

Ozone Attainment and Public Health in the Ozone Transport Region

2026 Annual Meeting



June 2, 2026

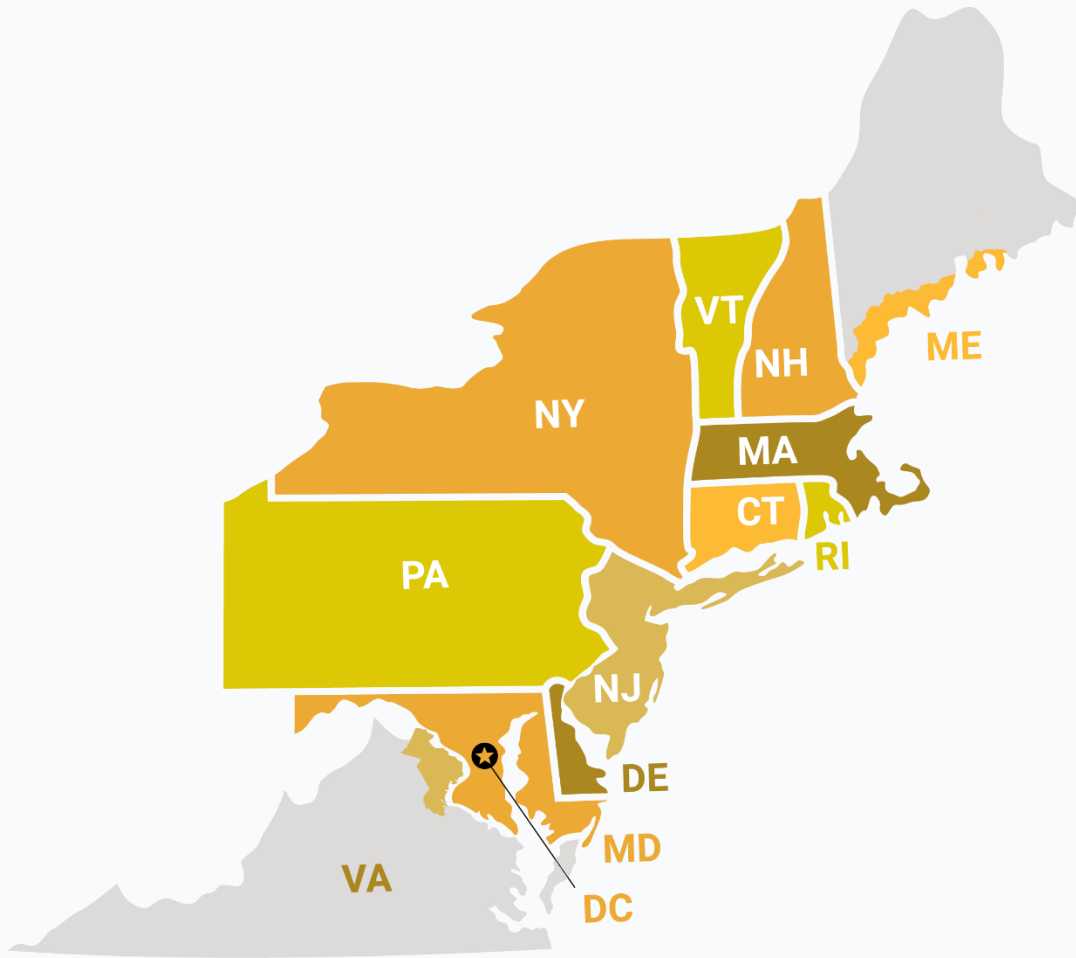
Today's Presentation

- Success of OTC/MAVEVU-EPA Partnership
- Recent Progress
- Outlook
 - On-road vehicles
 - Regional transport
 - Regional haze
- OTC/MANEVU Path Forward



EPA-OTC PARTNERSHIP ON OZONE

Ozone Transport Commission (OTC)



- Established by 1990 Clean Air Act Amendments (CAAA) to address regional ozone pollution and improve public and ecosystem health
- OTC members include Mid-Atlantic and New England states and U.S. EPA
- Created to facilitate collaboration and partnership between states and EPA to manage transport of ozone pollution across state lines

Why are ozone emissions regulated under Clean Air Act?

Harmful Effects to Health of Ozone Exposure:

- Increased frequency of asthma attacks
- Increased risk of early death from heart or lung disease

Populations at highest risk:

- People with lung disease such as asthma
- Children
- Older adults
- Outdoor workers

