

2012 Future Case HGB SIP Modeling



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Emission Inventory Development

Relative Reduction Factor Development

Future Ozone Design Value Projection

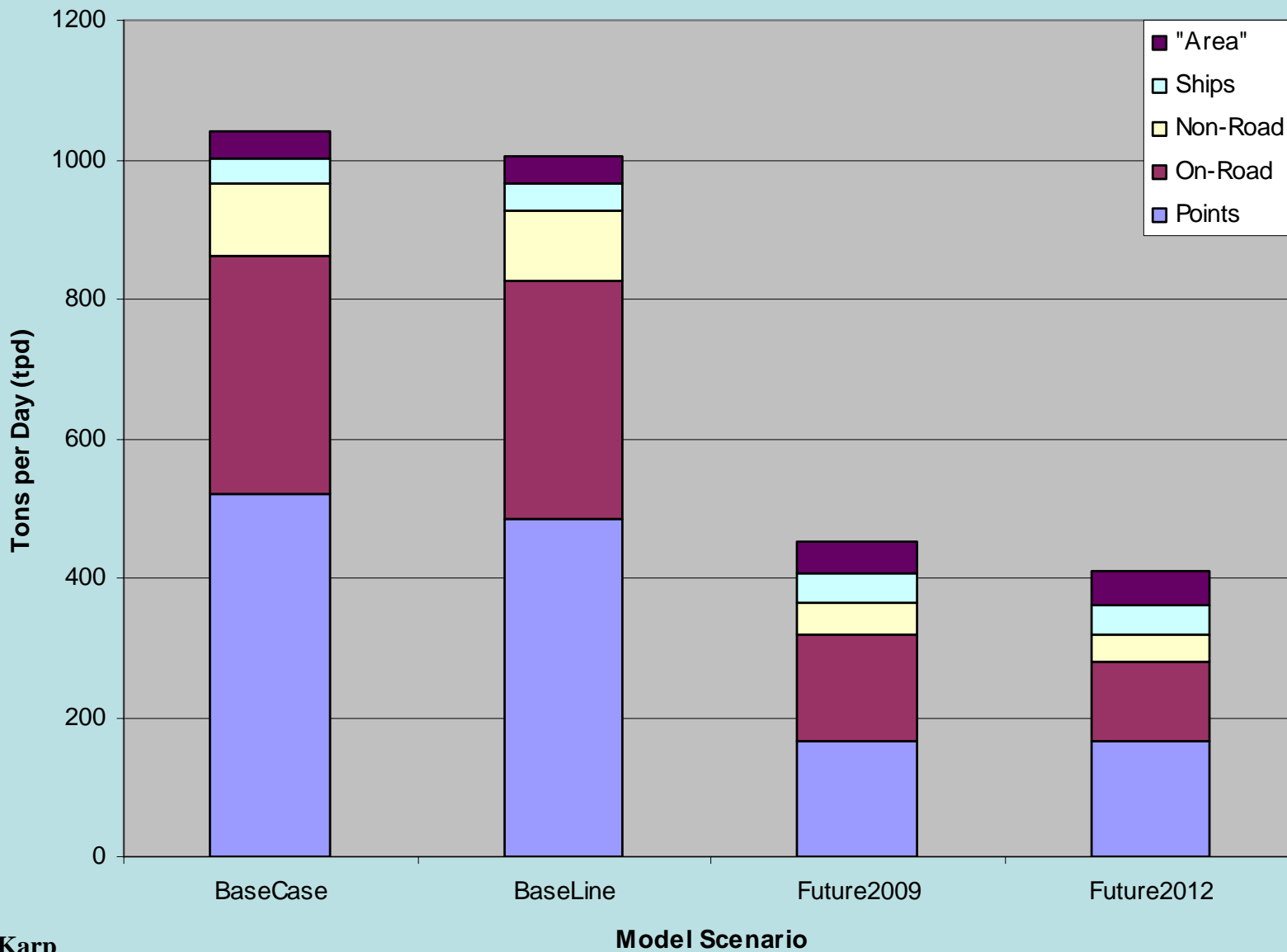


2012 Future Year Emissions by Source Category in the 8-County HGB Nonattainment Area

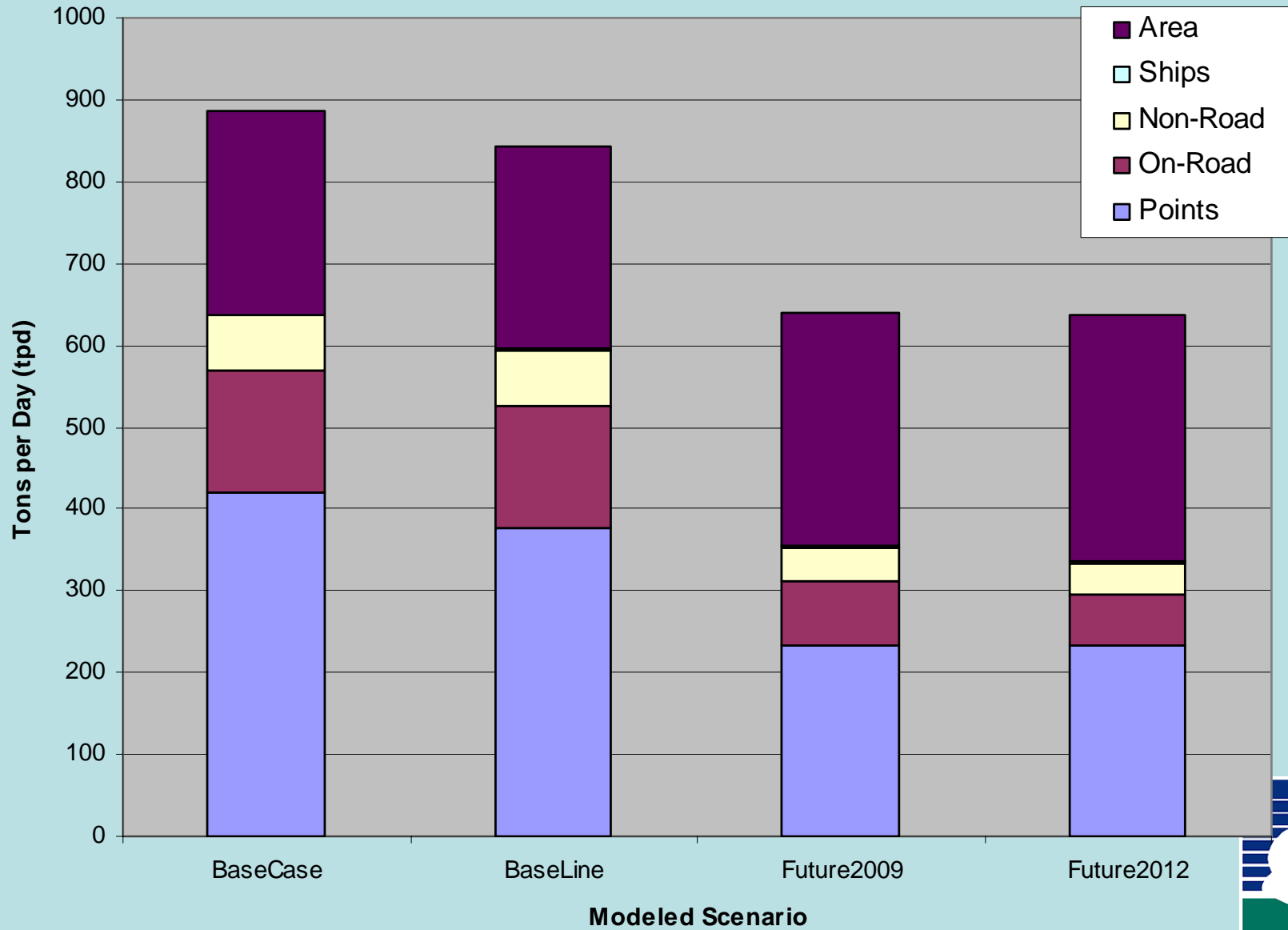
- Point Source Emissions of EGUs and NEGU were assumed to be the same as for 2009;
- On-Road Mobile Sources were reduced as per the changes in vehicles and fuels projected to 2012;
- Non-Road Mobile Sources were reduced as per the changes in engines and fuels projected to 2012;
- Ships were assumed to be the same as for 2009; and
- Area Sources were increased to account for growth between 2009 and 2012



Modeled NOx Emissions



Modeled VOC Emissions



NOx Emission Changes in the 8-County HGB Non-attainment Area

On-Road Mobile source NOx emissions were reduced by ~26% (152 -> 113 tpd) from the 2009 level;

Non-Road Mobile source NOx emissions were reduced by ~15% (46.2 -> 39.3 tpd) from the 2009 level; and

The increase in Area Sources was ~4% (45.1 -> 46.8 tpd).

Taking into account the magnitude of the point sources which remained unchanged, the net NOx emission decrease was ~10% (453 -> 409 tpd)



VOC Changes in the 8-County HGB Non-attainment Area

On-Road Mobile source VOC emissions were reduced by ~19% (77.9 -> 62.9 tpd) from the 2009 level;

Non-Road Mobile Source VOC emissions were reduced by ~8% (41.6 -> 38.2 tpd) from the 2009; and

The increase in Area Source VOC was ~5% (286 -> 301 tpd).

