

# OTC Modeling Work and Overview



## OTC SAS/Mobile/Modeling Committee Meeting

Holiday Inn BWI  
September 16, 2010

# Overview

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- Status of Ozone NAAQS
- Timelines
- 2010 Ozone Season Update
- Potential Nonattainment Areas for new NAAQS
- Upgrades to Modeling Platform



# Ozone NAAQS

1. 2008 O<sub>3</sub> NAAQS = 0.075ppm
  - Has not yet been revoked, but also not implemented
    - Form = 3 year average of 4<sup>th</sup> maximum
    - Secondary NAAQS equal to Primary (0.075ppm)
2. 2010 O<sub>3</sub> NAAQS = 0.060 – 0.070ppm – TBD
  - Now set for announcement by October 31, 2010
    - Form = 3 year average of 4<sup>th</sup> maximum
    - Secondary NAAQS 7-15ppm-hours (Also TBD)

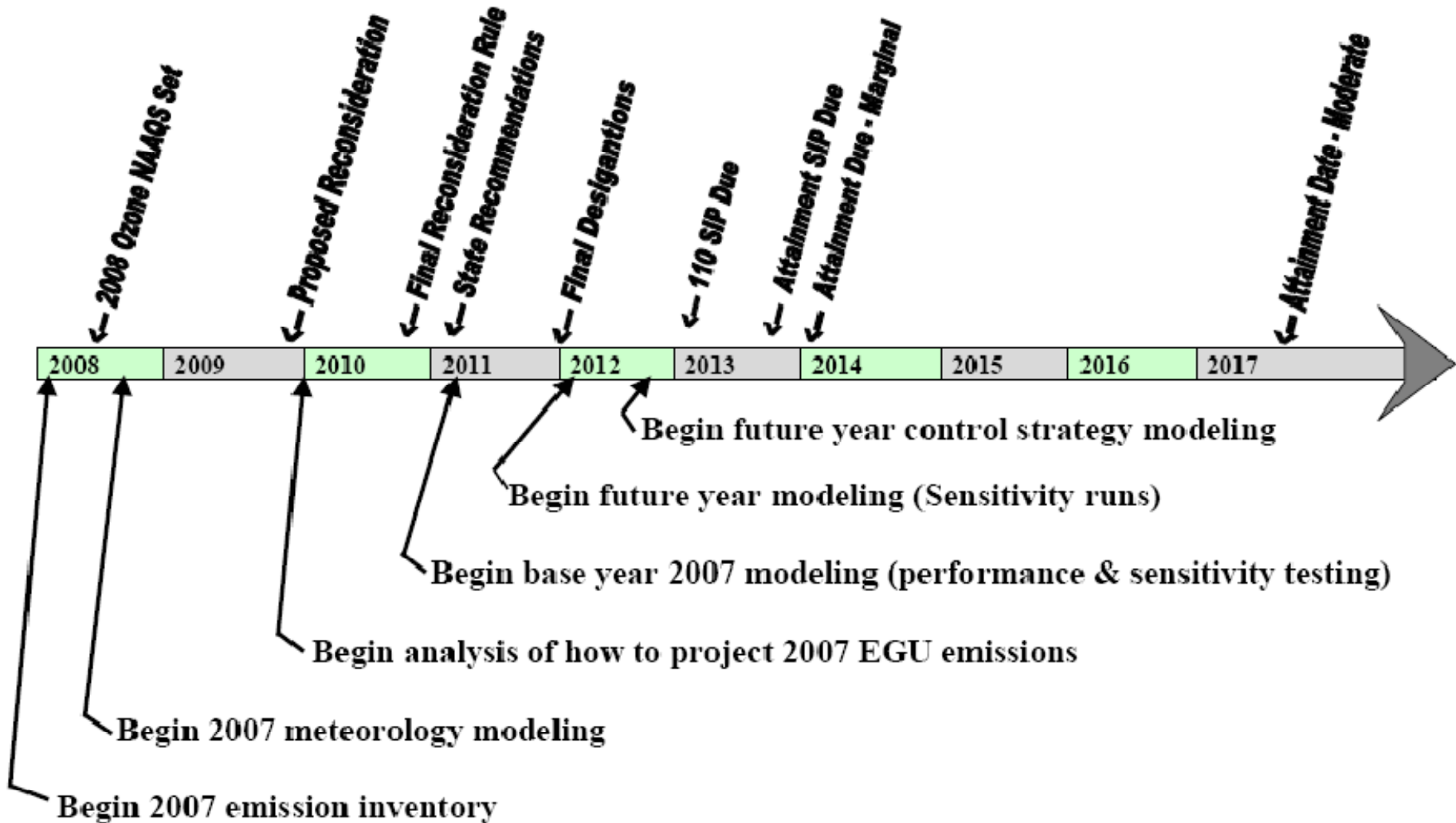


# Ozone Standard Timelines

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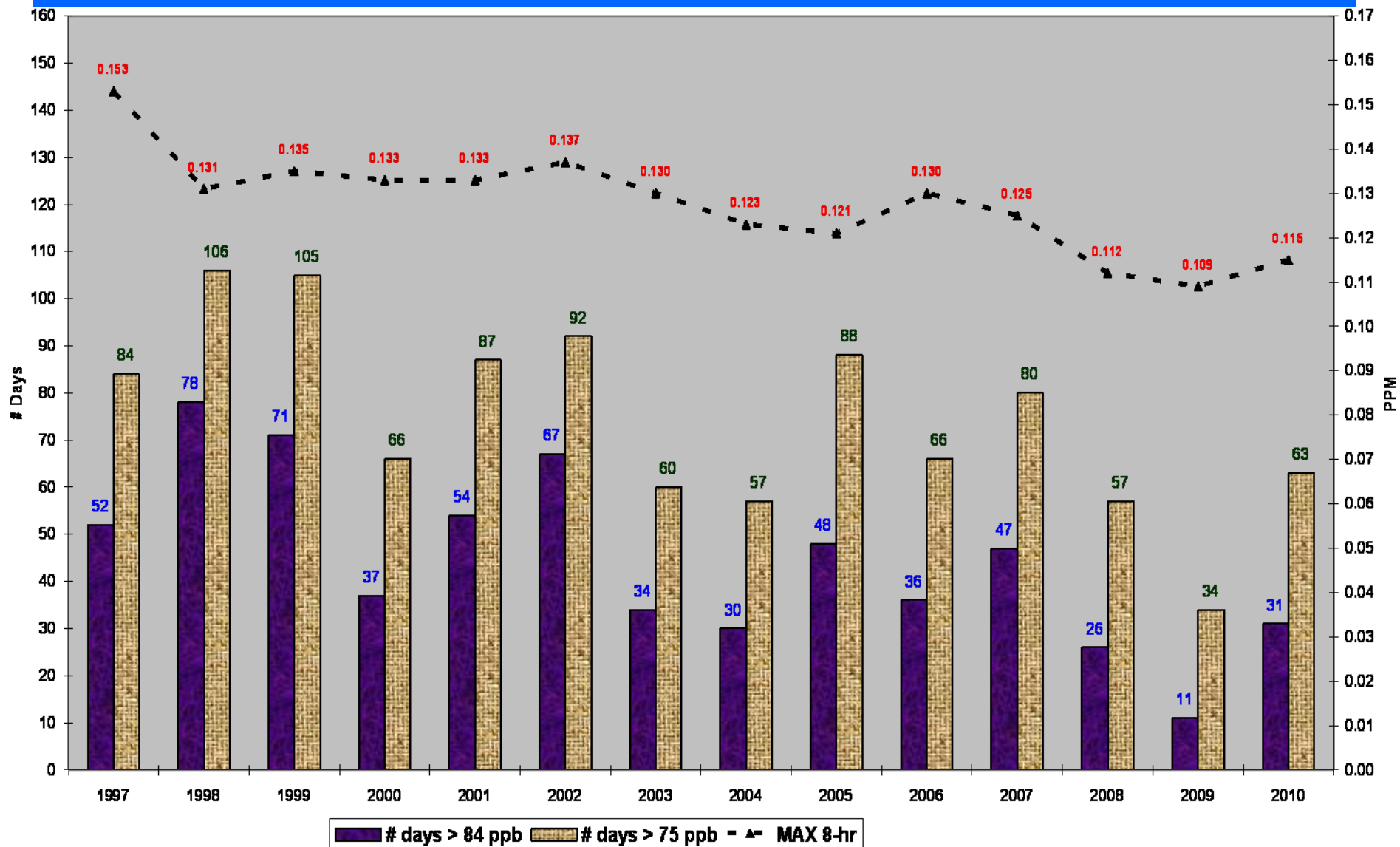
- Old Standard Final 03/2008
- Propose New Standard 12/2009
- Final New Standard/ 10/2010 -proposed
- Final Implementation Rule 10/2010 -proposed
- State Designations 06/2011?
- Old Sect. 110(a)(2) SIP Due 05/2011
- Final New Designations 06/2012?
- Old Date SIPs Due 06/2013
- Sect. 110(a)(2) SIP Due 10/2013?
- New Date SIPs Due 12/2013?