Health Benefits Estimated for the Year 2025 with the 2015 Ozone Standard:*

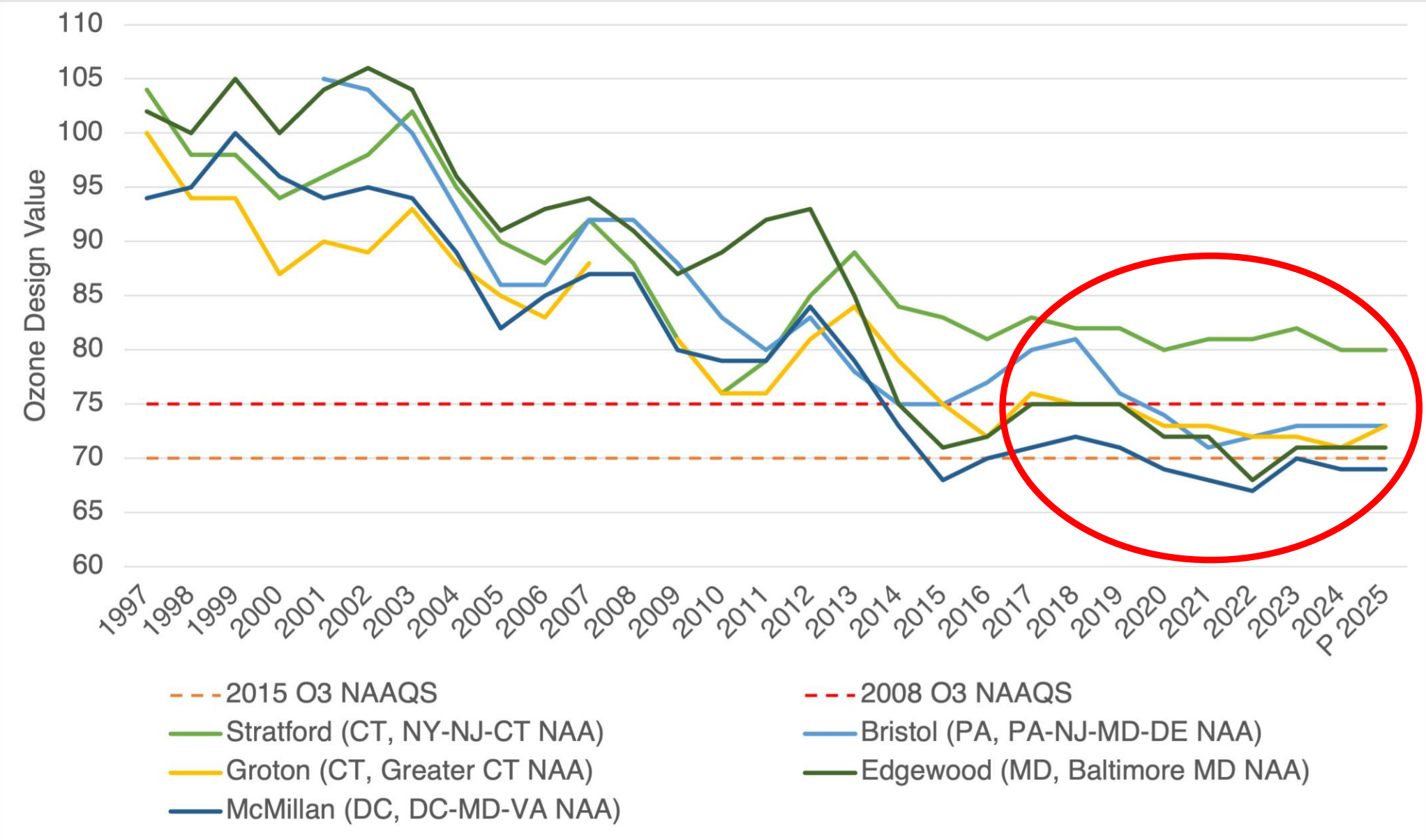
- EPA valuation of annual benefits:
 - **\$2-\$4 benefit for every \$1 invested**
 - \$2.9-\$5.9B relative to estimated \$1.4B annual costs
- Avoided Impacts for 2025:
 - 230,000 asthma attacks in children
 - 60,000 missed school days
 - 28,000 missed workdays
 - 320 to 660 premature deaths
 - 630 asthma-related emergency room visits
 - 340 cases of acute bronchitis in children

Decades of Effective Federal-OTC Partnership

- Collaboration between states and EPA on science and technical work that underscores regulatory action
- Significant progress across sectors made between states on regulatory measures, such as model rules
 - Ex. NOx Budget (late 1990s)
- After OTC led the way, EPA adopted certain rulemaking approaches nationally

