Date	Final Date	Notes
State Implementation Plan Submittal Deadlines and Implementation Requirements for Moderate Nonattainment Areas Reclassified Under the 2015 Ozone NAAQS	Aug 2024	December 2024	<ul style="list-style-type: none"> - Will describe SIP requirements and deadlines for areas bumped up to Serious. - Actual reclassifications are expected to occur separate from this rule, via a regional notice
Review of the Secondary National Ambient Air Quality Standards for Ecological Effects of Oxides of Nitrogen, Oxides of Sulfur and Particulate Matter	April 2024	January 2025	-Would include a designations process.
Emission Guidelines for GHG Emissions from Existing Fossil Fuel-Fired Combustion Turbine EGUs.	Dec 2024	TBD	- Would require development of a state plan or rely on federal plan.

Spring 2024 Regulatory Agenda

Rule	Proposal Date	Final Date	Notes
Air Emission Reporting Requirements (AERR)	08/09/2023	July 2024	<ul style="list-style-type: none">- May place different requirements on stakeholders for emissions reporting.- DNR will evaluate implications for Air Reporting System (ARS) and ch. NR 438.
Clarifying the Scope of “Applicable Requirements” under State Operating Permit Programs and the Federal Operating Permit Program	01/09/2024	January 2025	<ul style="list-style-type: none">- DNR will evaluate implications for state rules.

Spring 2024 Regulatory Agenda

Rule	Proposal Date	Final Date	Notes
Guideline on Air Quality Models: Enhancements to the AERMOD Dispersion Modeling System	10/23/2023	August 2024	- Determine if any changes need to be made to documentation or process.
Proposed Draft Guidance: Practical Enforceability of PTE	Fall 2024	TBD	- Review to determined whether Program should comment on EPAs consolidation on practical enforceability

New Construction Permit Numbering System

- All construction permit applications received on or after 07/01/2024 are assigned numbers under the new system
- Previous construction permit numbering system consisted of two-digit year follow by the permit writer's initials and a sequence number

24-DMM-125

- New system is the same except the permit writer's initials are replaced by three letters that indicate the type of permit

24-MIN-141

Minor construction permit

24-PSD-166

Major construction permit under PSD

24-NAA-299

Major construction permit under NNSR

Construction Permit Review Times

Permit writer vacancies have diminished the department's ability to accomplish core construction permit activities

- Prior to 2023, permit issuance times from receipt of application to permit issuance averaged 3 to 4 months
- As of August 2024, these times averaged 7 to 8 months
- Program goal is to issue each construction permit within 58 days of a complete application
- “58-day metric” is currently at 72 days

Member Updates

PM_{2.5} Data

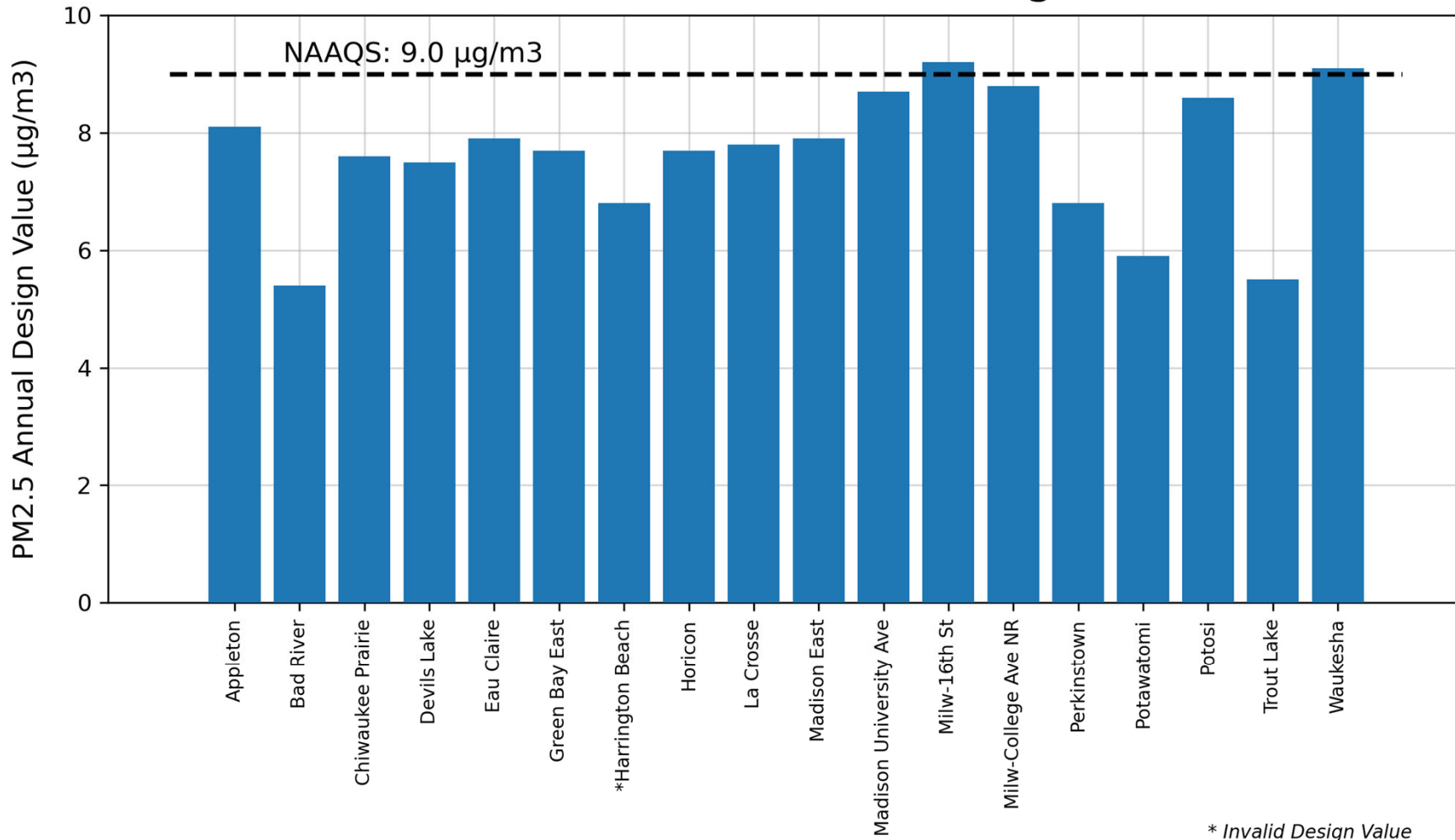
Gail Good
Air Management Program Director

