

# Is There Need for a 75 ppb Ozone Transport Rule?

David Flannery

Steptoe & Johnson PLLC

Gregory Stella

Alpine Geophysics, LLC

Prepared For The  
Midwest Ozone Group

# Overview

- Framework for Addressing Transport
- Identifying Problem Areas
  - Nonattainment Design Values
  - Additional OTB emission reductions still to come
  - Additional OTC Control Measures
  - Additional Maryland Control Measures
  - Additional NY, NJ and PA Controls to eliminate Impact on CT
  - Predicted 2018 air quality
- Significant contribution

# Framework For Addressing Transport\*

1. Identify downwind air quality problems
2. Identify upwind states that contribute enough to warrant further review
3. Identify necessary emission reduction
4. Adoption of enforceable measures

\*Source: Steve Page "Good Neighbor" memorandum 22 Jan. 2015

# Identify Downwind Air Quality Problems\*

- Modeled future year (2018) air quality
- On-the-books emission reductions
- Emissions forecasting
- Select areas unable to attain or maintain

\*Source: Steve Page "Good Neighbor" memorandum 22 Jan. 2015

# Attainment Designation Status

- “Moreover, the end goal of the statute is attainment in the downwind State. EPA’s authority to force reductions on upwind States ends at the point where the affected downwind State achieves attainment” EME Homer City Generation, L.P. v. E.P.A., 696 F 3d 7, 20 (2012).
- “We agree with the Court of Appeals to this extent: EPA cannot require a State to reduce its output of pollution by more than is necessary to achieve attainment in every downwind State . . .” E.P.A. v. EME Homer City Generation, L.P., 134 S. Ct. 1584, 1608 (2014).

# EPA Ozone Design Value Projections

**Table 1. Ambient and 2018 projected average and maximum 8-hour ozone design values (DV<sub>s</sub>) at 2018 nonattainment receptors in the East (nonattainment receptors have a 2018 average design value of  $\geq 76.0$  ppb). Units are ppb.**

State	County	Site ID	2009 - 2013 Avg DV <sub>s</sub>	2009 - 2013 Max DV <sub>s</sub>	2018 Avg DV <sub>s</sub>	2018 Max DV <sub>s</sub>
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

Source: Steve Page "Good Neighbor" memorandum, 22 Jan. 2015.

# Recent 8-hr Ozone Design Values at Projected 2018 Nonattainment Receptors in the Northeast

			4th Highest Annual (ppm)						3yr Average Design Value (ppm)			
State	County	Site ID	2009	2010	2011	2012	2013	2014*	2009-11	2010-12	2011-13	2012-14*
Connecticut	Fairfield	90013007	0.073	0.079	0.087	0.090	0.090	0.074	0.079	0.085	0.089	0.084
Connecticut	Fairfield	90019003	0.073	0.079	0.087	0.089	0.086	0.081	0.079	0.085	0.087	0.085
Maryland	Harford	240251001	0.083	0.096	0.098	0.086	0.072	0.067	0.092	0.093	0.085	0.075
New York	Suffolk	361030002	0.079	0.085	0.089	0.083	0.072	0.066	0.084	0.085	0.081	0.073

- 2014 DVs show MD and NY monitors already in attainment and only Fairfield CT in nonattainment of 2008 ozone NAAQS
- EPA proposed attainment for Baltimore (3/18/15; 80 Fed. Reg. 14041)

\* Draft values as of Feb 2015 download.

