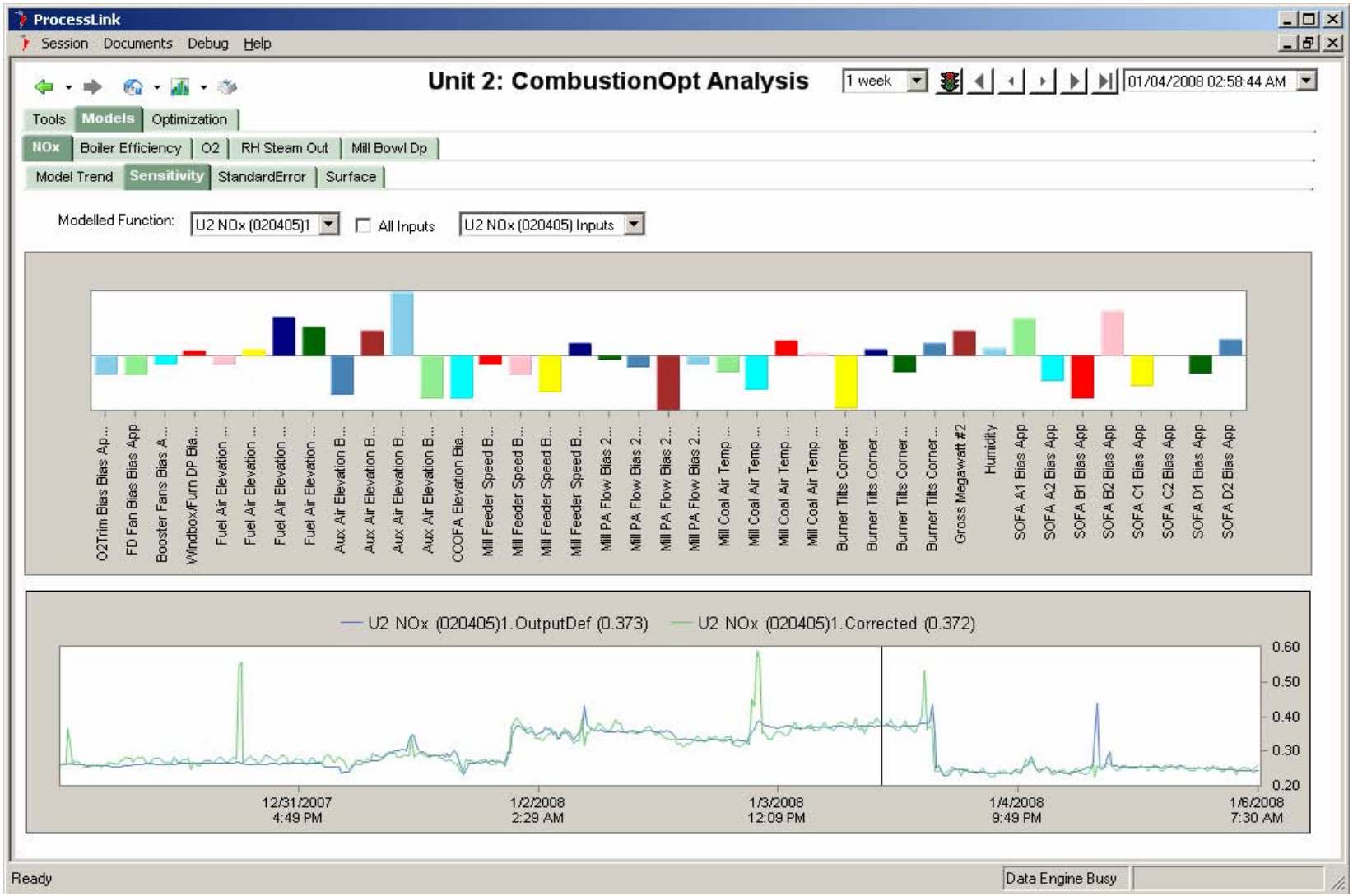
Reinhold Environmental Ltd.

2008 NOx-Combustion Round Table & Expo Presentation

February 4-5, 2008 in Richmond, VA

CombustionOpt Analysis



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SootOpt Homepage

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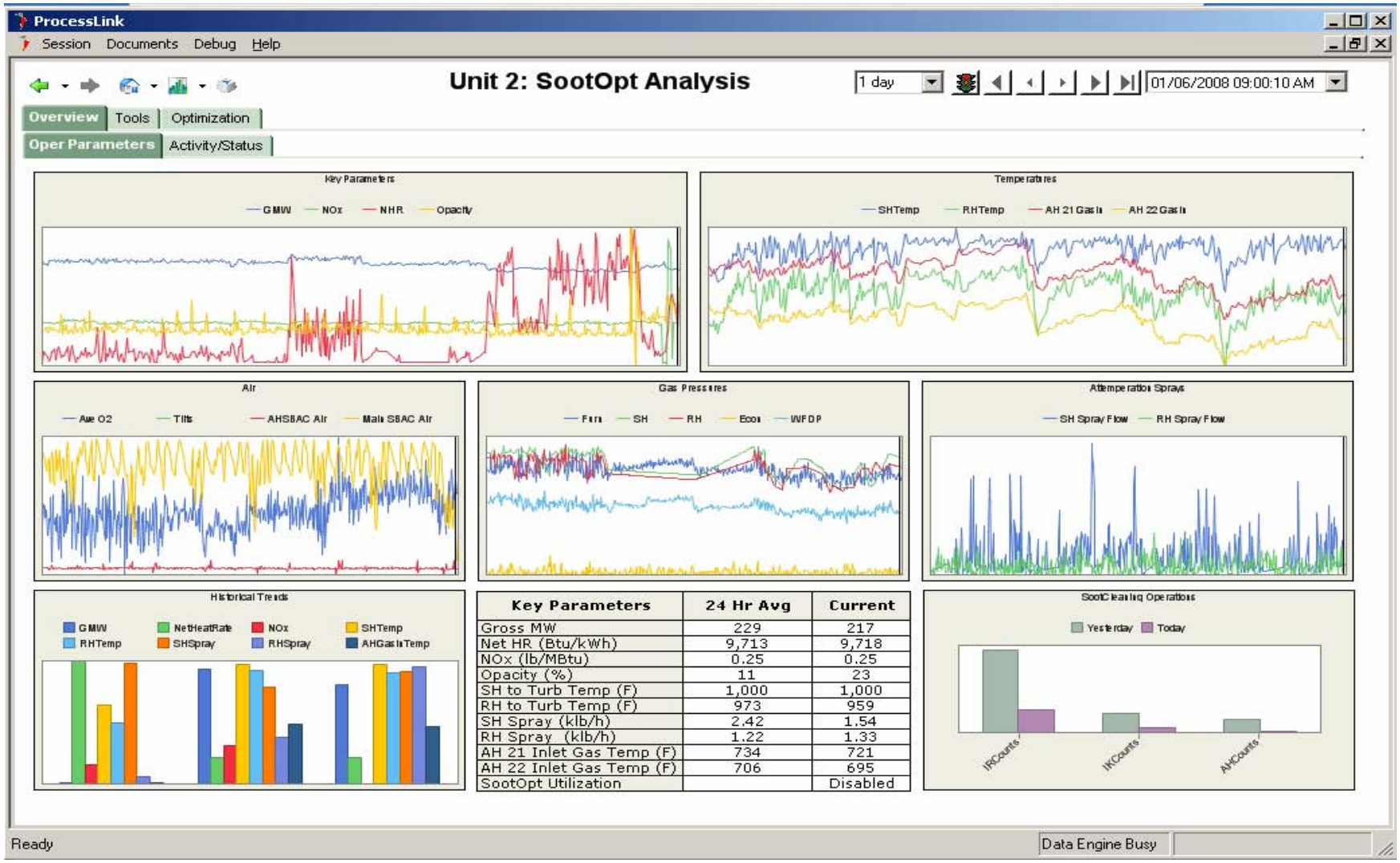
SootOpt Analysis