# OTC Ozone Modeling Timelines



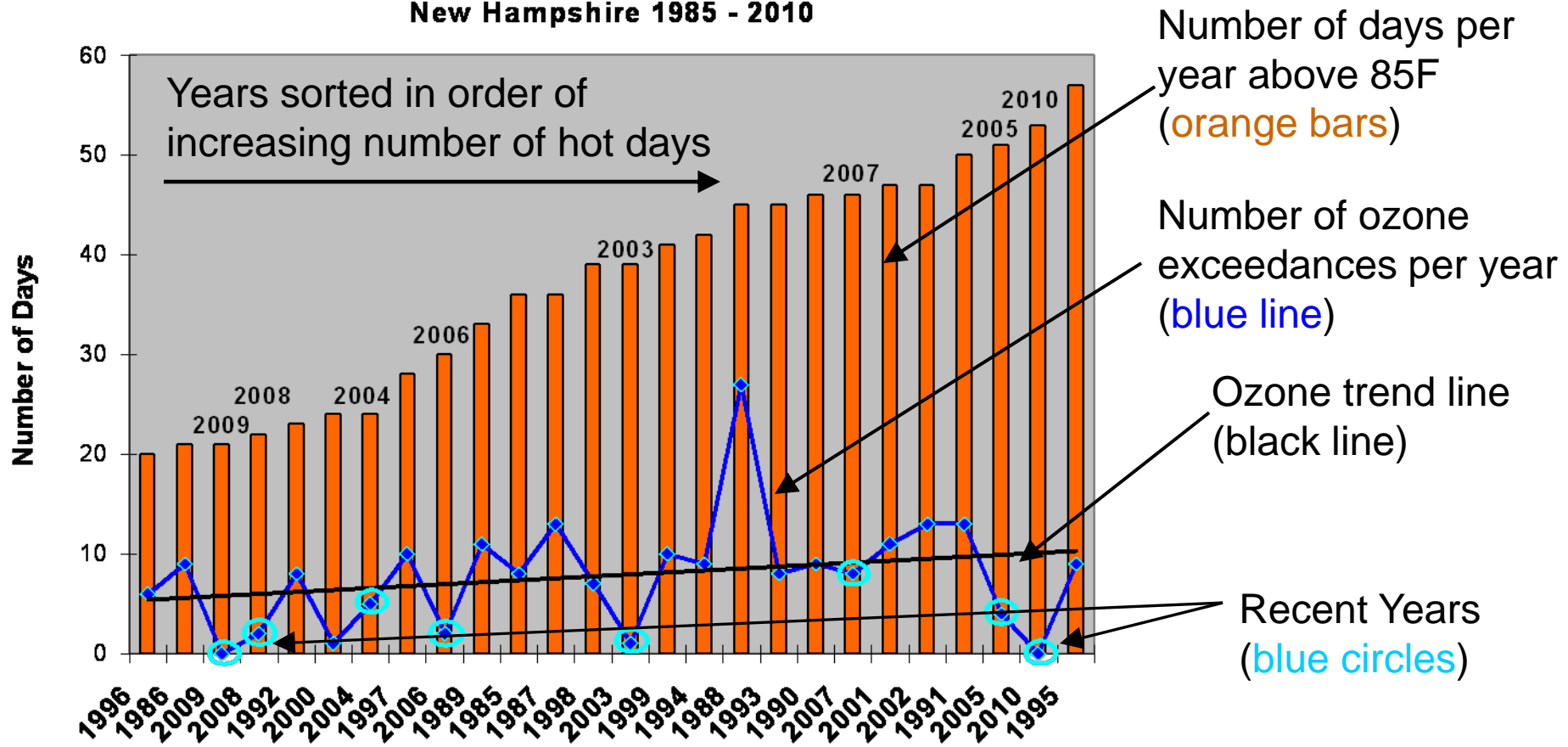
# OTR Ozone Trends 1997-2010

OTR High Ozone Day TRENDS (2010 preliminary data [up to September 6])



# Ozone Days vs High Temperature Days

Maximum Daily Temperatures Compared to Ozone Exceedances  
