

Modeling Committee Update

OTC Stakeholder Meeting

September 10, 2015

Washington, DC



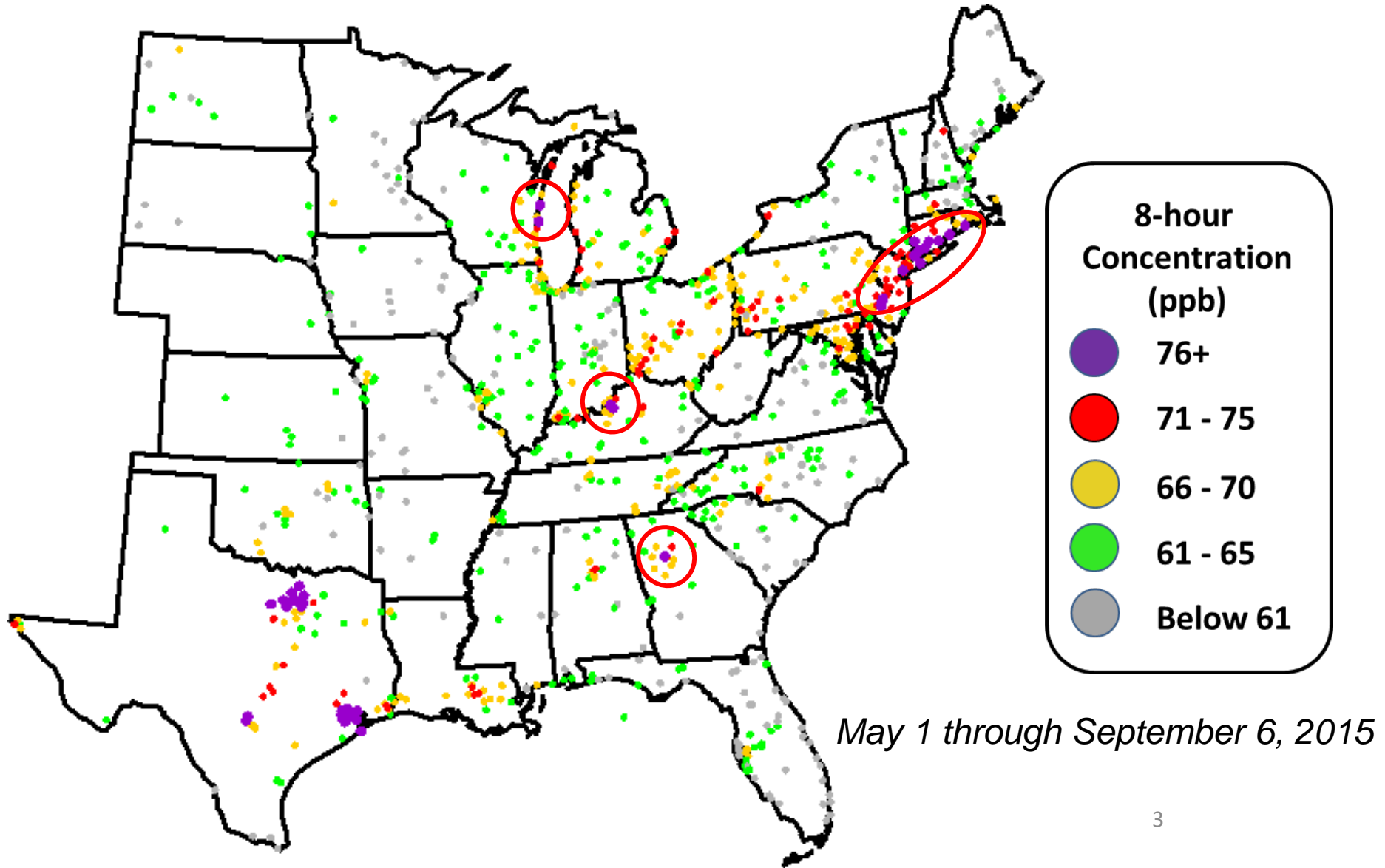
OZONE
TRANSPORT
COMMISSION

OZONE TRANSPORT COMMISSION

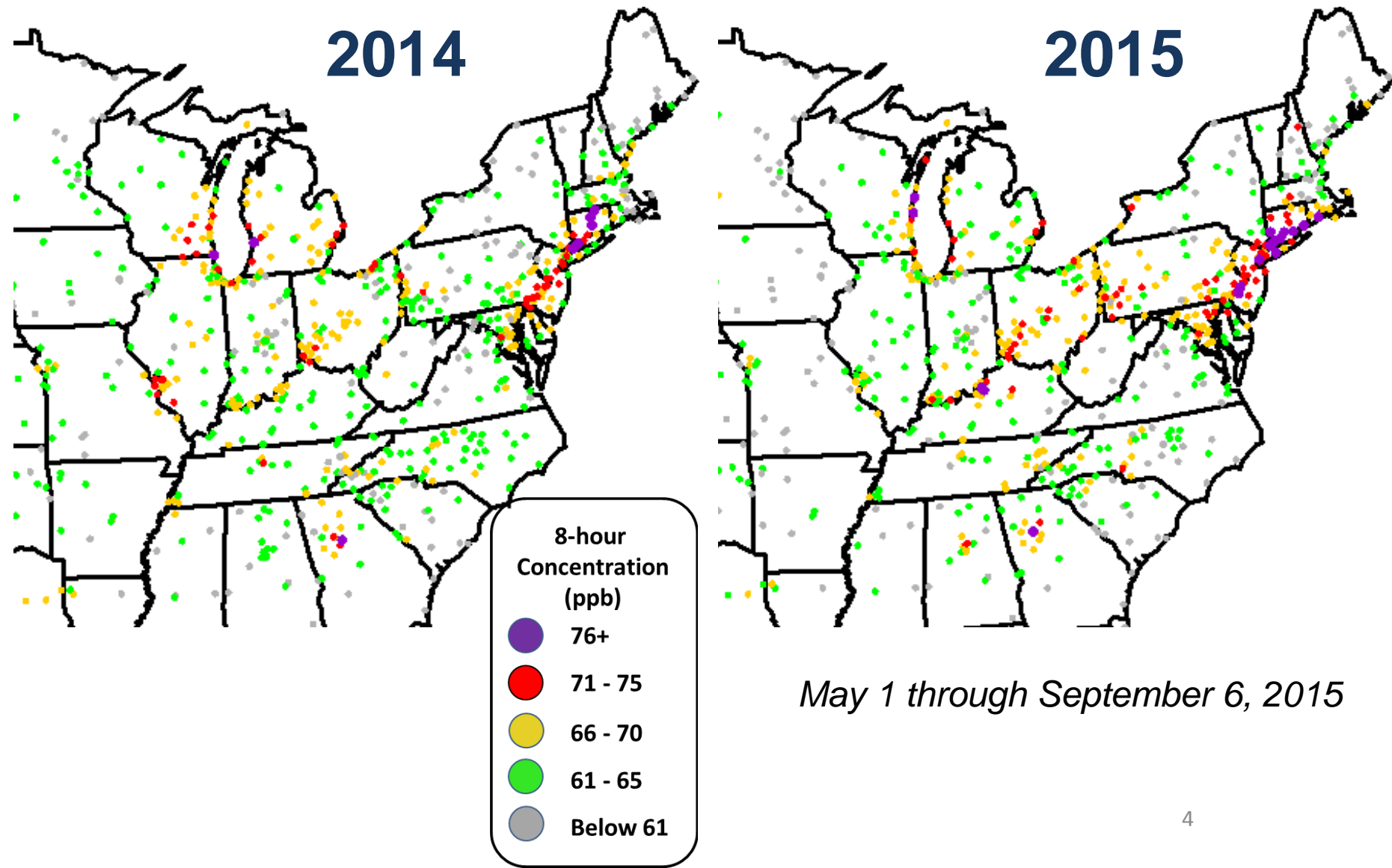
Overview

1. Ozone Designations and 2015 Data
 - Trajectories
2. Modeling Update
 - a) Model Performance
 - b) Modeling Results
 - c) Future Modeling
3. Emission Inventory