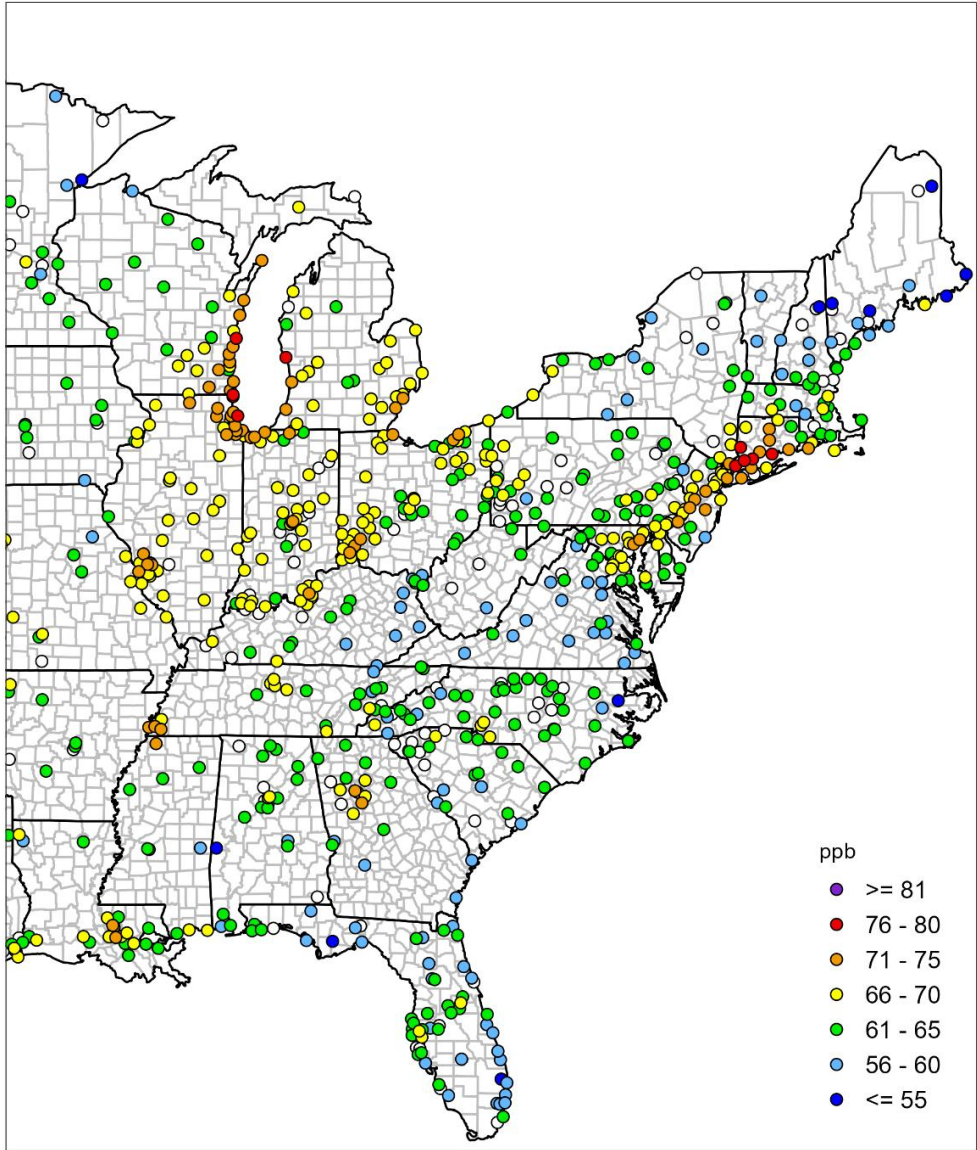
Year	Model Rules Developed
2001	<ul style="list-style-type: none"> • Consumer Products Phase I • AIM Coatings Phase I • Portable Fuel Containers Phase I • Mobile Equipment Repair & Refinishing Phase I • Solvent Degreasing Phase I • ICI Boilers, Turbines & Engines • Distributed Generation Standards
2006	<ul style="list-style-type: none"> • Consumer Products Phase II • Portable Fuel Containers Phase II • Asphalt Paving (Cutback & Emulsified) • ICI Adhesives and Sealants • ICI Boilers RACT Resolution • Cement Kilns • Asphalt Production • Glass Production
2009	<ul style="list-style-type: none"> • Mobile Equipment Repair & Refinishing Phase II
2010	<ul style="list-style-type: none"> • Consumer Products Phase III • Large Above Ground VOC Storage Tanks • Stationary Generators • EGUs: HEDD Combustion Turbines • EGUs: Oil and Gas Boilers
2011	<ul style="list-style-type: none"> • AIM Coatings Phase II • New Small Natural Gas Boilers
2012	<ul style="list-style-type: none"> • Consumer Products Phase IV • Solvent Degreasing Phase II • Idling Restrictions for Nonroad Engines (Mobile)
2014	<ul style="list-style-type: none"> • Sale of Aftermarket Catalytic Converters (Mobile)
2018	<ul style="list-style-type: none"> • Consumer Products Phase V (RTG Format)
2019	<ul style="list-style-type: none"> • Natural Gas Pipeline Compressors (RTG Format)

