USEPA Perspectives on Interstate Ozone Transport

New Jersey Clean Air Council

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Overview

- Background on **C**lean **A**ir **A**ct interstate transport requirements
- Context for those requirements as they relate to the 2008 Ozone **N**ational **A**mbient **A**ir **Q**uality **S**tandards
- Steps that have been used to address these requirements for previous NAAQS
- Results of EPA's preliminary ozone modeling for 2018
- Near term NO_X reduction strategies

The "Good Neighbor" Provision

Clean Air Act section 110(a)(2)(D)(i)(I):

–Within 3 years of promulgation of a new or revised NAAQS each state is required to make a "Infrastructure" State Implementation Plan submission containing provisions prohibiting emissions that

- Significantly contribute to nonattainment in downwind states
- Interfere with maintenance in downwind states

–The basis for NOx SIP call, CAIR and CSAPR

Context for 2008 Ozone

Ozone Standard revised in March 2008

- Unique circumstances impacted transport SIP development
  - –Reconsideration of standard
  - –Protracted litigation related to state obligations for transport
- 3-year SIP deadline for submission of transport SIPs was March 2011
- EPA's goal to facilitate transport SIP development
  - – January 22, 2015 EPA memo on transport

April 8, 2015 Transport Workshop

Ozone Transport SIP Development

- State/Federal partnership
- Ongoing discussions
  - Near term NOx reductions
- Not in isolation
  - Mercury Air Toxics rule
  - Tier 3 mobile source reductions
  - proposed Clean Power Plan
  - proposed 2015 Ozone standard
- EPA carry out federal “backstop” role, if necessary
- Revised modeling available summer 2015

4-Step Analytic Process Previously Used to Address Transport

States and/or EPA:

1. Identify downwind air quality problems for a future year (nonattainment and maintenance receptors)
2. Identify states projected to contribute to identified downwind problems

* For CSAPR, EPA used a threshold of 1% of the NAAQS

3. Identify emissions reductions necessary to eliminate significant contribution to nonattainment and interference with maintenance at downwind receptors
4. Adopt enforceable remedies (e.g., the CSAPR trading programs) to achieve the reductions

Context for EPA's Preliminary Modeling

The transport data provided by EPA to the states is based on our preliminary modeling

- This modeling is based on emissions inventories that we released for comment in Nov 2013 and Jan 2014
- EPA is working to update our inventories based on comments
- The updated inventories will be used by EPA in a new round of transport modeling
- Modeling will be updated for 2017 (December 2014 NRDC court decision).
- We plan to share the results of our updated modeling when they become available this summer
- The updated modeling will be used to inform a proposed backstop rule later this year

