

Control Strategy Screening for 8-Hour Ozone Attainment

Presented by:

Jeffrey Underhill, Ph.D.

NHDES

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Questions

- What is needed for ozone attainment throughout the OTR?
- Will CAIR be enough?
 - What about CAIR with additional local measures?
 - What if we add anything else we can think of whether they are practical/cost effective or not?
- Would the so-called CAIR Plus be enough?

Why Screening?

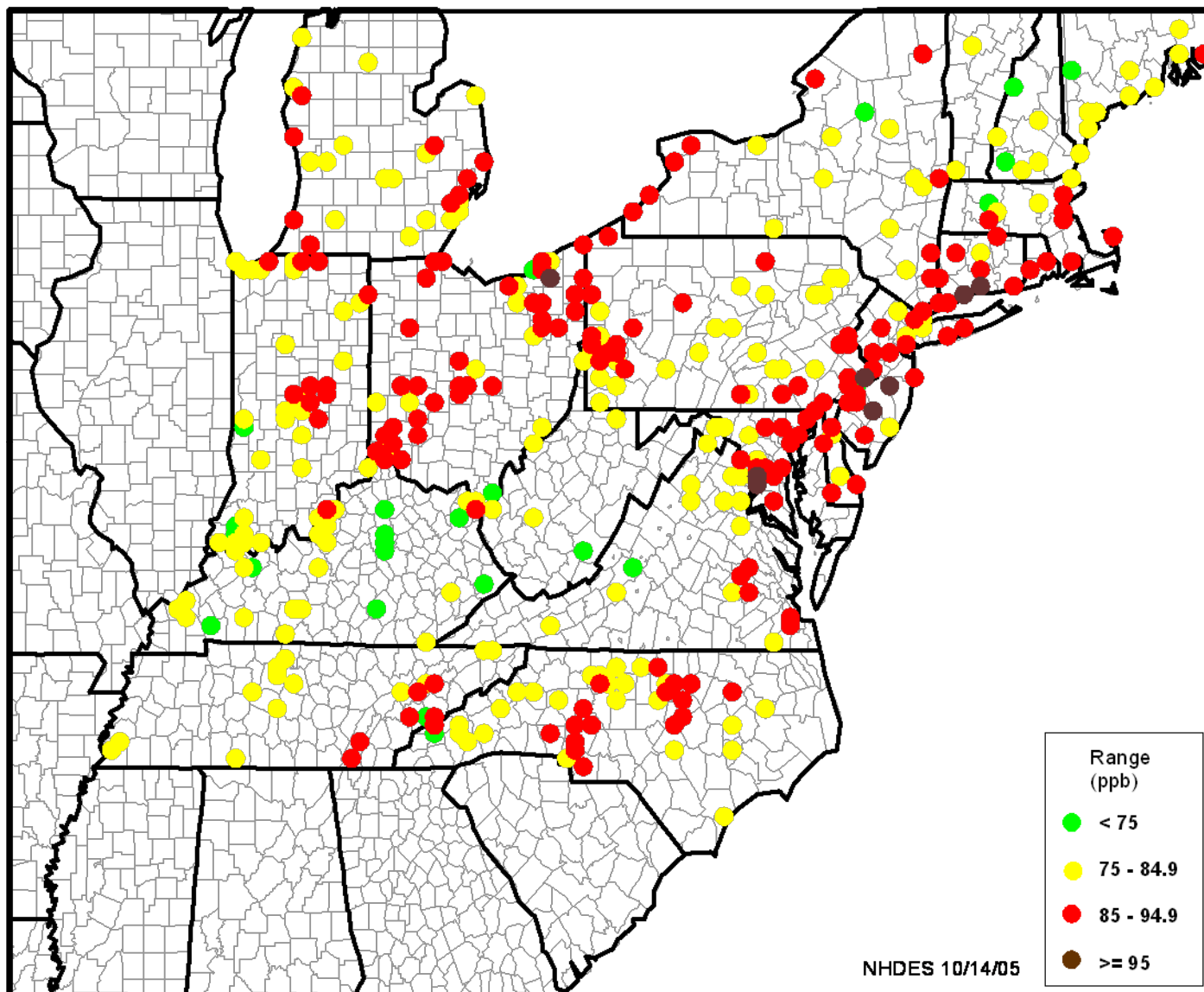
- It's available now.
 - The OTC/MANE-VU SIP quality modeling platform is still under construction and Q/A.
- Get a jump-start on identifying and analyzing possible control strategies and associated effectiveness.
- Improve control strategy modeling throughput with SIP modeling platform (later).

Screening Methodology

- CALGRID2.0 was used with existing meteorology and emission data sets.
 - CALGRID has been updated substantially with CAMx, CMAQ, and MM5 science and file handling.
 - It's publicly available through the Earth Tech Website
 - It's a 1-atmosphere model.
- For screening, emissions were calculated with EMSPROC3.0, a simplified emissions processor.
- Model applied in a relative sense according to EPA draft guidance.

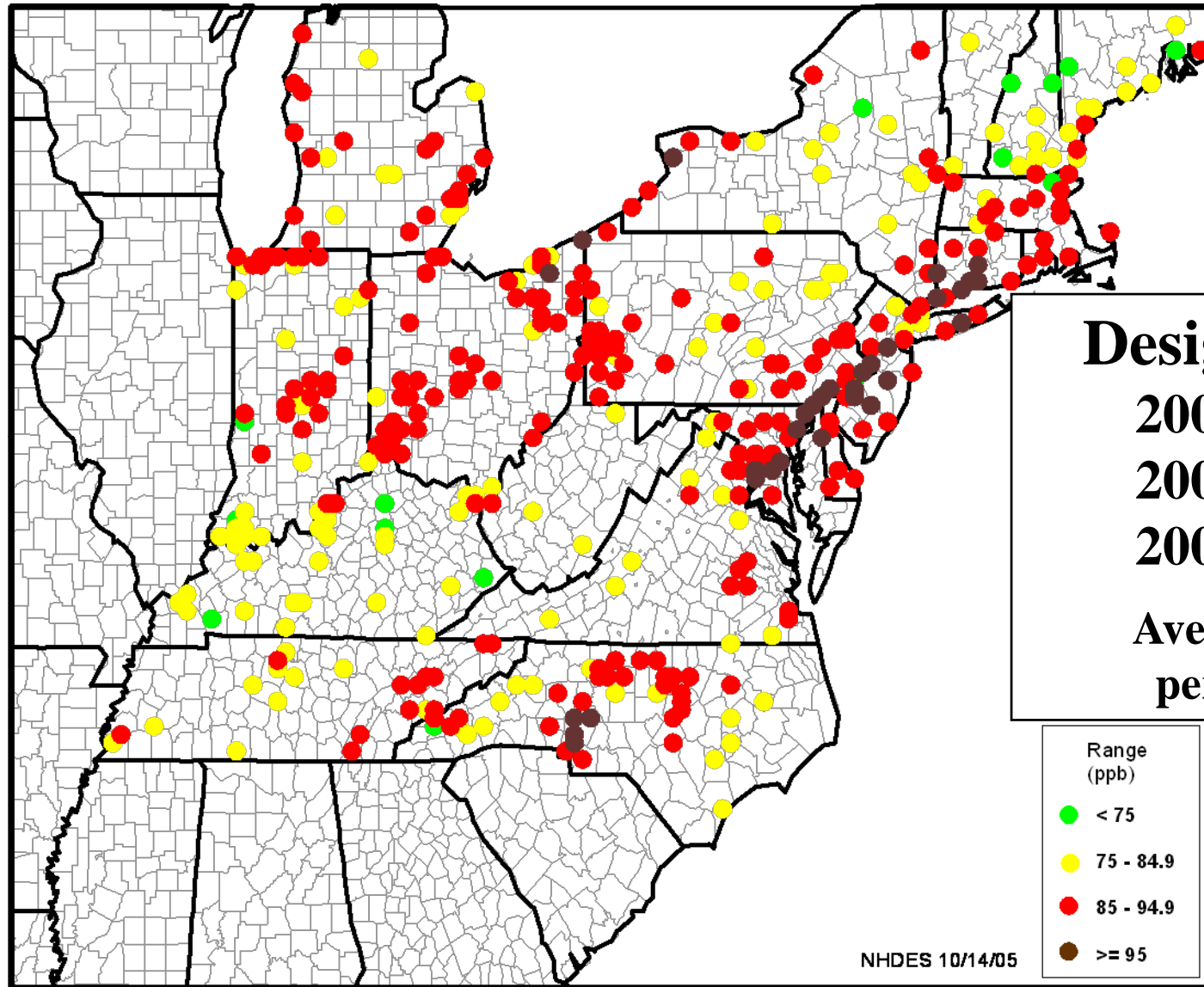
Monitored 8-Hour Ozone Design Values

Design Value Period 2002-2004



Average Monitored 8-Hour Ozone Design Values

Design Value Periods: 2000-2002, 2001-2003, 2002-2004



Design Values

2000 – 2002

2001 – 2003

2002 – 2004

Average Value
per monitor

Range
(ppb)

