

New Jersey Sensitivity Modeling

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Modeling Description

- **Objective** — to quantify effectiveness of potential specific control measures on ozone precursor emission
- **Model** — CMAQ v4.5.1 on 12km OTC SIP modeling domain
- **Meteorology** — August 2002
- **Base Year** — 2002B1
- **Future Year Base Case** — 2012BOTW_B4 with no CAIR strategy (from IPM) but with NOx budget program
- **Future Year Control Scenario** — potential NOx, VOC emission controls

Ozone Emission Control Strategies

Performance Standard on EGU

- EGU standard in 30 days average rates **(domain wide)**
- NO_x = 0.10 lbs/MMBtu

ICI Boiler

- 50% NO_x reduction on ICI Boiler from NJ RACT rule proposal **(domain wide)**

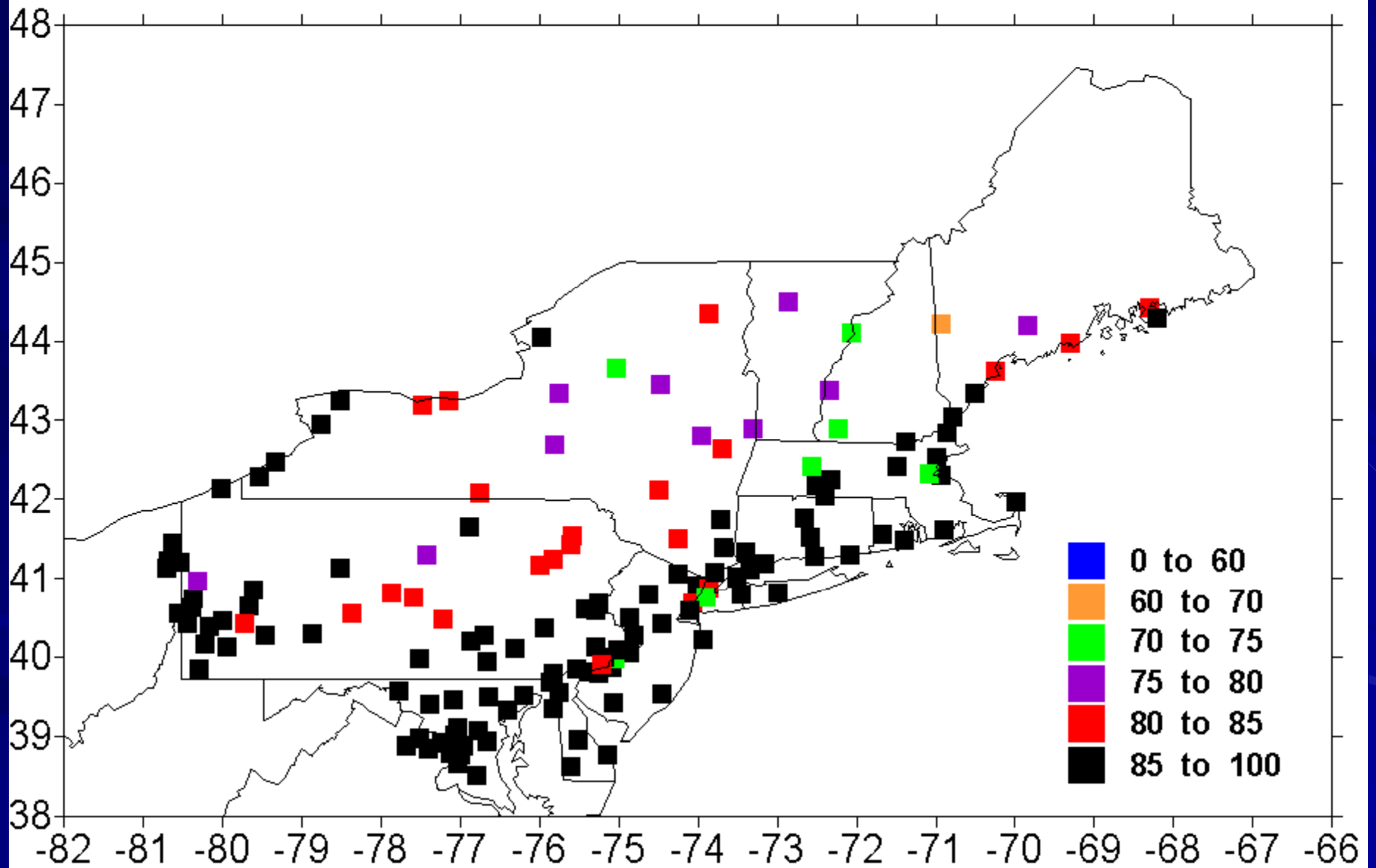
Storage Tank

- 80% VOC reduction on Storage Tank from NJ RACT rule proposal **(domain wide)**

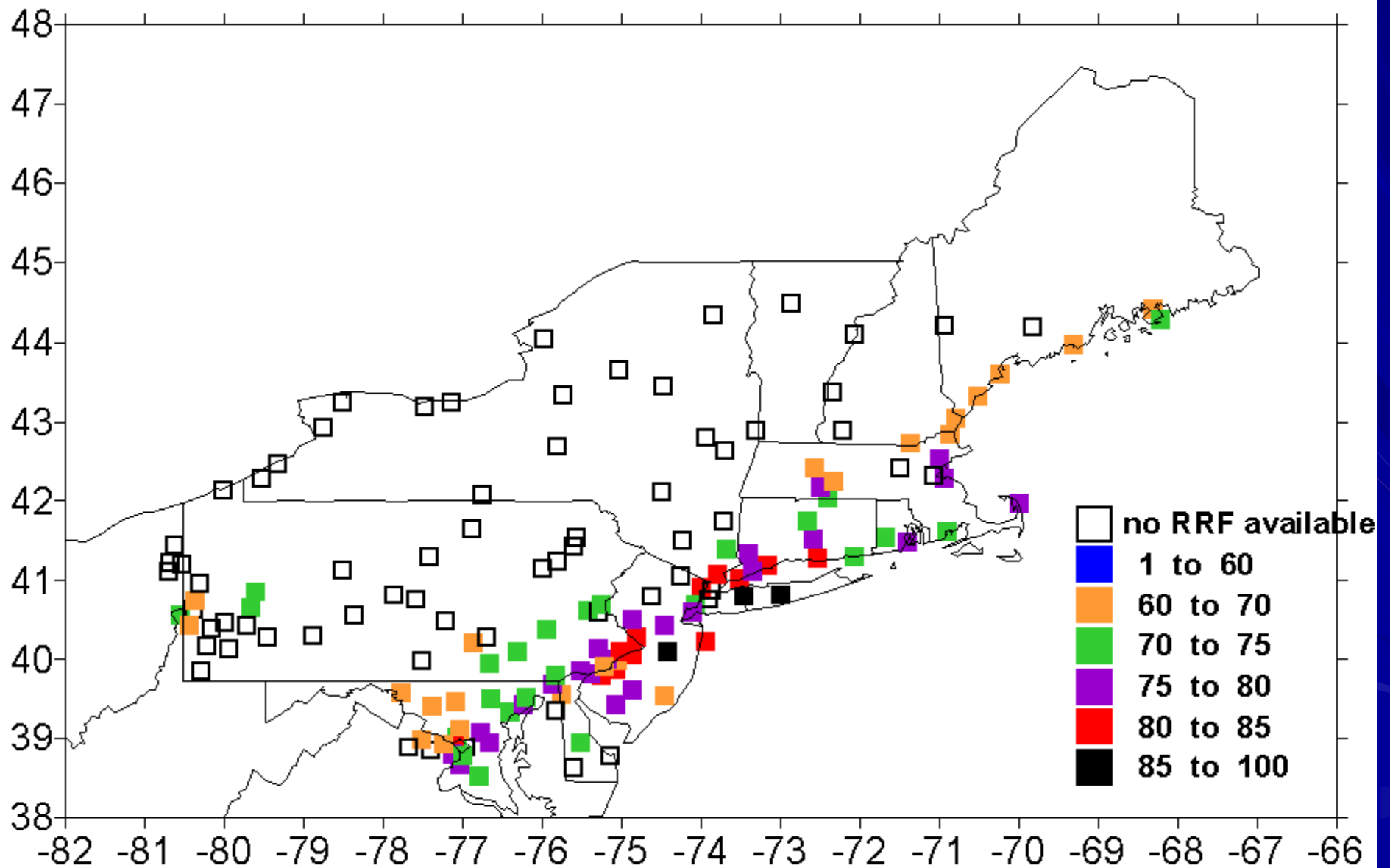
On-road Mobile

- apply 2018 mobile source emission on 2012 **(domain wide)**

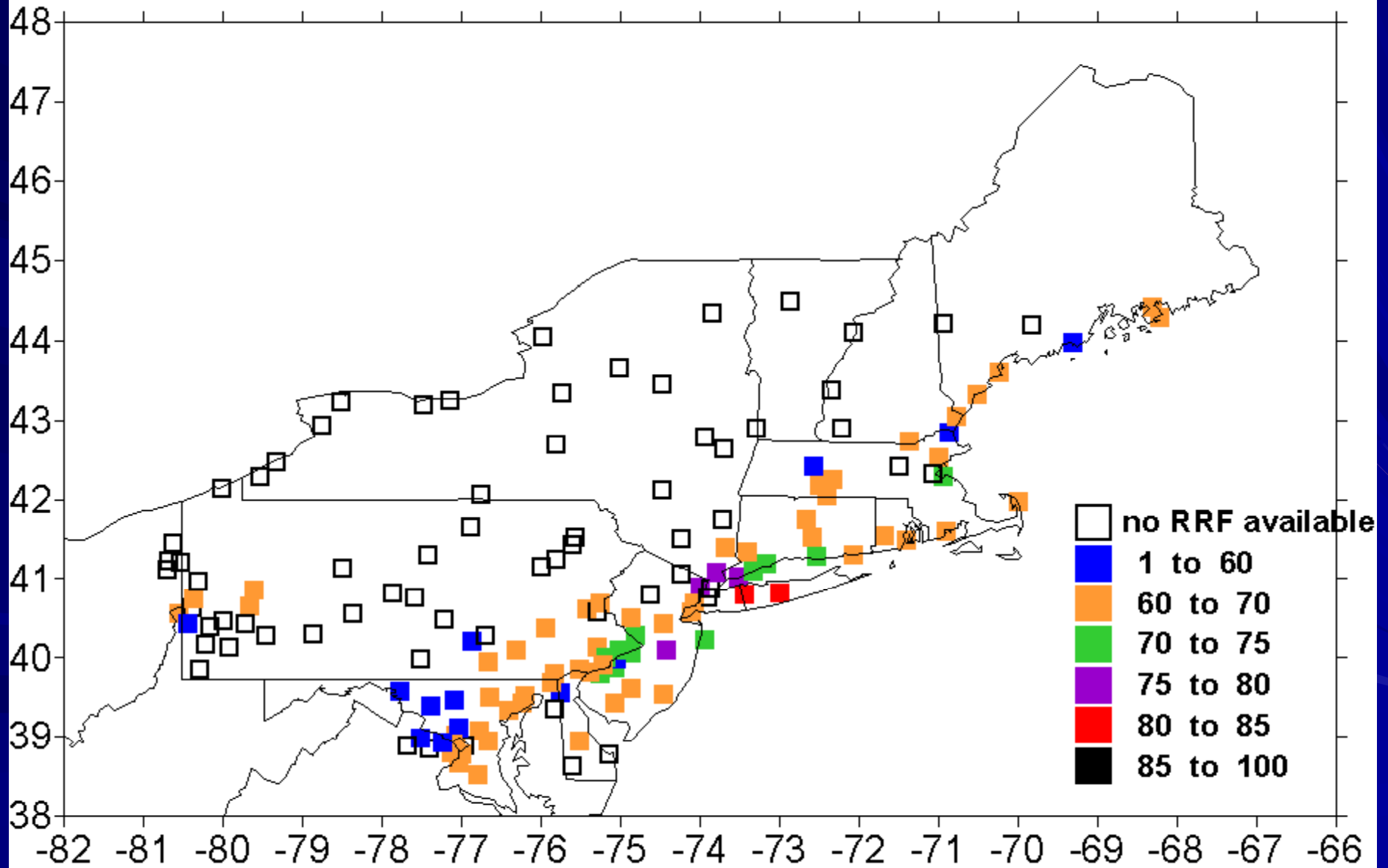
2002 Baseline Design Values 2000 - 2004



