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Modeling layered NOx reduction technologies

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The policy framework regulating the emissions of oxides of nitrogen from industrial and utility boilers is in flux. As such, most owners are taking the opportunity to evaluate potential strategies for when, not if, more stringent NOx reduction regulations are put into service. The armada of aging, moderately sized boilers that have been skipped over in the previous wave of Selective Catalytic Reduction (SCR) installations, due to an assumption that they would be eventually replaced with new generation assets, are now in focus as owners are forced to extend the expected lifetimes of these units. Due to these drivers, a high-technology, low capital cost NOx reduction technology is needed. Fuel Tech, Incorporated (FTI) has been developing and refining one such technology over the course of the last decade. Now known as Advanced SCR (ASCR), this technology encompasses the layering of commercially available technologies to provide high NOx removal efficiencies at a fraction of the capital cost of a stand-alone SCR. A keystone in enabling the development of this technology has been the evolution of state-of-the-art Computational Fluid Dynamics (CFD) modeling tools, as described herein.

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