Green < 75

Yellow 75 - 84.9

Red 85 - 94.9

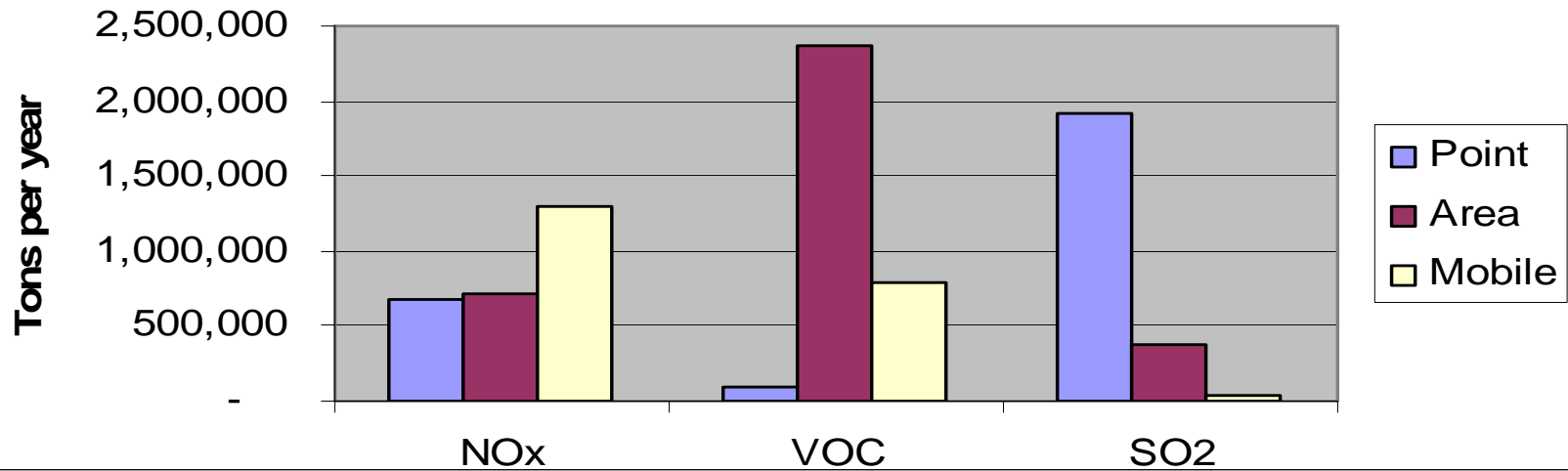
Brown ≥ 95

The Screening Modeling Plan

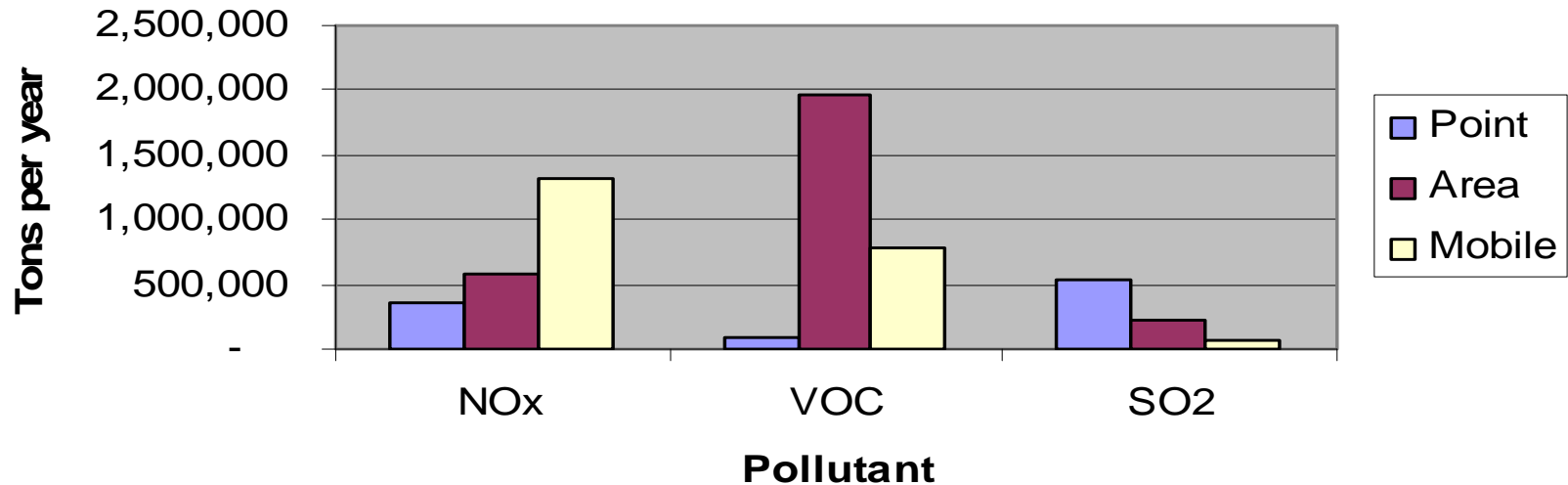
Two phases of work:

1. Phase I works from Clear Skies emission files improved to reflect:
 - a) OTC/MARAMA 2002 base year emissions.
 - b) OTC/MARAMA 2010 CAIR with OTB/OTW emission levels.
2. Phase II works directly from OTC 2002 SIP level modeling platform.