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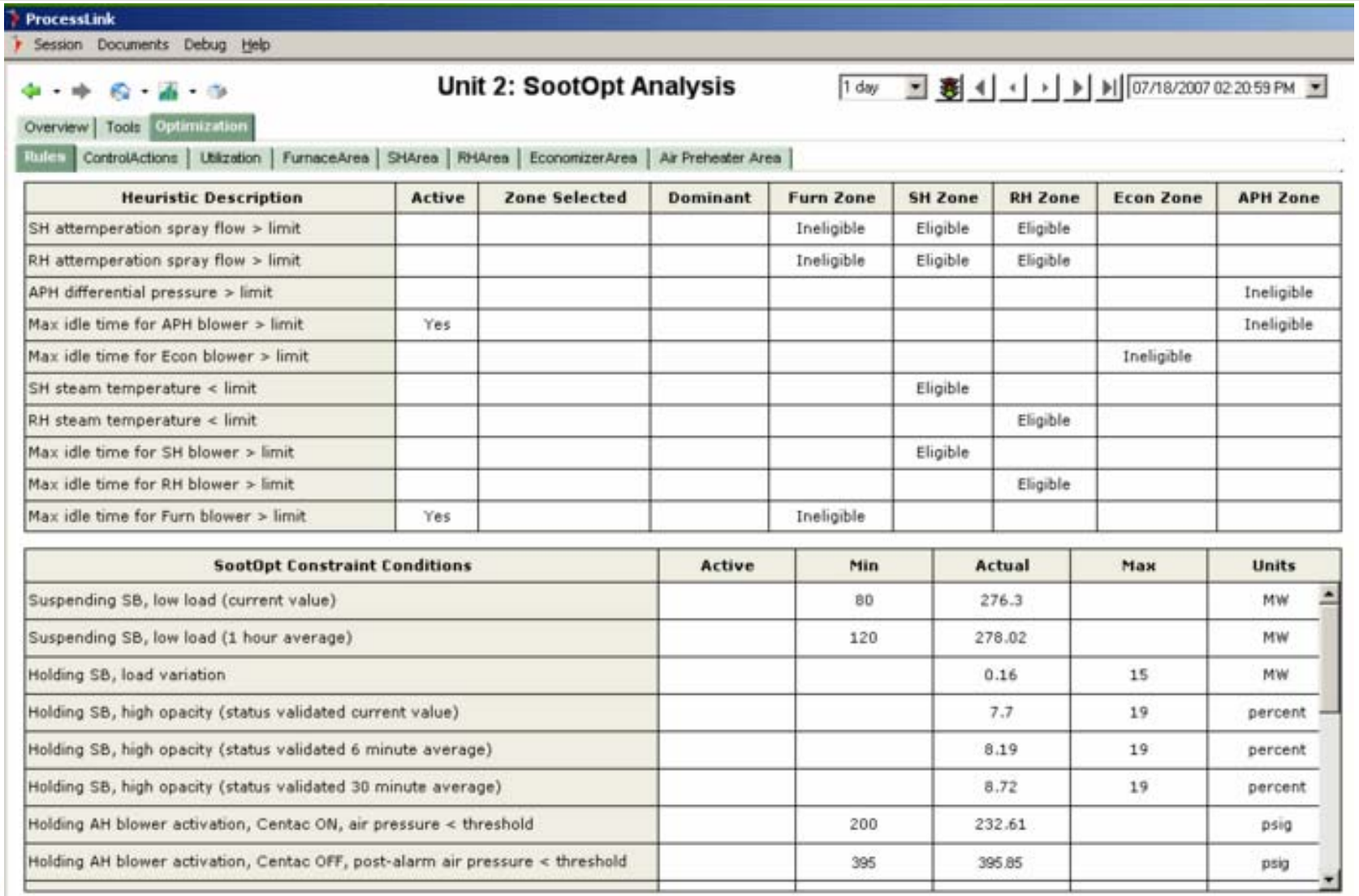
SootOpt Analysis - Heuristics



