

Workgroup Recommendations and Other Potential Control Measures
Stationary Combustion Sources Workgroup

SCS006A – Coal Fired EGU Boilers

<p>Control Measure Summary: Revise N.J.A.C 7:27-10.2(c) to require a maximum SO₂ emission rate of 0.150 lb/MMBtu, based on 30 day rolling average and a maximum SO₂ emission rate of 0.250 lb/MMBtu, based on 24 hour emission rate. Revise N.J.A.C 7:27-4.2 to require a maximum particulate emission of 0.030 lb/MMBtu, based on 30 day rolling average for all coal fired boilers and a maximum particulate emission of 0.015 lb/MMBtu, based on 30 day rolling average for all coal fired boilers with a new or modified particulate control device. Revise N.J.A.C 7:27-19.4(a) to require a maximum NO_x emission rate of 0.100 – 0.130* lb/MMBtu, based on a 30 day rolling average, for all coal fired boilers.</p> <p><i>*The Department will seek public comment on the emission limit range for these sources.</i></p>	<p align="center">Emissions (tons/year) in NJ State</p>	
<p>2002/2009 existing measures: These units are typically intermediate load electrical generating units (EGU) and as such are called on regularly to produce electricity. New Jersey currently has 10 coal fired EGU boilers. Three of these boilers are currently equipped with a scrubber (to control SO₂ emissions). Four of these units are currently equipped with a baghouse (to control particulate emissions). Five of these units are currently equipped with an SCR system (to control NO_x emissions). The utility industry in New Jersey has signed consent decrees requiring five more boilers to be equipped with a scrubber, five more boilers to be equipped with a baghouse and three more boilers to be equipped with an SCR system. This still leaves two boilers without a scrubber, one boiler without a baghouse and two boilers without an SCR system. This measure would require all EGU units to meet the same standards.</p> <p><i>*2002 emissions based on 2002 emission inventory data for 7 coal fired boilers in NJ, which did not meet the proposed emission standards in 2002. 2009 emissions based on a growth factor of 0.9965 (for growth from 2002 – 2009).</i></p>	<p>NO_x in 2002: 24,540* tpy NO_x in 2009: 24,450* tpy</p>	
	<p>SO₂ in 2002: 46,460* tpy SO₂ in 2009: 46,300* tpy</p>	
	<p>PM in 2002: 3,980* tpy PM in 2009: 3,970* tpy</p>	
<p>Candidate measure 1: Revise N.J.A.C. 7:27-10.2(c) to allow a maximum SO₂ emission rate of 0.150 lb/MMBtu, based on a 30 day rolling average and an SO₂ emission rate of 0.250 lb/MMBtu, based on a 24 hour emission rate (typically 95% reduction).</p>	<p align="center">NO_x 2009 Reduction: 2009 Remaining:</p>	<p align="center">N/A</p>
<p align="center">SO₂ 2009 Reduction: 2009 Remaining:</p>	<p align="center">43,990 tpy 2,400 tpy</p>	

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<p><i>Control Example: scrubber</i> <i>Emission Reductions: 95% reduction in SO₂ from 2002 levels in 2009</i> <i>Control Cost: \$800 to \$1,500 per ton*</i> <i>Timing of Implementation: Full implementation by 2009</i> <i>Implementation Area: New Jersey – statewide.</i> <i>*Based on Midwest Regional Planning Organization (RPO) – Identification and Evaluation of Candidate Control Measures, “Table A.1 – SO₂ Control Measure Summary for EGUs”.</i></p>	<p align="center">PM 2009 Reduction: 2009 Remaining:</p>	<p align="center">N/A</p>
<p>Candidate measure 2: Revise N.J.A.C 7:27-4.2 to require a maximum particulate emission rate of 0.030 lb/MMBtu, based on 30 day rolling average for all coal fired boilers and a maximum particulate emission rate of 0.015 lb/MMBtu, based on 30 day rolling average for all coal fired boilers with a new or modified particulate control device (typically 99.9% reduction). <i>Control Example: baghouse *</i> <i>Emission Reductions: 99.9% reduction in particulates from 2002 levels in 2009.</i> <i>Control Cost: To be determined</i> <i>Timing of Implementation: Full implementation by 2009</i> <i>Implementation Area: New Jersey – statewide.</i> <i>*Existing ESP acceptable if less than 0.030 lb/MMBtu.</i></p>	<p align="center">NO_x 2013 Reduction: 2013 Remaining:</p>	<p align="center">N/A</p>
	<p align="center">SO₂ 2013 Reduction: 2013 Remaining:</p>	<p align="center">N/A</p>
	<p align="center">PM 2013 Reduction: 2013 Remaining:</p>	<p align="center">3,960 tpy 10 tpy</p>
<p>Candidate Measure 3: Revise N.J.A.C 7:27-19.4(a) to require a maximum NO_x emission rate of 0.100 – 0.130* lb/MMBtu, based on a 30 day rolling average, for all coal fired boilers. <i>*The Department will seek public comment on this emission limit range.</i> <i>Control Example: SCR</i> <i>Emission Reductions: 90% reduction in NO_x from 2002 levels in 2009.</i> <i>Control Cost: To Be Determined</i> <i>Timing of Implementation: Full implementation by 2009</i> <i>Implementation Area: New Jersey – statewide.</i></p>	<p align="center">NO_x 2009 Reduction: 2009 Remaining:</p>	<p align="center">22,010 tpy 2,440 tpy</p>
	<p align="center">SO₂ 2009 Reduction: 2009 Remaining:</p>	<p align="center">N/A</p>
	<p align="center">PM 2009 Reduction: 2009 Remaining:</p>	<p align="center">N/A</p>
<p>Policy Recommendation of State/Workgroup Lead: Adopt rules reducing the N.J.A.C. 7:27-10 allowable SO₂ emission rate from combustion of coal to 0.150 lb/MMBtu / 0.250 lb/MMBtu. This reduction can be achieved through installation of a scrubber. Adopt rules at N.J.A.C. 7:27-4 to set allowable particulates emission rate from</p>		

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combustion of coal at 0.030 lb/MMBtu / 0.015 lb/MMBtu. This reduction can be achieved through installation of a baghouse or equivalent control. Adopt rules reducing the N.J.A.C. 7:27-19.4(a) allowable NOx emission rate from combustion of coal to 0.100 to 0.130 lb/MMBtu (for all coal fired boilers). This reduction can be achieved through installation of a SCR.

Brief Rationale for Recommended Strategy:

Combustion of coal produces a large amount of SO₂, NO_x and particulate emissions. These high emission rates coupled with the high equipment use factor results in high annual SO₂, NO_x and particulate emissions. Installation of a scrubber has the potential to reduce SO₂ emissions by at least 95%; installation of SCR has the potential to reduce NO_x emissions by over 90% and installation of a baghouse has the potential to reduce particulate emissions by at least 99.9%. Due to their significant potential for SO₂, NO_x and particulate emission reduction and corresponding effect on ozone and fine particulate non-attainment, these control devices are strongly recommended. The OTC is also promoting these control methods.

According to NJ's estimate, a 95% SO₂ emission reduction from each coal fired EGU boiler, within the state, that is not currently equipped with a scrubber, would have the potential to reduce SO₂ emissions by nearly 44,000 tons each year; a 99.9% particulate emission reduction from each coal fired EGU boiler, within the state that does not currently have a baghouse would have the potential to reduce particulate emissions by nearly 4,000 tons each year and a 90% NO_x emission reduction from each coal fired EGU boiler, within the state, that is not currently equipped with an SCR system would have the potential to reduce NO_x emissions by more than 22,000 tons each year, from NJ alone.