Progress Towards Ozone Standards is Slowing



Challenges Remain for Attaining Ozone Standards

2022-2024 Ozone Design Values

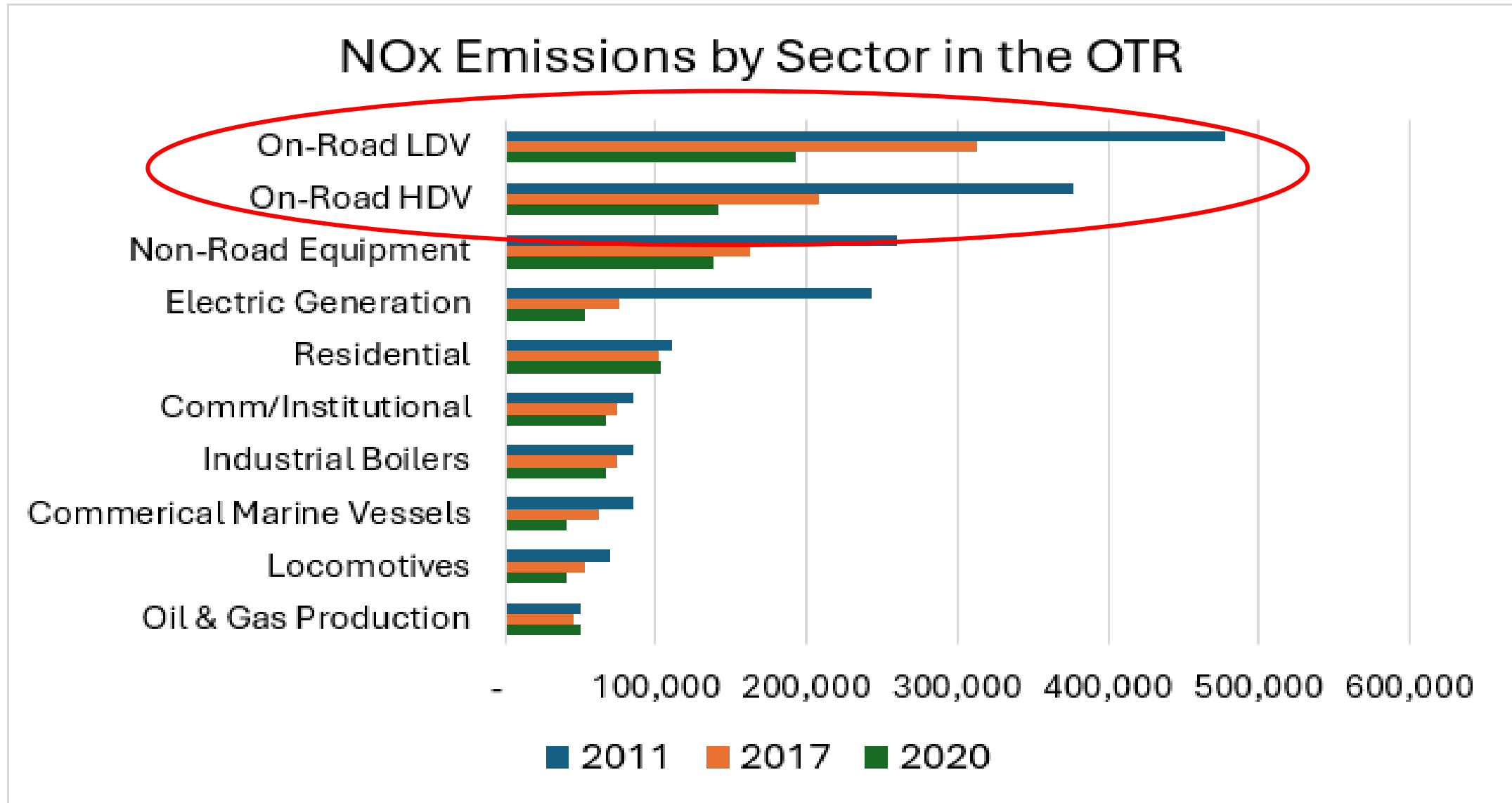


Data source: <https://www.epa.gov/air-trends/air-quality-design-values>, 06/04/2025