Brianna Denk
Air Quality Planning and Standards Section Manager

Zac Adelman
LADCO Executive Director

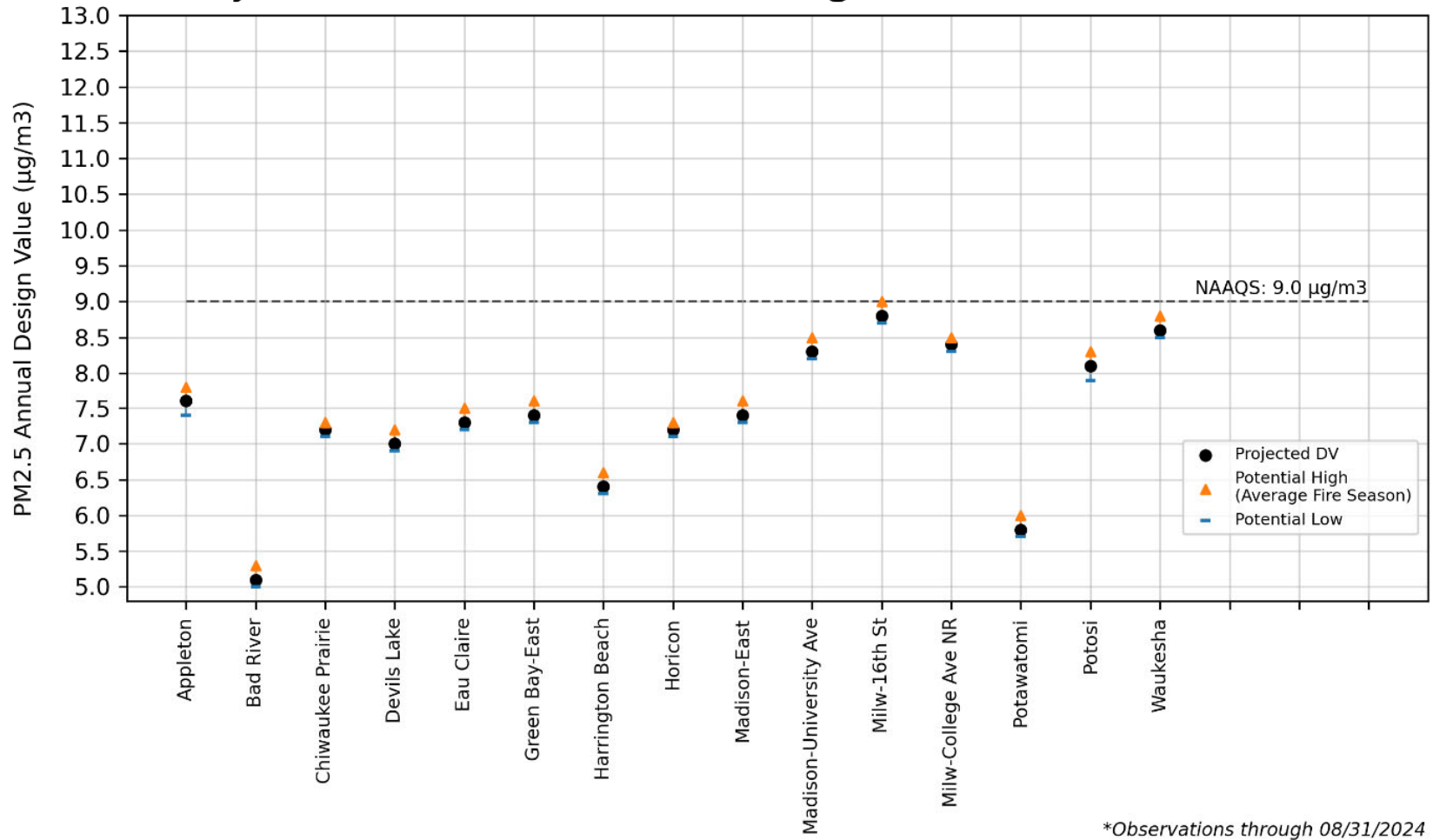
Angie Dickens
LADCO Data Scientist

PM2.5 Annual 2021-2023 Design Values



* Invalid Design Value

Projected PM2.5 Annual Design Values for 2022-2024





LADCO | LAKE MICHIGAN
AIR DIRECTORS CONSORTIUM

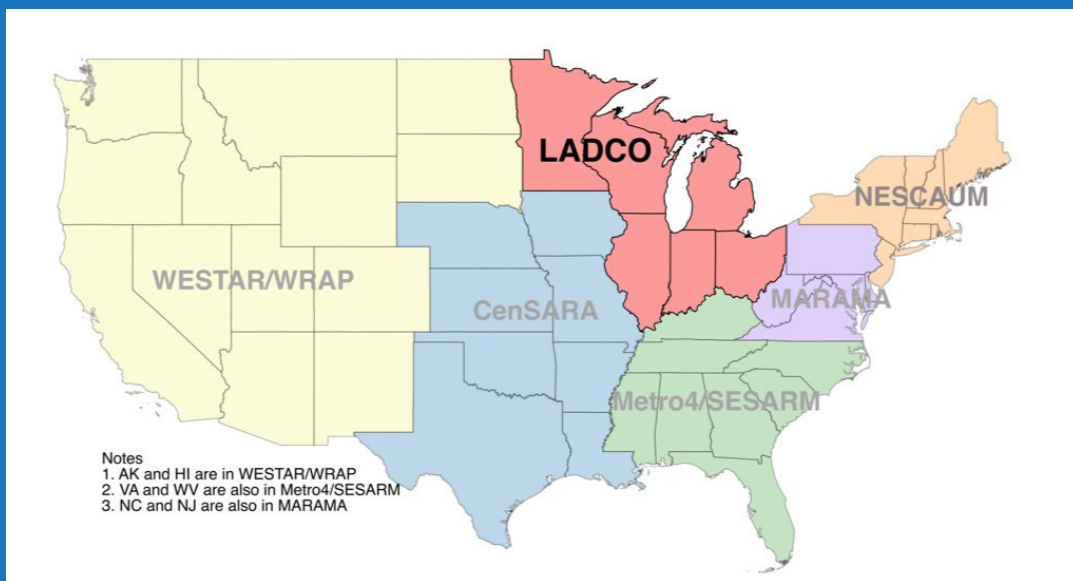
PM_{2.5} Emissions and Air Quality in Wisconsin

Angie Dickens and Zac Adelman

DNR Air Management Advisory Group Meeting
September 5, 2024

What is LADCO?

Lake Michigan Air Directors Consortium



- Formed in 1989 to bring Michigan, Indiana, Illinois, and Wisconsin together to address ozone pollution
 - Ohio joined in 2004; Minnesota joined in 2012
- Governed by state air agency directors
- Scope
 - Forum for state agency planners
 - Air pollution modeling and data science
 - Training

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judqw#r#k.h#wdwhv#xqghu Vhfwlrq#138 r i#
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Types of PM_{2.5}

- PM_{2.5} is a complex mixture of different types of chemicals and materials
- Four major components:
 - Ammonium nitrate
 - Forms from ammonia + NO_x
 - Ammonium sulfate
 - Forms from ammonia + SO₂
 - Organic matter/organic carbon
 - Forms from VOCs and directly emitted
 - Elemental carbon (soot)
 - Directly emitted from combustion
- Also soil/dust and sea salt

Mostly formed from other components
(not directly emitted)

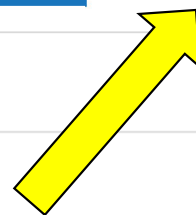
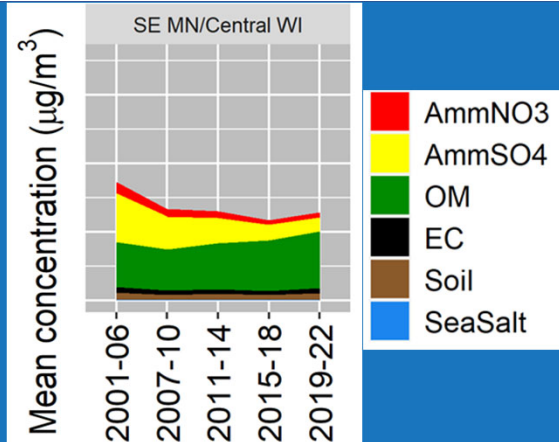
Different components are
more/less important at different
times of year and under
different conditions



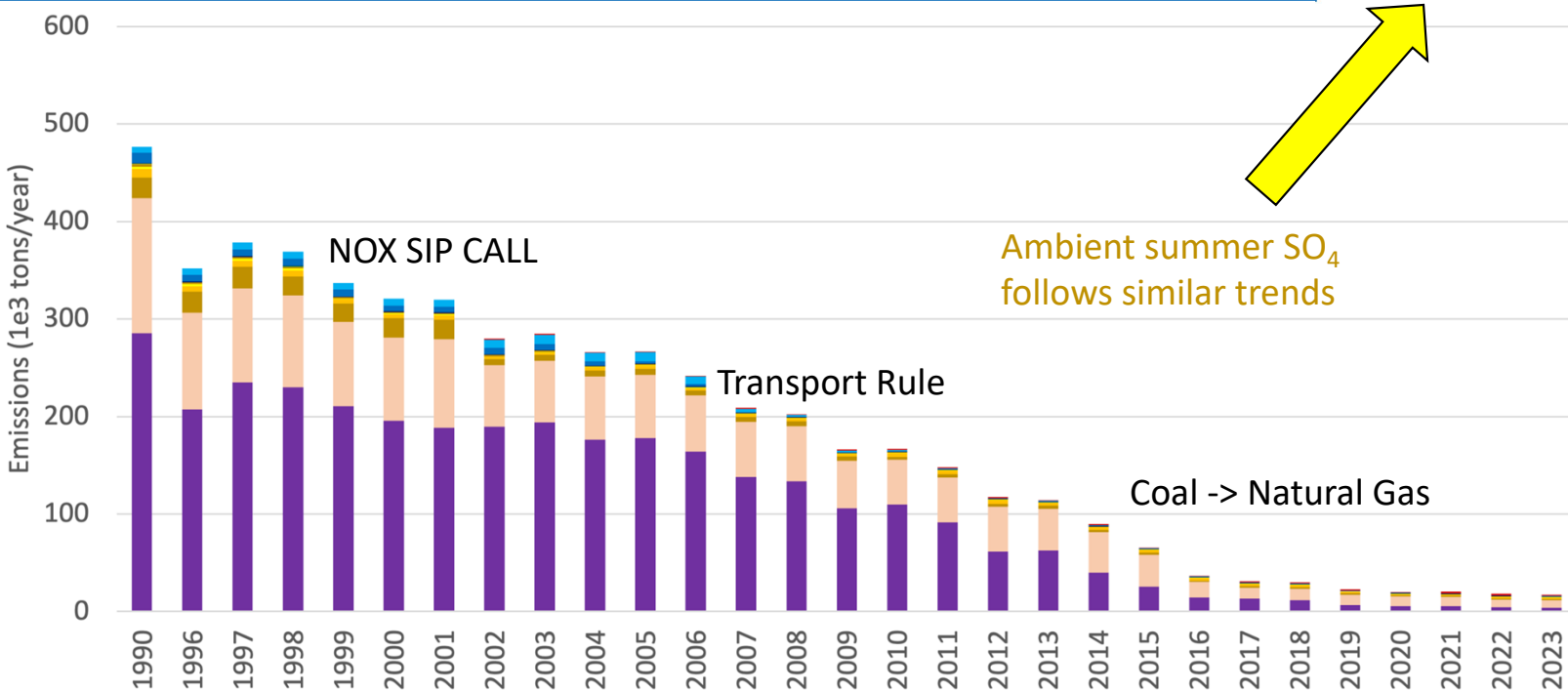
Emissions

SO₂ Emissions In Wisconsin

- Important precursor for sulfate aerosols (summer)
- Significant decreases in SO₂ emissions with the evolution of power generation away from coal