2012 Future Base Case



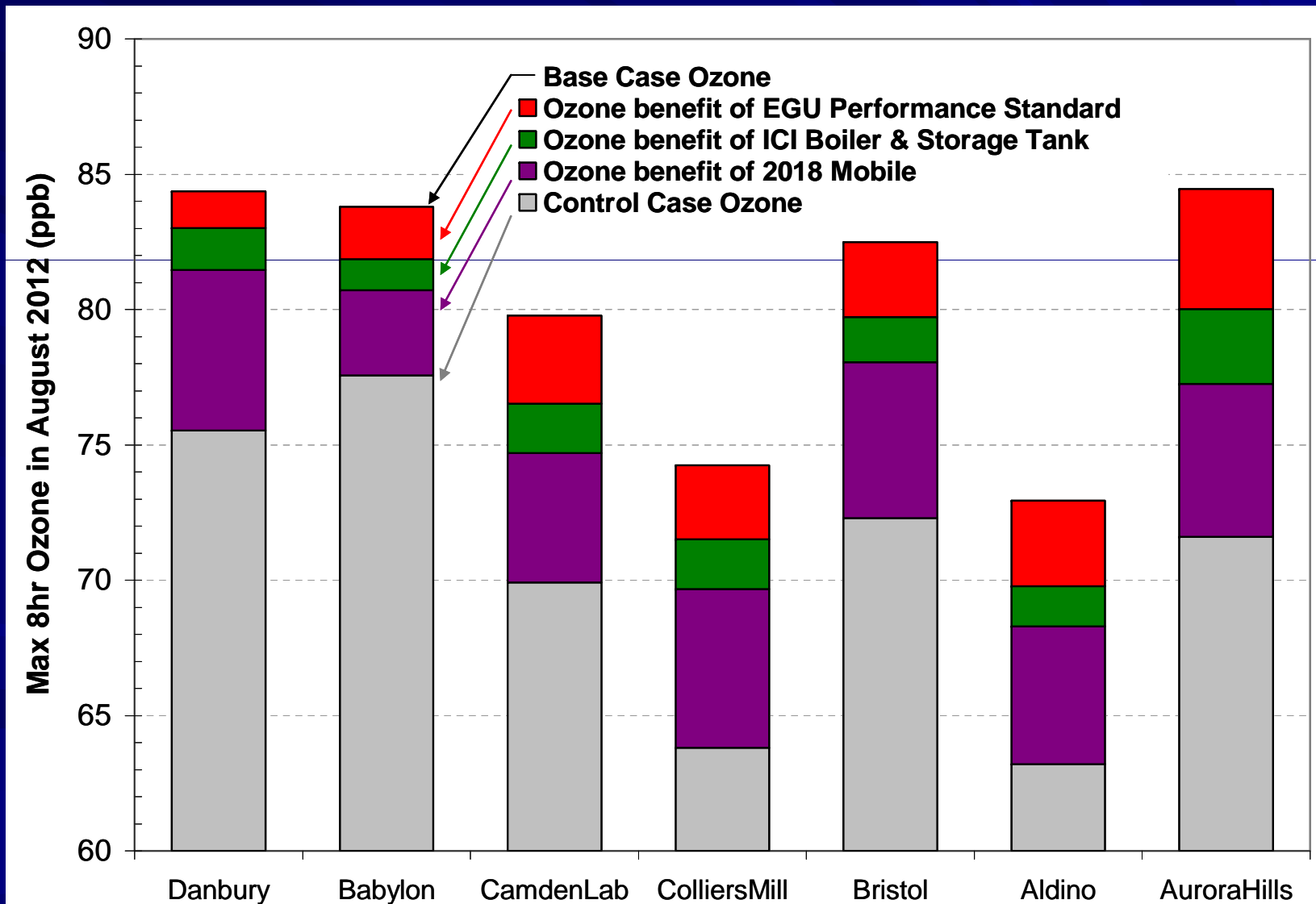
2012 Control Strategy Simulation



Results

State	Location	8 hour Ozone Design Value (ppb)		
		2002 Baseline	2012 Future Base Case	Future Control Case
NY	Babylon	94	88	82
NY	Holtsville	97	88	82
NJ	Colliers Mills	106	86	77
NJ	Teaneck	92	84	77
CT	Greenwich	96	84	76
NY	White Plains	91	82	76
NJ	Camden Lab	98	84	75
PA	Philadelphia - NEA	97	84	75
CT	Stratford	98	82	74
PA	Bristol	99	84	74
MA	Boston-Long Island	89	79	73
NJ	Clarksboro	98	82	73
CT	Madison	98	80	73
NJ	West Long Beach (Monmouth Univ)	96	80	72
CT	Westport	94	80	72
NJ	Rider U	97	81	71
PA	Philadelphia - ROX	91	79	71

Stepwise Modeling Results



Caveats

- Builds on 2002 SIP Platform
- One (1) month of data
- High Electric Demand Day Emissions not accurately represented
- Uses MOBILE6 Emission Estimates

Conclusions

- Significant improvements will require:
 - Time for fleet turnover
 - Federal electric generating unit (EGU) and industrial, commercial, and institutional (ICI) boiler controls can provide significant benefits
 - Additional regional and local measures