Heuristic Description	Active	Zone Selected	Dominant	Furn Zone	SH Zone	RH Zone	Econ Zone	APH Zone
SH attemperation spray flow > limit				Ineligible	Eligible	Eligible		
RH attemperation spray flow > limit				Ineligible	Eligible	Eligible		
APH differential pressure > limit								Ineligible
Max idle time for APH blower > limit	Yes							Ineligible
Max idle time for Econ blower > limit							Ineligible	
SH steam temperature < limit					Eligible			
RH steam temperature < limit						Eligible		
Max idle time for SH blower > limit					Eligible			
Max idle time for RH blower > limit						Eligible		
Max idle time for Furn blower > limit	Yes			Ineligible				

SootOpt Constraint Conditions	Active	Min	Actual	Max	Units
Suspending SB, low load (current value)		80	276.3		MW
Suspending SB, low load (1 hour average)		120	278.02		MW
Holding SB, load variation			0.16	15	MW
Holding SB, high opacity (status validated current value)			7.7	19	percent
Holding SB, high opacity (status validated 6 minute average)			8.19	19	percent
Holding SB, high opacity (status validated 30 minute average)			8.72	19	percent
Holding AH blower activation, Centac ON, air pressure < threshold		200	232.61		psig
Holding AH blower activation, Centac OFF, post-alarm air pressure < threshold		395	395.85		psig

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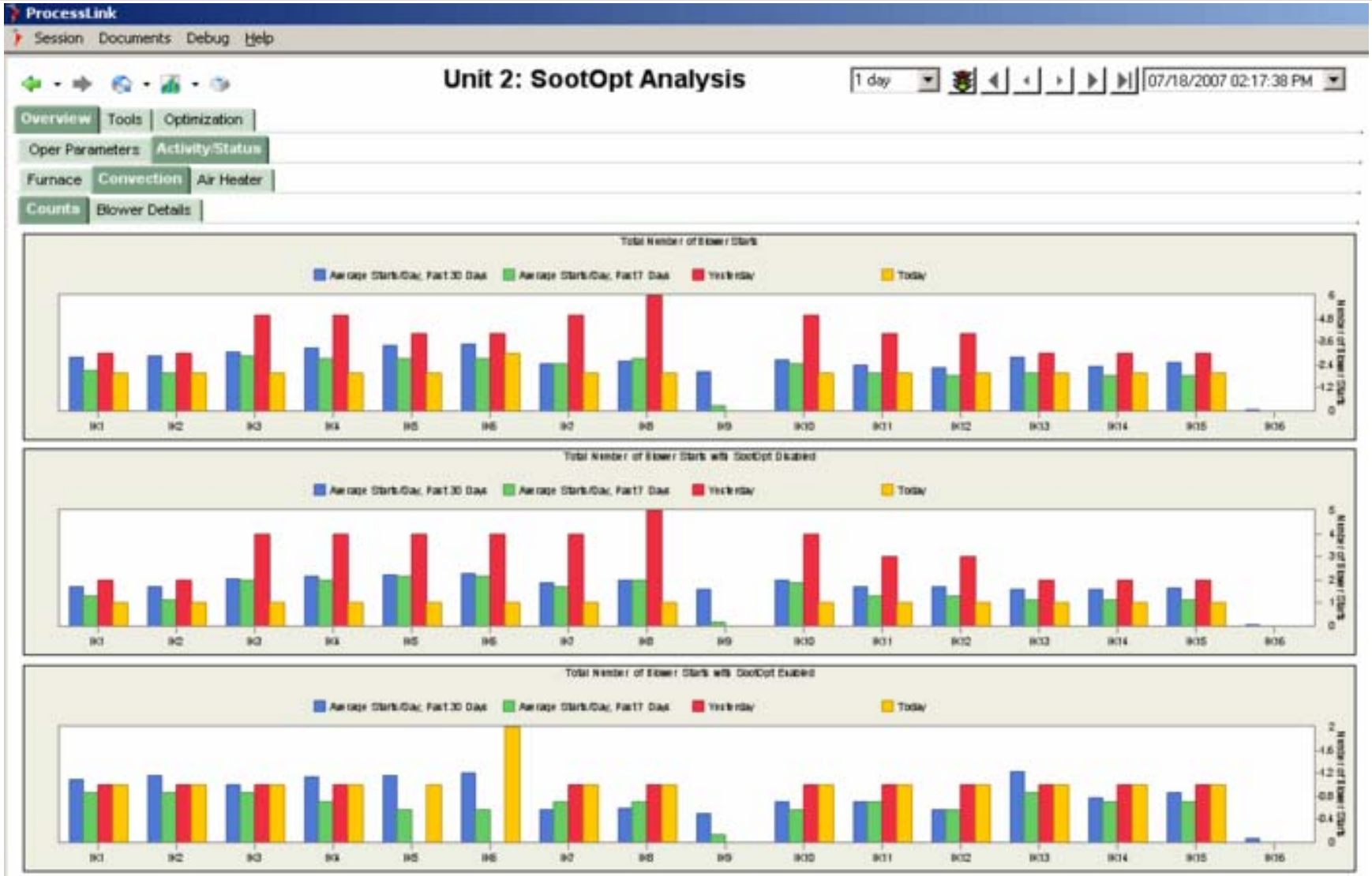
SootOpt Analysis - Activity