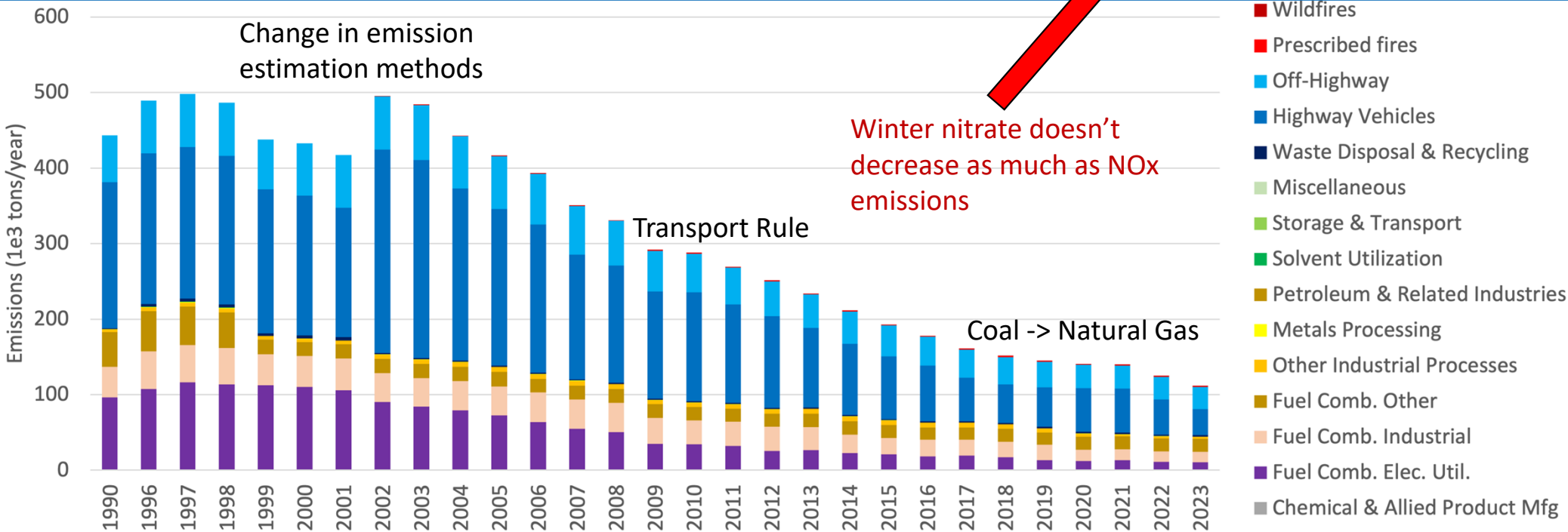
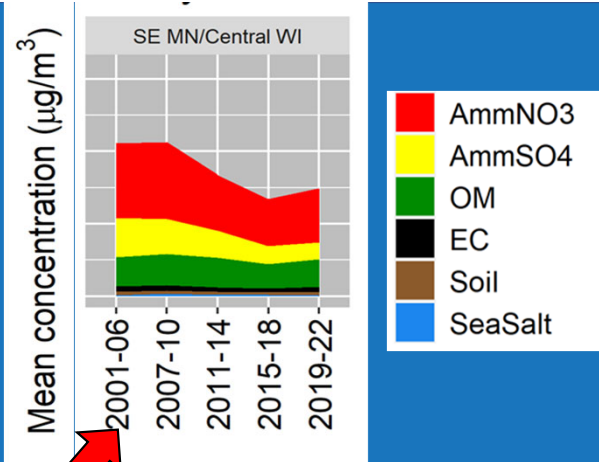
Ambient summer SO₄ follows similar trends



- Wildfires
- Prescribed fires
- Off-Highway
- Highway Vehicles
- Waste Disposal & Recycling
- Miscellaneous
- Storage & Transport
- Solvent Utilization
- Petroleum & Related Industries
- Metals Processing
- Other Industrial Processes
- Fuel Comb. Other
- Fuel Comb. Industrial
- Fuel Comb. Elec. Util.
- Chemical & Allied Product Mfg

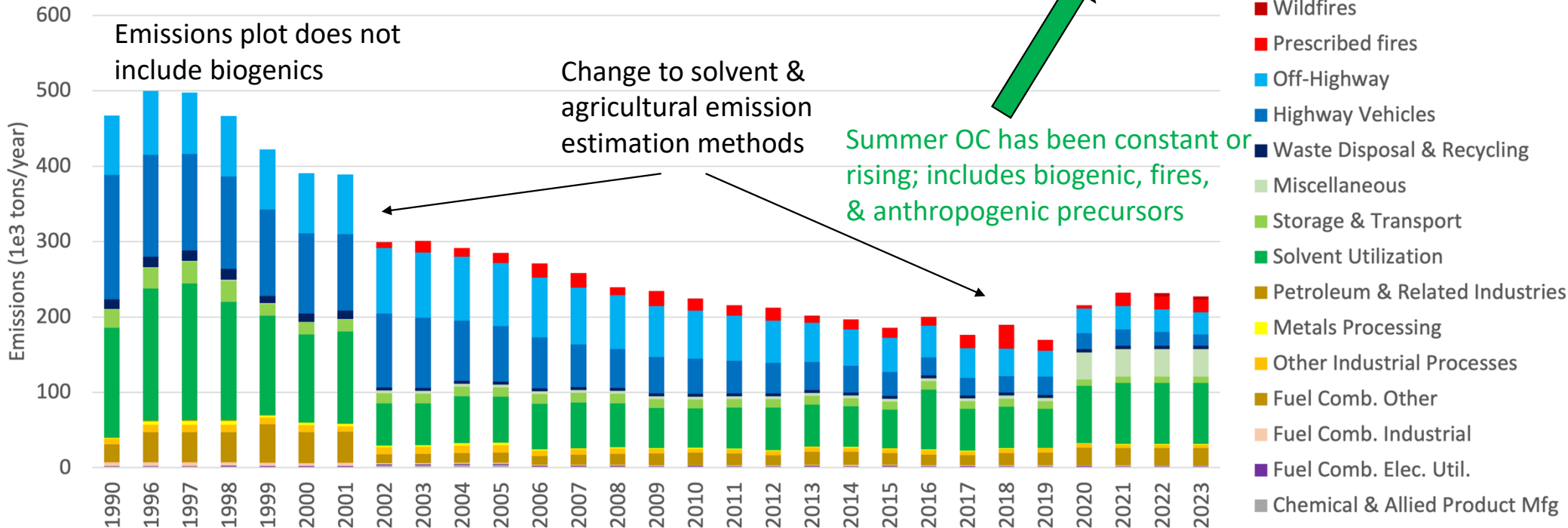
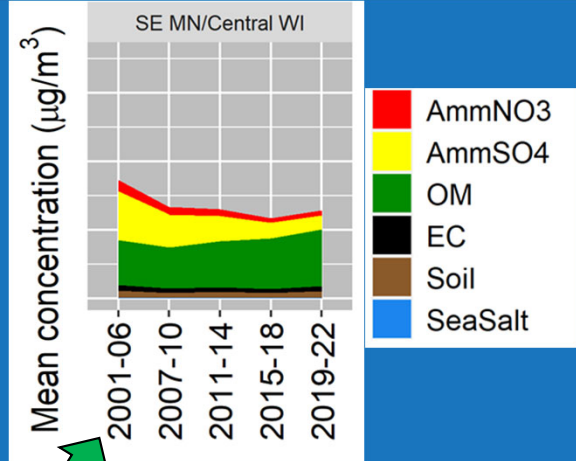
NO_x Emissions In Wisconsin

- Important precursor for nitrate aerosols (winter)
- NO_x emissions changes driven by electricity generation and light duty vehicles
- Paired with ammonia; ammonia emissions have been flat and dominated by agriculture



VOC Emissions In Wisconsin

- Important precursor for organic aerosols (summer)
- Reductions due to more fuel-efficient engines; no indication that solvents and consumer products are declining

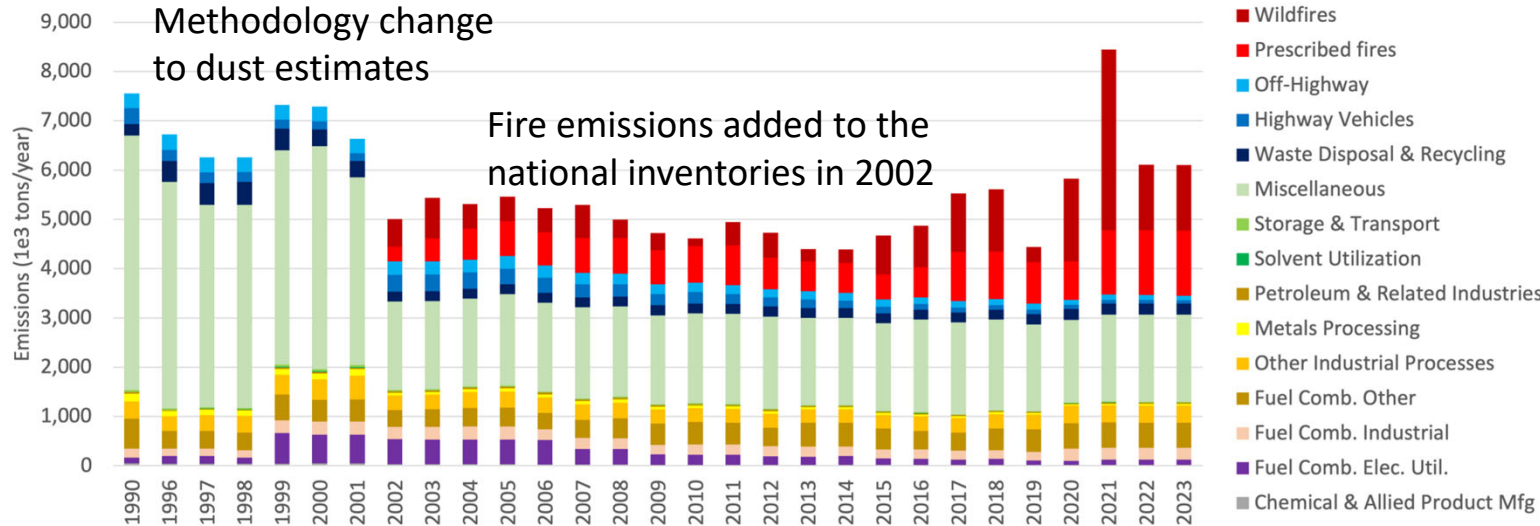


What About PM_{2.5} From Wildfires?