2002 Base (MANE-VU Region)



2009 CAIR with Additional Controls (OTB/OTW) (MANE-VU Region)

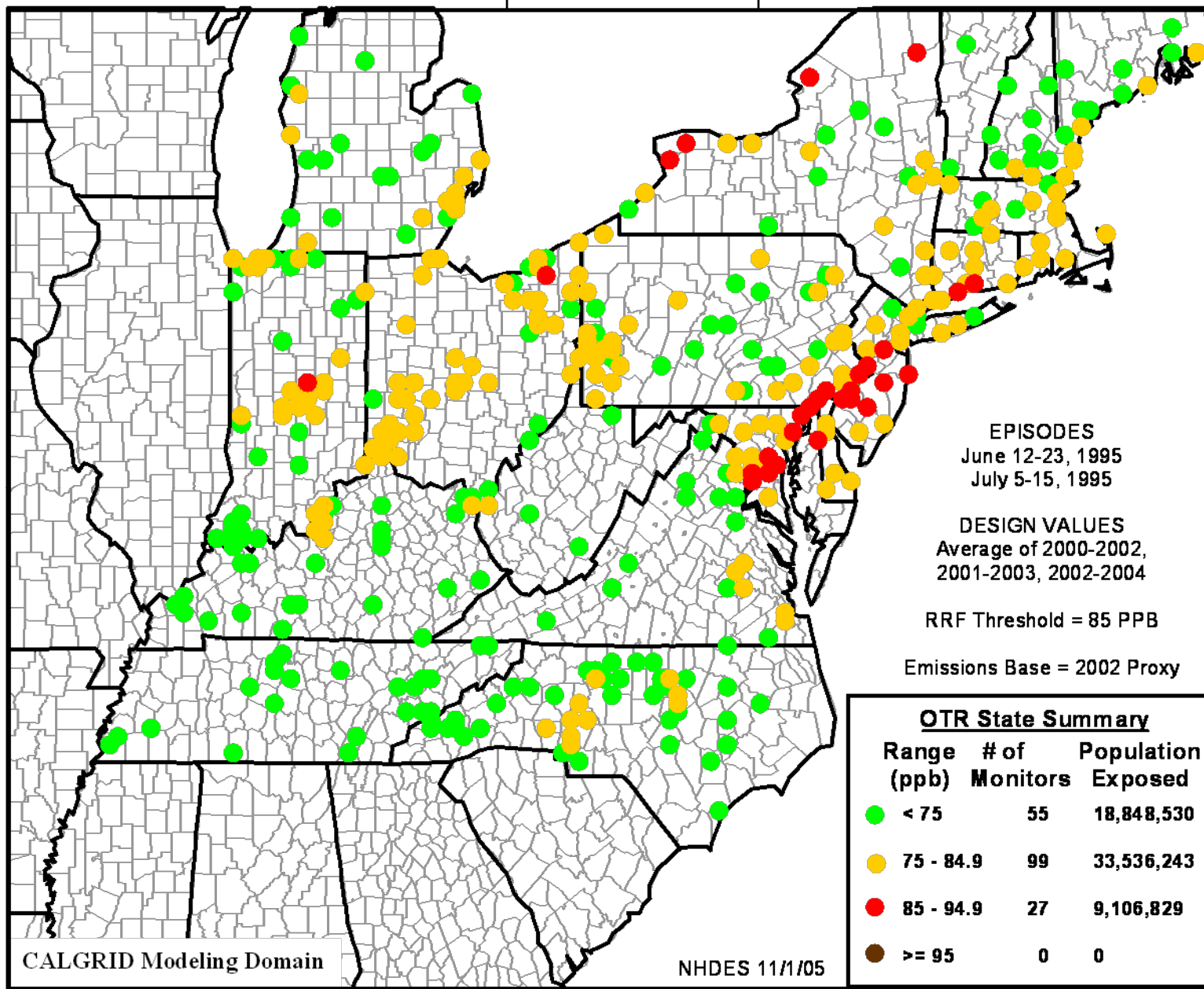


Strategies Screened

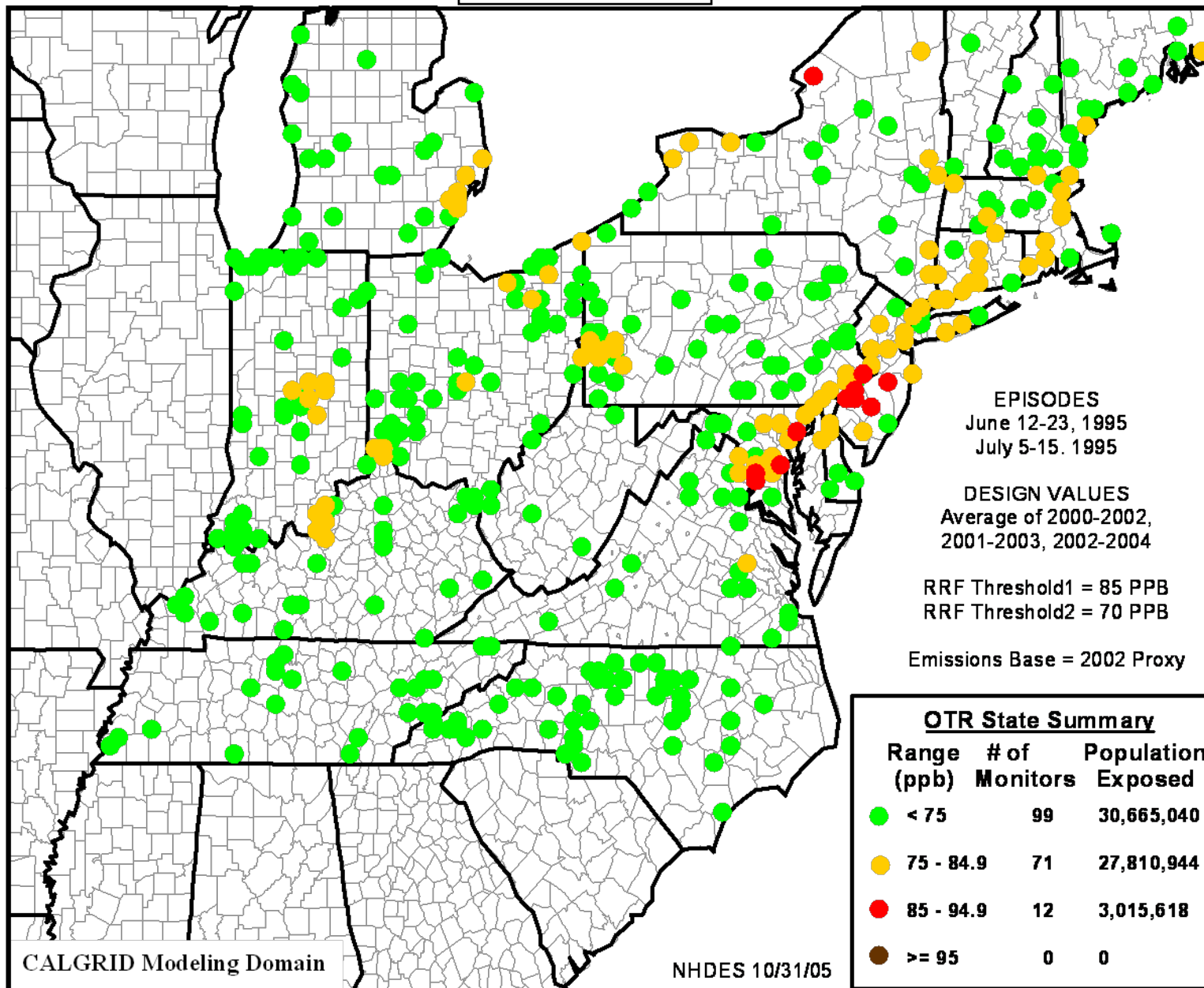
Note: All strategies are domain-wide unless otherwise indicated.

1. CAIR with On The Books/On The Way controls
2. CAIR with OTB/OTW and additional OTR-wide local/regional controls
3. Beyond CAIR (at MRPO EGU1 level) Controls
4. Beyond CAIR (at MRPO EGU2 level) Controls
5. Beyond CAIR (at MRPO EGU2 level) Controls and
2015 levels of Area and Mobile source emissions
6. Beyond CAIR (at MRPO EGU2 level), 2015 Area & Mobile
Controls and plus OTR-wide local/regional measures
7. OTC 2004 Position
8. OTC 2004 Position extended to non-EGU sector