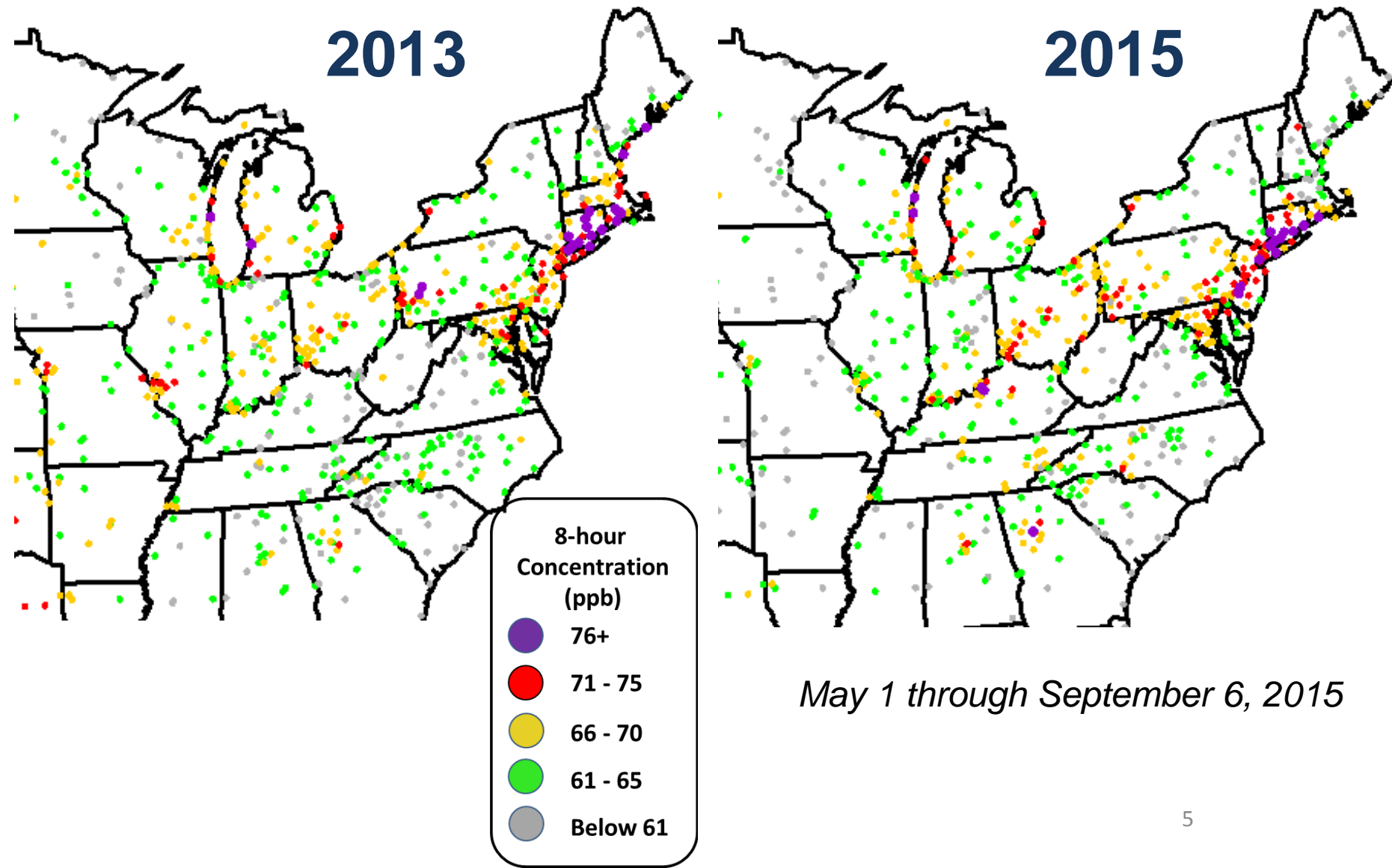
Preliminary 2015 4th Maximum



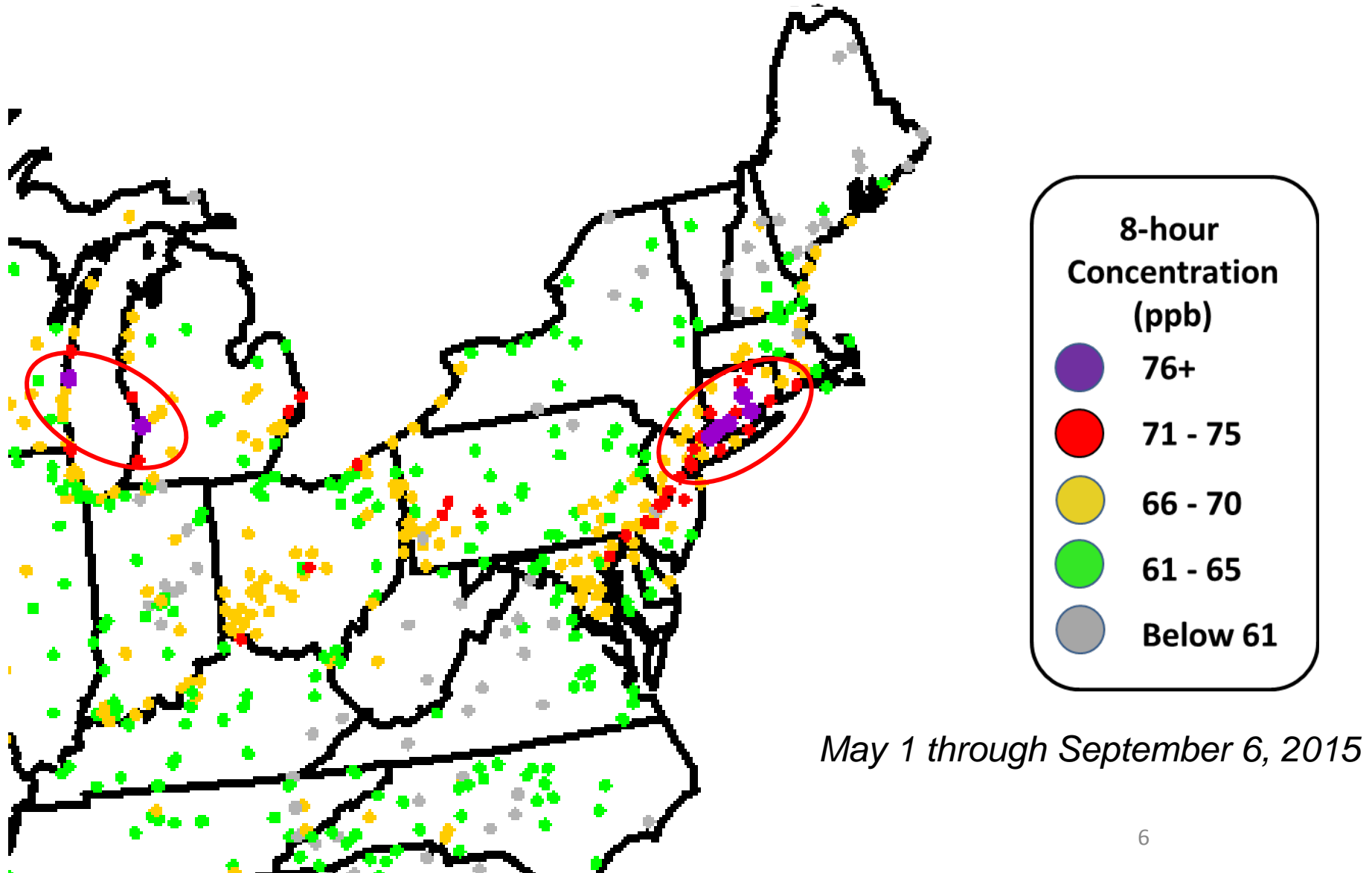
2015 Compared to 2014 (4th Maximum)