- Largest primary PM_{2.5} sources in WI are residential wood combustion, fugitive dust, and prescribed fires
- The peak PM_{2.5} episodes in WI typically result from wildfires outside of the state

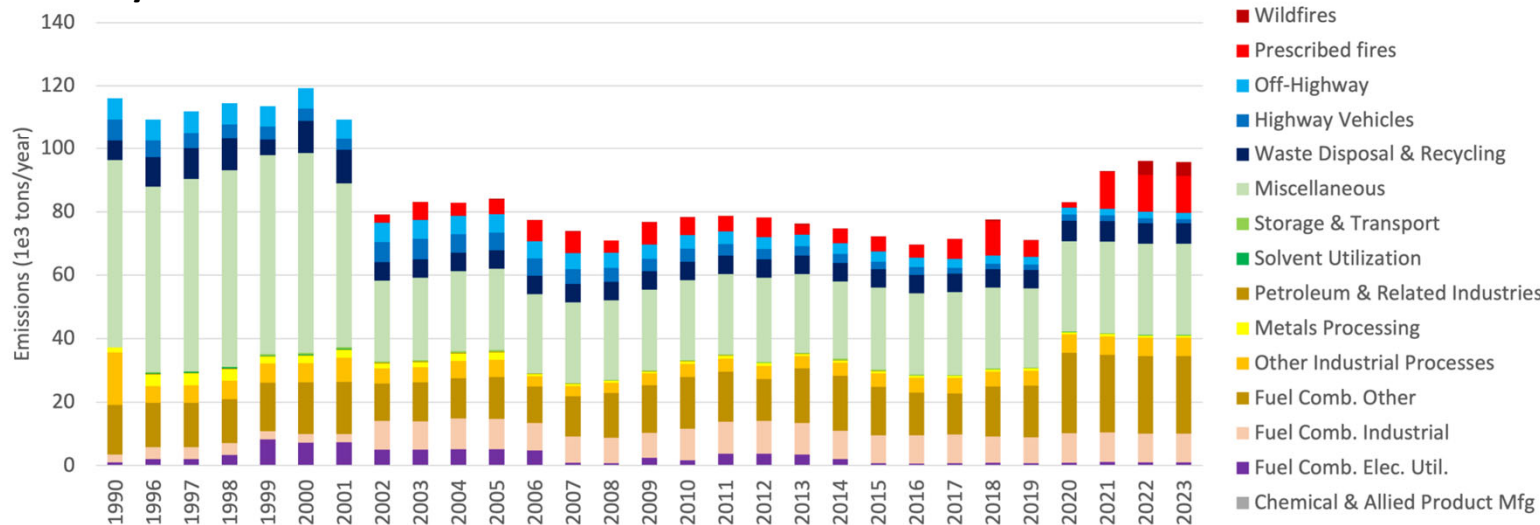
Total US

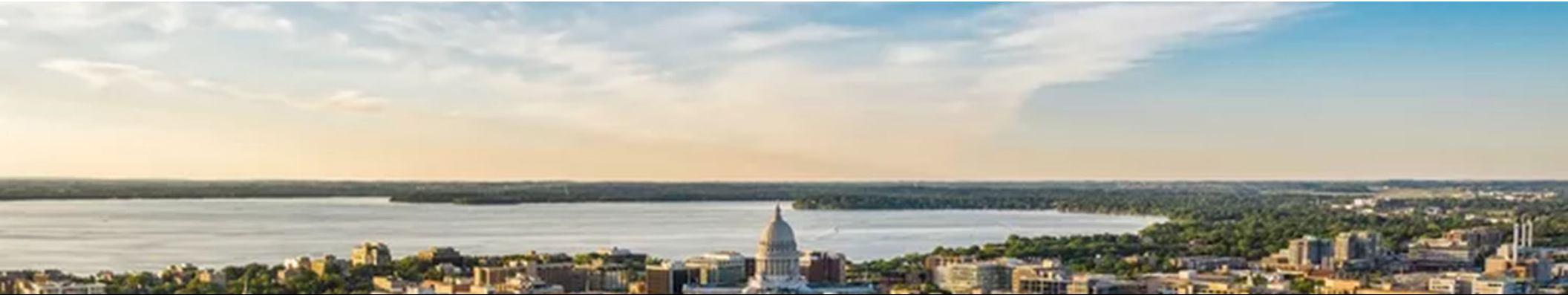
Annual Emissions | State: (All) | Pollutant: PM25-PRI



WI Only

Annual Emissions | State: WI | Pollutant: PM25-PRI

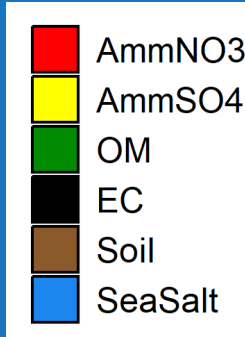
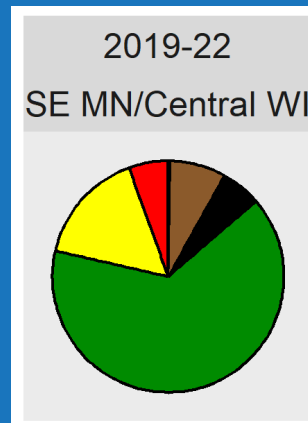
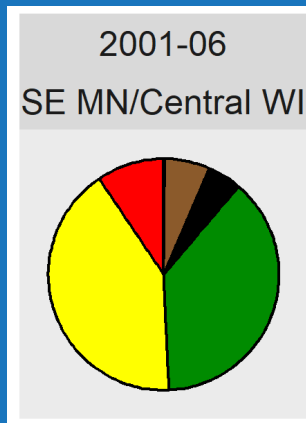




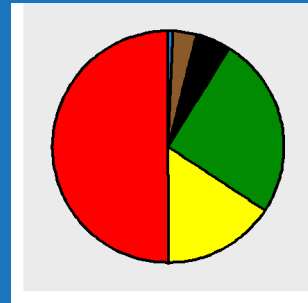
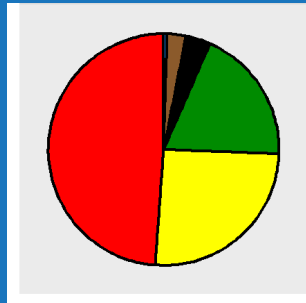
Ambient Concentrations

Changes over time

Summer
PM_{2.5}:



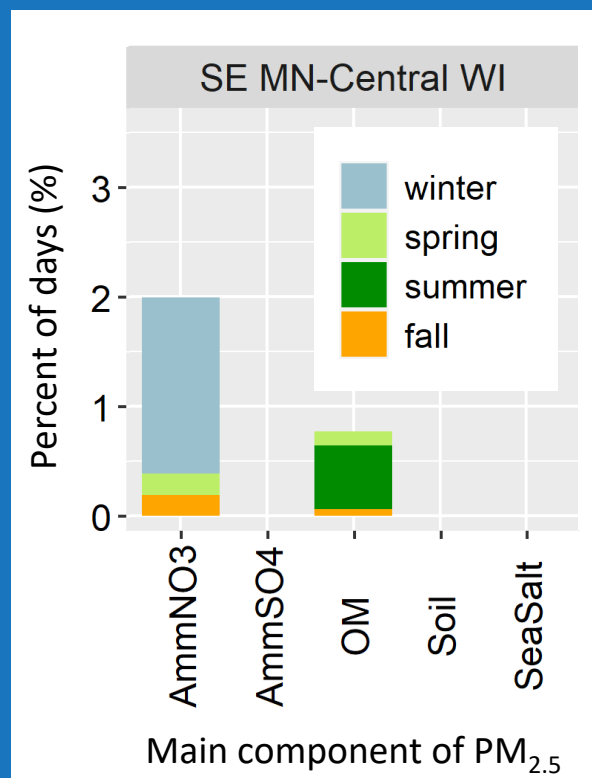
Winter
PM_{2.5}:



- Large changes in the composition of summer PM_{2.5}
- Shift from Ammonium sulfate + organic carbon to mostly organic carbon
- Ammonium sulfate is the second greatest component

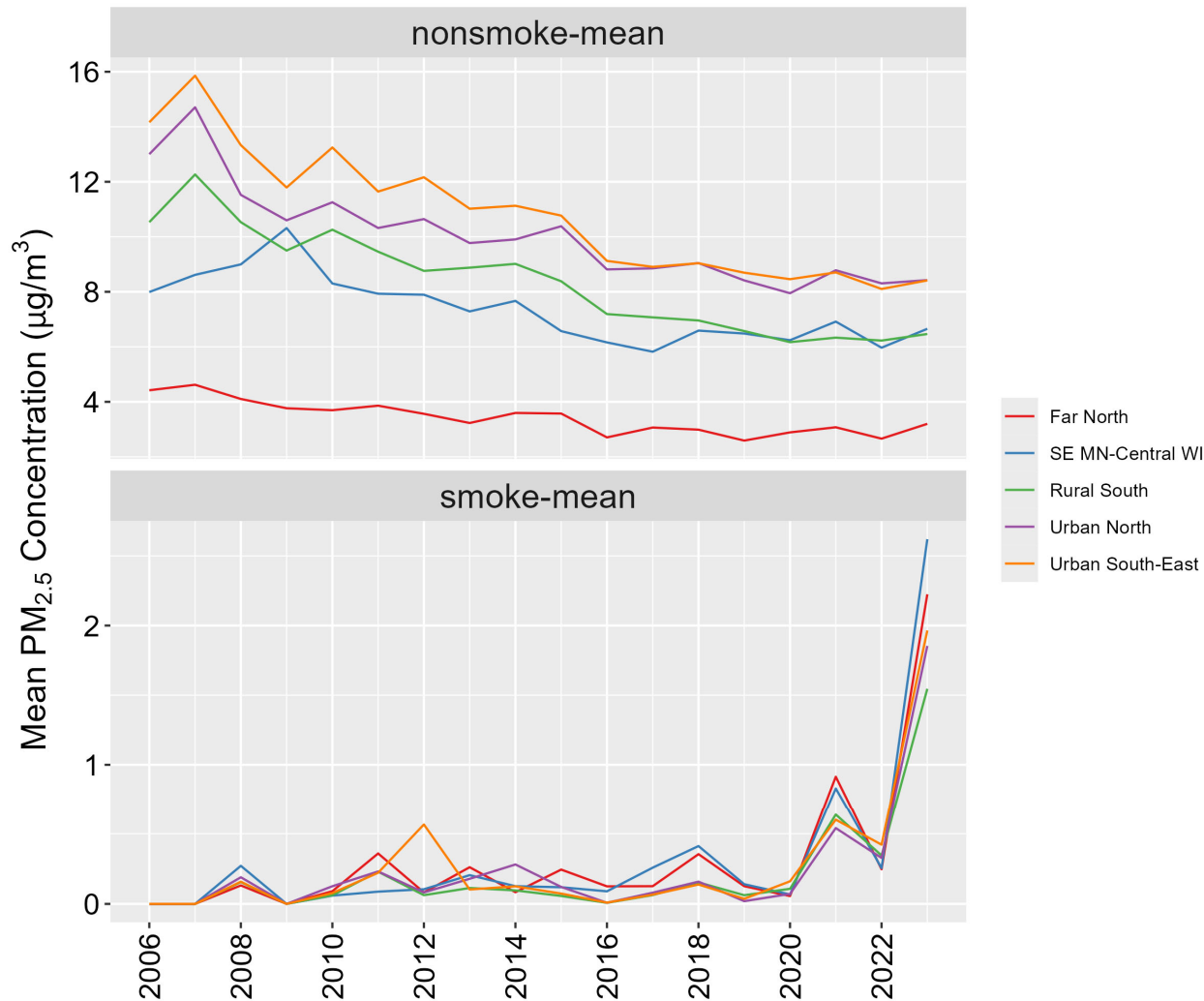
- Composition of winter PM_{2.5} hasn't changed that much
- Half ammonium nitrate
- Organic matter is the second greatest component