# EPA Emissions and Projections Show Additional On-the-Books Reductions in OTR States Still to Come

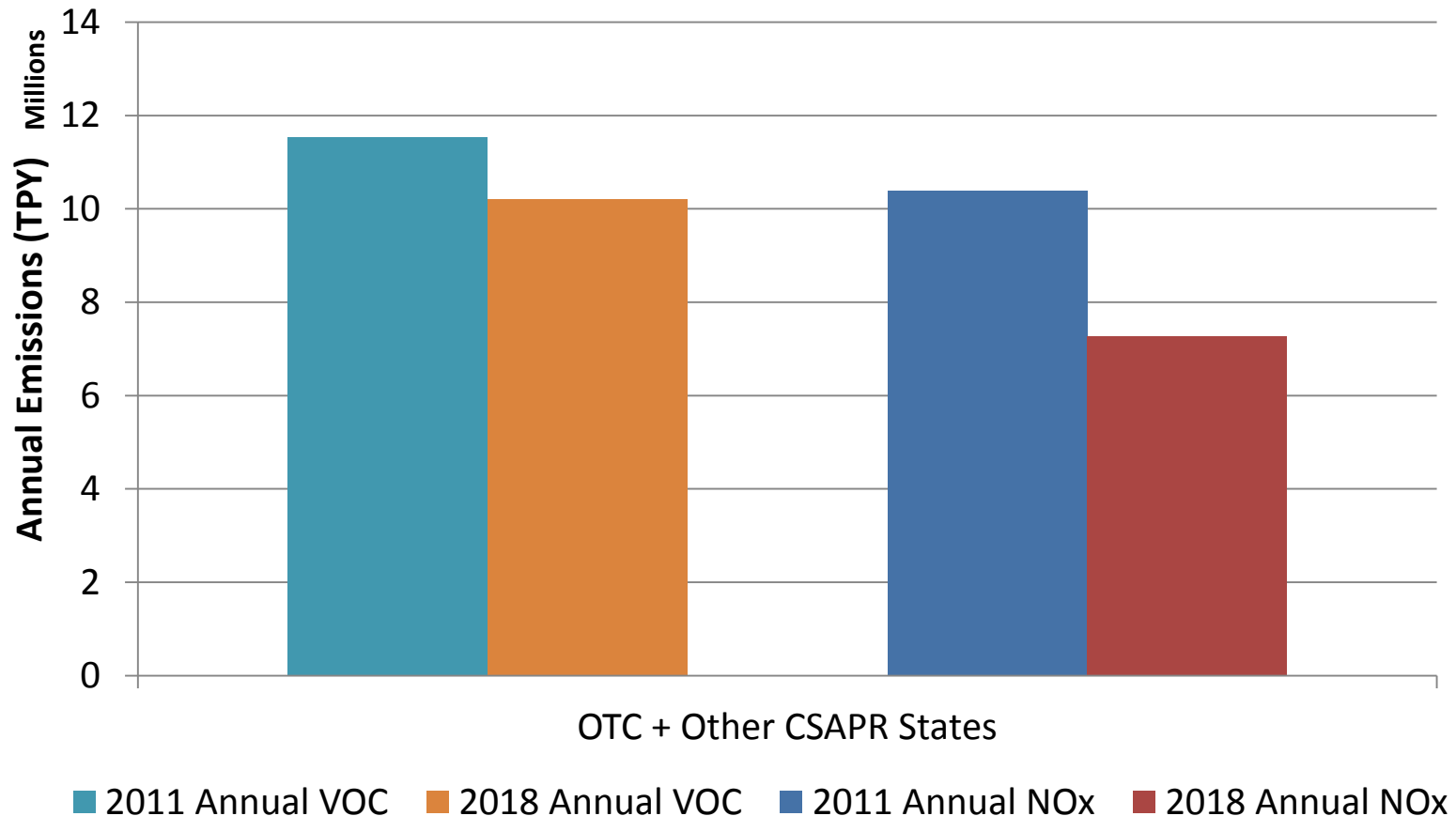
State	All Source NOx Emissions (Tons/Yr)		All Source VOC Emissions (Tons/Yr)	
	2011	2018	2011	2018
Connecticut	77,962	48,486	80,838	63,166
Delaware	32,612	19,944	25,918	19,576
District of Columbia	9,622	5,567	8,203	6,539
Maine	62,495	47,421	63,078	48,937
Maryland	166,810	104,240	126,759	98,079
Massachusetts	143,234	93,008	150,604	118,965
New Hampshire	35,307	21,641	44,977	35,806
New Jersey	162,066	108,018	178,345	144,380
New York	425,226	289,897	415,708	326,309
Pennsylvania	569,151	423,861	379,078	312,026
Rhode Island	21,309	15,019	22,005	17,273
Vermont	19,221	12,794	27,854	22,846
Virginia	321,181	211,007	296,335	249,343
<b>OTR State Total</b>	<b>2,046,196</b>	<b>1,400,905</b>	<b>1,819,701</b>	<b>1,463,247</b>
<b>Total Reduction %</b>		<b>31.54%</b>		<b>19.59%</b>