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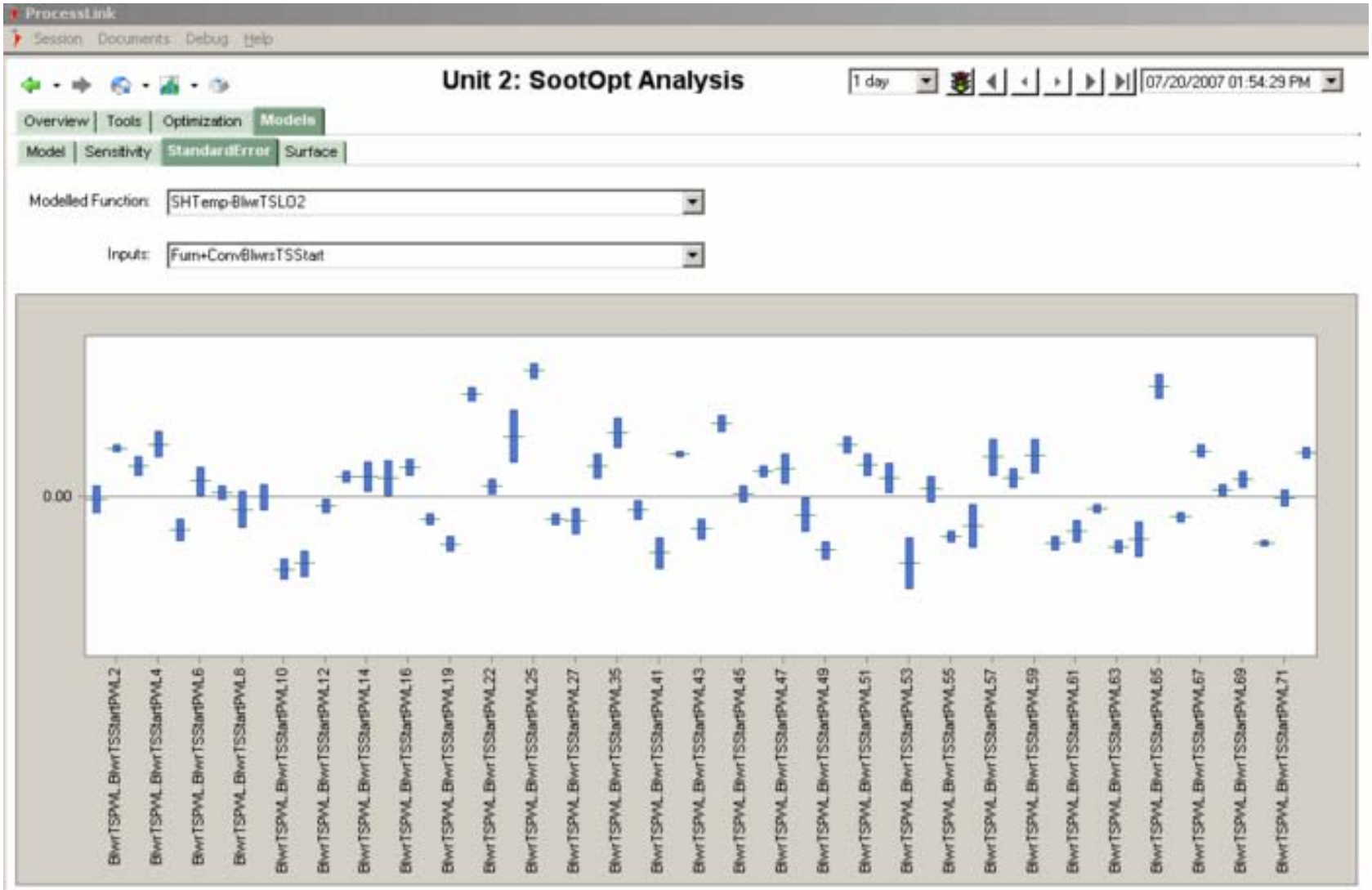
SootOpt Analysis – Model Analysis



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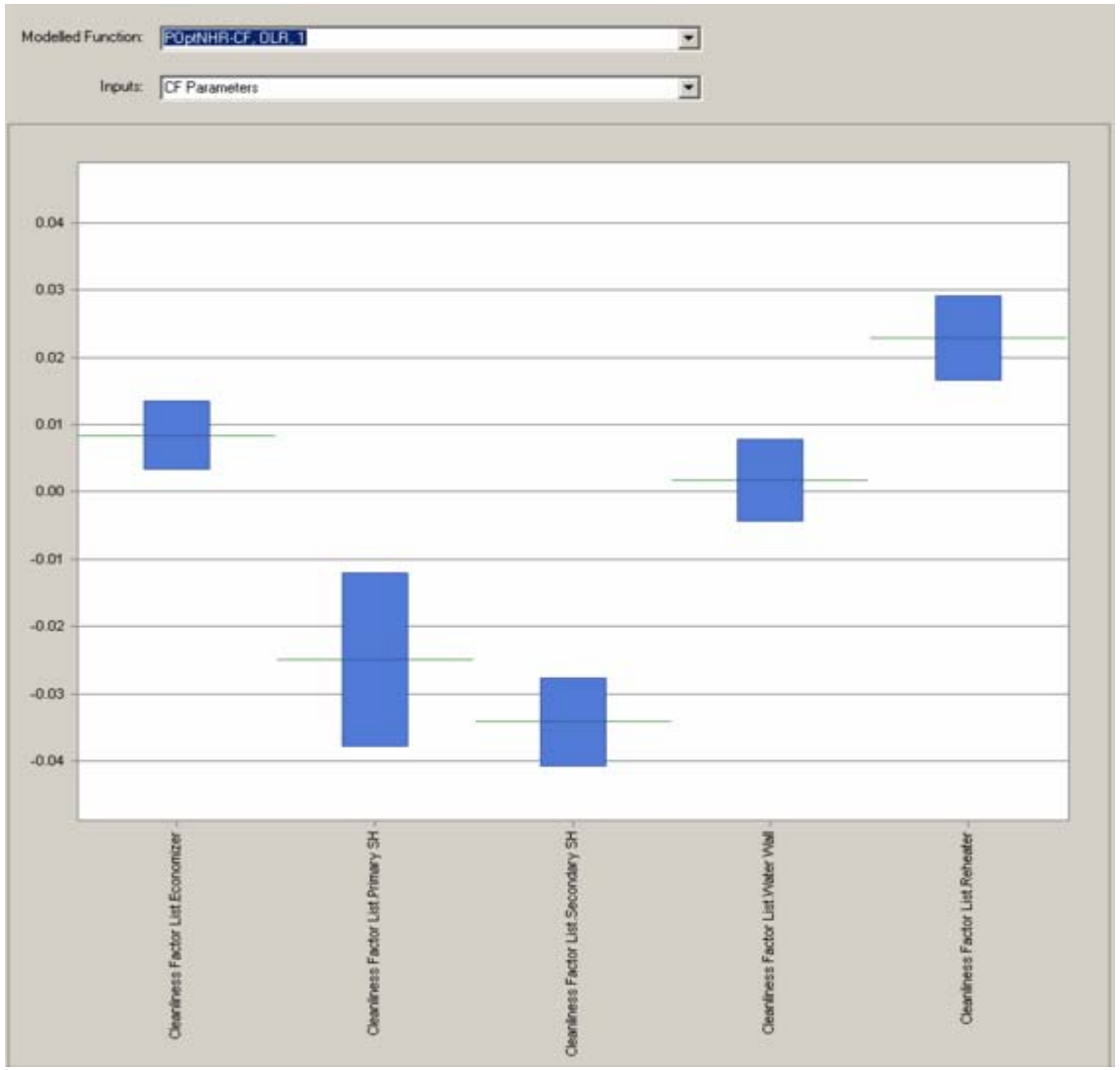
POpt NHR and CFs Model