ONROAD VEHICLE EMISSIONS

On-Road Vehicle Emissions Remain Biggest Challenge

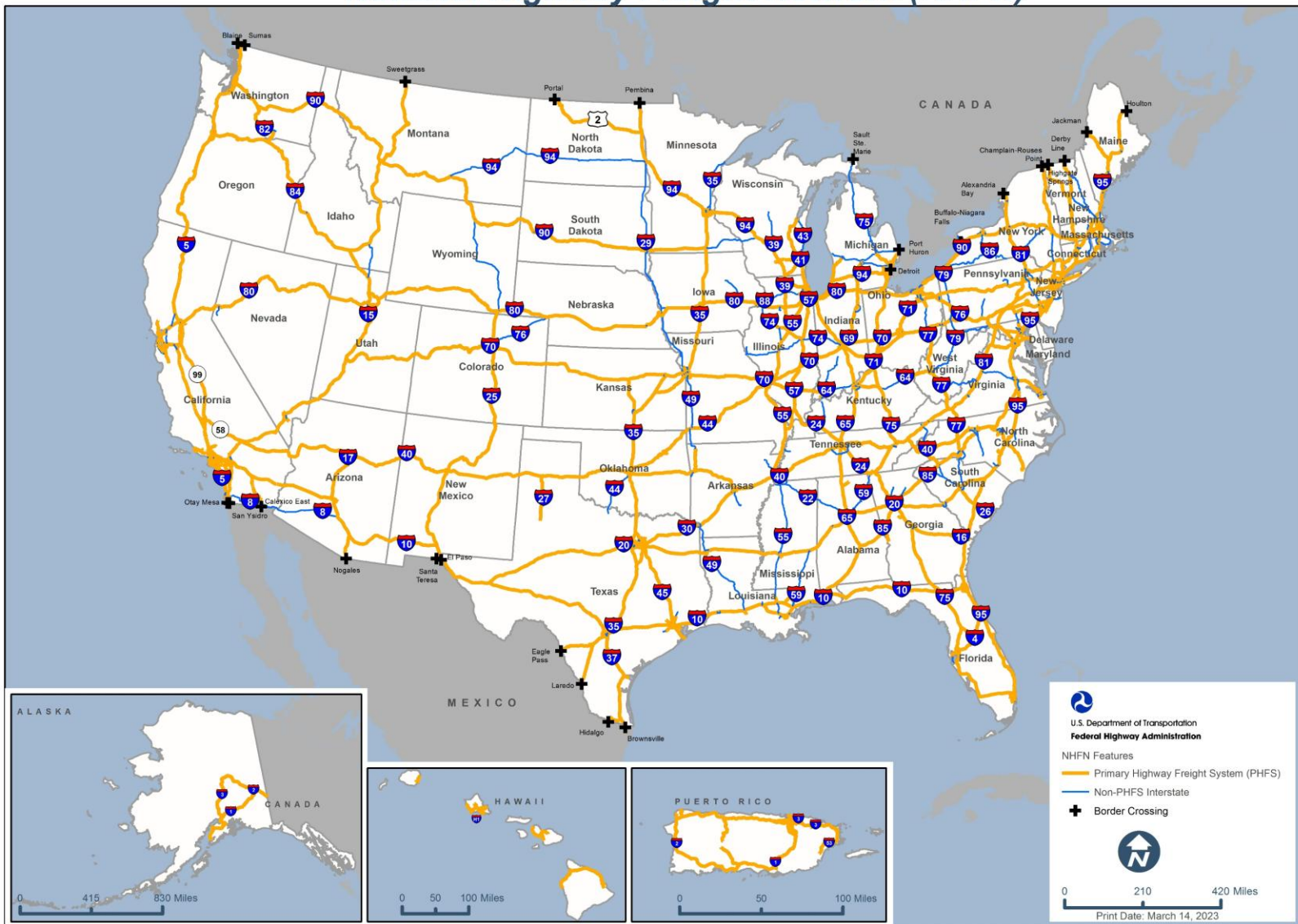


How does rolling back Multi-Pollutant Standards impact the OTC?

- An estimated ~22% (based on vehicle registrations) of all national emissions reductions from EPA's Multi-Pollutant rule would have occurred in the OTR.
- In the year 2055 the region was expected to see approximately:
 - 21,000 tons/year NOx emission reductions
 - 43,000 tons/year VOC emission reductions
- Without the multi-pollutant rule, these lost reductions are equivalent to **adding millions more passenger cars or tens of thousands more heavy-duty trucks** to our roads.
- These are conservative, lower-bound estimates due to prevalent **adoption of Advanced Clean Cars II in OTR** where fleet was expected to be cleaner than the national average, leading to additional emission reductions.

How does repeal of Phase 3 HDV Standards impact the OTC?

National Highway Freight Network (NHFN)