# EPA Emissions and Projections Show Additional On-the-Books Reductions in Upwind States Still to Come

State	All Source NOx Emissions (Tons/Yr)		All Source VOC Emissions (Tons/Yr)	
	2011	2018	2011	2018
Alabama	342,979	231,570	372,638	326,576
Arkansas	222,816	168,340	332,317	303,321
Florida	613,161	390,328	849,074	681,248
Georgia	467,561	301,051	410,956	332,954
Illinois	502,859	332,640	376,475	316,972
Indiana	421,153	300,250	262,921	214,917
Iowa	228,508	156,887	192,481	166,071
Kentucky	313,165	221,063	259,446	230,616
Louisiana	523,523	417,980	688,796	664,997
Michigan	459,131	329,249	446,980	350,219
Mississippi	189,459	128,909	257,072	233,466
Missouri	447,217	296,597	393,557	338,090
North Carolina	391,963	256,255	785,268	699,275
Ohio	579,106	359,585	391,632	302,336
Oklahoma	428,788	323,847	624,461	580,345
South Carolina	203,444	124,134	223,491	182,941
Tennessee	295,719	188,104	267,520	215,926
Texas	1,287,701	1,021,447	2,166,114	2,254,616
West Virginia	176,127	160,232	130,430	132,028
Wisconsin	257,344	165,310	280,489	223,236
<b>Upwind CSAPR State Total</b>	<b>8,351,723</b>	<b>5,873,777</b>	<b>9,712,117</b>	<b>8,750,148</b>
<b>Total Reduction %</b>		<b>29.67%</b>		<b>9.90%</b>

# Summary of Additional On-the-Books EPA NOx and VOC Emission Reductions\*



\* By 2014, only 52% of anticipated EGU NOx emission reductions expected by 2018 were achieved in the OTR and in upwind CSAPR states.

# Even More Emission Reductions from OTC Measures Not Currently Modeled by EPA

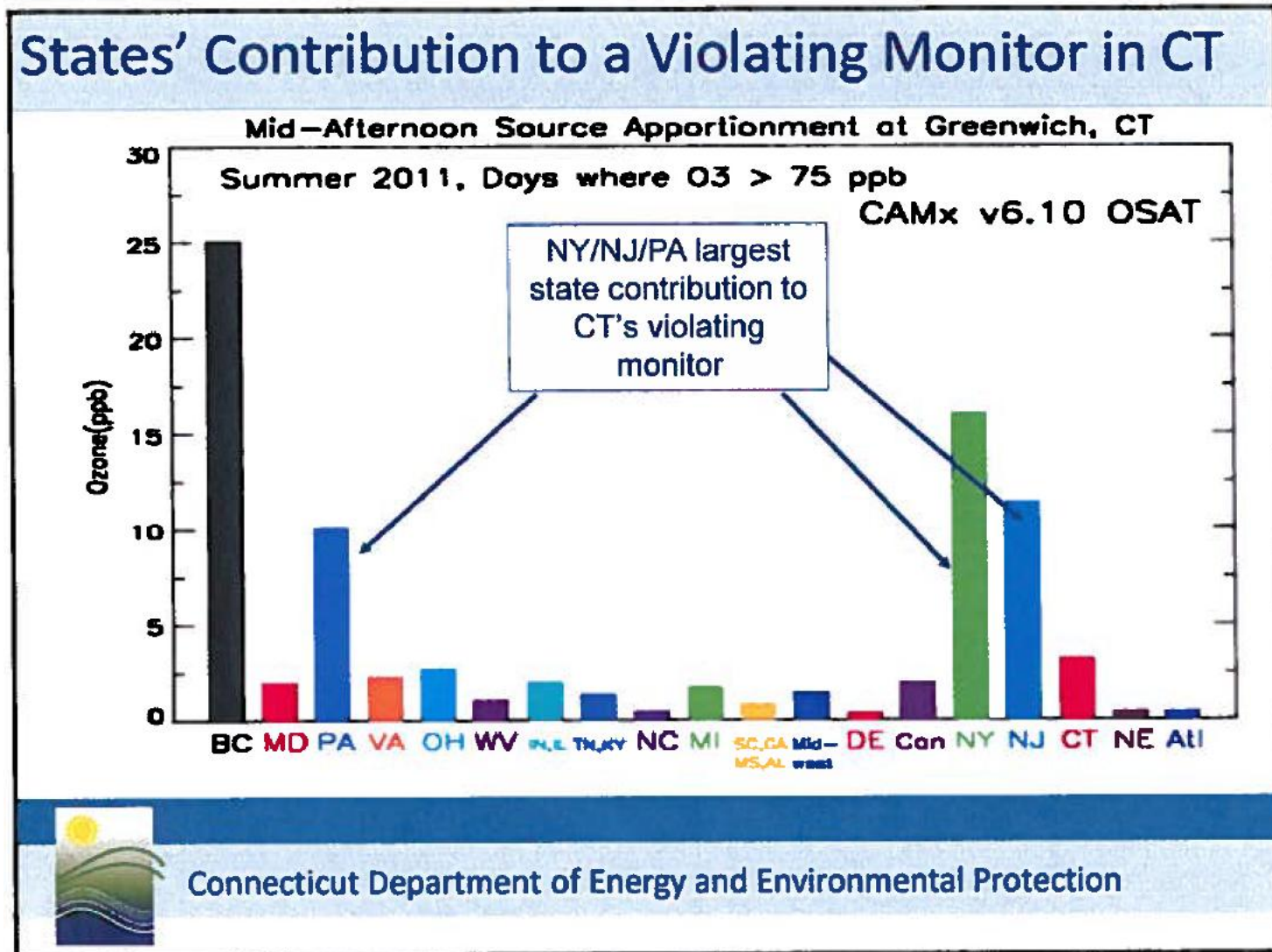
<b>OTC Model Control Measures</b>	<b>Regional Reductions (tons per year)</b>	<b>Regional Reductions (tons per day)</b>
Aftermarket Catalysts	14,983 (NO <sub>x</sub> ) 3,390 (VOC)	41 (NO <sub>x</sub> ) 9 (VOC)
On-Road Idling	19,716 (NO <sub>x</sub> ) 4,067 (VOC)	54 (NO <sub>x</sub> ) 11 (VOC)
Nonroad Idling	16,892 (NO <sub>x</sub> ) 2,460 (VOC)	46 (NO <sub>x</sub> ) 7 (VOC)
Heavy Duty I & M	9,326 (NO <sub>x</sub> )	25 (NO <sub>x</sub> )
Enhanced SMARTWAY	2.5%	
Ultra Low NO <sub>x</sub> Burners	3,669 (NO <sub>x</sub> )	10 (NO <sub>x</sub> )
Consumer Products	9,729 (VOC)	26 (VOC)
AIM	26,506 (VOC)	72 (VOC)
Auto Coatings	7,711 (VOC)	21 (VOC)

