# Reducing Costs, Increasing Reliability and Meeting the Latest ELVs by Improving Combustion

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RJM's latest generation ultra-low NOx burners deliver such low NOx emissions and mean that 1) SCR / SNCR secondary measures don't need to be introduced at all; 2) or if they do the plant can be spec'd up much smaller; 3) the load on the existing SCR / SNCR can be dramatically reduced. In addition this package delivers a spectacular payback period (three years) which makes this RJM upgrade pay for itself very quickly.

Large, Pulverized Coal (PC) power boilers can be the source of significant NOx emissions. To mitigate this pollution, many PC boiler in the US have been retro-fitted with Selective Catalytic Reduction upstream of the air pre-heater. While effective in NOx removal, SCR operation will also significantly increase costs via reagent use, catalyst maintenance and catalyst replacement. In Europe, methodologies have been developed that achieve near SCR NOx levels via combustion modification only. Termed, "Primary Measures", the development has occurred after the wide-spread implementation of PC SCR's in the United States.

Two specific projects will be included, one will be a complete retrofit for new burners to meet EU NOx mandates. The project site in the UK was able to meet requirements without an SCR. The other project required no hardware modification to achieve 0.12 lbs/MMbtu – only careful tuning.

This paper will be split between a Primary Measure discussion and a presentation of Return on Investment (ROI) for various scenarios. In many instances, retro-fitting and / or tuning a PC boiler with primary measure NOx reductions will have ROIs of less than three years and yet simultaneously provide increased reliability.