Drivers of PM_{2.5} Episodes



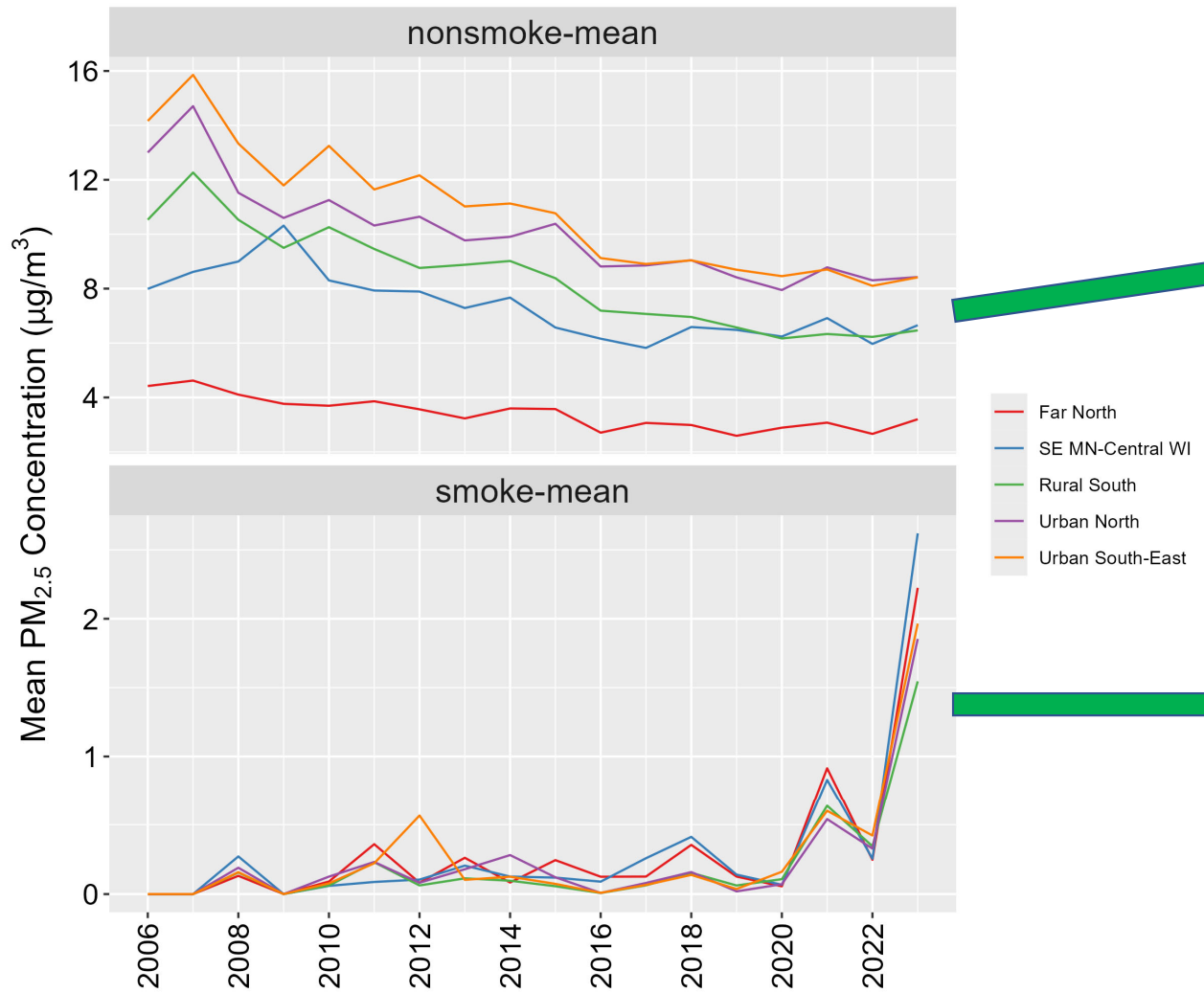
- Episodes = days with 24-hour PM_{2.5} > 17.5 ug/m³ (half the daily NAAQS)
 - Look at major component on episode days
- Current period:
 - Ammonium nitrate episodes are responsible for about 2/3 of the PM_{2.5} episodes, mostly in winter
 - Organic matter episodes are responsible for the remainder, mostly in summer
- → Controlling winter AmmNO₃ will be important!
 - Likely an easier target than OM, which is impacted by biogenic emissions as well as smoke

Separating Smoke and Non-smoke PM_{2.5}

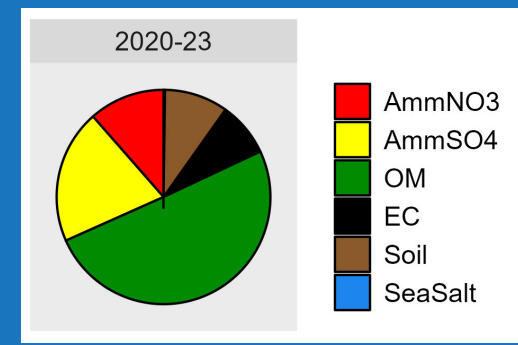


- Estimated the amount of smoke on a given day
- Large increase in smoke PM_{2.5} in 2021 & 2023
- Smoke accounts for observed increase in PM_{2.5}
 - Non-smoke PM_{2.5} trends have been roughly flat in recent years

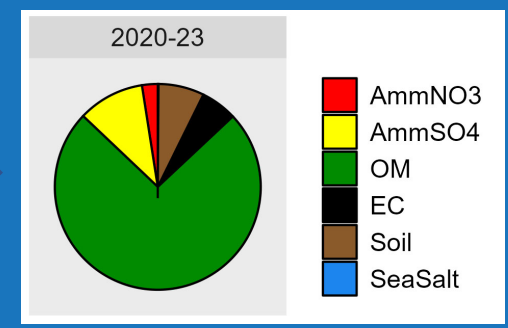
Separating Smoke and Non-smoke PM_{2.5}



Non-Smoke PM_{2.5}
(April-October)



Smoke PM_{2.5}





Thank you!

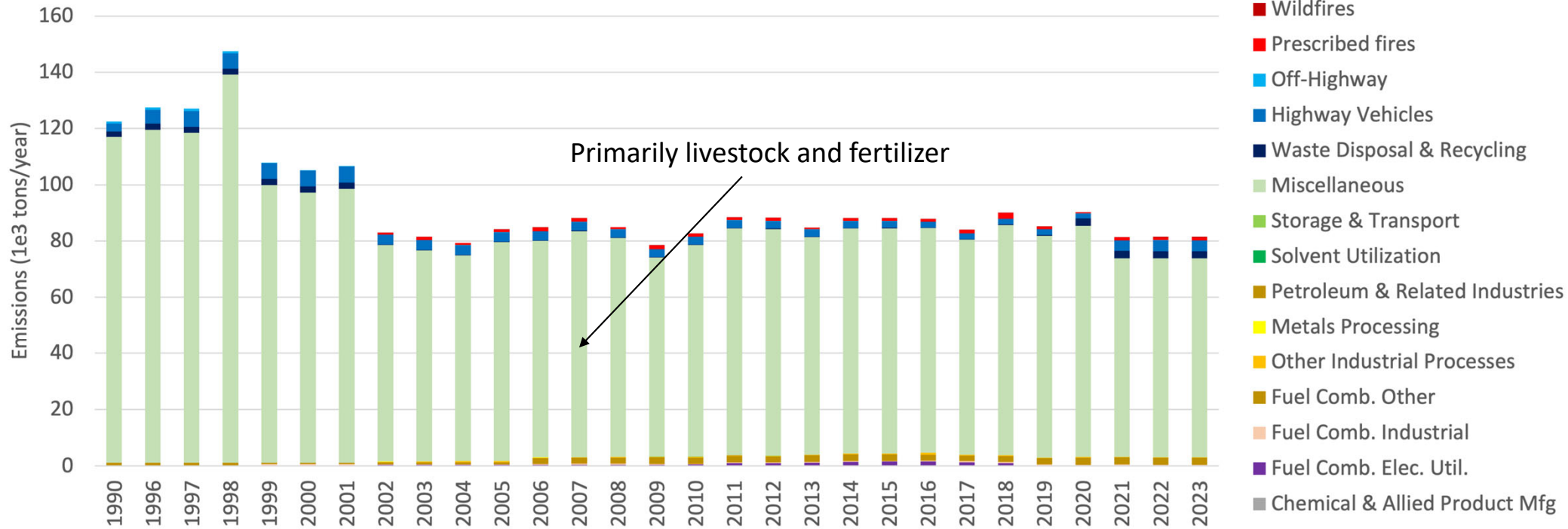
Questions?

