Setting HEDD Emission Reduction Goals

OTC HEDD Technical Workgroup December 5, 2006

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Objective

- To establish a <u>short term</u> emission reduction goal to help the states attain the 8-hour ozone health standard.
 - Note: State Implementation Plan Revisions are due in June 2007 for attainment by 2010 (Summer of 2009)
 - OTC Secretaries / Commissioners want definition by January 31, 2007
- To establish a <u>long term</u> goal to clean up units by ?

Base load units to be handled by the Beyond CAIR strategy

New Jersey Method

- Looked at the Emission Difference between a Typical Summer Day and an High Electric Demand Day
- Units Included in the Analysis
 - Combustion Turbines Included all units
 - Non-Base Load Boilers Operating time in the ozone season <= 55%
- Binned units
 - "Clean" <= 0.15 lbs of NOx / MMBTU</p>
 - "High Emitting" > 0.15 lbs of NOx / MMBTU

New Jersey Method (Continued)

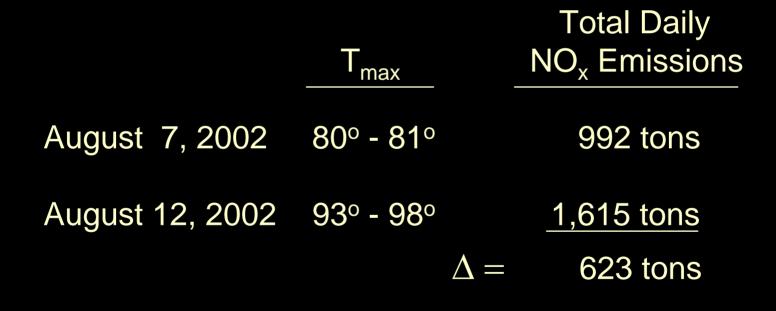
- Applied an emission reduction level to "High Emitting" Units
 - Short Term:
 - Combustion Turbines 40% Reduction (~ Water Injection)
 - Boilers 30% Reduction (~ SNCR)
 - Long Term:
 - Combustion Turbines Replaced with average of 2002 "Clean" units within the state
 - Boilers 0.07 lbs of NOx / MMBTU
- Calculated Emission Difference for:

Day

New Jersey Method (Continued)

- Included Sources in: MD, DE, PA, NJ, NY, CT
- Used USEPA CAMD Data
 - New Jersey Sources used Emission Statement
 Program rates for High-Emitting Combustion Turbines
 due to large number of default rates.
- Small positive bias in PA and MD from some units reporting using the default emission rates

Daily NO_x Emissions (All EGUs)



Average 63% increase

Short Term: Combustion Turbines

Tons NO_x

8/12/02	<u>Day Total</u> 166	As it happened.
	80	Water Injection on all units that did not have it.
$\Lambda =$	-86	

Short Term: Load-Following Boilers

Tons NO_x

-68

8/1	2/	02
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<u>Day Total</u> 227

As it happened

159 SNCR on all units that did not have it.

Short Term: Summary

HE Combustion Turbines (WI) -86 tons
Load-Following Boilers (SNCR) <u>-68 tons</u>
Total: -154 tons

Emission Reduction Goal = 25 % (154 Ton Reduction / 623 Ton Increase)

Long Term: HE Combustion Turbines

Replacement of High Emitting Combustion Turbines (State by state assessment)

Tons NO_x

8/12/02	<u>Day Total</u> 166	As it happened.
	11	All units replaced with SOTA LECTs
Δ =	-155	

Long Term: Load-Following Boilers

Load-Following Boilers - SCR (assume 0.07 lbs/mBTU)

Tons NO_x

	Day Total	
8/12/02	227	As it happened
	63	SCR on all units that did not have it.
$\Lambda =$	-164	

Long Term: Summary

Emission Reduction Goal = 50 % (319 Ton Reduction / 623 Ton Increase)

New Jersey Method Summary

- Express Goal in terms of what operates
- Considers potential control options to determine the goal

Strategies to Achieve the Goal

- Commitments / Actions for Emission Reductions
- Energy Efficiency
- Distributed Generation
- Performance Standards
- Other ?

How to Meet the Goal

- _____ tons from Commitments
- _____ tons from Energy Efficiency
- _____ tons from Distributed Generation
- tons from Performance Standards
- _____ tons from Other ?

Next Steps

- Finalize Definition for Criteria for HEDD Units
- Finalize Emission Inventory
- Finalize Definition to express Goal
- Calculate Goal
- Identify Actions / Commitments to incorporate the Goal into the 8-hour Ozone SIPs