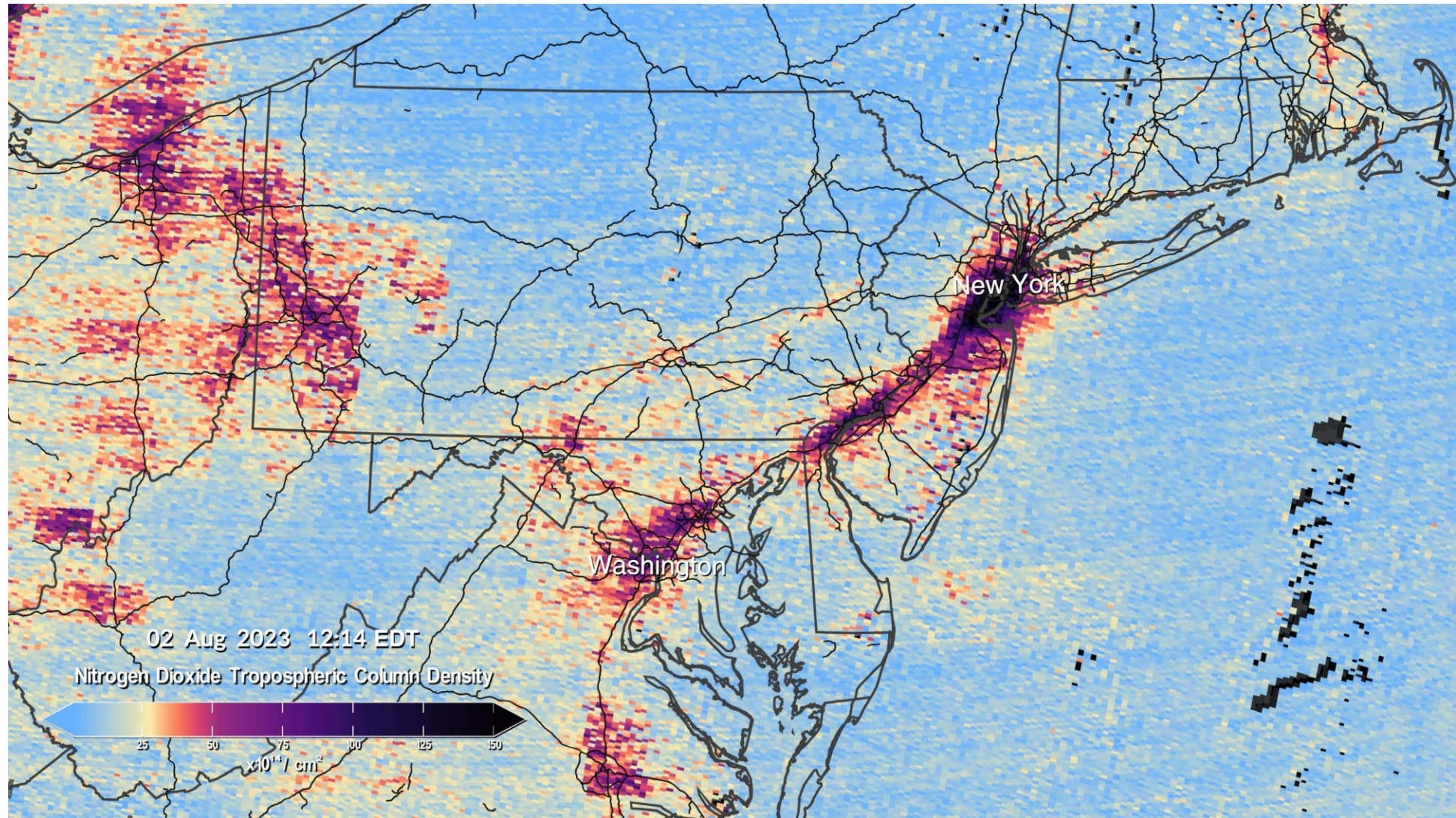


More ozone pollution from trucks, and associated health impacts, along major freight routes.

Disproportionate impacts likely in the OTR due to concentration of freight routes in heavily populated areas.

Note: PHFS and the Non-PHFS Interstate mileage is based on the U.S. Department of Transportation, Federal Highway Administration, All Roads Network of Linear Referenced Data (ARNOLD) - 2019 geospatial database. Non-PHFS Interstate mileage can fluctuate based on changes made to the Interstate System. The mileage for Non-PHFS Interstate is based on the Interstate Mileage reported in the National Highway System (NHS) as of October 17, 2019. The mileage for CRFCs and CUFCs is based on the State reported data as of January 27, 2023.

High NO_x Emissions in the OTR (Aug. 2, 2023)



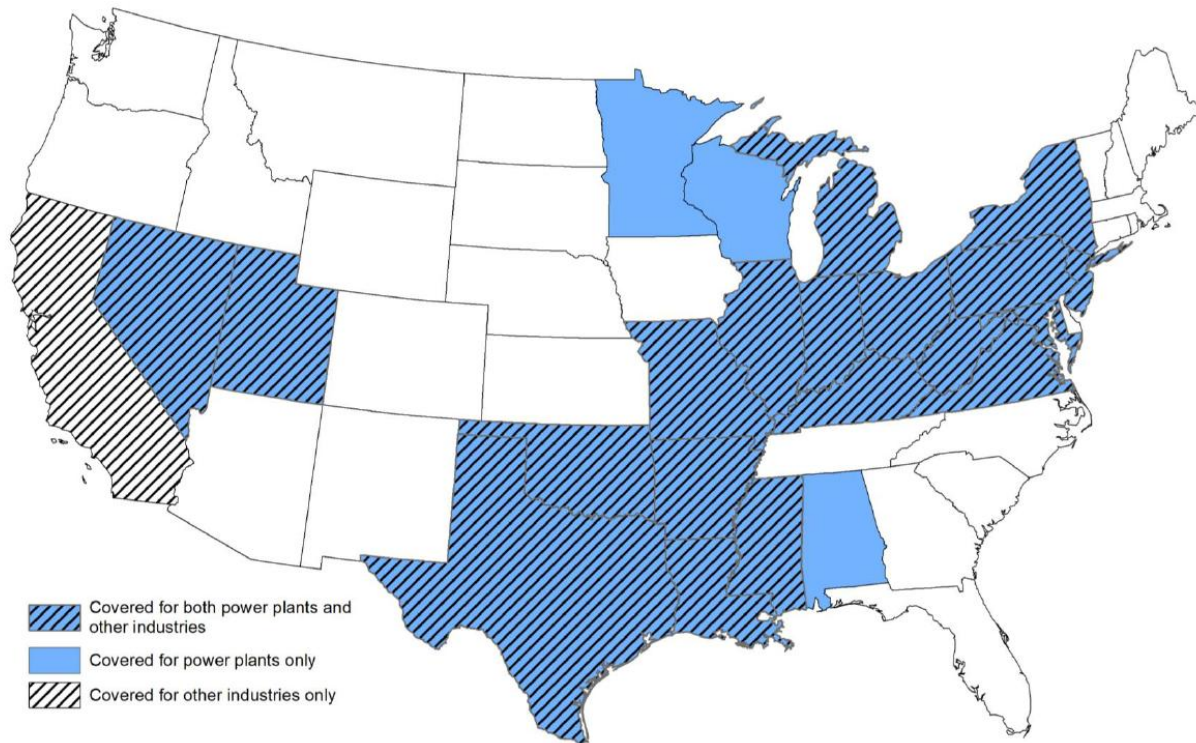
Credits: Kel Elkins, Trent Schindler, and Cindy Starr/NASA's Scientific Visualization Studio