dickens@ladco.org

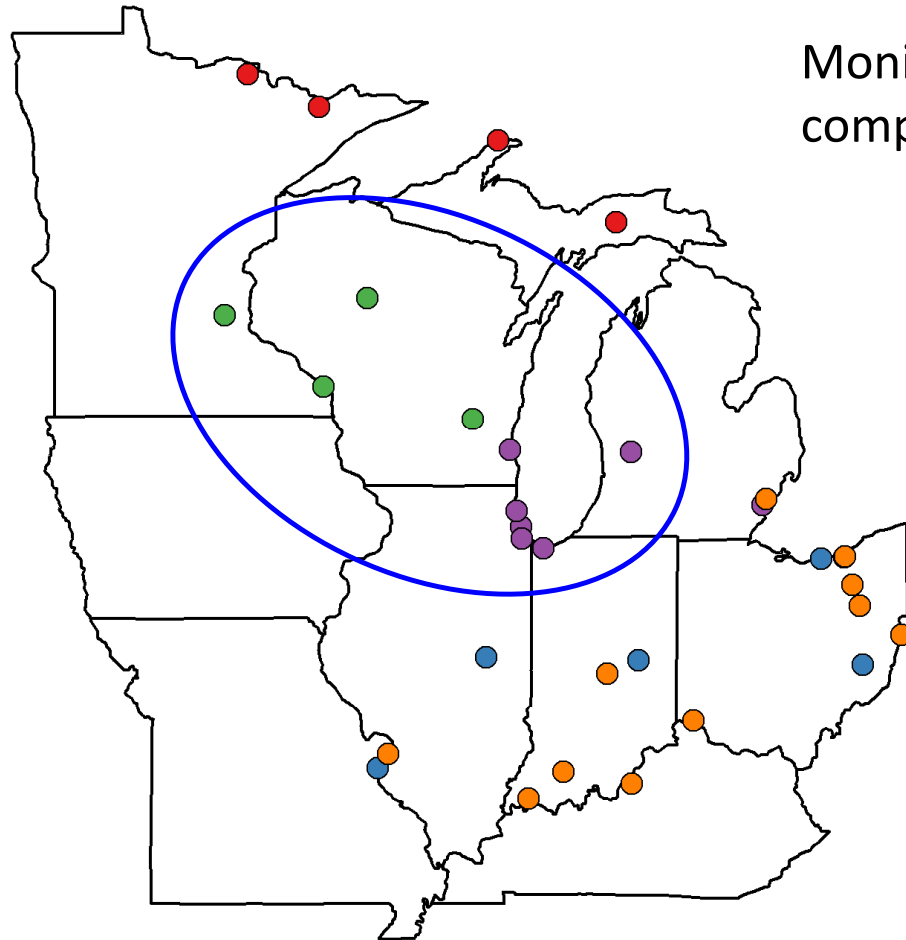
adelman@ladco.org

Extra Slides

Annual Emissions | State: WI | Pollutant: NH3



PM_{2.5} Speciation Clusters

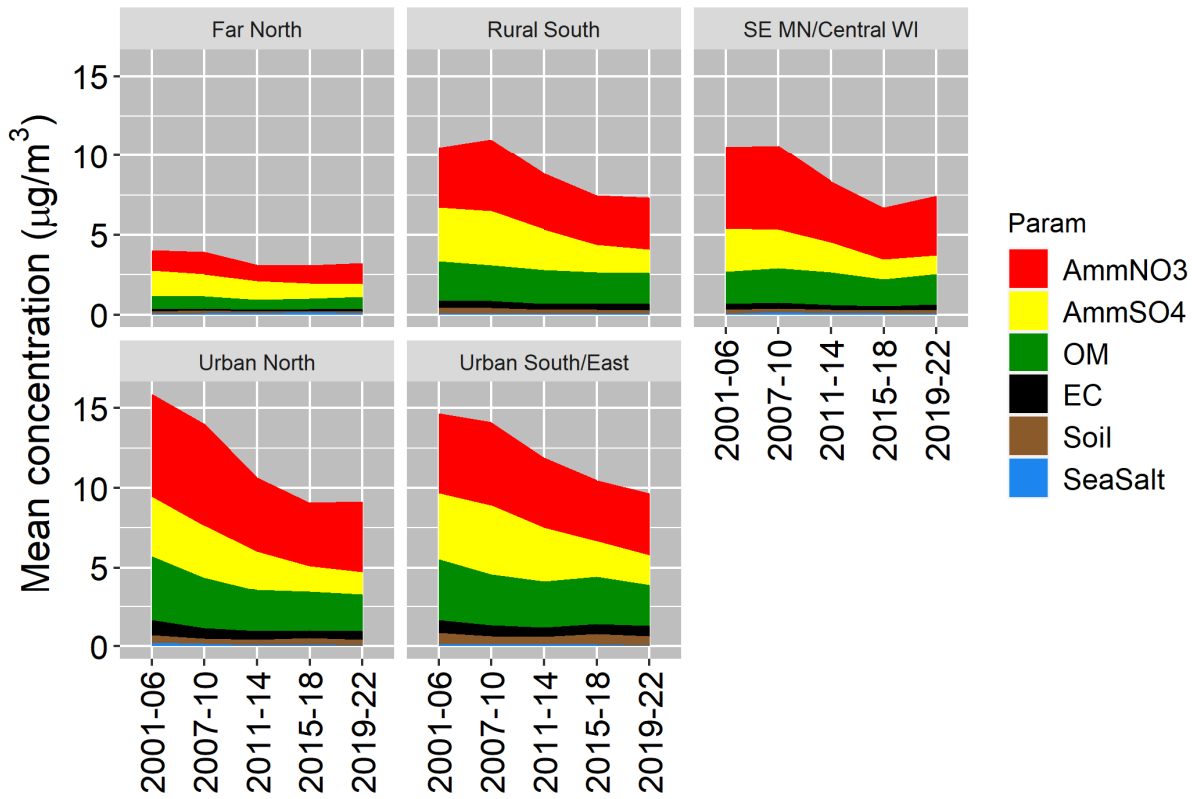


Monitors that measure the composition of the PM_{2.5}

- Far North
- Rural South
- SE MN/Central WI
- Urban North
- Urban South/East

Trends over time: Winter Speciated PM_{2.5}

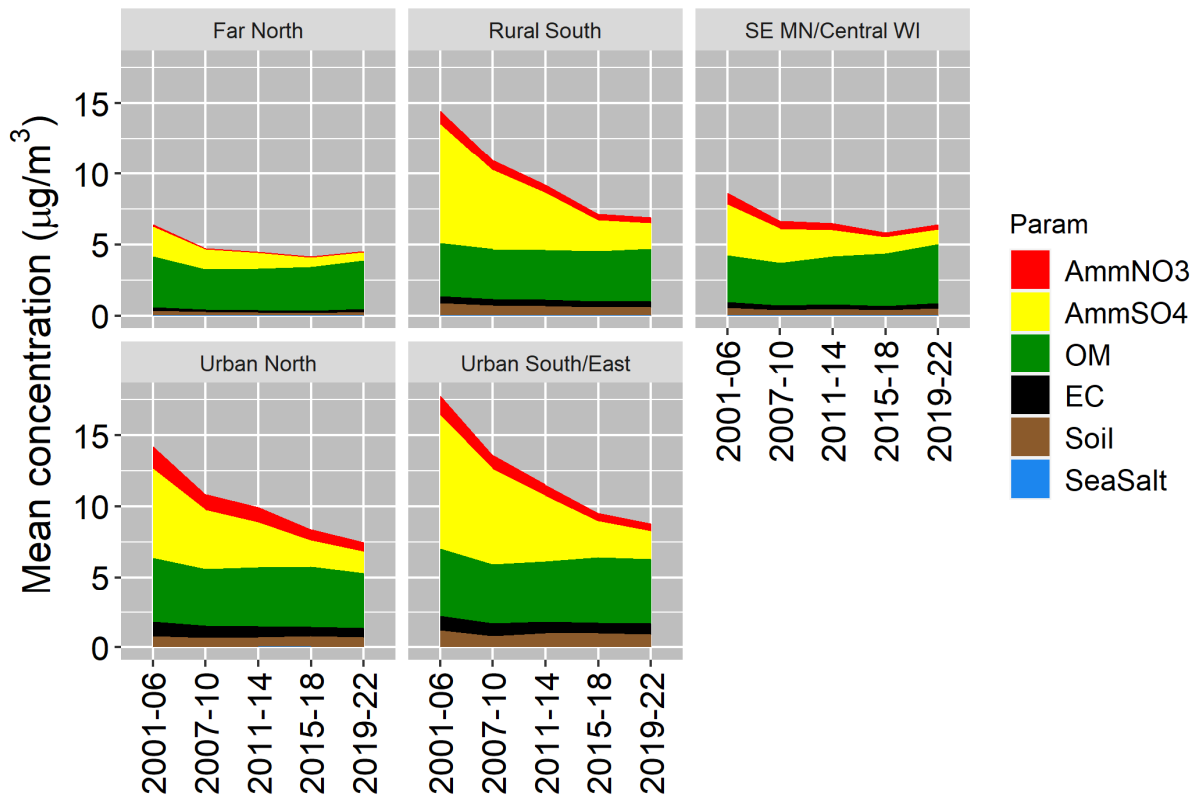
Average PM_{2.5} Spec. Trends by Cluster - winter



- Reductions in both AmmNO₃ and AmmSO₄
- Smaller reductions in OM
- Overall composition hasn't changed that much