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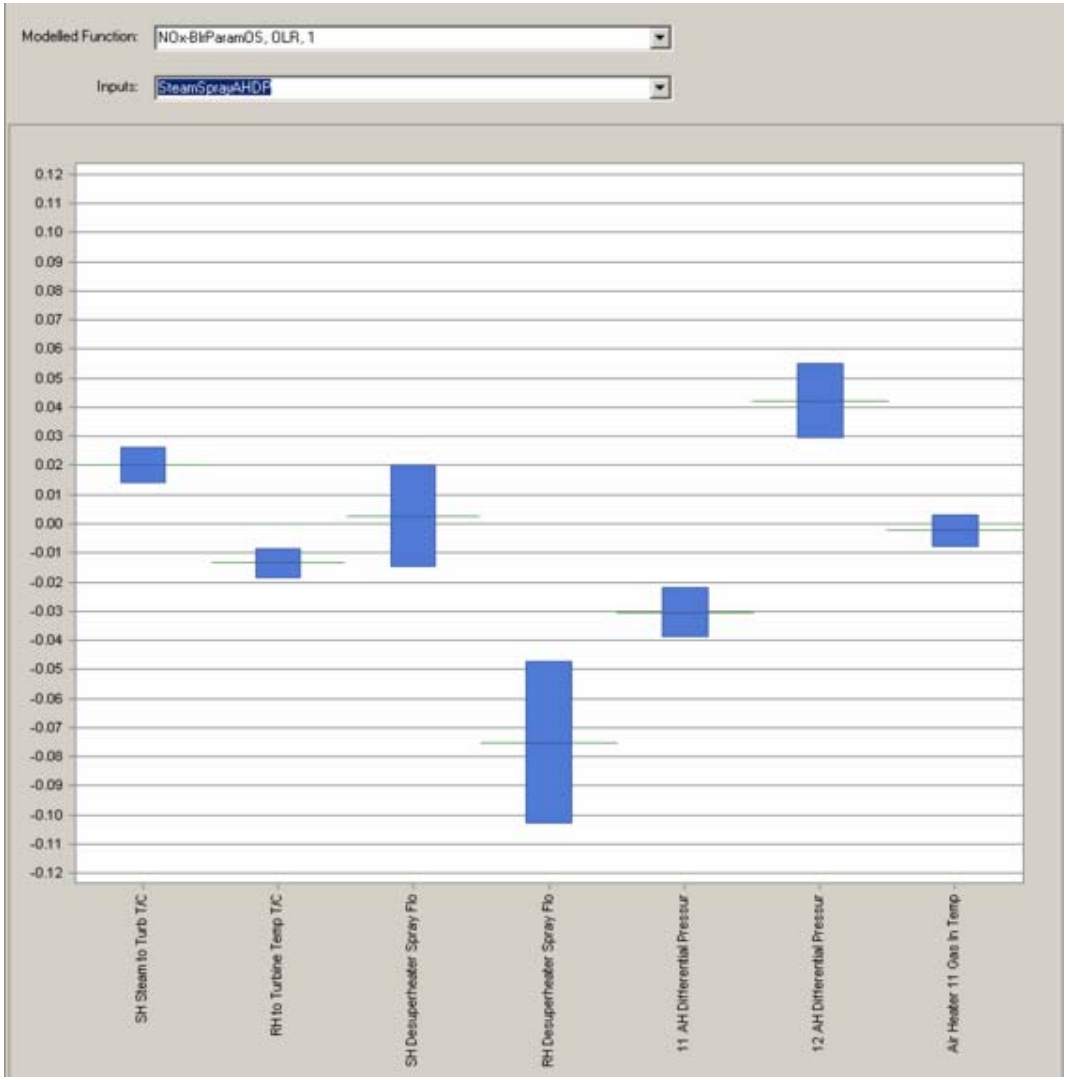
NOx and Boiler Parameter Model