2015 Compared to 2013 (4th Maximum)



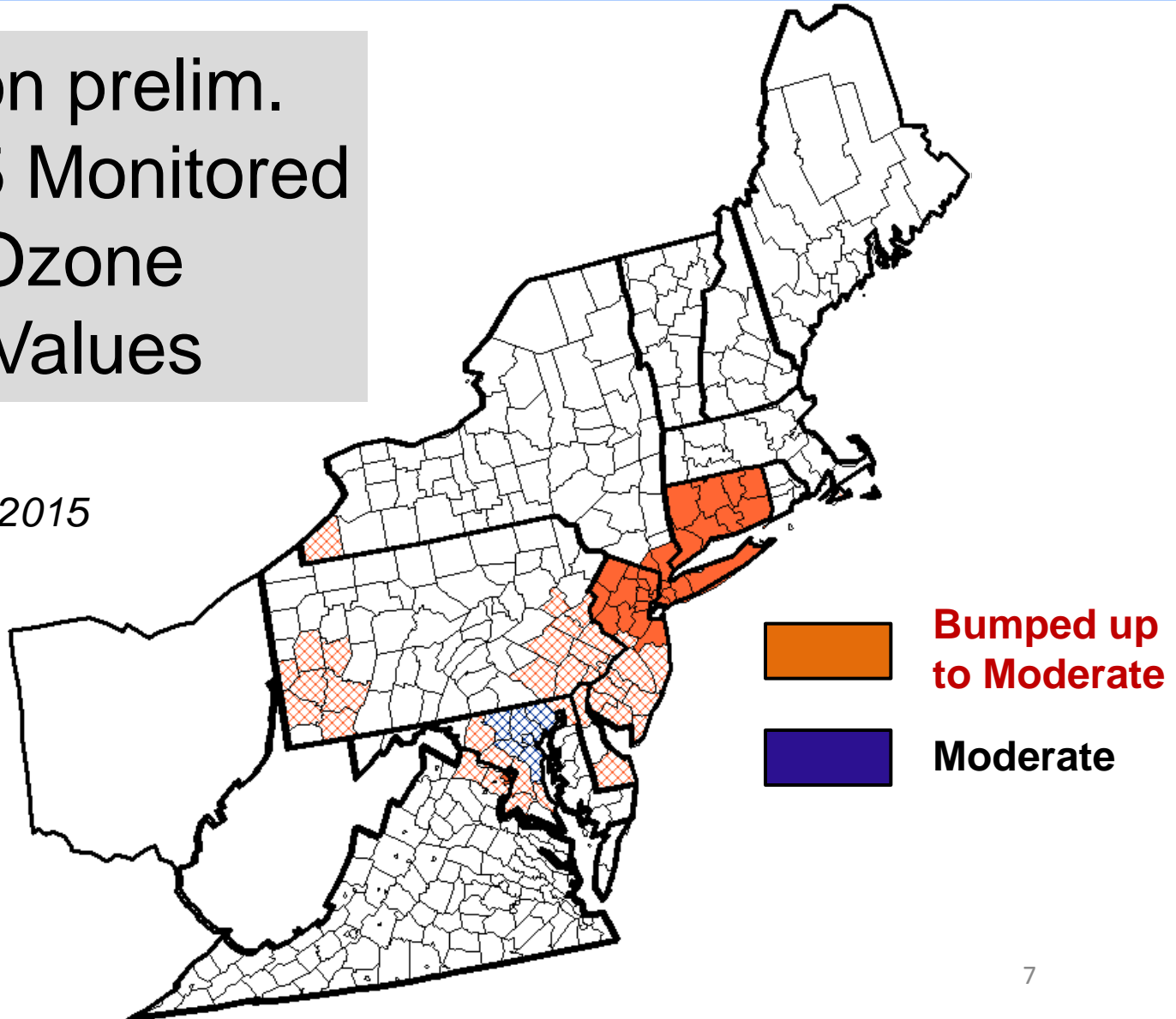
Preliminary 2013-15 Design Values



Designated Areas Not Yet Attaining

Based on prelim.
2013-15 Monitored
8-hour Ozone
Design Values

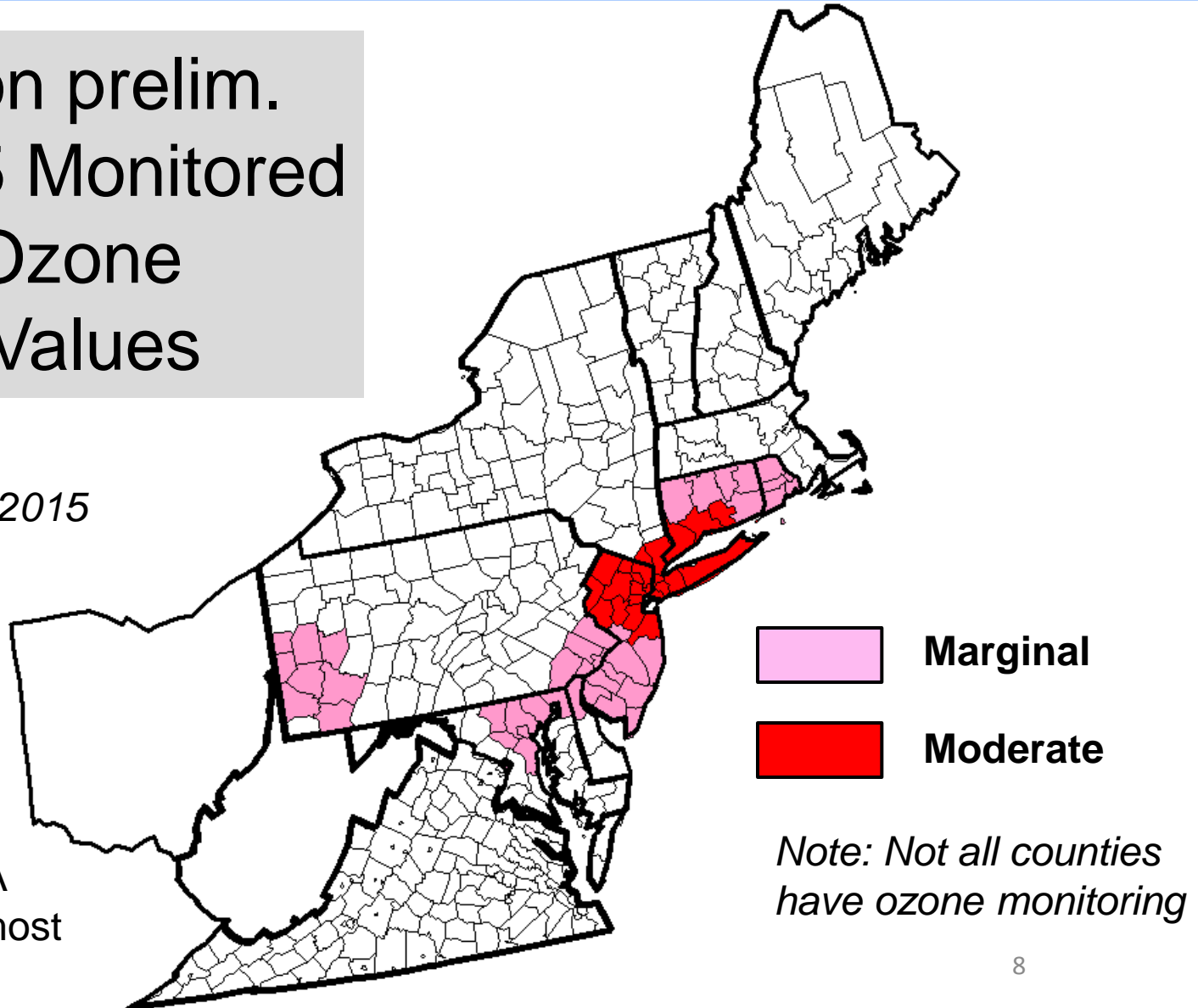
*Data through
September 6, 2015*



Potential Nonattainment – 70ppb NAAQS

Based on prelim.
2013-15 Monitored
8-hour Ozone
Design Values

*Data through
September 6, 2015*

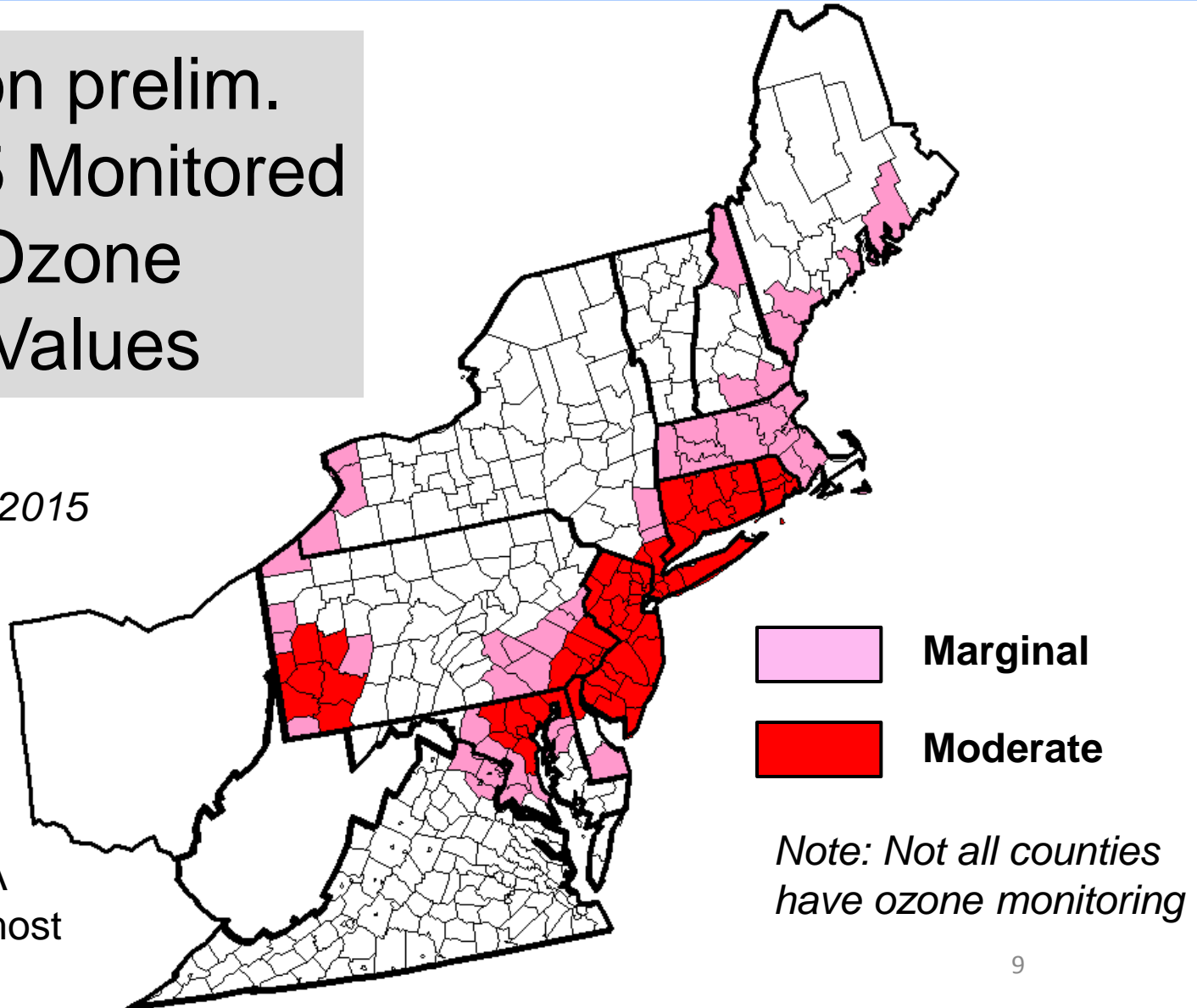


Based on CBSA
Boundaries in most
cases

Potential Nonattainment – 65ppb NAAQS

Based on prelim.
2013-15 Monitored
8-hour Ozone
Design Values

*Data through
September 6, 2015*



Based on CBSA
Boundaries in most
cases

Emission Inventory Update

- Most work is now focused on the 2011-based MARAMA Alpha2 Emission Inventories