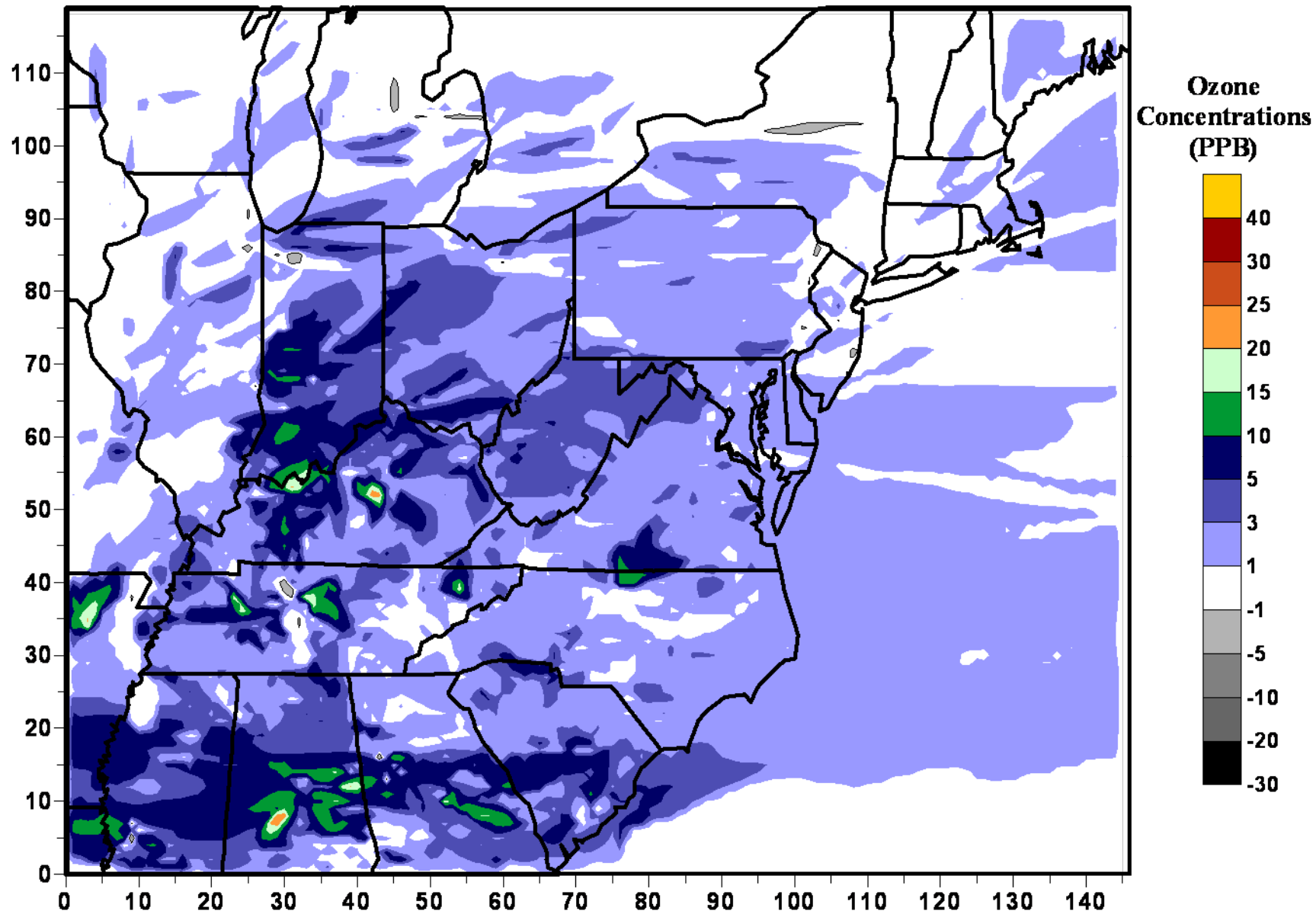
2010 CAIR



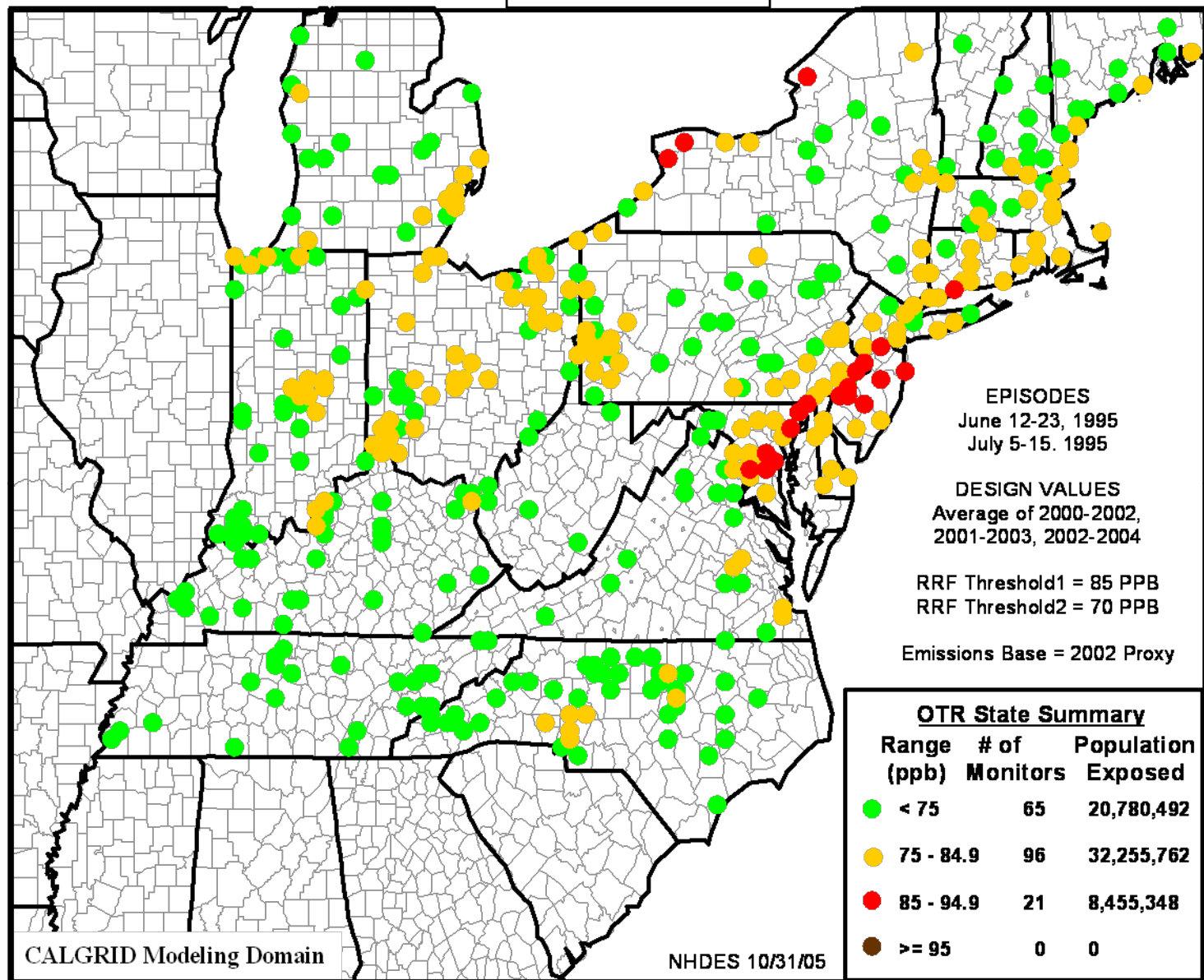
2015 CAIR



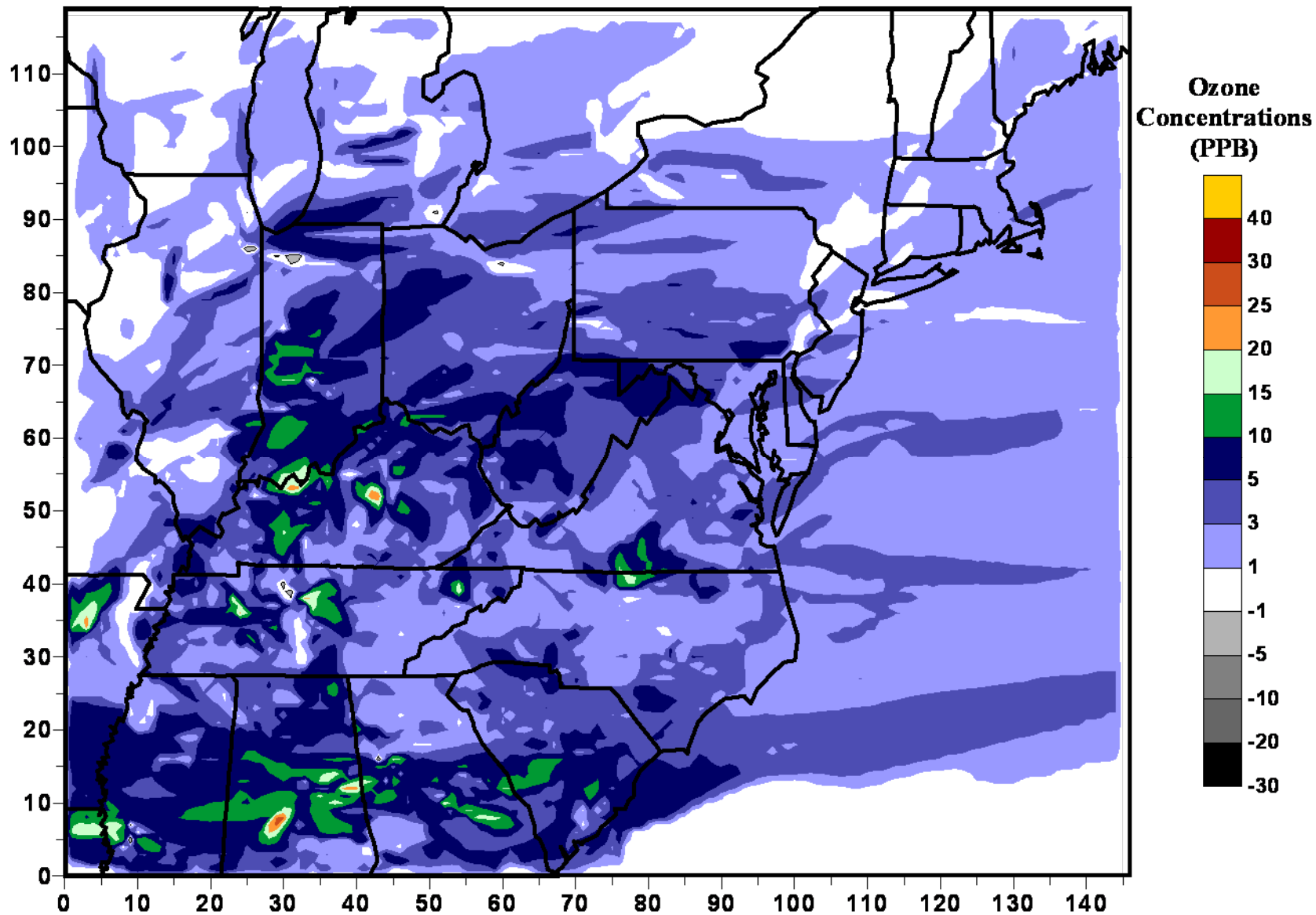
Benefits of OTC 2004 Position Beyond CAIR