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Results: SH Steam Temps

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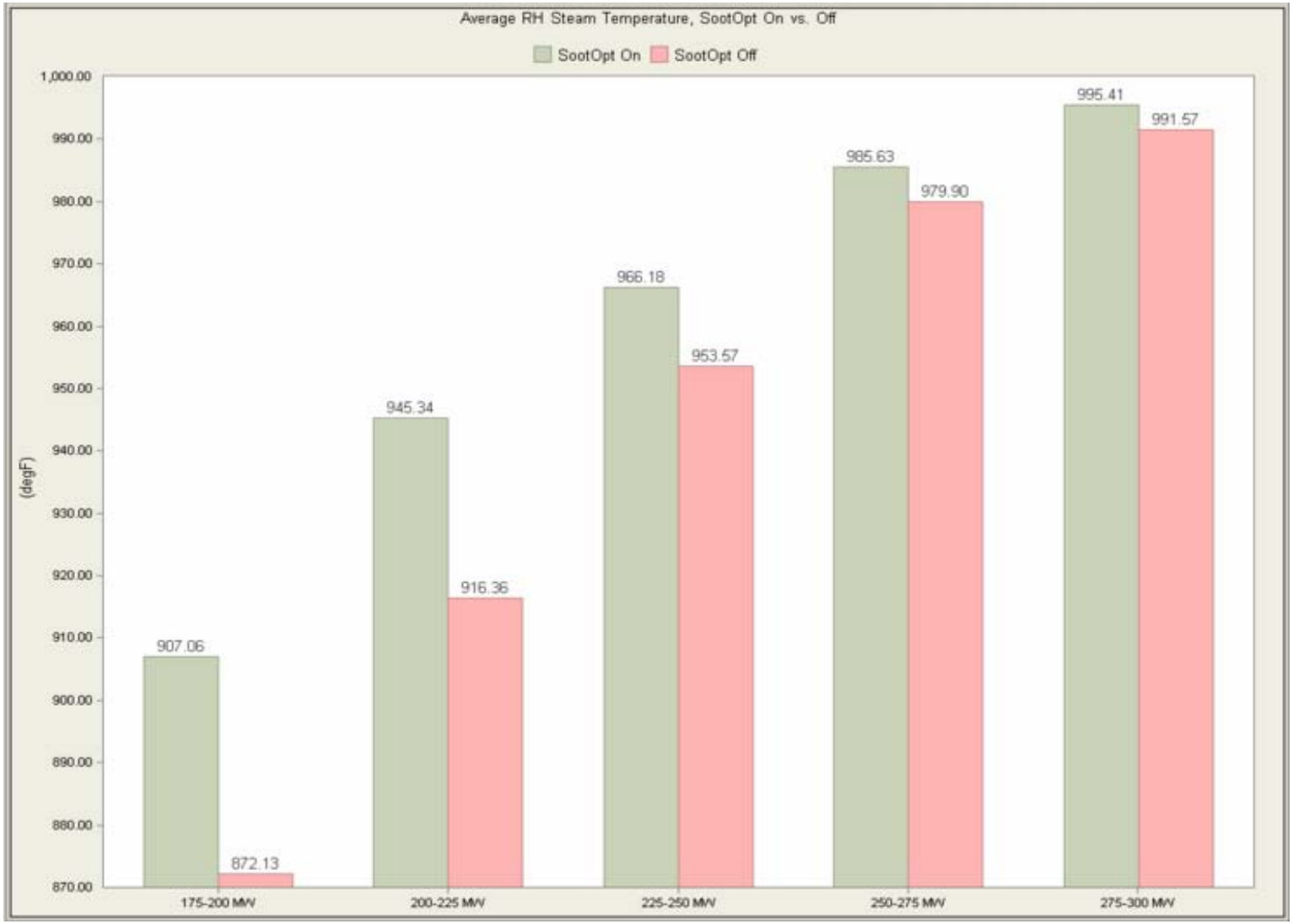
Results: RH Steam Temps



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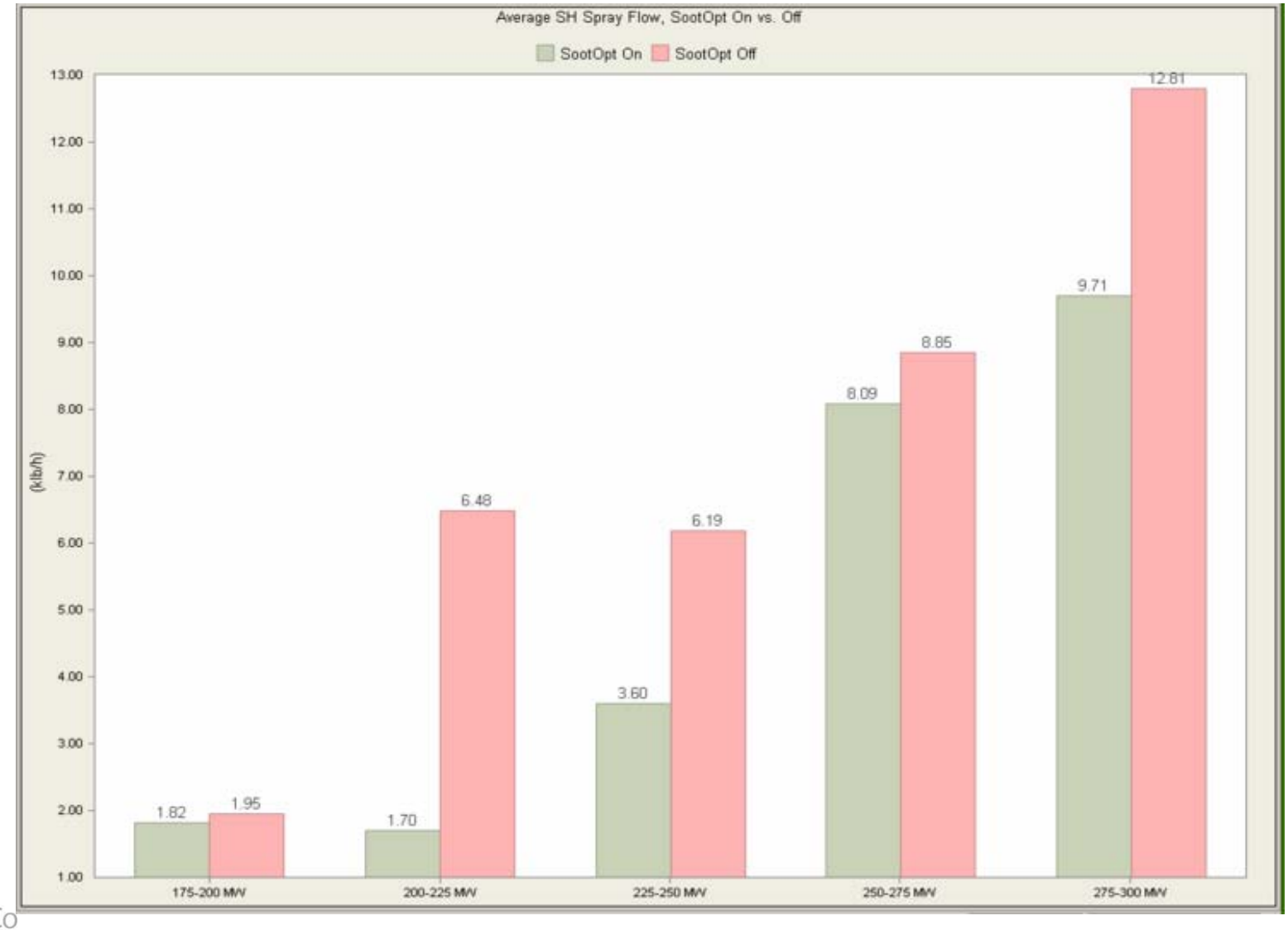
Results: SH Sprays Results