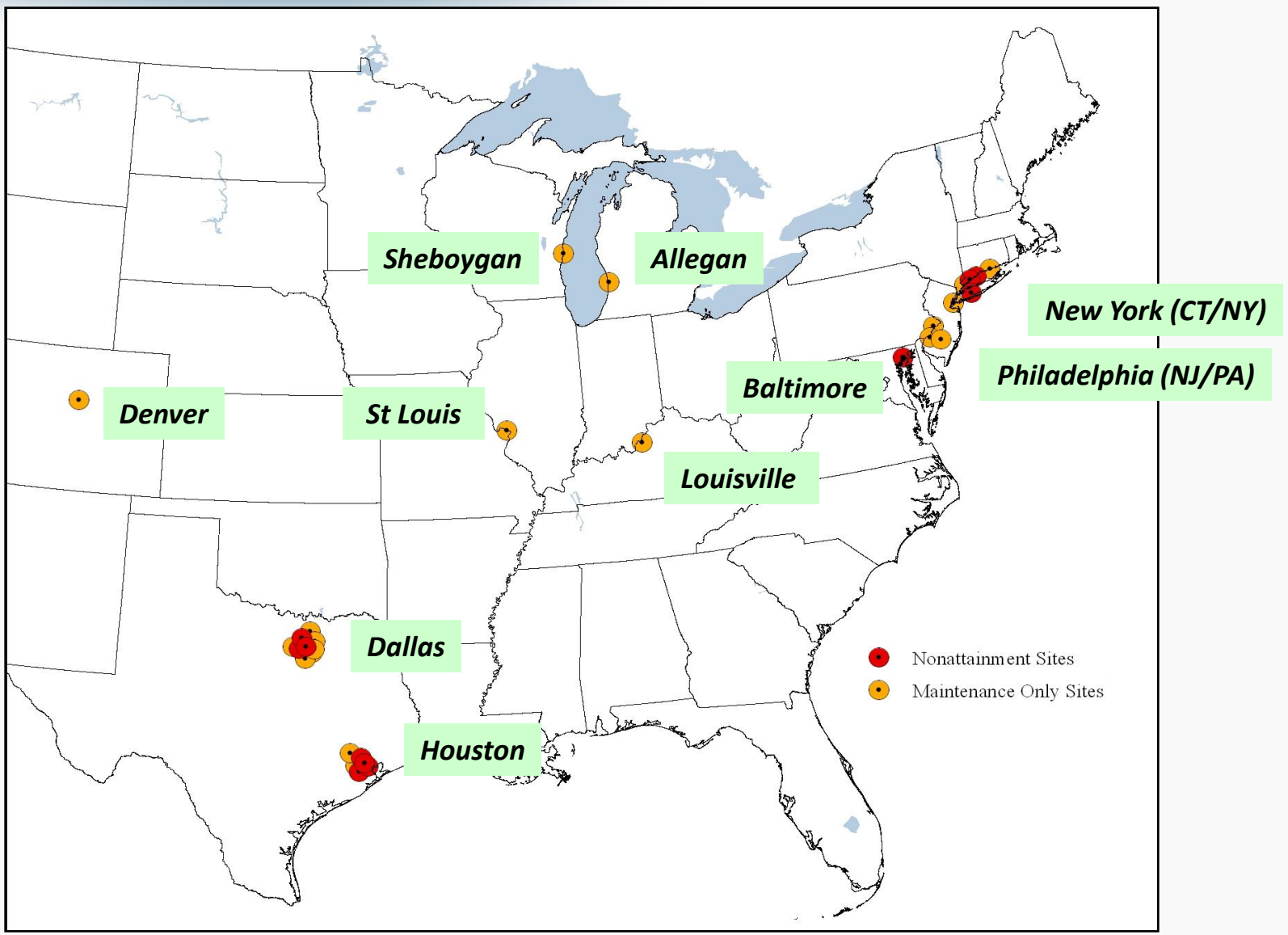
2018 Nonattainment and Maintenance Sites

- East: Total of 11 nonattainment, 18 maintenance receptor sites
  - ***Nonattainment sites in:*** New York*, Baltimore, Dallas*, and Houston*
  - ***Maintenance sites in:*** Philadelphia, Louisville, Sheboygan, Allegan, and St. Louis

- West: There are 52 nonattainment or maintenance sites within California and 1 maintenance site in Denver (Douglas County, CO)

**These areas also contain maintenance receptors.*

2018 Ozone Receptor Locations



2009 – 2013 and 2018 Average and Max DVs (ppb) at Nonattainment Receptors in the East

State	County	Site ID	2009 - 2013 Avg DVs	2009 - 2013 Max DVs	2018 Avg DVs	2018 Max DVs
Connecticut	Fairfield	90013007	84.3	89.0	76.7	81.0
Connecticut	Fairfield	90019003	83.7	87.0	77.5	80.6
Maryland	Harford	240251001	90.0	93.0	79.4	82.1
New York	Suffolk	361030002	83.3	85.0	78.2	79.8
Texas	Brazoria	480391004	88.0	89.0	80.5	81.4
Texas	Denton	481210034	84.3	87.0	77.0	79.5
Texas	Harris	482010024	80.3	83.0	76.4	79.0
Texas	Harris	482011034	81.0	82.0	76.6	77.6
Texas	Harris	482011039	82.0	84.0	77.7	79.6
Texas	Tarrant	484392003	87.3	90.0	79.7	82.2
Texas	Tarrant	484393009	86.0	86.0	78.3	78.3

2009 – 2013 and 2018 Average and Max DVs (ppb) at Maintenance Receptors in the East