REGIONAL TRANSPORT

National and Regional Ozone Transport

EPA's Good Neighbor Plan 2023 Final Rule Covered Geography

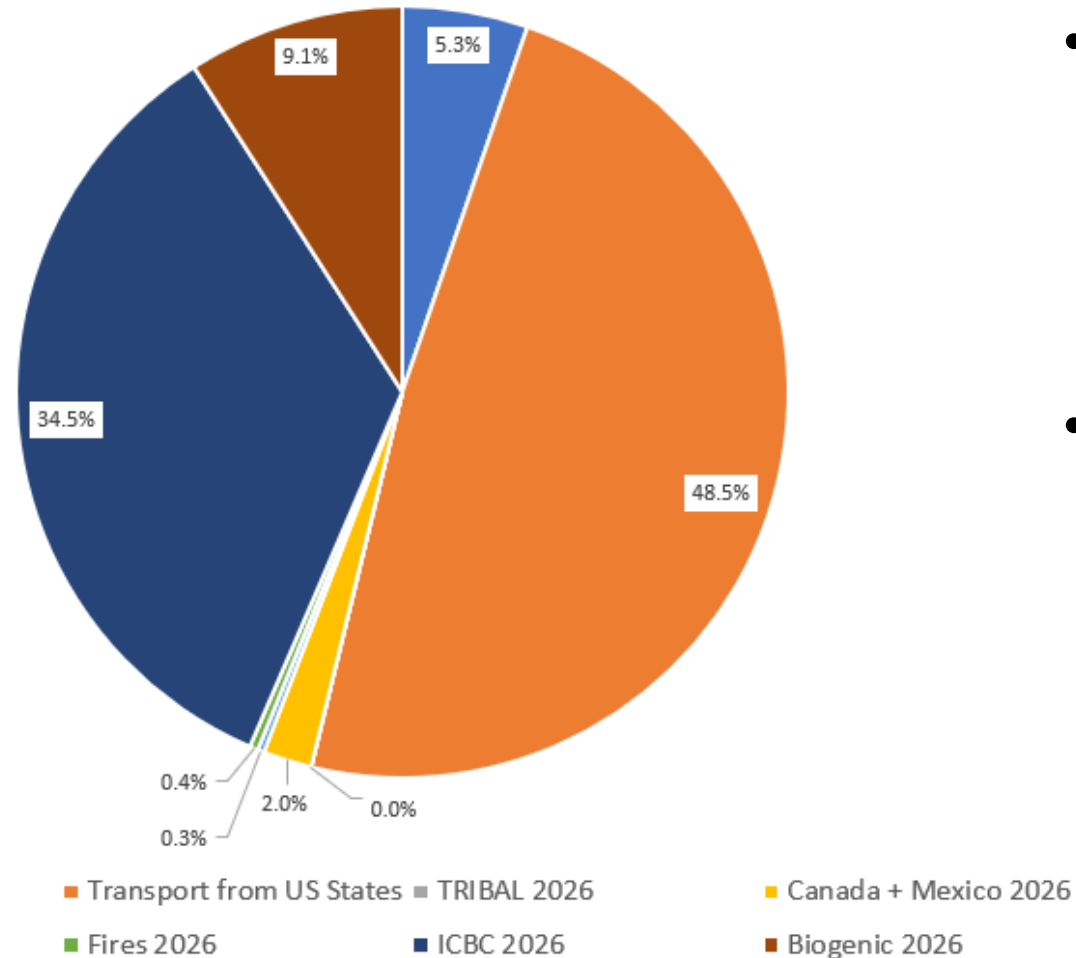


Source: U.S. Informational Webinar on the Federal “Good Neighbor Plan” EPA for 2015 Ozone NAAQS. March 2023.

- Primary sources of ozone are from sources within the Ozone Transport Region and OTC has provided a forum to address issues between our member states
- States and EPA have worked together regionally and nationally to address transport of ozone pollution
- Worked beyond the OTR for example with the 2009 MOU signed by 17 states

Delaware: Case Study

Impacts to Ozone in Delaware



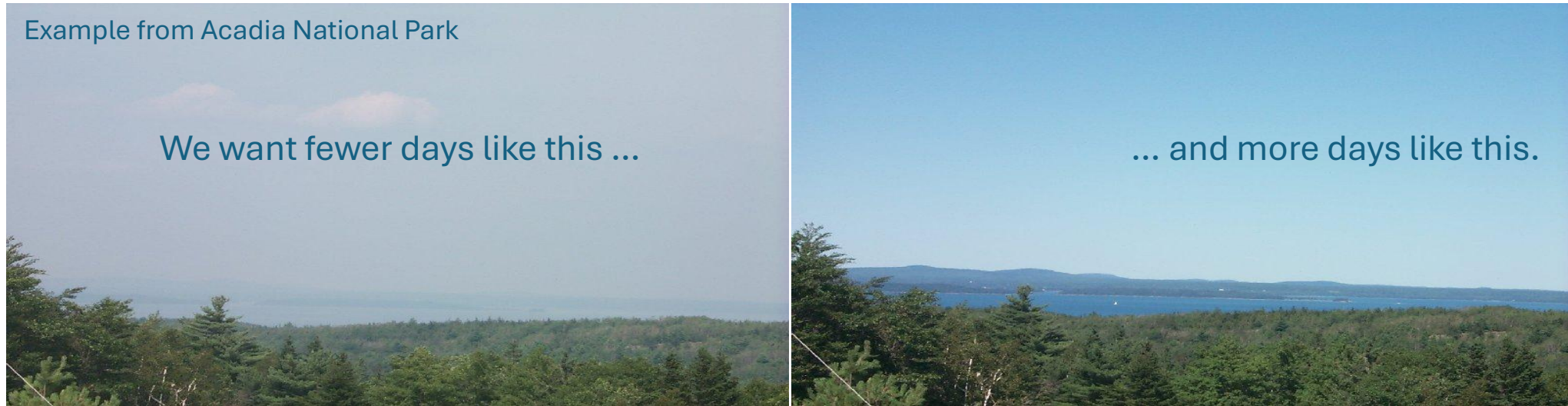
- Delaware provides an example of how pollution transported from other regions impacts an OTC member state
- For modeled sources of ozone in the 2026 ozone season, nearly half the sources come from other states