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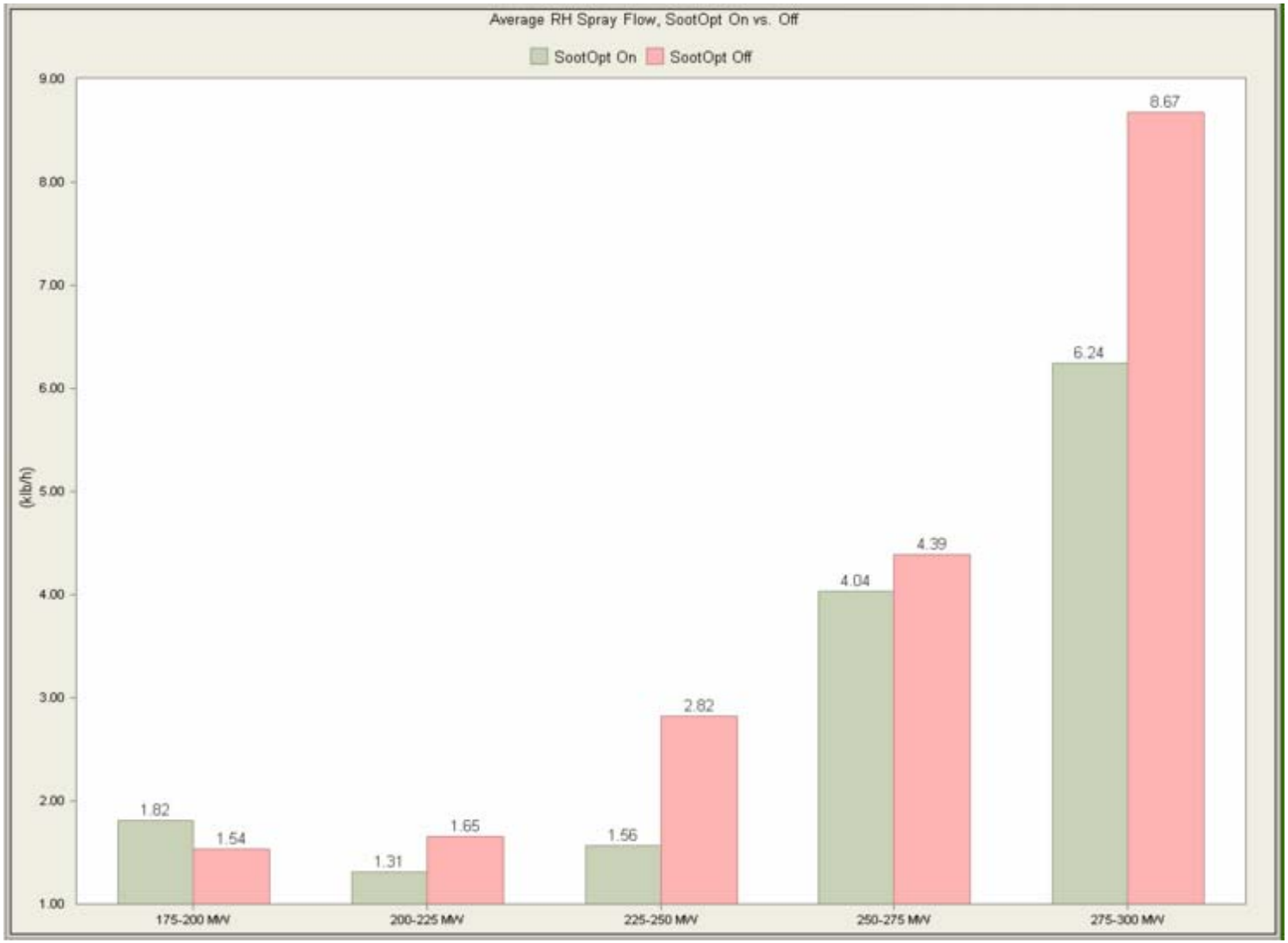
Results: RH Sprays Results



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Results: APH Gas Inlet Temp Results

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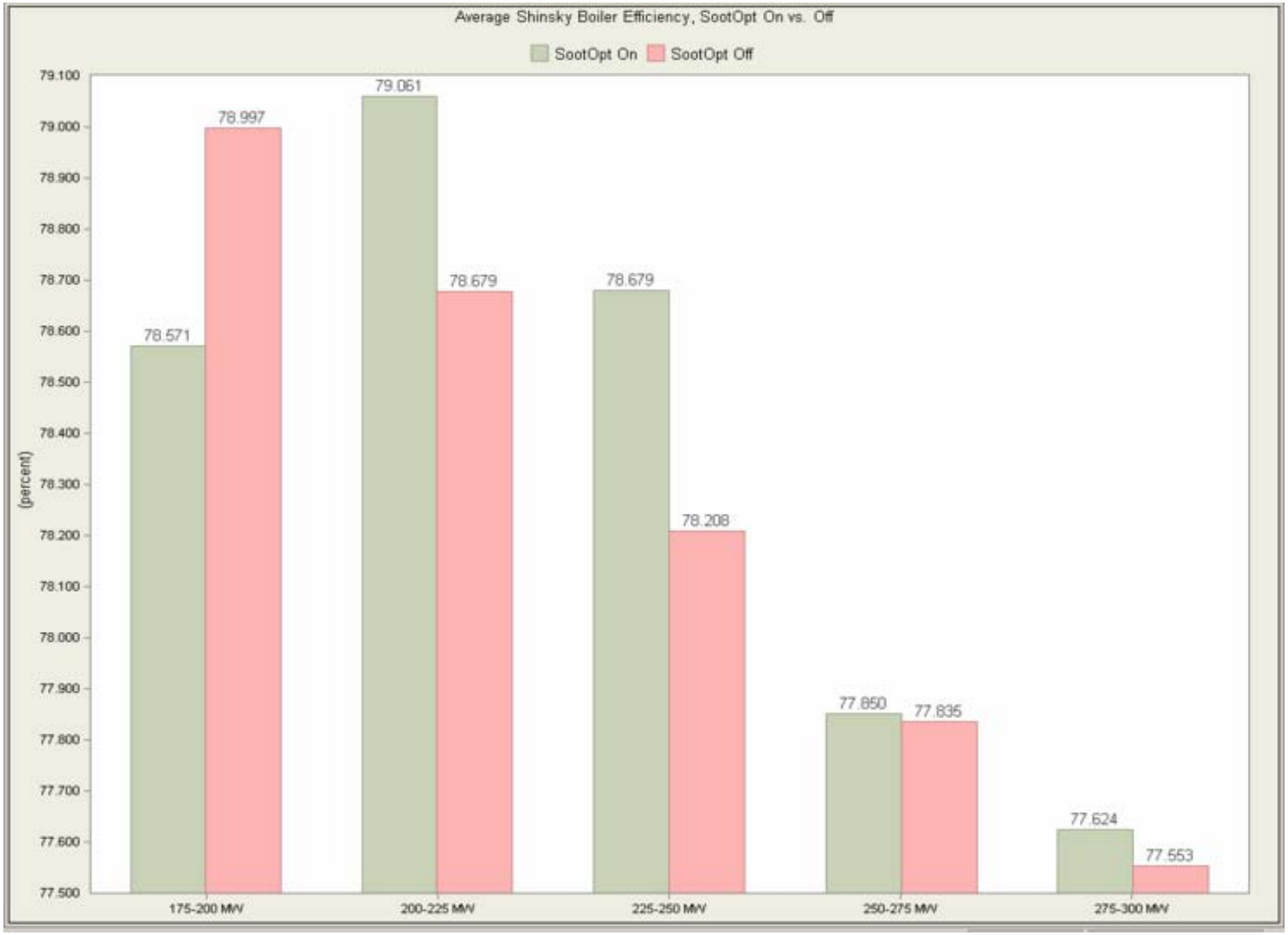
Results: Boiler Efficiency