New Hampshire 1985 - 2010



From 2003 through 2010, the number of ozone exceedances in New Hampshire has been below what would be expected based on historical data.

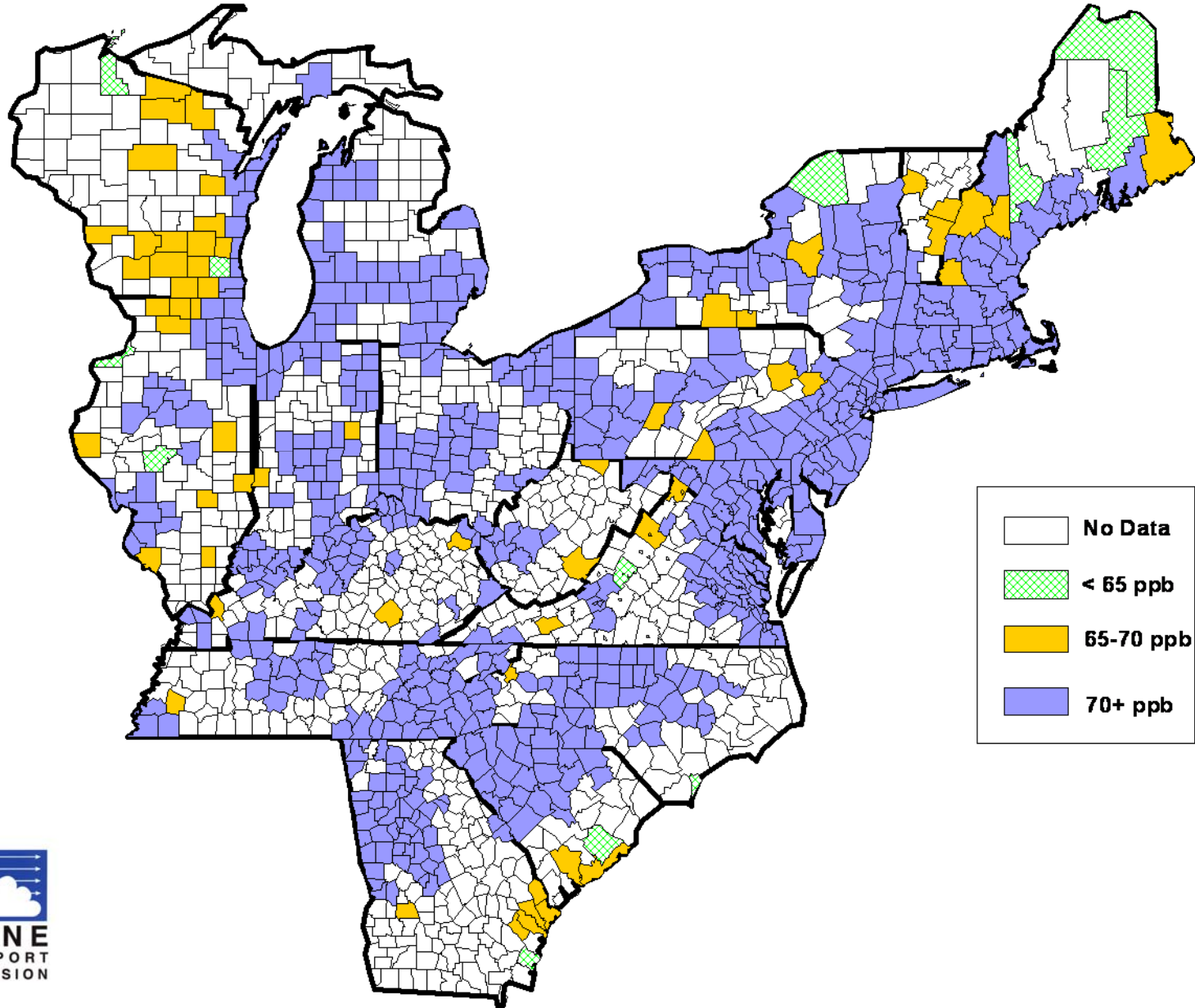
# Preliminary Design Values (2007-2009 and 2008-2010)