MANEVU

Mid-Atlantic/Northeast Visibility Union

Visibility Goals on Federal Lands



Class I Areas in the MANEVU Region

Acadia National Park, **Maine**

Moosehorn Wilderness, **Maine**

Roosevelt-Campobello International, **Maine/New Brunswick**

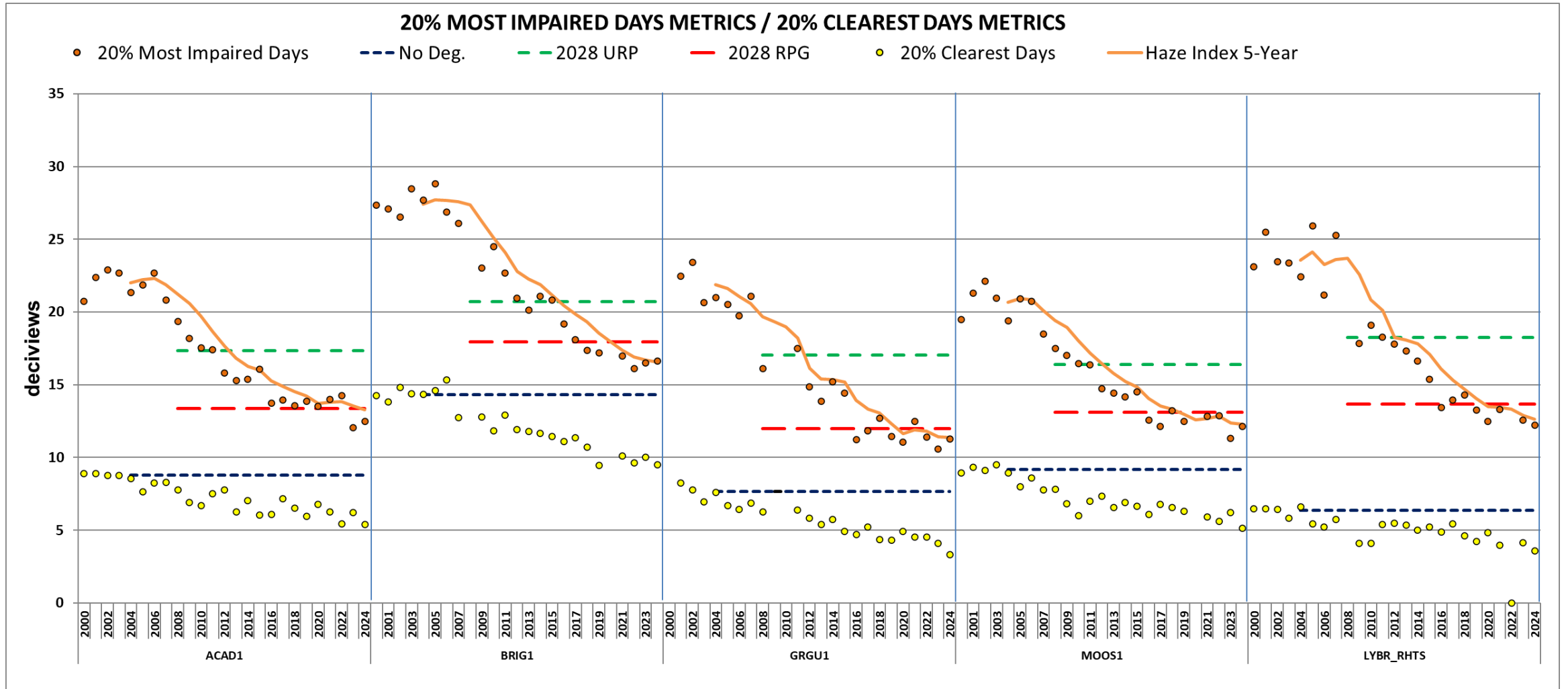
Presidential Range-Dry River Wilderness Area, **New Hampshire**

Great Gulf Wilderness Area, **New Hampshire**

Lye Brook Wilderness Area, **Vermont**

Brigantine Wilderness Area, **New Jersey**

Regional Haze Trends



Focus of OTC and Committee Work

- OTC and MANEVU Committees continue to focus on robust data, tools, and methods to measure and evaluate program effectiveness:
 - Emissions inventories
 - Inclusion of monetized health benefits
 - Monitoring sites
 - Role of grid reliability
- OTC and NESCAUM will conduct modeling this year to generate robust estimates of EPA's proposed changes to vehicle regulations
- OTC and states remain committed to our partnership with EPA to reduce ozone, improve public health, and achieve visibility goals on Federal lands