State	County	Site ID	2009 - 2013 Avg DVs	2009 - 2013 Max DVs	2018 Avg DVs	2018 Max DVs
Connecticut	Fairfield	90010017	80.3	83.0	74.1	**76.6**
Connecticut	New Haven	90099002	85.7	89.0	75.8	**78.8**
Kentucky	Jefferson	211110067	82.0	85.0	73.7	**76.4**
Michigan	Allegan	260050003	82.7	86.0	74.5	**77.5**
Missouri	Saint Charles	291831002	82.3	86.0	74.1	**77.4**
New Jersey	Camden	340071001	82.7	87.0	72.3	**76.0**
New Jersey	Gloucester	340150002	84.3	87.0	74.0	**76.3**
New York	Richmond	360850067	81.3	83.0	74.6	**76.2**
Pennsylvania	Philadelphia	421010024	83.3	87.0	74.7	**78.0**
Texas	Collin	480850005	82.7	84.0	75.0	**76.2**
Texas	Dallas	481130069	79.7	84.0	73.7	**77.7**
Texas	Dallas	481130075	82.0	83.0	75.2	**76.1**
Texas	Denton	481211032	82.7	84.0	75.1	**76.3**
Texas	Harris	482010029	83.0	84.0	75.4	**76.3**
Texas	Harris	482010055	81.3	83.0	75.0	**76.6**
Texas	Tarrant	484390075	82.0	83.0	75.5	**76.4**
Texas	Tarrant	484393011	80.7	83.0	74.2	**76.3**
Wisconsin	Sheboygan	551170006	84.3	87.0	75.4	**77.8**

Quantification of Interstate Ozone Contribution

- Ozone contributions at or above a 1 percent (0.76 ppb)threshold from upwind states to Eastern receptors in the Eastern US.

2018 Nonattainment		Upwind States-Part 1 (AL through MS)									
County	Site ID	AL	AR	FL	IL	IN	KY	LA	MD	MI	MS
Fairfield, CT	90013007								2.11	0.93	
Fairfield, CT	90019003								2.60		
Harford, MD	240251001					1.93	1.95			0.86	
Suffolk, NY	361030002				0.79	1.02			1.50	1.49	

2018 Nonattainment Receptors		Upwind States-Part 2 (MO through WV)								
County	Site ID	MO	NJ	NY	OH	OK	PA	TX	VA	WV
Fairfield, CT	90013007		6.72	15.58	1.92		9.86		1.92	0.97
Fairfield, CT	90019003		8.17	16.06	1.50		9.30		2.17	0.89
Harford, MD	240251001				4.07		6.93	0.92	4.43	2.80
Suffolk, NY	361030002		9.21		2.52		9.79	0.80	1.72	0.99

Quantification of Interstate Ozone Contribution

- Ozone contributions at or above a 1 percent (0.76 ppb)threshold from upwind states to Eastern **maintenance** receptors in the Eastern US

2018 Maintenance Receptors		Upwind States- Part 1 (AL through LA)									
County	Site ID	AL	AR	DE	FL	IL	IN	IA	KS	KY	LA
Fairfield, CT	90010017					0.79	1.04				
New Haven, CT	90099002						0.81				
Jefferson, KY	211110067					1.09	11.42				
Allegan, MI	260050003		2.19			22.30	8.17	0.89	1.15		
Saint Charles, MO	291831002	0.87	1.53			7.07					0.78
Camden, NJ	340071001			1.85		1.33	1.66			0.87	
Gloucester, NJ	340150002			2.47		0.86	1.01			1.22	
Richmond, NY	360850067			1.14			0.90			1.21	
Philadelphia, PA	421010024			1.36		0.78	2.01			2.41	
Shebovgan, WI	551170006					15.87	7.92		0.88		1.12
Number of Linkages =>		3	9	4	1	8	9	1	4	4	10

