

Setting HEDD Emission Reduction Goals



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Objective

- To establish a short term 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 long term 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 $\leq 55\%$
- Binned units
 - “Clean” - ≤ 0.15 lbs of NO_x / MMBTU
 - “High Emitting” - > 0.15 lbs of NO_x / 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 NO_x / 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)



	<u>T_{max}</u>	<u>Total Daily NO_x Emissions</u>
August 7, 2002	80° - 81°	992 tons
August 12, 2002	93° - 98°	<u>1,615 tons</u>
		Δ = 623 tons

Average 63% increase

Short Term: Combustion Turbines

	Tons NO _x	
	<u>Day Total</u>	
8/12/02	166	As it happened.
	80	Water Injection on all units that did not have it.
$\Delta =$	<hr/> -86	

Short Term: Load-Following Boilers

	Tons NO _x	
	<u>Day Total</u>	
8/12/02	227	As it happened
	159	SNCR on all units that did not have it.
$\Delta =$	<hr/> -68	

Short Term: Summary



HE Combustion Turbines (WI) -86 tons

Load-Following Boilers (SNCR) -68 tons

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

Long Term: Load-Following Boilers

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

	Tons NO _x	
	<u>Day Total</u>	
8/12/02	227	As it happened
	63	SCR on all units that did not have it.
$\Delta =$	<u> </u> -164	

Long Term: Summary



HE Combustion Turbines (Replace)	-155 tons
Load-Following Boilers (SCR)	<u>-164 tons</u>
Total	-319 tons

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