- Next round of ozone modeling will use incrementally improved MARAMA Beta emission inventories

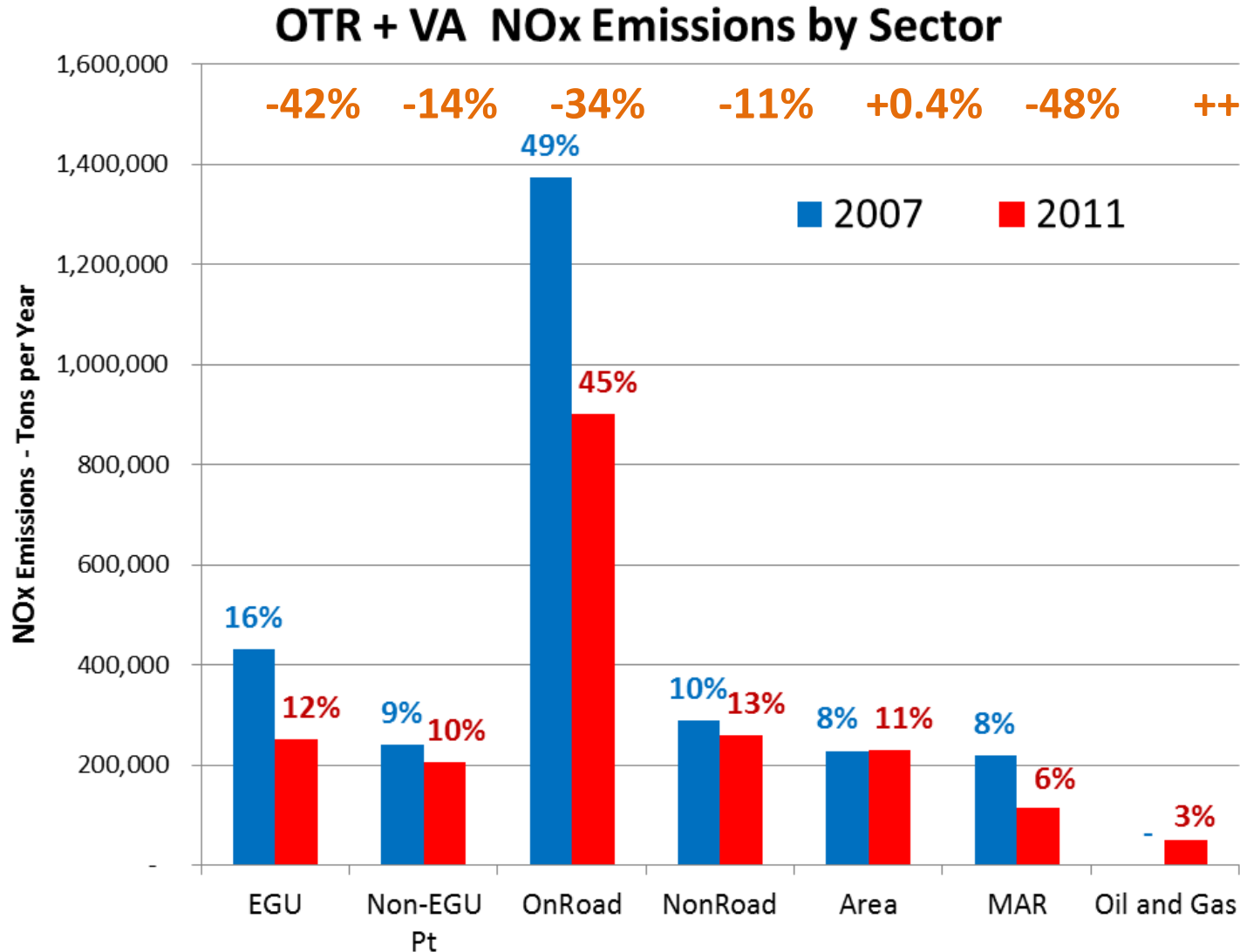
Emission Inventory Work

Created in collaboration with other regions

- MARAMA 2011 Alpha2, Beta
- MARAMA 2018 Alpha2
- MARAMA 2028 Alpha2
- MARAMA 2017 Beta

Alpha2 inventories make corrections to portions of the mobile source sector identified during Q/A.

MANE-VU Base Case NOx Inventories



2011 %
lower than
2007

MARAMA Beta Emission Inventories

- Upgrade to **ERTAC v2.4**
 - Include state banked emissions
- Re-project future year to **2017**
- Improve **2028** projections
- EMF Growth
 - Evaluate USEPA v2 growth factors and adopt as appropriate.
 - Include new rules (e.g. residential wood NSPS)
 - Updates and corrections to state emissions