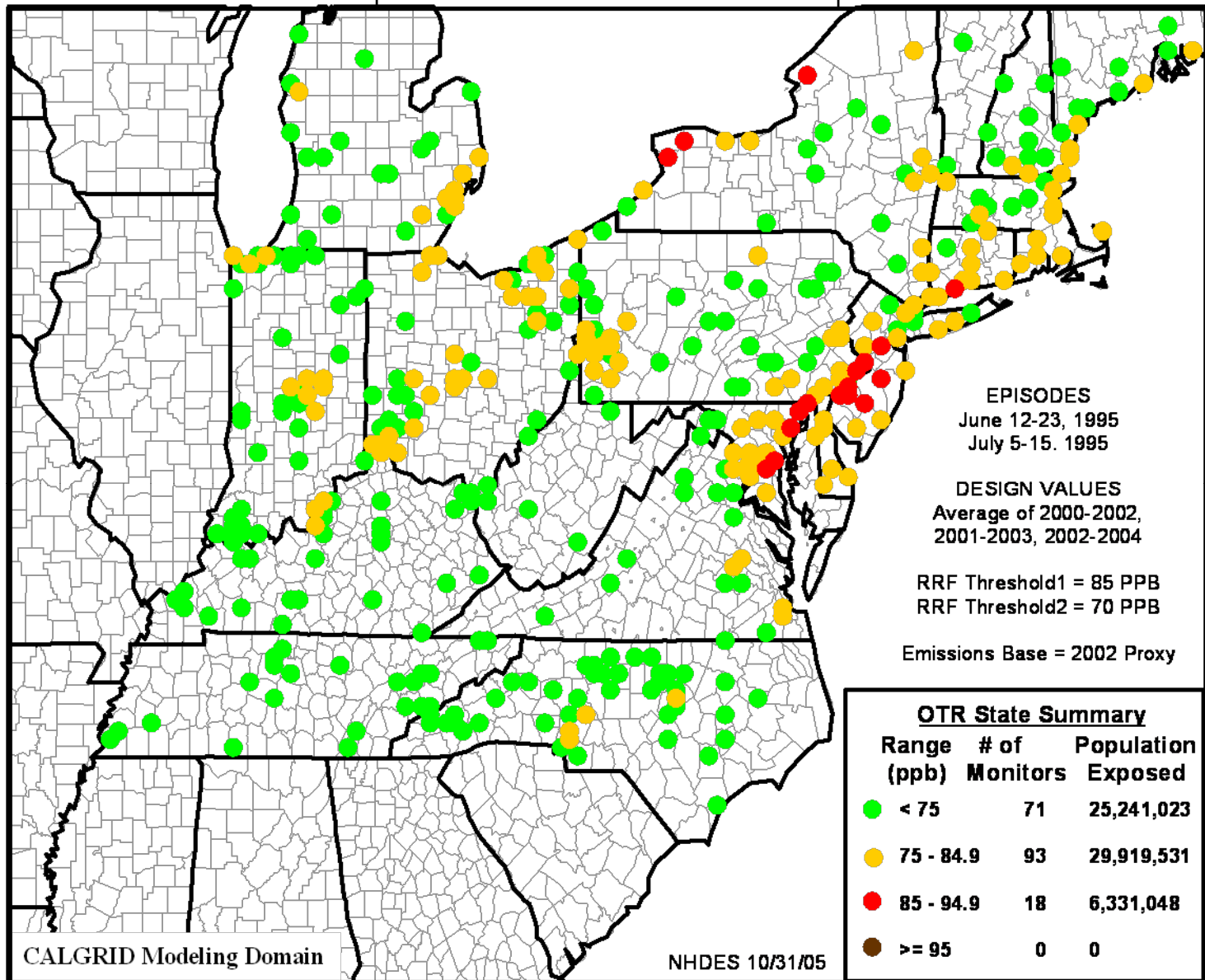
2010 OTC Position



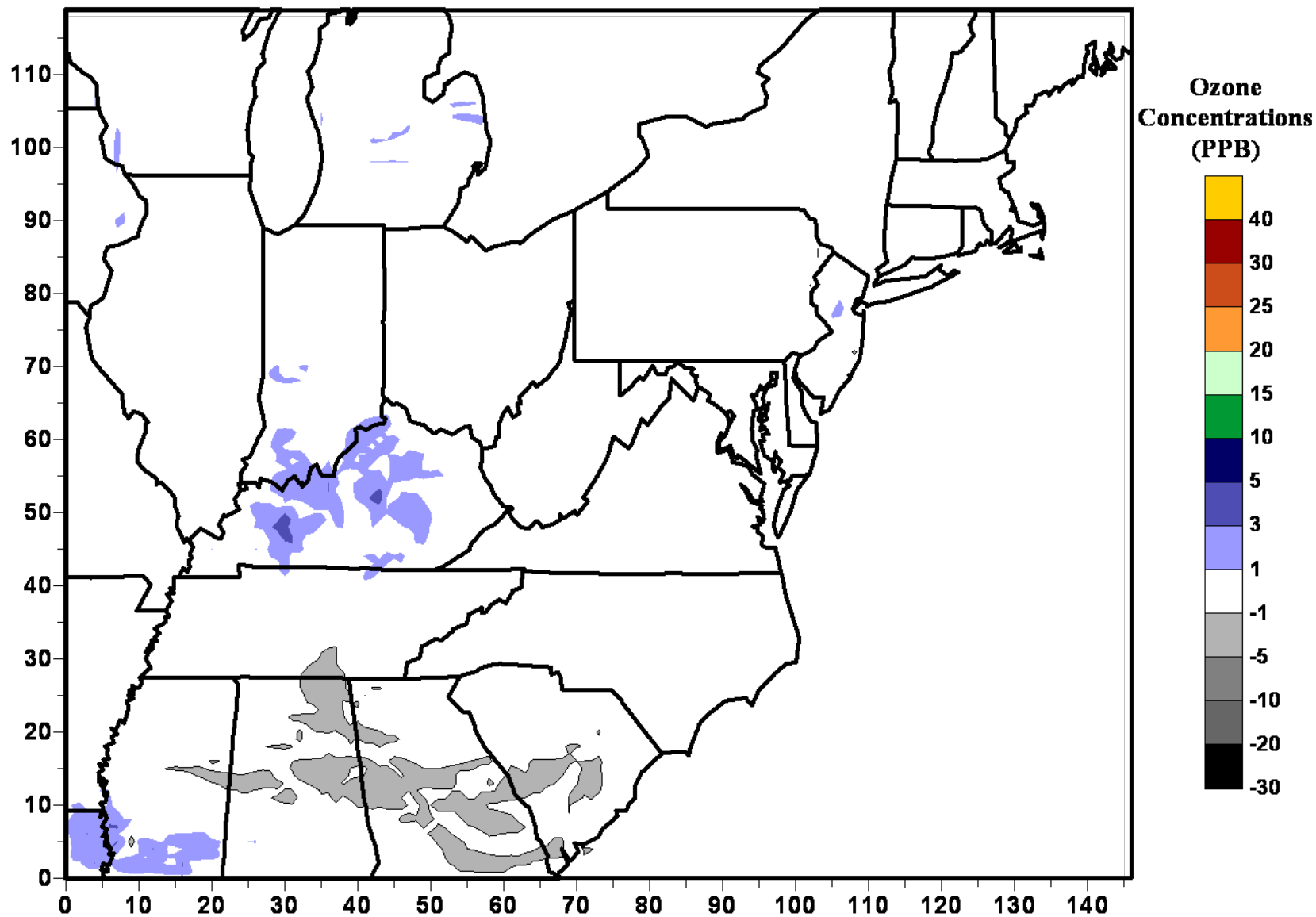
Benefits of OTC Position (w/non-EGU) Beyond CAIR