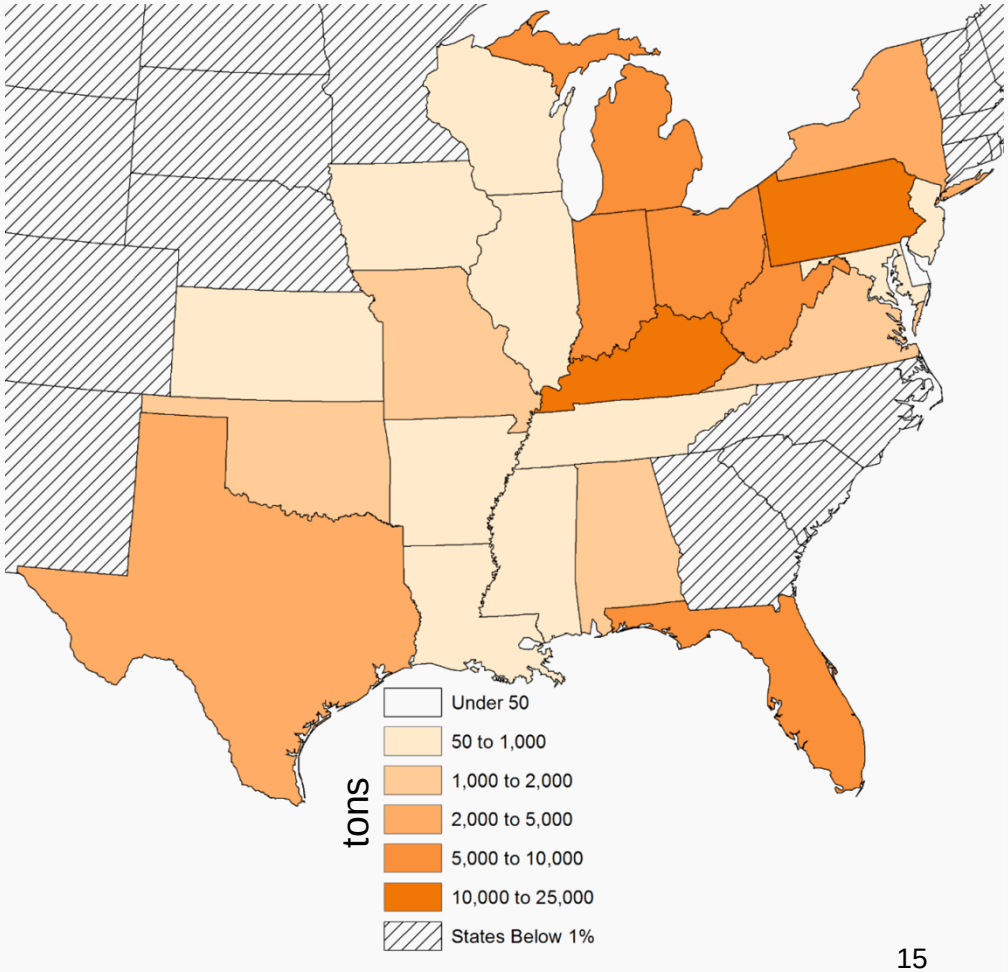
2018 Maintenance Receptors		Upwind States -Part 2 (MD through TN)									
County	Site ID	MD	MI	MS	MO	NJ	NY NY	OH	OK	PA	TN
Fairfield CT	90010017	2.01				7.64	15.49	1.93		9.28	
New Haven, CT	90099002	1.74				5.58	16.15	1.86		8.70	
Jefferson, KY	211110067		1.23					3.93			
Allegan, MI	260050003				4.13				1.70		
Saint Charles, MO	291831002								0.89		0.77
Camden, NJ	340071001		1.58		0.95		1.54	4.42		18.76	
Gloucester, NJ	340150002	6.97	1.03				1.34	3.71		16.20	
Richmond, NY	360850067	3.59				9.95		2.10		16.19	
Philadelphia, PA	421010024	5.14				1.38		3.84			1.00

Near-term EGU NO_X Reductions

Reductions from all near-term EGU NO_X reduction strategies

- The map illustrates the location of NO_X reductions achieved from all EGU NO_X strategies:
  - Operating existing post-combustion controls (SCR and SNCR)
  - State of the art combustion controls
  - Shifting generation to lower-emitting EGUs (illustrated using $1,300 per-ton assessment)
- Ozone season EGU NO_X reduction potential in the states examined adds up to over 80,000 tons.

2017 Ozone Season EGU NO_X Reduction (tons)
- All Near-term EGU NO_X Reduction Strategies -



Final Thoughts

- Current SIPs under review
- On-going litigation with SIPs
- Conversations between the States
- Incentive to improve air quality for future designations
- Other source sectors are important for long term