Modeling Scenarios /Comparisons

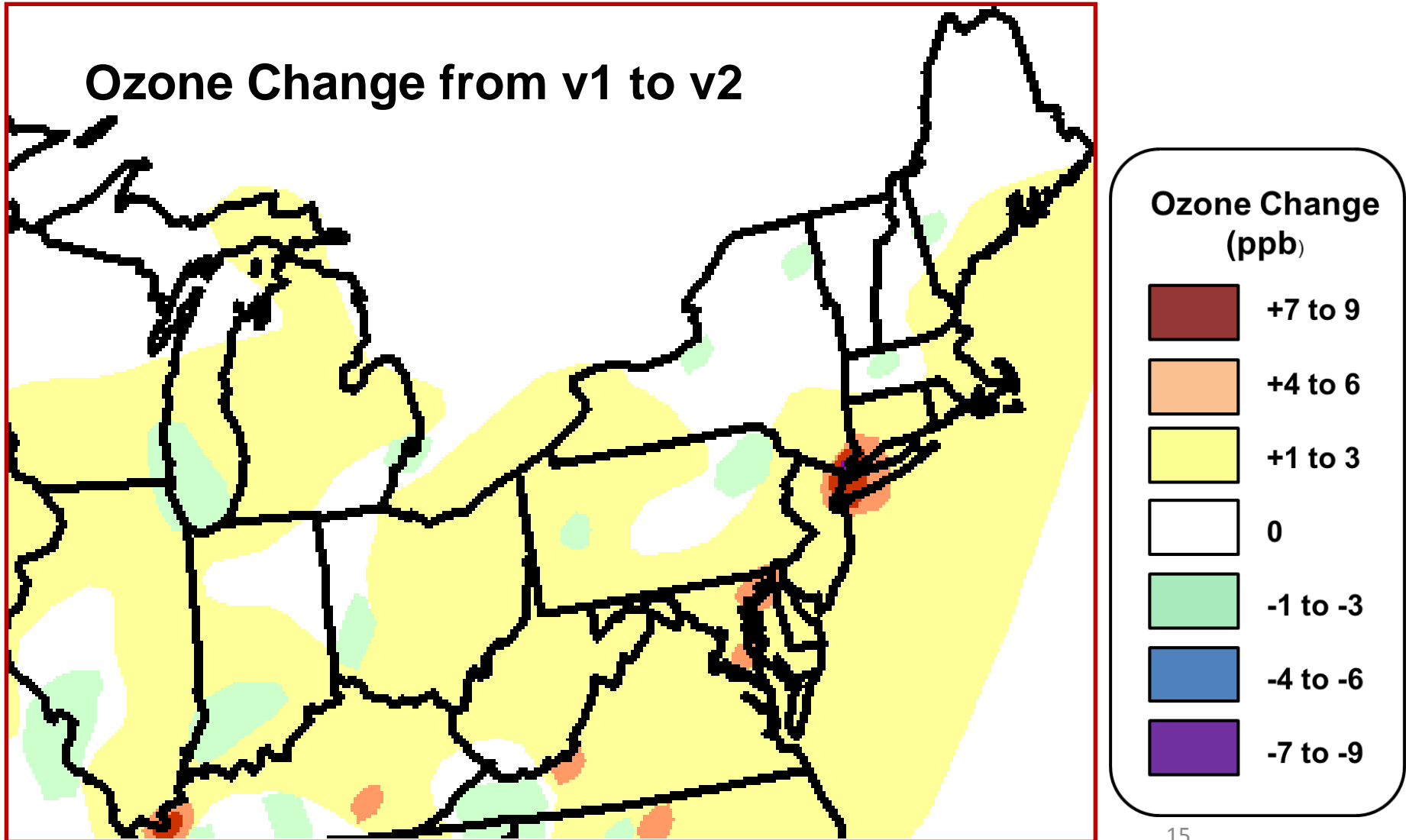
Comparison Modeling

1. EPA 2018 v1 vs v2 Emission Inventories
2. EPA 2017 vs 2018
3. 2018 ERTAC vs IPM

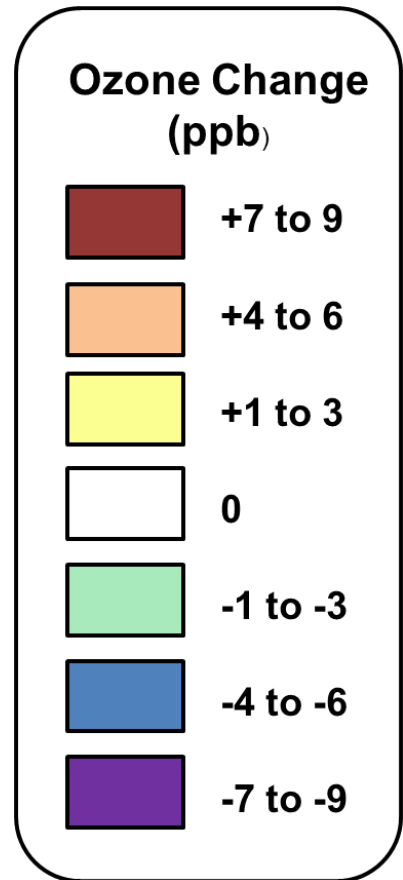
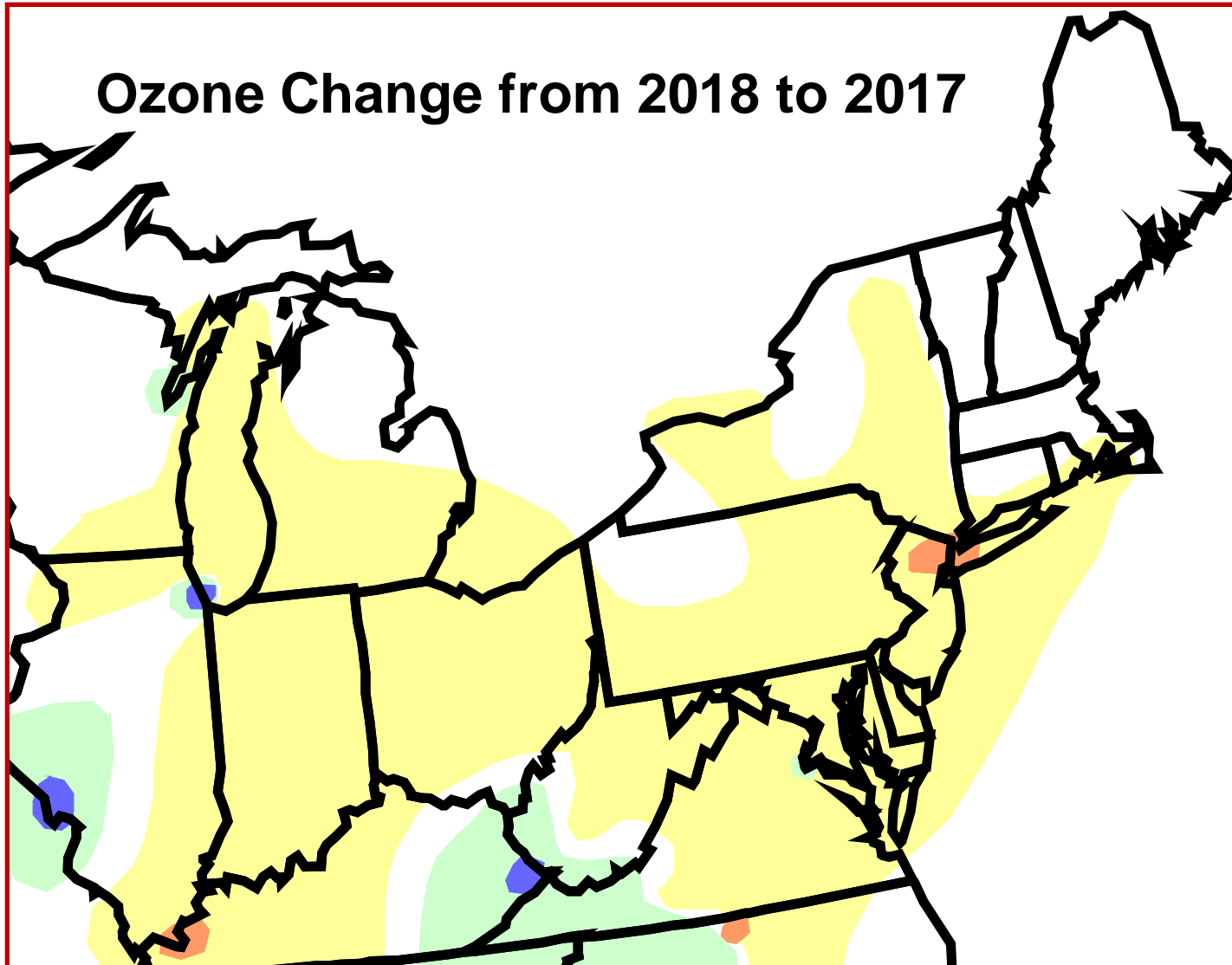
OTC Modeling Results

4. 2018 Base Case w/ MARAMA Alpha2 EI
5. OTC 2018 w/ 25% NOx reduction across the board
6. OTC proxy 2028 w/ OTC Mobile measures