Taking into account the magnitude of the point sources which remained unchanged and the magnitude of the area sources which increased, the net VOC emission decrease was ~0.5% (640 -> 637 tpd)

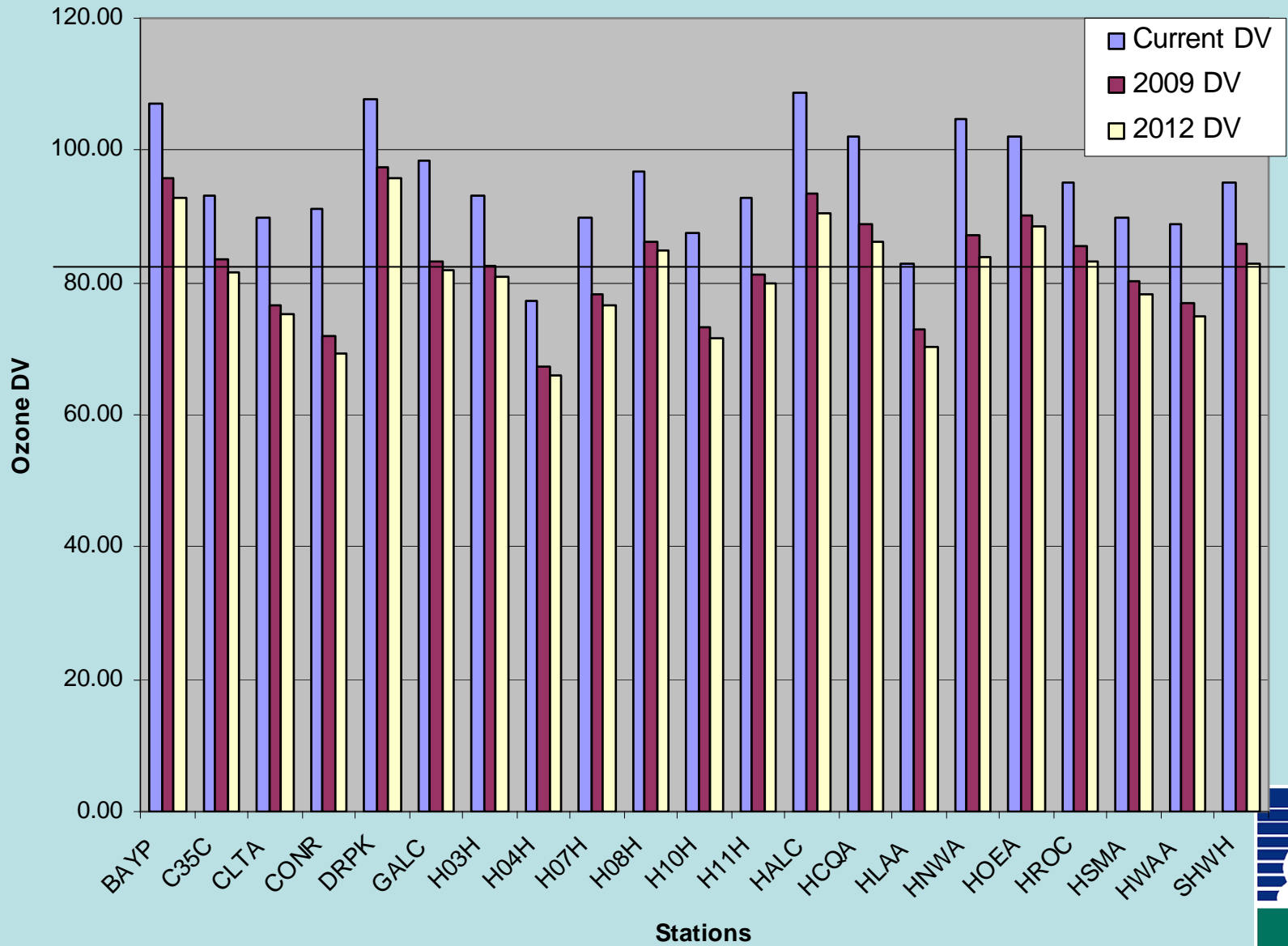


RRF Development & DVf Calculation

- Using these projected 2012 Emissions the CAMx Model was executed.
- The resulting 8-Hour ozone modeled concentrations at the various monitoring sites were compared to the Baseline (2000) modeled results, as per the EPA Guidance to develop a Relative Reduction Factor (RRF) at each of the various monitoring sites.
- These RRFs were then multiplied by the Current Ozone Design Values (DVC's) to calculate the 2012 Future Ozone Design Values (DVf's).



Current and Future DV



Summary of Results

The 2012 DVf's are lower than the 2009 DVf's at each of the monitoring sites.