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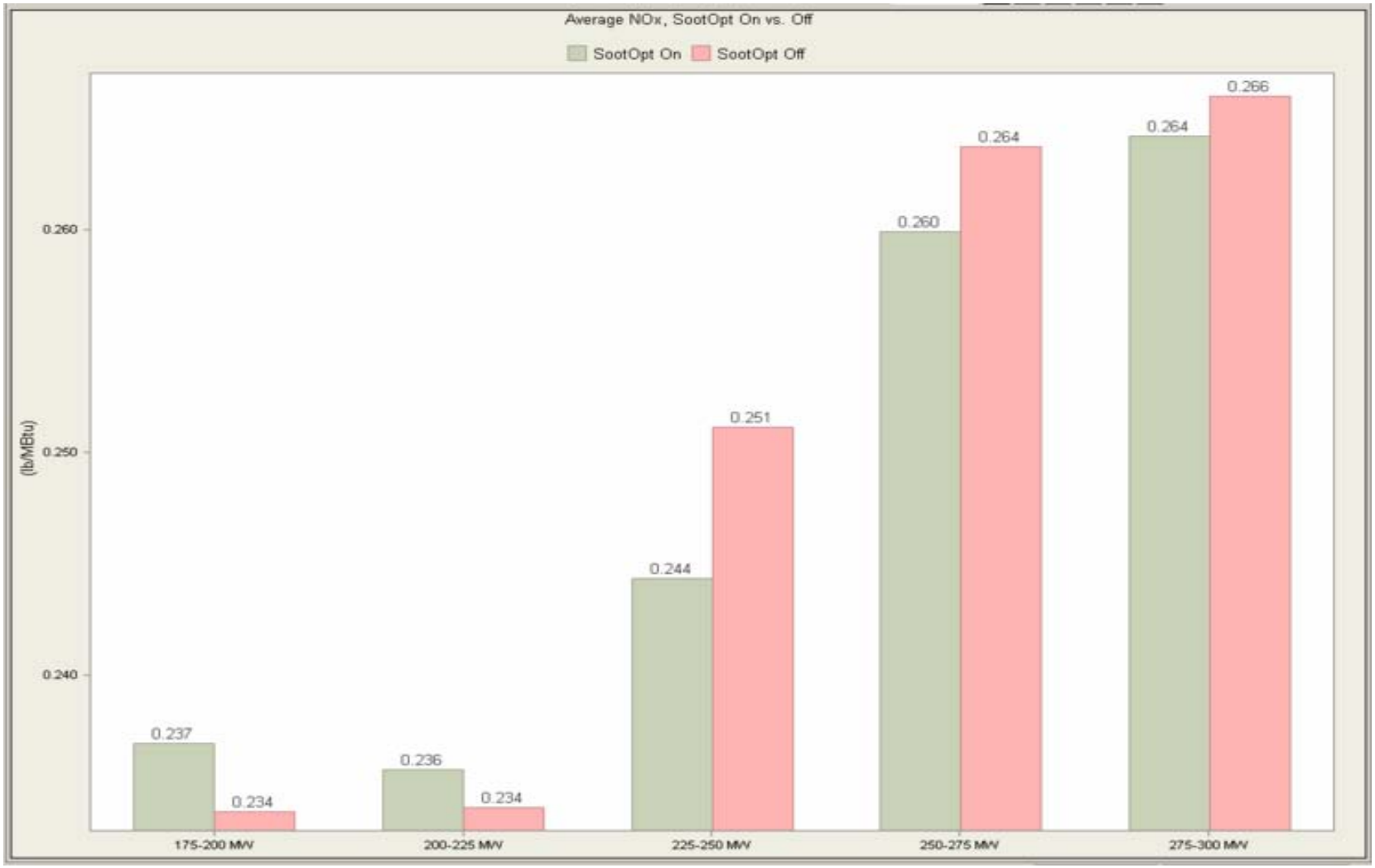
Results: CEMS NOx



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Importance of “Global” Approach

- Integrating disparate data and knowledge sources
- Standardizing metrics allowing performance comparisons and tradeoffs across equipment, units and plants
- Coordinating actions towards common business objectives, instead of competing
- Prioritizing the most important actions we can take to achieve our objectives
- Creating transparency and accountability by bridging islands of information and understanding

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Questions...

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