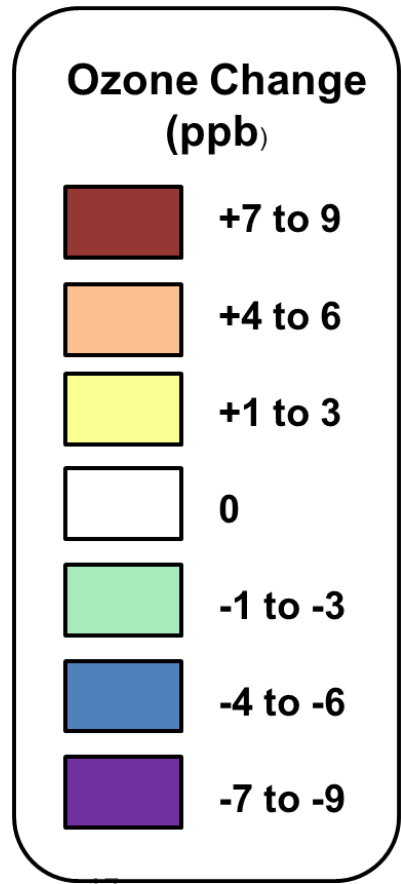
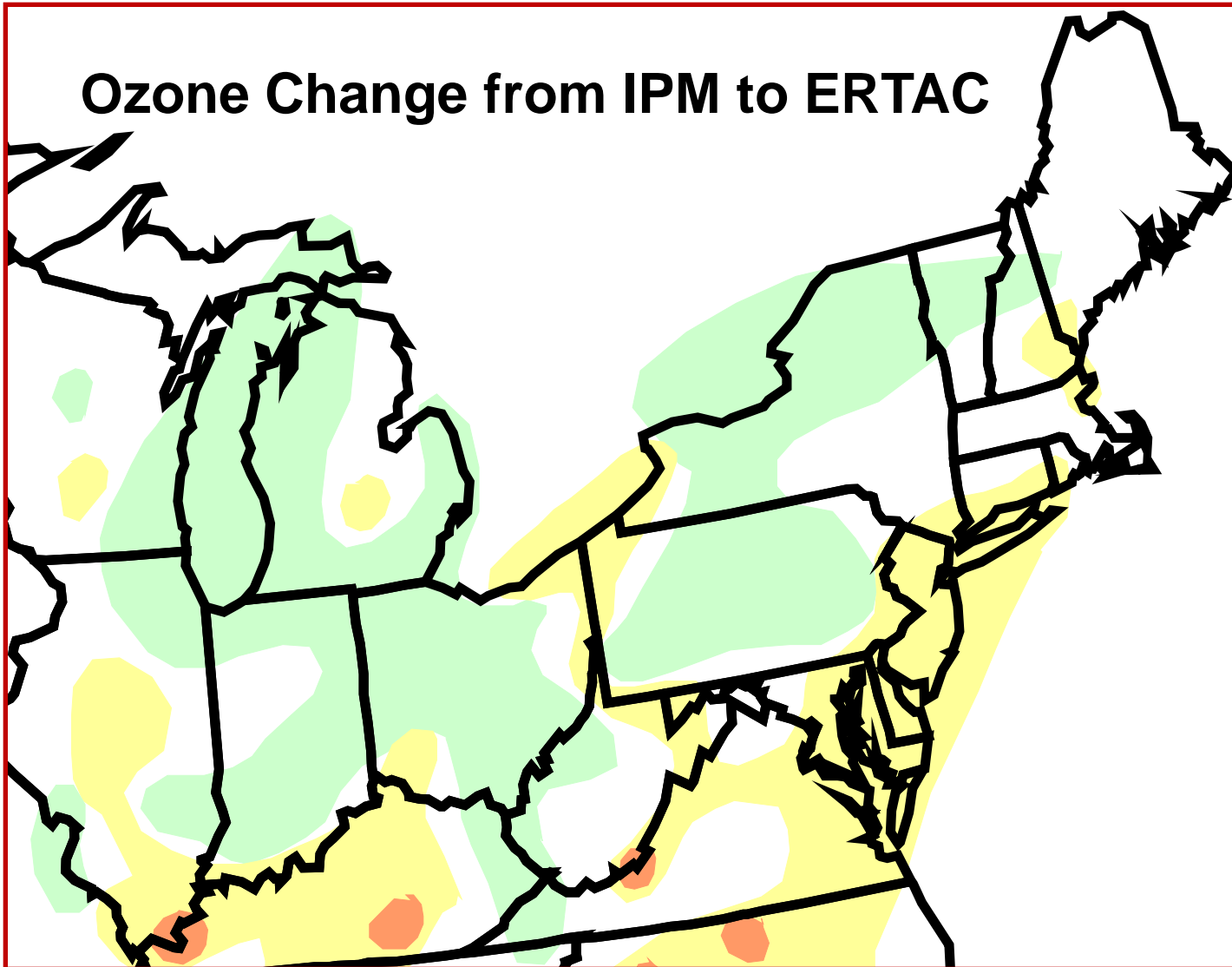
1. EPA 2018 v1 EI vs v2 EI