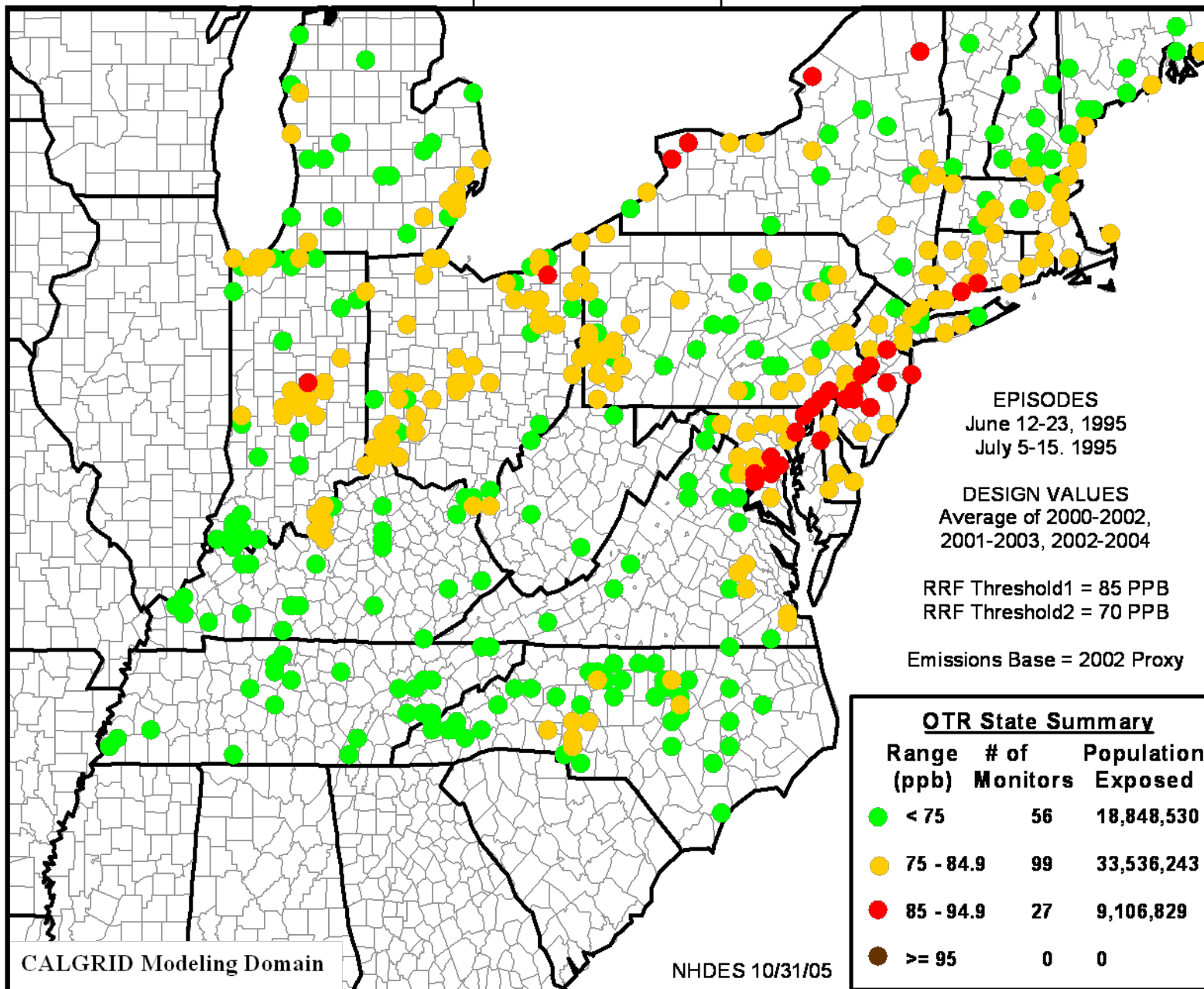
2010 OTC Position Plus NonEGU



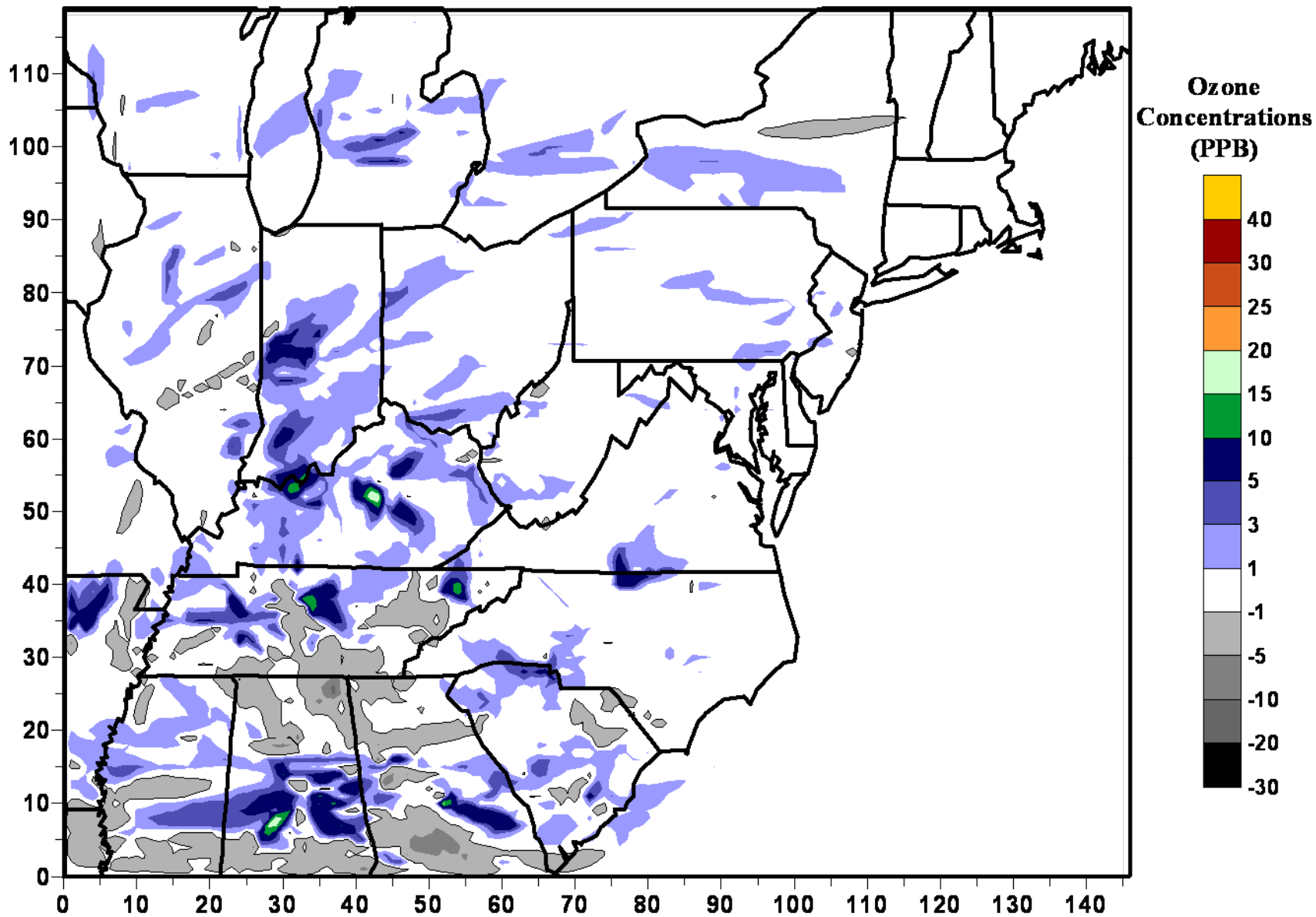
Benefits of EGU1 Beyond CAIR



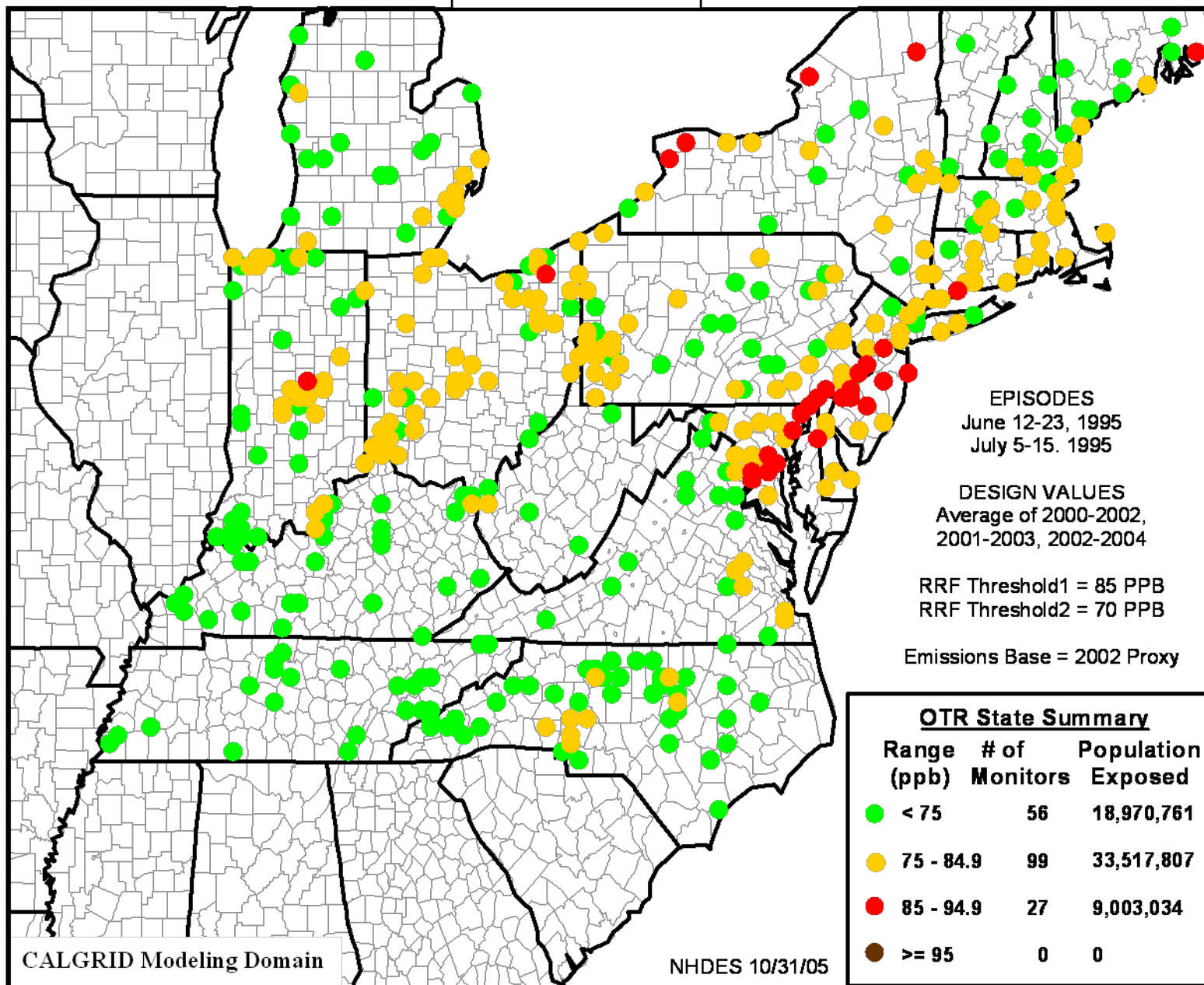
2009 EGU1