	2007 4th HIGH	2008 4th HIGH	2009 4th HIGH	2010 4th HIGH	2007-09 DV	2008-10 DV
average	80.9	75.4	67.2	74.2	74.1	71.9
% of sites >59 ppb	98.9%	96.7%	91.8%	92.9%	97.8%	95.6%
% of sites >64 ppb	96.7%	90.7%	74.2%	87.9%	94.0%	89.6%
% of sites >69 ppb	95.6%	81.3%	30.8%	79.1%	82.4%	71.4%
% of sites >75 NAAQS	76.9%	51.1%	4.4%	45.1%	44.5%	29.7%
% of sites >84 NAAQS	30.8%	9.3%	0.0%	9.9%	1.1%	0.5%

- Represents only monitoring sites in existence from 2007-2010
- 2010 data is preliminary up to September 6



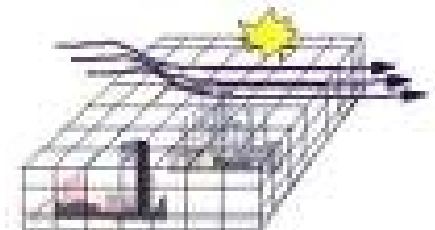
# Potential Nonattainment By CSA (2007-2009 DV)



# Meteorology Summary

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- 2007 was chosen as being representative as a base modeling year
- Meteorological Conditions were generally not conducive to ozone formation during the 2008 and 2009 summer months
- Only two monitoring sites in the OTR are violating the 1997 (84 ppb) Ozone NAAQS
  - OTC core, Western NY/PA and Northern New England high elevations have 2007-2009 DV's > 75 ppb
  - All states have 2007-2009 DV's > 70 ppb



# Modeling Platform Upgrades

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## Models

- 2007 Meteorology developed with WRF w/MCIP v3.4
- Photochemical Model CMAQ4.5.1 upgraded to CMAQ4.7
- Model Chemistry Mechanism CB-IV/aero3 upgraded to CB-05/aero4
- Emission Processing Model SMOKE2.1 Upgraded to SMOKE2.5
- On road emissions to use MOVES model
- Biogenic emissions based on BEIS 3.14 or MEGAN

## Emissions

- New Emission Base year - 2007
- Temporalized 2007 EGU emissions from EPA/CAMD
- Canadian emissions based on 2005/2006
- Tentative Future years 2013, 2017, and 2020
- Future year EGU emission projection process yet to be determined

# On-Going Work

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- Screening Modeling
- Emissions Development