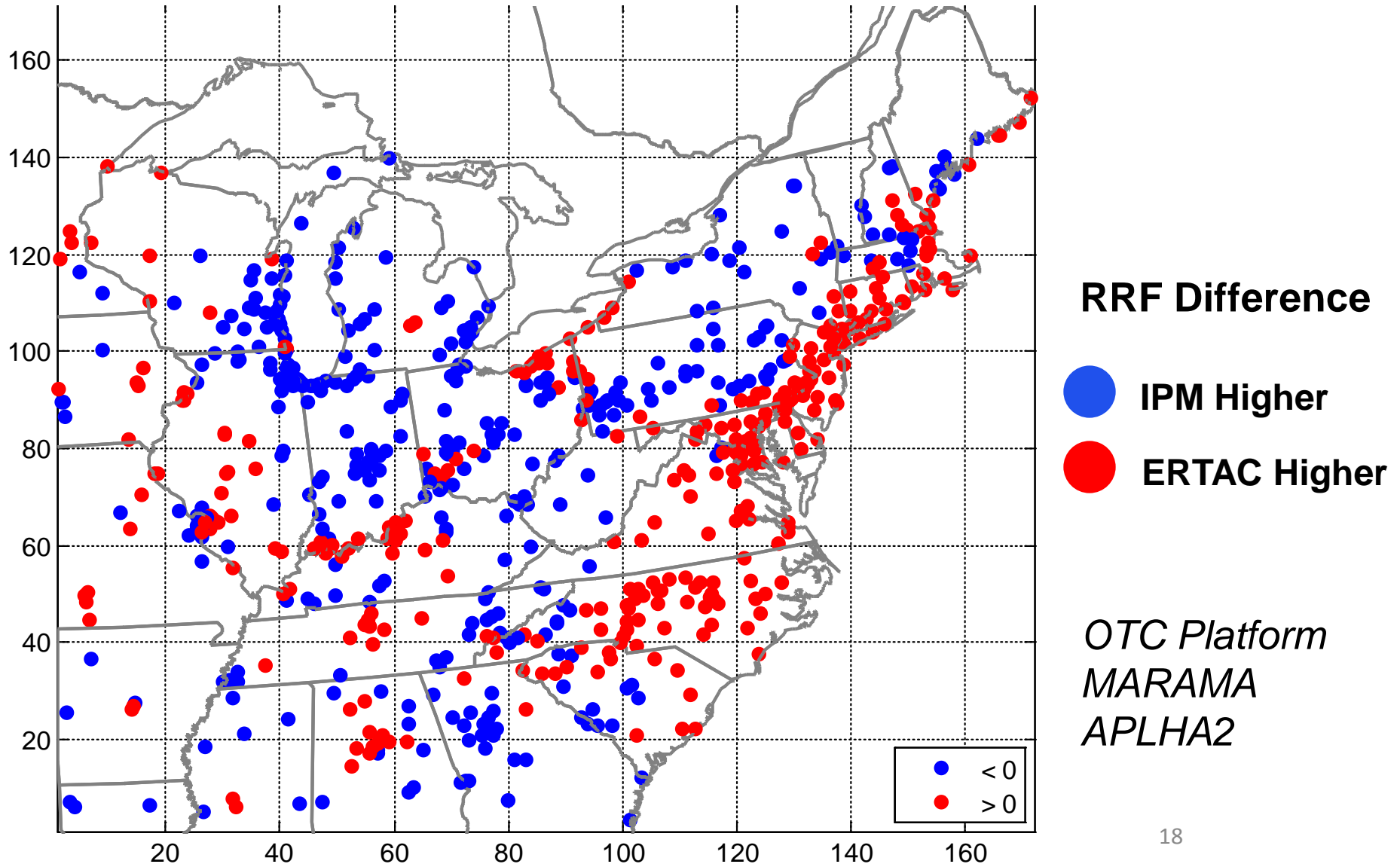
2. EPA 2017 vs 2018



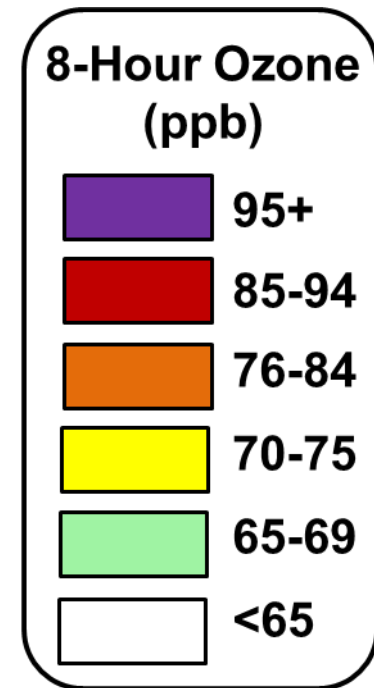
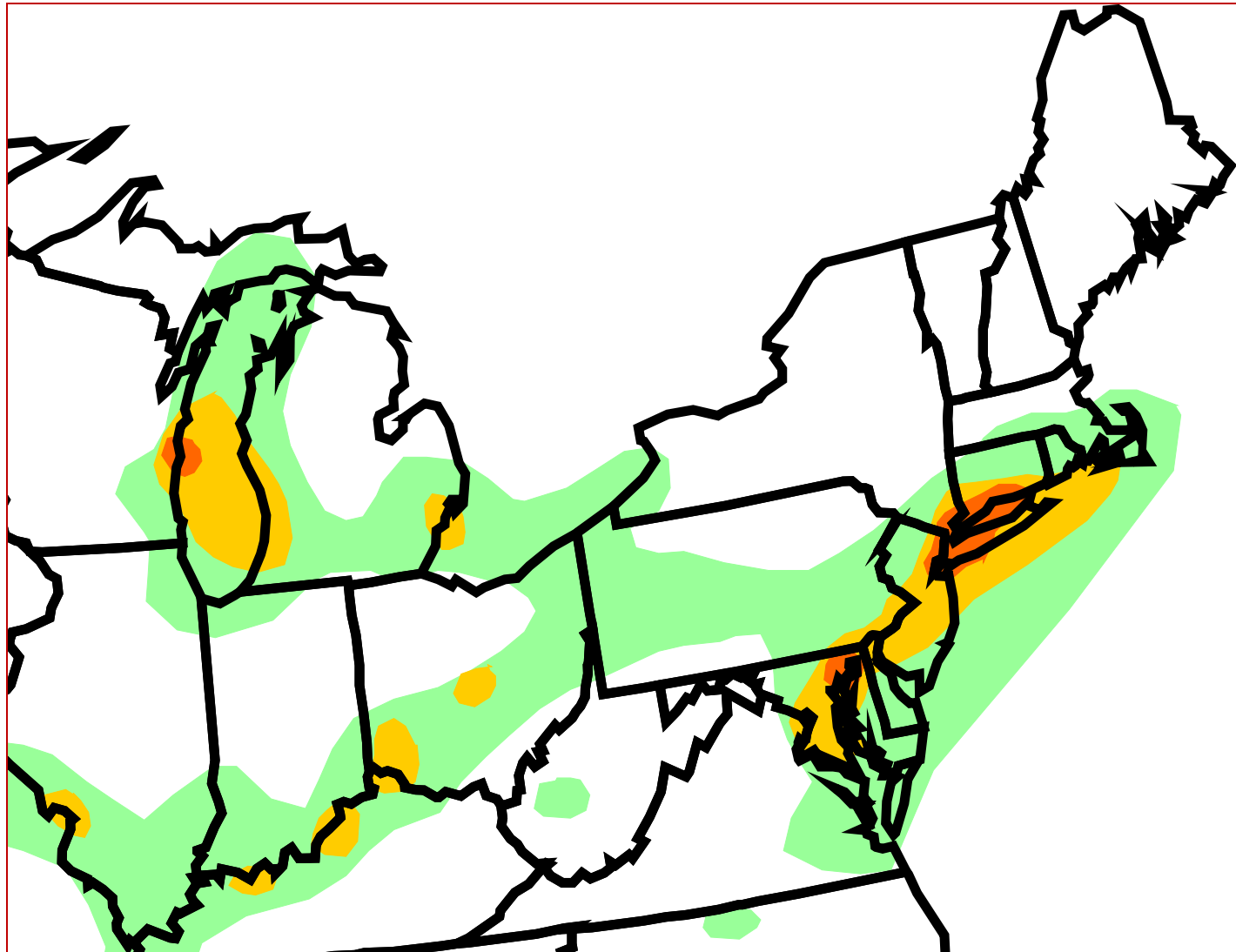
3. 2018 OTC ERTAC vs IPM



3. 2018 OTC ERTAC vs IPM

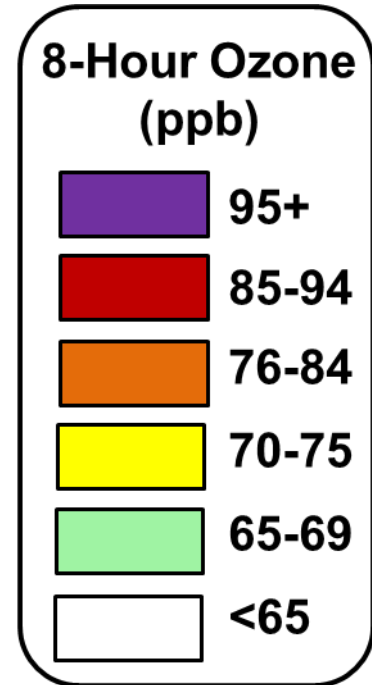
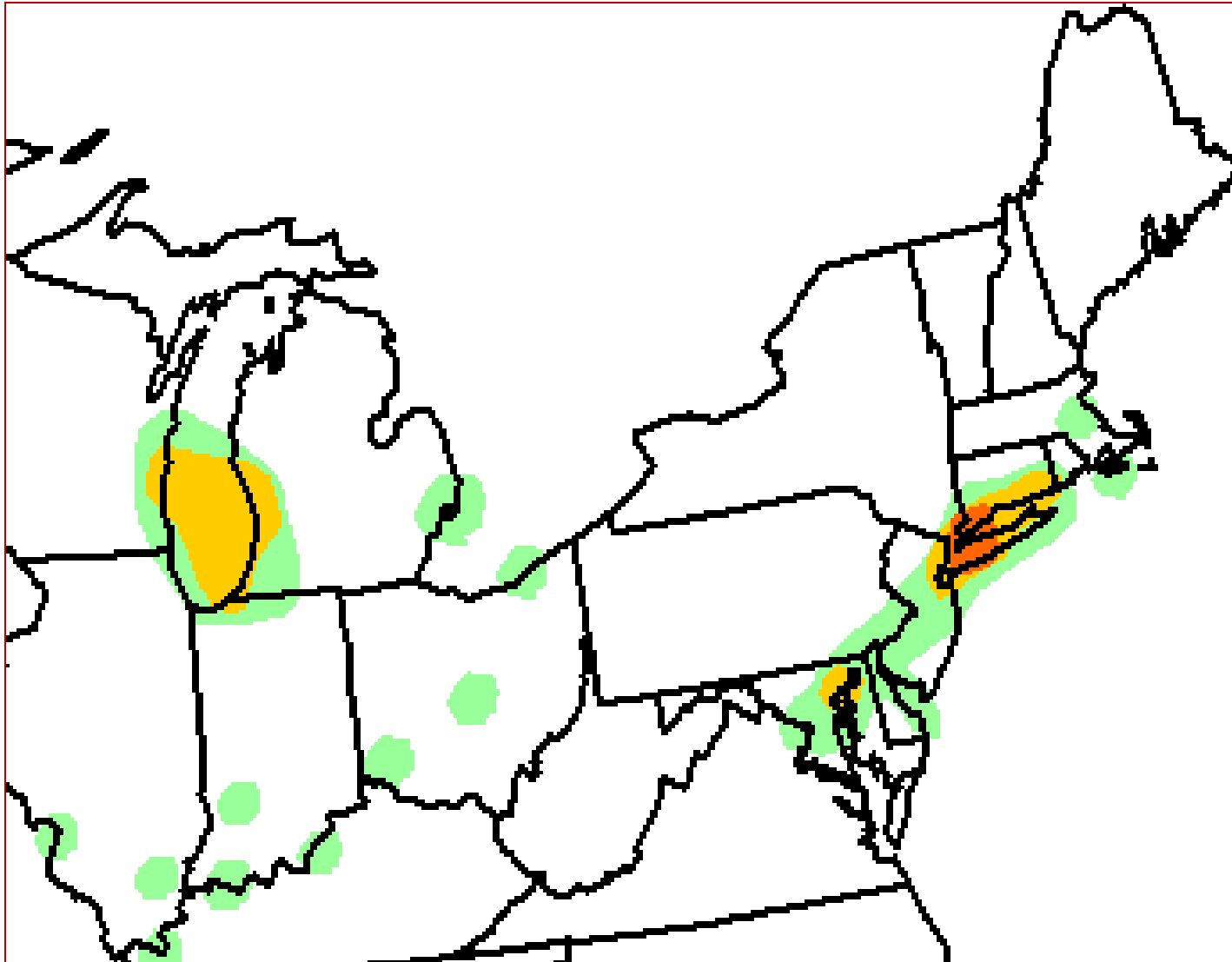