- Just in the OTC states
- Reductions developed as part of OTC Committee work
- These emission reduction estimates are being updated
- Result in about 150 tpd total NO<sub>x</sub> and 150 tpd total VOC emission reduction in the 13 OTR states
- Not included in EPA OTB/OTW modeling

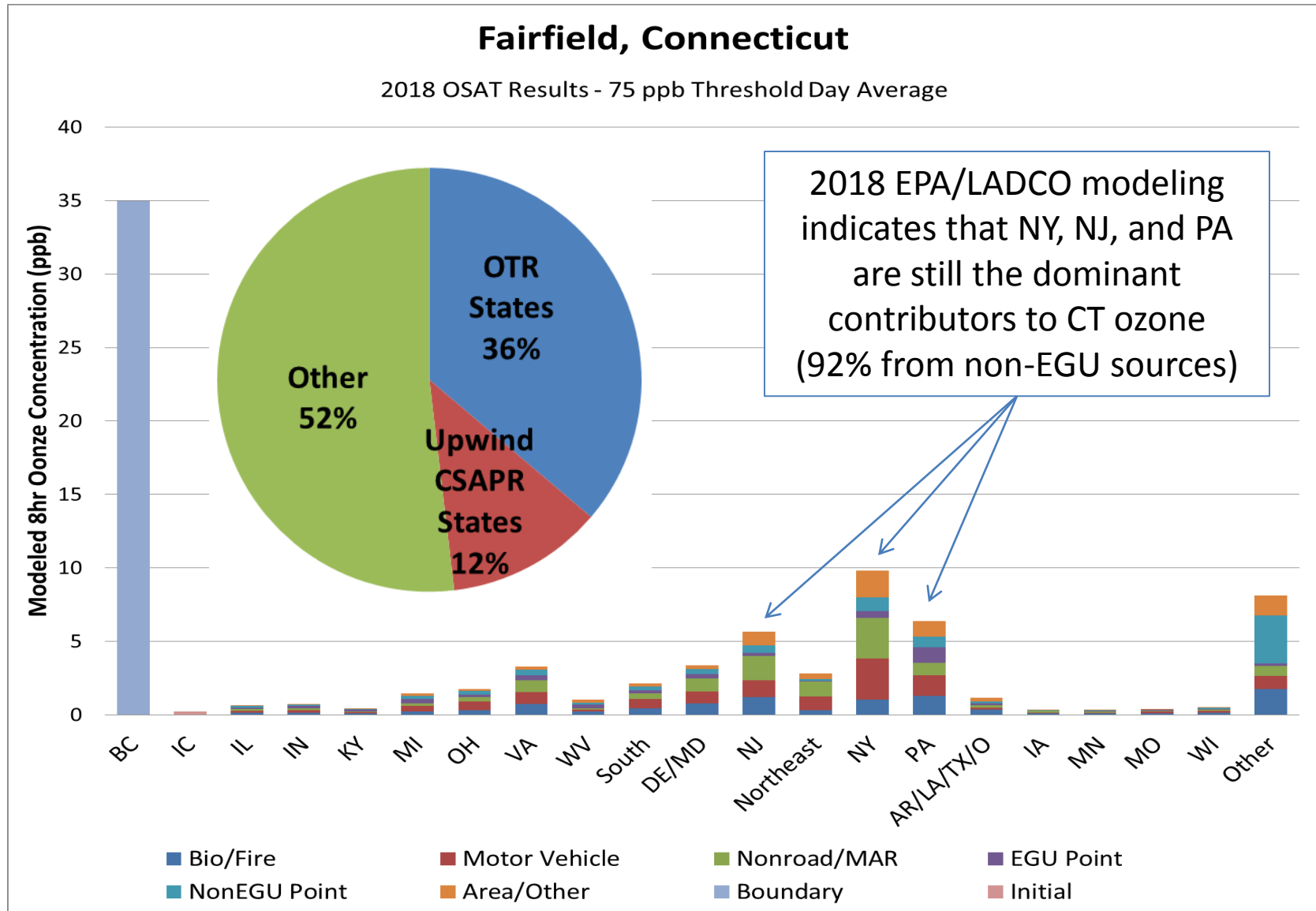
# “Inside MD” Reductions Not Currently Modeled BY EPA

- New EGU regulation for NO<sub>x</sub>
  - Required for RACT and Attainment
- Maryland efforts on mobile sources
  - Electric vehicle initiatives
  - ZEV efforts
  - “Beyond Conformity” partnerships