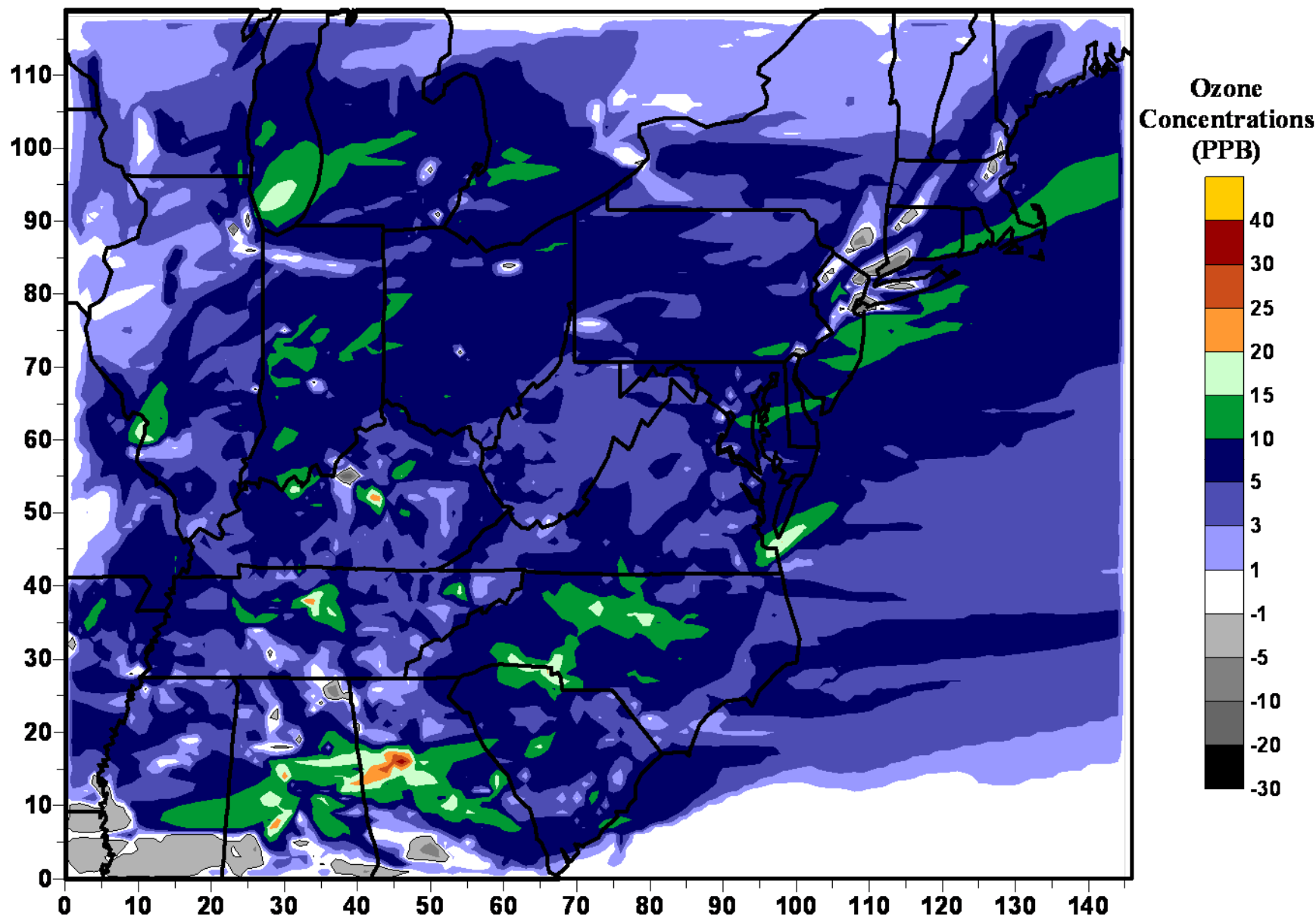
Benefits of EGU2 Beyond CAIR



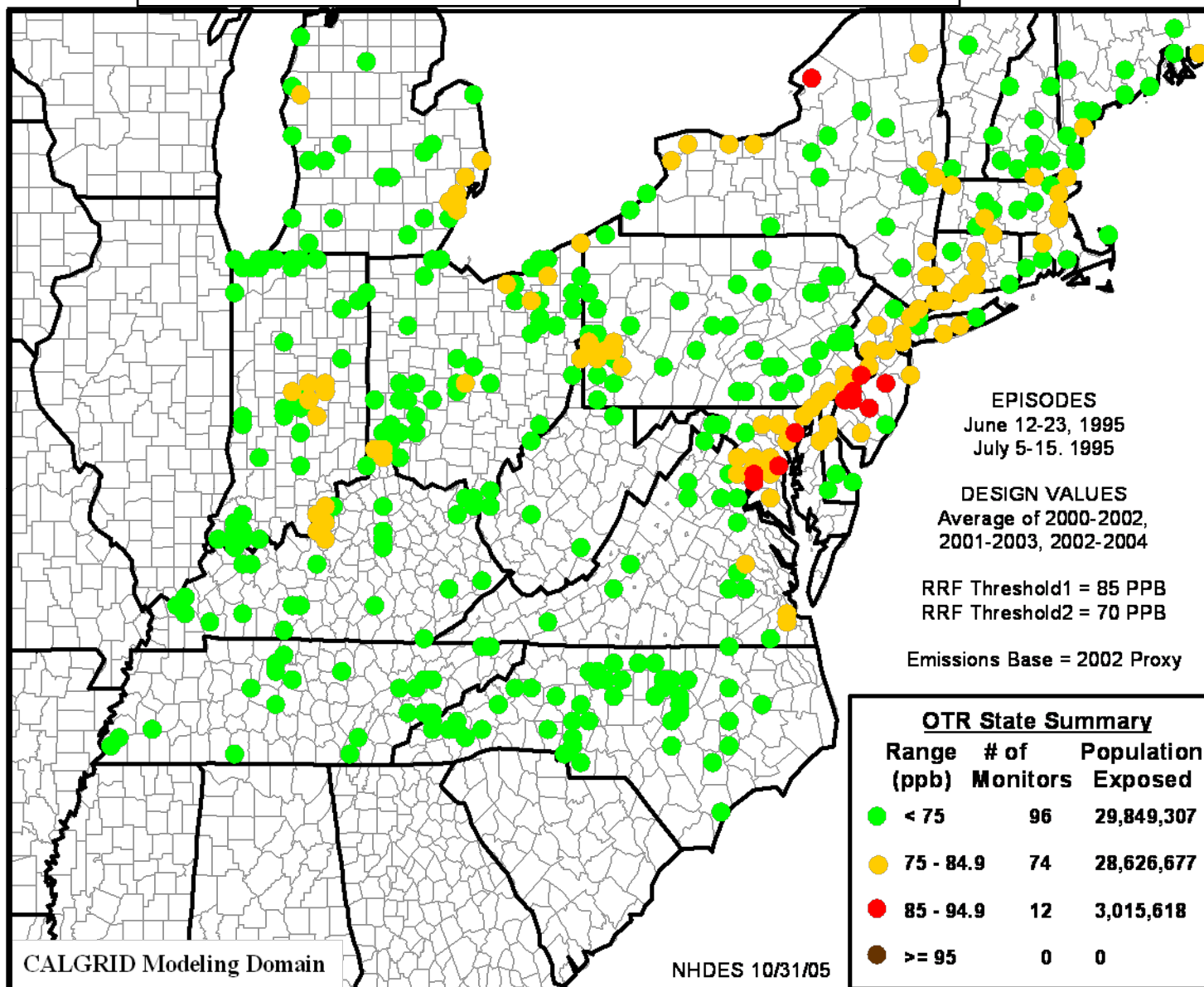
2009 EGU2



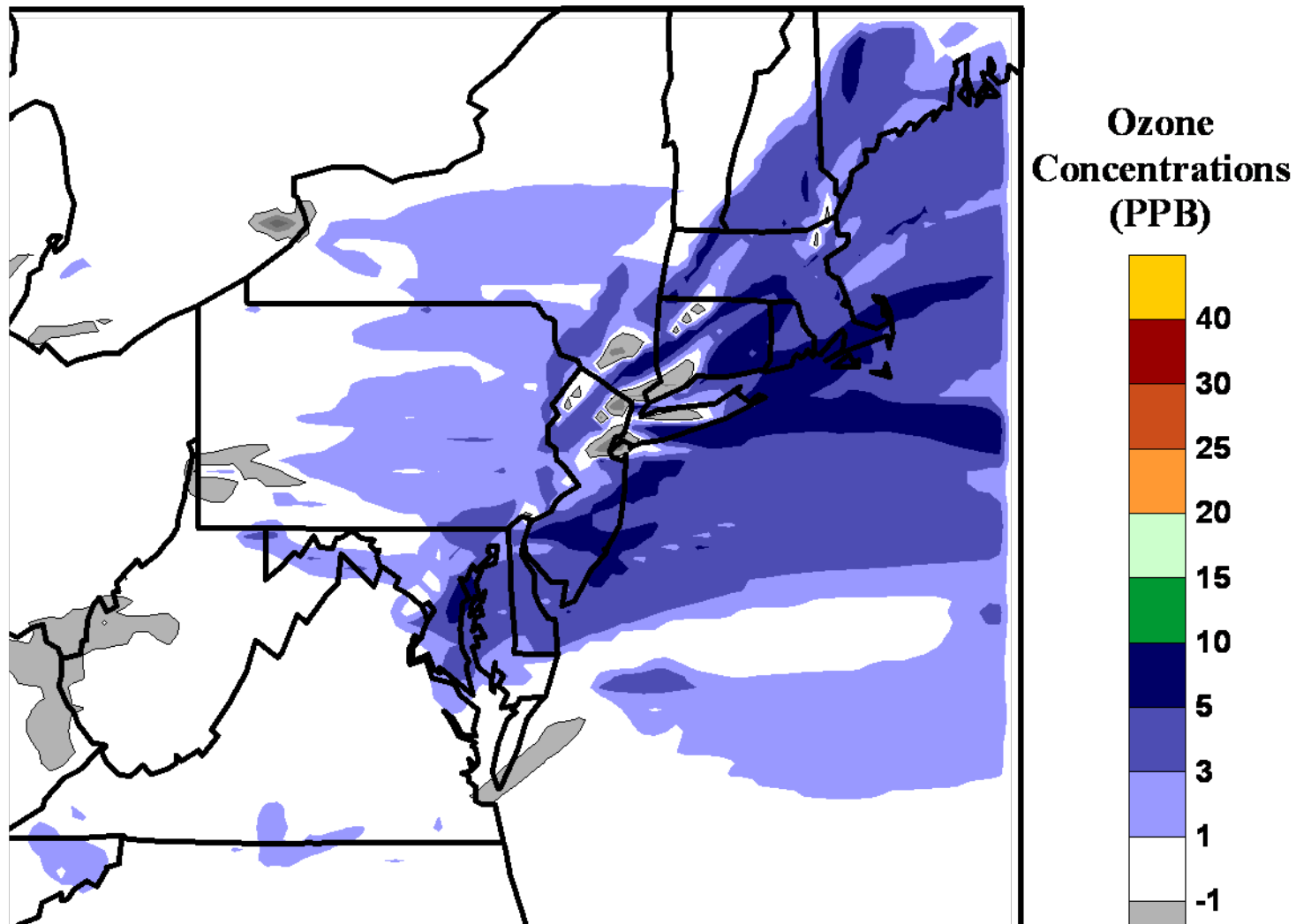
Benefits of EGU2 Plus Area & Mobile Beyond CAIR