4. OTC 2018 Base Case MARAMA Alpha2 Emission Inventory



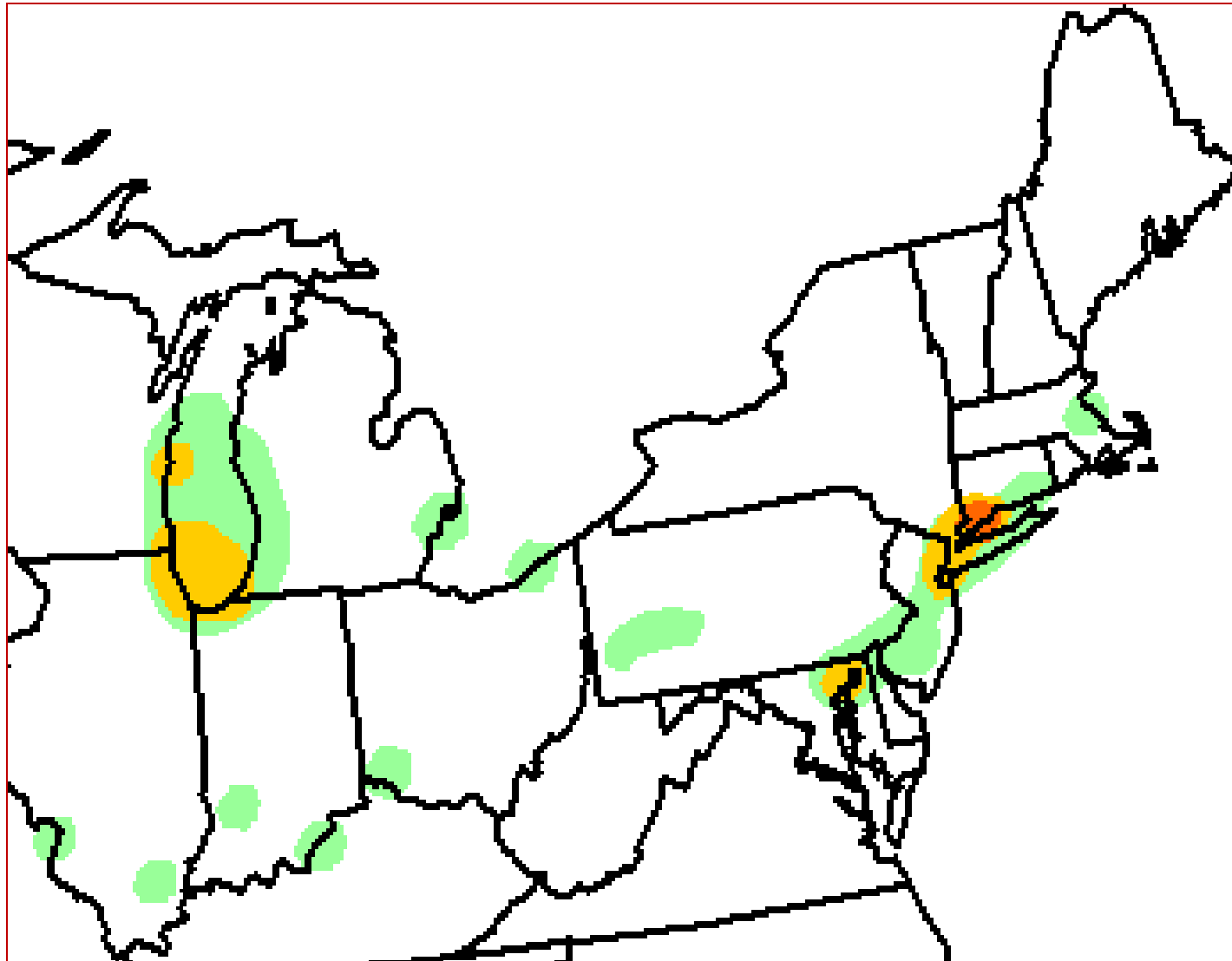
5. 2018 Additional 25% NOx Reduction

MARAMA Alpha emission inventories with noted marine emission issue



6. 2028 Proxy with Mobile Measures

MARAMA Alpha emission inventories with noted marine emission issue



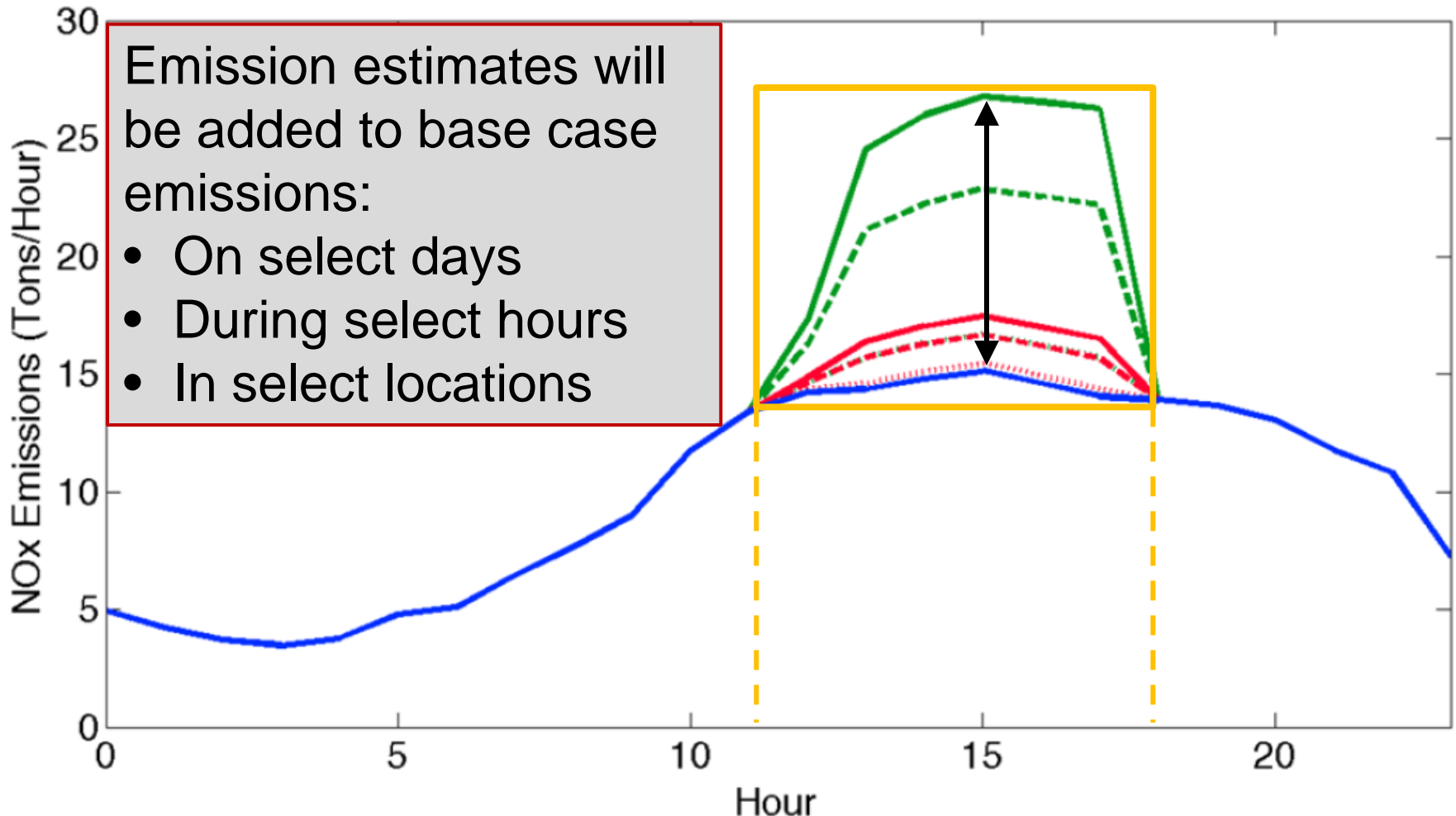
Future Model Runs

- Ozone (In process)
 - 2011 Base – 4km nested grid
 - 2011 Contribution
 - 2011 Demand Response (BTM)
 - 2028 Proxy
- Haze (Planned)
 - 2011 Base
 - 2028 Base

High Electricity Demand Days (HEDD)

- On HEDD more electricity generation than usual is required for reliability
 - More generation leads to more emissions
 - HEDD days typically occur on hot, humid days that are already conducive to high ozone
 - Therefore the higher emissions often occur during critical periods
- Some emissions are not reflected by the CAMD emission database and may not be reported through other typical mechanisms
 - Emissions need to be added to the inventory during HEDD periods to reflect actual emissions

Behind the Meter NOx Emissions



Summary

- Portions of the OTR are not meeting the 2008 ozone NAAQS
- Revised NAAQS due in October 2015
 - A large number of states will likely be designated as nonattainment under an October 2015 revision to the ozone NAAQS
 - At least some states will likely be designated as Moderate Nonattainment

Summary

- OTC Modeling Committee is currently working to:
 1. Develop and improve emissions inventories
 2. Develop emission estimates for HEDD
 3. Revise the 2018 future year projection to 2017
 4. Further improve model performance
 5. Assess attainment status and modeling needs for the 2015 ozone NAAQS revision
 6. Produce additional modeling results by the OTC Fall Meeting in November

Questions

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