# Connecticut Has Identified Other NEOTR States as the Cause of Their Nonattainment Problem



# MOG Data Confirms CT Conclusion Regarding Residual Contribution at Fairfield, CT



# NE Ozone Transport Region

## CAA Section 184(c)(1)

- Upon petition of any State within a transport region established for ozone ... the Commission may ... develop recommendations for additional control measures ... if ... such measures are necessary to bring any area in such region into attainment ....

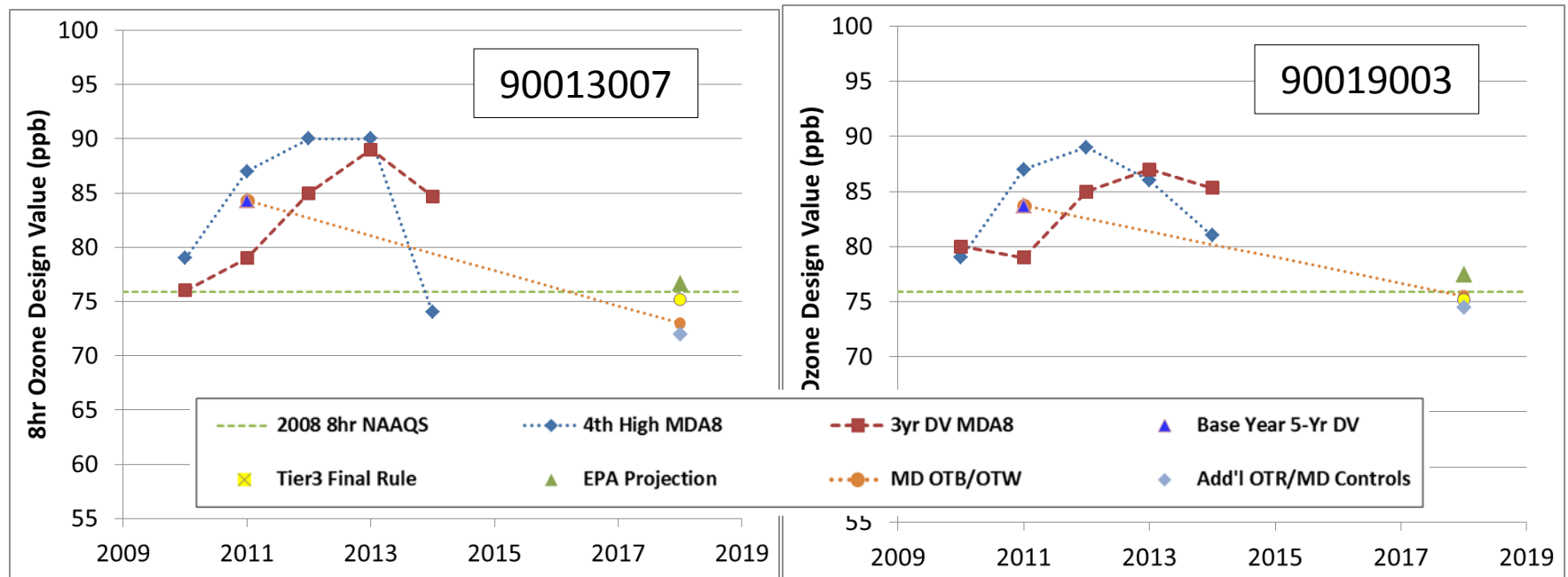
# Recent Modeling Shows Fairfield, CT To Be In Attainment in 2018