Trends over time: Summer Speciated PM_{2.5}

Average PM_{2.5} Spec. Trends by Cluster - summer



- Large reductions in AmmSO₄
 - Tracks SO₂ emissions reductions
- OM is steady to increasing
- Shift from mostly AmmSO₄ to mostly OM
- Other components are very small

Smoke analysis methodology

- Estimated amount of smoke on a given day
 - = $PM_{2.5\text{-daily}} - (\text{Mean } PM_{2.5} + 1 \text{ stdev})_{\text{nonsmoke-days-month}}$
 - When smoke in satellite column (HMS smoke)
 - Method adapted from Childs et al. (2022) *ES&T* and Burke et al. (2023) *Nature*

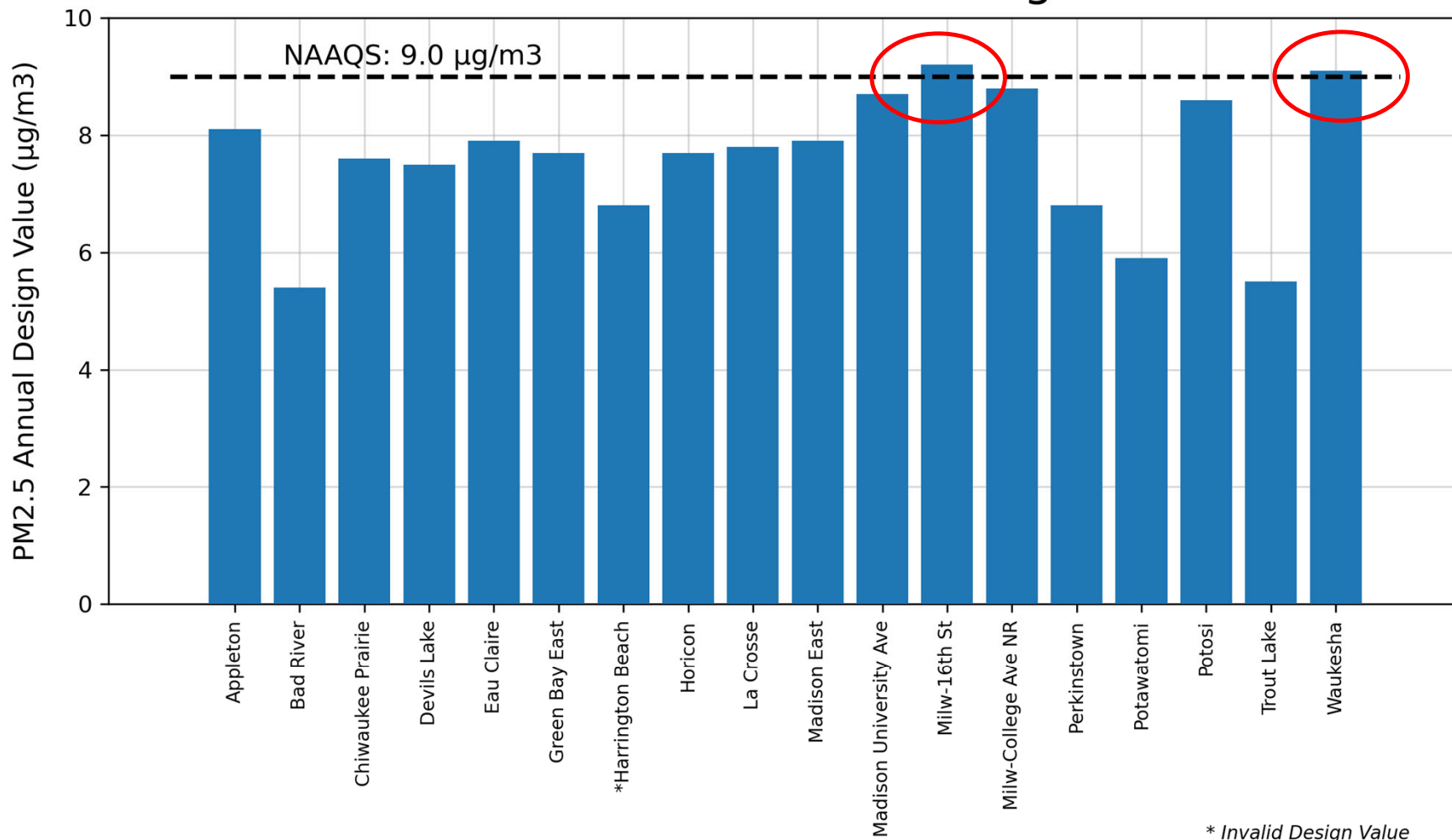
PM_{2.5} Exceptional Events

Brianna Denk
Air Quality Planning and Standards Section Manager

Exceptional Events

- The Exceptional Events Rule implements Clean Air Act (CAA) Section 319(b), Air Quality Monitoring Data Influenced by Exceptional Events.
- Exceptional events are defined in the CAA as events that affect air quality, are not reasonably controllable or preventable, and are either natural events or caused by human activity unlikely to recur.
- Air agencies can request exclusion of data influenced by exceptional events from use in regulatory decisions, such as initial area designations of a revised NAAQS.

PM2.5 Annual 2021-2023 Design Values

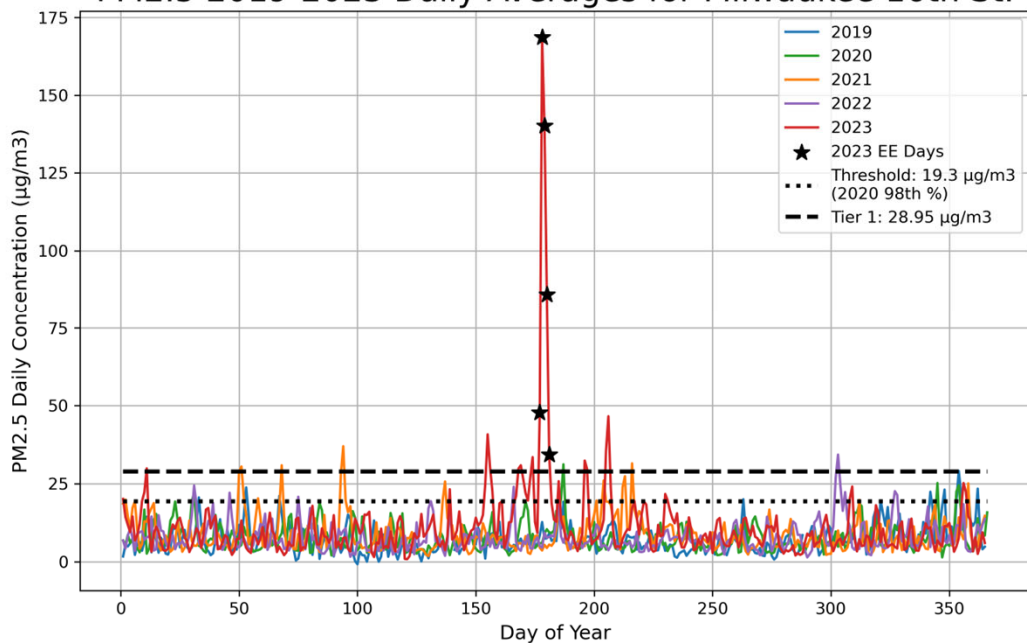


Wisconsin DNR intends to submit an Exceptional Events Demonstration for the late-June 2023 Canadian Wildfire event (June 26 – June 30) for the following monitors:

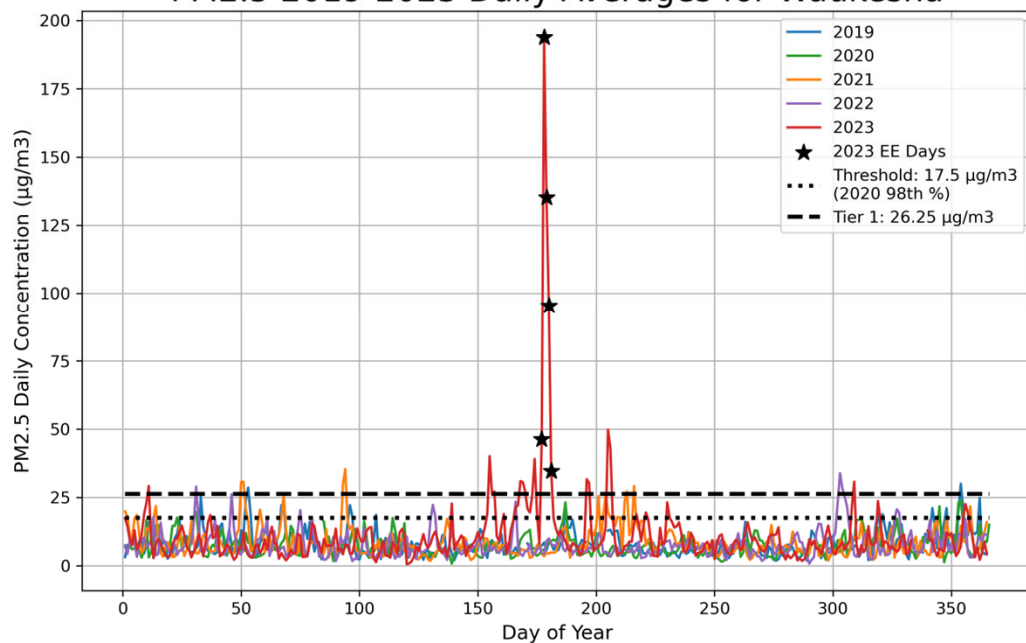
- Milwaukee – 16th St.
- Waukesha

Site	2021-23 PM _{2.5} Annual DV – Before EE	2021-23 PM _{2.5} Annual DV – After EE
Milwaukee - 16 th St.	9.2 µg/m ³	8.8 µg/m ³
Waukesha	9.1 µg/m ³	8.7 µg/m ³