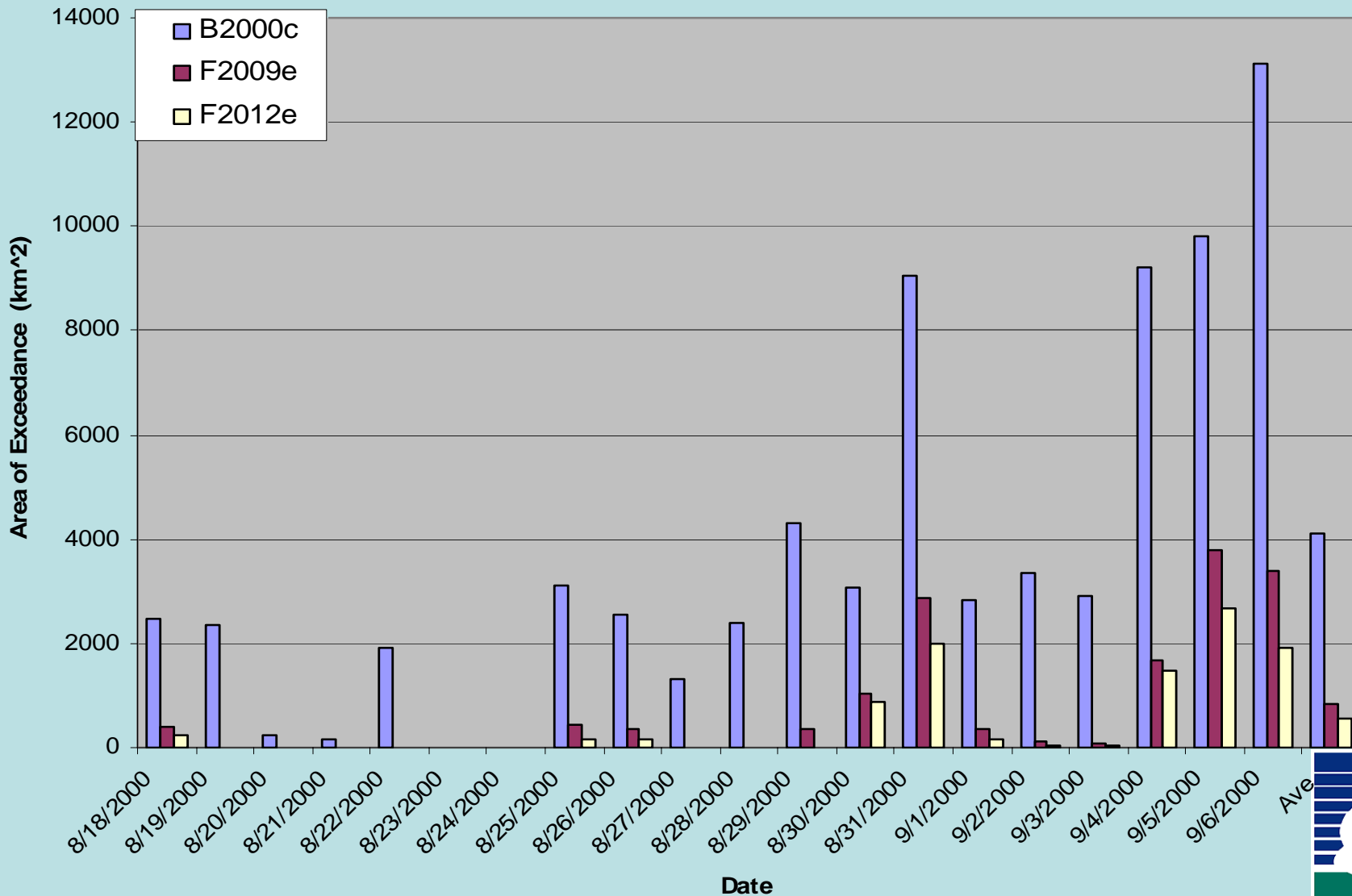
•Three more monitoring sites are projected to come into Attainment in 2012 leaving only five sites in non-attainment:

	<u>•2009</u>	<u>2012</u>
•Deer Park	97ppb	95ppb
•Bayland Park	95ppb	92ppb
•Aldine	93ppb	90ppb
•Croquet	88ppb	86ppb
•HRM-8	86ppb	84ppb*
•Houston East	90ppb	88ppb
•Houston NW	87ppb	83ppb*
•Region Office	85ppb	83ppb*
•Shell West	86ppb	82ppb*

* Projected attainment



8-County HGB Non-Attainment Area



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Summary of Results

The modeling projects large reductions in the area with 8-hour ozone exceedances in 2009 & 2012

Sept 5th has the largest area with 8-hour ozone > 84ppb in 2009 (3776KM²) & in 2012 (2688KM²)

The average projected percent reduction in the exceedance area from the 2000 baseline (B2000c) for 2009 is 80% & for 2012 is 87%.