Monitor	County	Maximum 8-hr Ozone Design Value (ppb)					
		2011*	2014**	2018 Projections			
		(5-yr Avg)	(3-yr Avg)	EPA (Page)+	EPA Tier3	MD OTB/OTW	MD OTC+
90013007	Fairfield, CT	84.3	84.0	76.7	75.16	73.0	72.0
90019003	Fairfield, CT	83.7	85.0	77.5	75.16	75.5	74.5

\* Used as base case for attainment modeling

\*\* Used for attainment designation (draft)

+ EPA plans to remodel 2011 and 2018 to provide updated projections of 2018 design values and contributions.





# “The Bottom Line” at Fairfield, CT Receptor Shows Attainment in 2018 Without Any New Upwind Controls

<u>Case / Strategy</u>	<u>Reduction</u>	<u>Ozone dv</u>		
<i>EPA 2018 DV</i>		<i>77.5 ppb</i>	“Good Neighbor” Memo	
<i>MD 2018 OTB/OTW</i>		<i>75.5 ppb</i>	MD Modeling	
Planned OTC Efforts	~ 0.7 ppb	74.8		
Additional MD Efforts	~ 0.3 ppb	74.5		
<b>Attainment achieved without Upwind State Controls</b>				
<i>OTR 2018 Scenarios DV</i>		<i>74.5 ppb</i>		
MOVES2014/MEGAN/ERTAC	Lower			
PA NOx RACT	Lower			
Unit Retirements	Lower			
CAA Section 184(c)(1)	Lower			

# Conclusion

- Using today's current 3-yr dv data, all but Fairfield, CT receptors in the Northeast are expected to be in attainment of 75 ppb NAAQS
- When accounting for additional, planned reductions associated with OTC state controls, Fairfield receptors are predicted to be in attainment
- With no monitors in Northeast in nonattainment of current NAAQS, there is no basis for imposing a new transport rule in this domain

# Conclusion (cont.)

- If any further controls are needed, CT must first address its own sources contributing to nonattainment and seek to eliminate the impacts from the NEOTC states of NY, NJ, and PA
- The only possible non-OTR states implicated at Fairfield, CT receptors according to USEPA data are OH and WV and those impacts could not be pursued with Fairfield CT in attainment in 2018
- LADCO's analysis of optimizing EGU control (SCRs at 0.1 lbs NO<sub>x</sub> /MMBtu nationally) does not cause an impact on CT monitors\*

\* [http://www.midwestozonegroup.com/files/MidwestOzoneGroupLADCOpresentation\\_Oct242014\\_.pdf](http://www.midwestozonegroup.com/files/MidwestOzoneGroupLADCOpresentation_Oct242014_.pdf)

David Flannery

Steptoe & Johnson PLLC

Dave.Flannery@Steptoe-Johnson.com

(304) 353-8171

Gregory Stella

Alpine Geophysics, LLC

gms@alpinegeophysics.com

(828) 675-9045