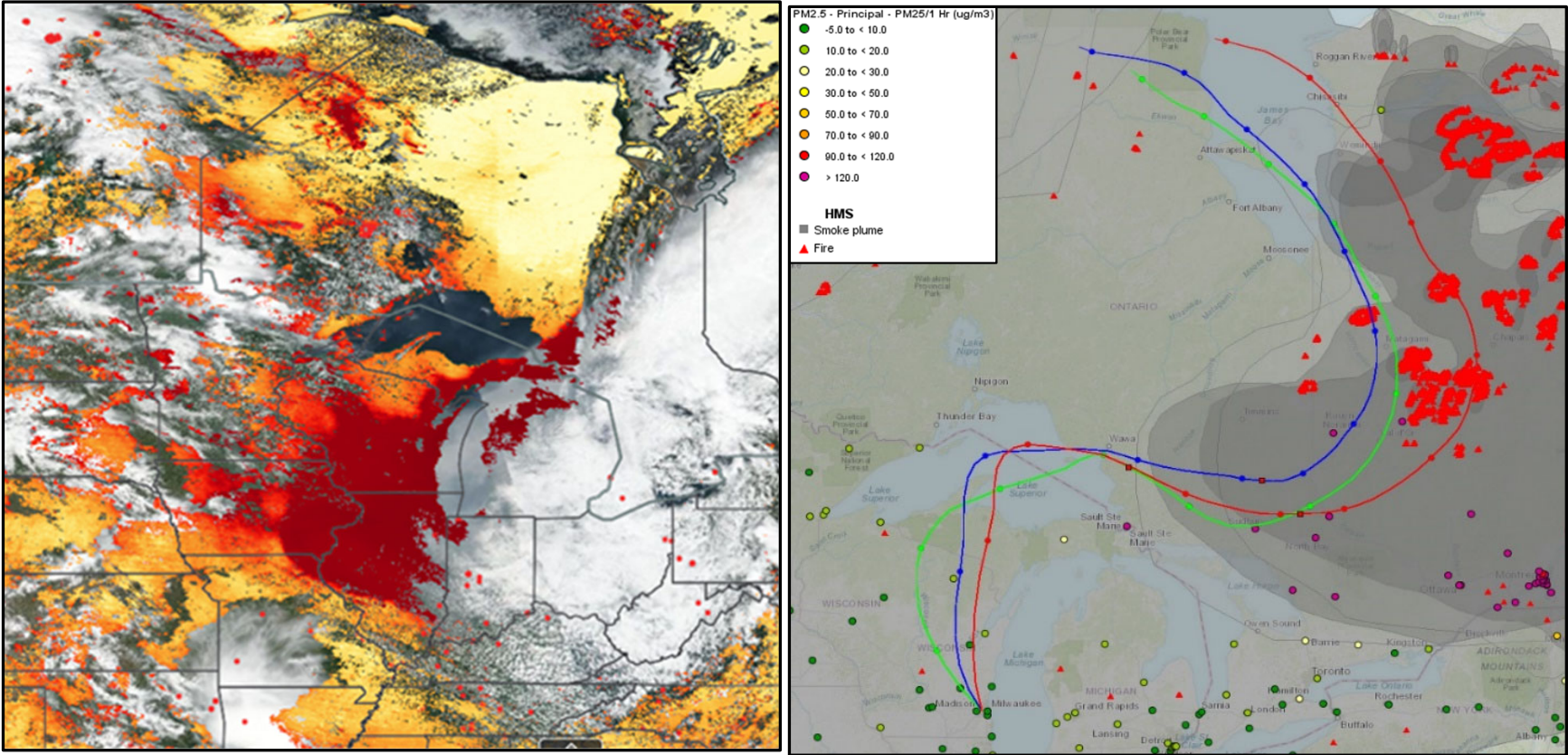
PM2.5 2019-2023 Daily Averages for Milwaukee 16th St.



PM2.5 2019-2023 Daily Averages for Waukesha



Technical Support for EE Demonstration



2024 PM2.5 NAAQS: Timelines

- Final exceptional events demonstrations for any 2022 or 2023 data are due to EPA no later than February 7, 2025.
 - Wisconsin's exceptional events demonstration for 2023 wildfire data will be out for public comment this fall
 - 30-day public comment period
- State designation recommendations are due to EPA by February 7, 2025.
- EPA must finalize area designations for the 2024 PM2.5 NAAQS by February 7, 2026.

Ozone Topics

Brianna Denk
Air Quality Planning and Standards Section Manager

Ron Binzley
Permitting Section Manager

2024 Wisconsin Ozone Status

Top Four 8-Hour Average Ozone Concentrations – as of **September 3, 2024**

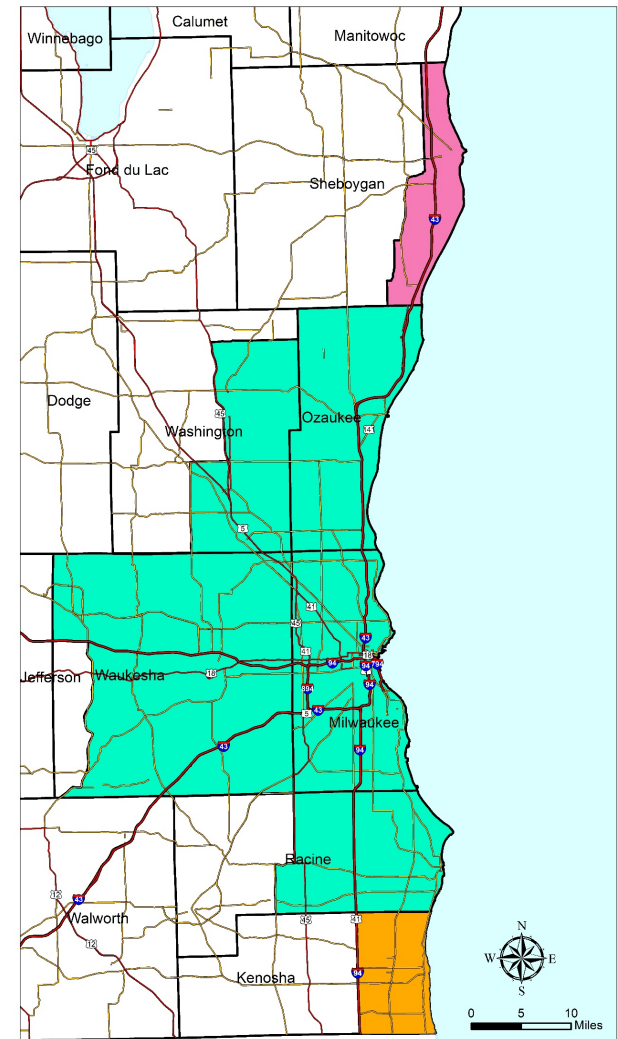
Wisconsin Sites	Concentrations (ppb)				2024 Critical Values (2008 NAAQS)	Days at/above Critical Values (2008 NAAQS)	2024 Critical Values (2015 NAAQS)	Days at/above Critical Values (2015 NAAQS)	Preliminary 2022-2024 "Design Value" (2015 NAAQS)
	1st high	2nd high	3rd high	4th high					
Bayside	84	77	73	71	78	1	63	10	73
Chiwaukee	83	81	81	80	74	5	59	23	78
Elkhorn	69	65	62	61	76	0	61	6	71
Grafton	90	74	73	72	79	1	64	11	73
Harrington Beach	90	88	76	75	80	2	65	9	74
Kenosha-WT	73	72	71	68	77	0	62	14	73
Kewaunee	72	67	67	65	81	0	66	3	70
Manitowoc	79	79	75	71	78	2	63	8	73
Milwaukee-Upark	70	68	66	65	82	0	67	2	70
Newport	73	67	66	65	80	0	65	4	71
Racine	86	84	82	78	82	3	67	13	74
Sheboygan-Haven	81	67	64	64	83	0	68	1	69
Sheboygan-KA	92	90	80	76	69	8	54	30	78
Waukesha	70	66	65	64	79	0	64	4	71

2015 NAAQS: 70 ppb	Non-Attainment for 2015 NAAQS	Reached 2015 Critical Value	Exceeded 2015 Standard
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Note: 2024 data have not yet been QA'ed or certified and are subject to change. Values are only shown for monitors that exceeded their critical value at least once.

Reclassification to Serious

- Moderate area attainment date for the 2015 ozone standard was August 3, 2024.
- By law, EPA must reclassify areas that failed to attain to Serious by February 3, 2025.
- EPA intends to take the following actions:
 - Regional offices will publish a notice to reclassify areas to Serious
 - EPA will propose a national action to set due dates for SIPs.



Permitting Impacts

Reclassification from “moderate” to “serious” nonattainment lowers major source thresholds.

Nonattainment Area Major Source Thresholds

Nonattainment Classification	NOx (ton/yr)	VOC (ton/yr)
Marginal Nonattainment	100	100
Moderate Nonattainment	100	100
Serious Nonattainment	50	50

Significant Emission Rates

Nonattainment Classification	NOx (ton/yr)	VOC (ton/yr)
Moderate (offset ratio 1.15:1)	40	40
Serious (offset ration 1.2:1)	25	25

Litigation Updates

Good Neighbor Plan (Ohio v. EPA)

- Ozone transport requirements for 2015 Ozone NAAQS
- Legal challenges
 - Lower courts stayed the GNP in 12 of 23 states in the original GNP
 - Remaining states asked SCOTUS for a stay
- On June 27, 2024 the Supreme Court granted an emergency stay of the GNP.
- Status:
 - GNP litigation currently before the DC Circuit
 - Wisconsin submitted brief
 - Court anticipates arguments in the new year
- While litigation is ongoing and the GNP is stayed, no additional upwind emission reductions are being achieved.

2025 Meeting Dates

- Thursday, March 6
- Thursday, June 5
- Thursday, Sept. 11
- Thursday, Dec. 4

CONNECT WITH US

Next Meeting

December 5, 2024



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"WILD WISCONSIN:
OFF THE RECORD"