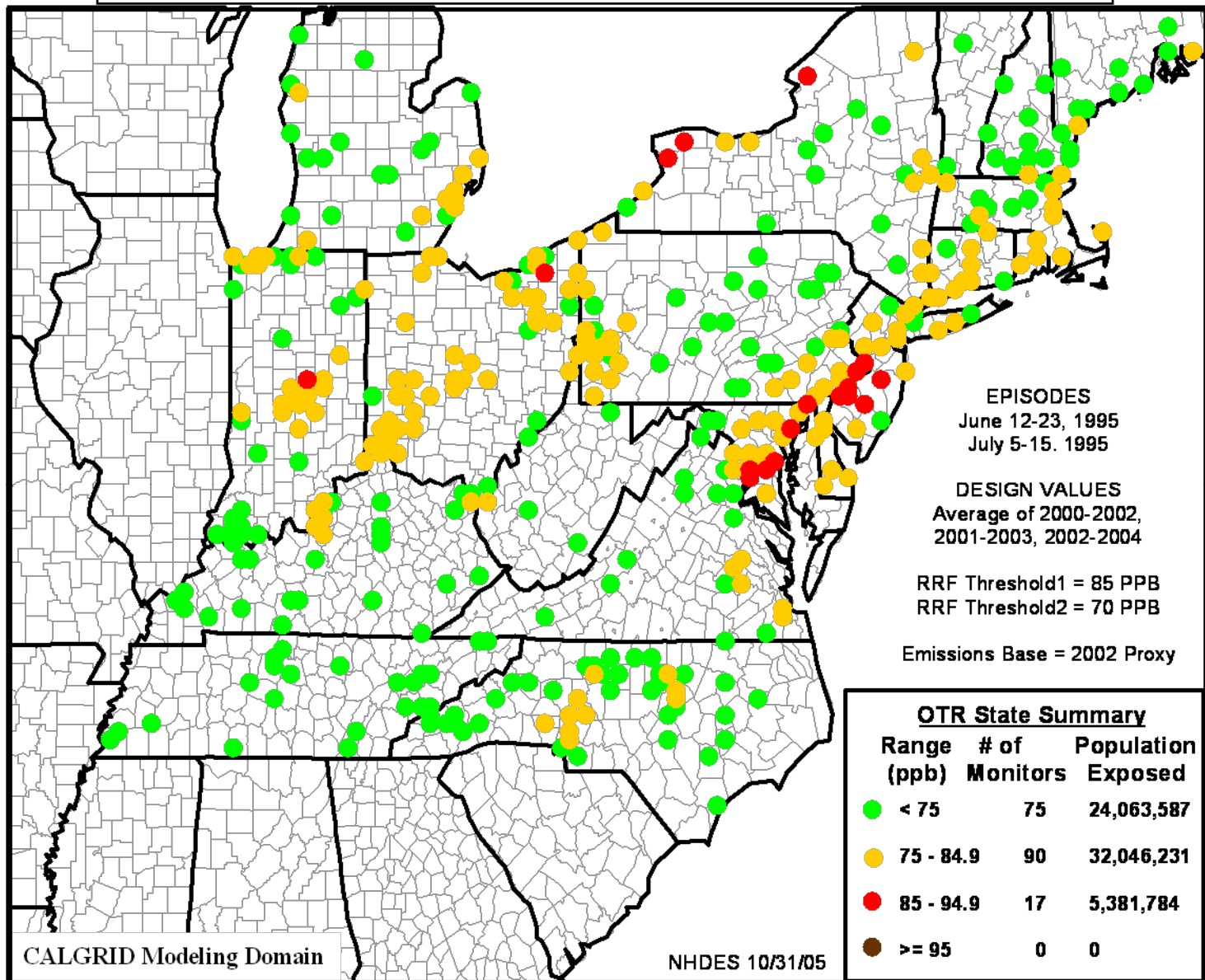
2009 EGU2 Plus 2015 Levels of Area and Mobile



Benefits of Additional Local/Regional Controls Within the OTR - Beyond CAIR

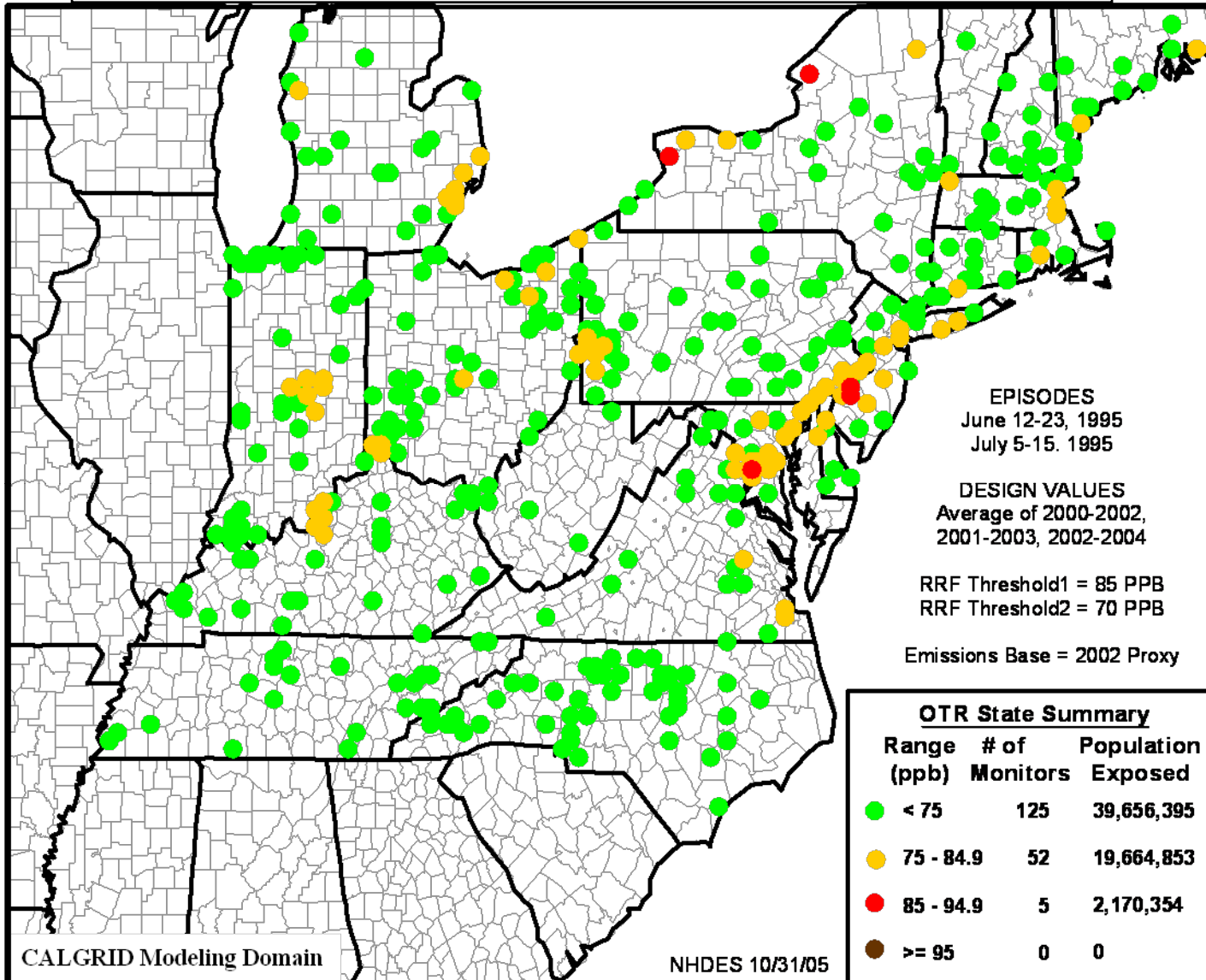


2010 CAIR Plus Additional Local/Regional Controls (OTR)



2009 EGU2

Plus 2015 Levels of Area and Mobile And Additional Local/Regional Controls OTR)



Screening Summary

Strategy	OTR Population (millions) Exposed to Unhealthy Ozone
CAIR	9.1
Beyond CAIR at EGU1	9.1
Beyond CAIR at EGU2	9.0
2004 OTC Position	8.5
2004 OTC Position Extended to non-EGUs	6.3
CAIR with Local/Regional Measures	5.4
Beyond CAIR at EGU2 Plus 2015 Area/Mobile	3.0
Beyond CAIR at EGU2 Plus 2015 Area/Mobile w/Area/Mobile/Local/Regional	2.2

Conclusions

- CAIR along with on-the-way and on-the-books controls does not provide for ozone attainment throughout the OTR.
- Remaining nonattainment after CAIR cannot be realistically remedied with additional local and/or regional controls.
- Timely ozone attainment will require faster phase-in of federal area and mobile source emission reduction programs.