

## Options for air pollution control

Operators of coal-fired power plants are making critical decisions relative to air pollution control which will greatly affect their competitive position and/or the costs for rate payers.

In the 1970s a coal-fired plant could spend 2-3 mills/kWh for owning and operating an electrostatic precipitator and opacity monitor. Today the costs for particulate, SO<sub>2</sub>, NO<sub>x</sub> and toxic control can be more than 10 mills/kWh.

However these costs will vary greatly from plant-to-plant depending on the decisions on processes and the timing of those decisions. In *Power Plant Air Quality Decisions*, Mcllvaine Company provides a decision tree to insure that the utility considers all the alternatives for its specific situation and makes the best decisions for its shareholders and rate payers.

The biggest decision involves SO<sub>2</sub> removal. Costs range from 3-7 mills/kWh depending on the sulfur in the coal, the type of SO<sub>2</sub> removal system, and the timing of that decision. Utility orders tend to come in bunches due to the regulatory deadlines. System suppliers use second and third tier suppliers of components and services when the demand is high. This results in cost as much as 30 per cent higher than if the scrubber were purchased in an off peak year.

A number of new regulatory developments make the scrubber decision complicated. One is the tightening of limits on metals in FGD wastewater. Another is the requirement or desirability for SO<sub>2</sub> removal at 98 or 99 percent rather than 95 per cent or lower. With the high price of allowances, the additional cost for higher efficiency can often be justified.

Mcllvaine predicts that utilities will need to meet schedules and limits on mercury which are tighter than are reflected in the new Clean Air Mercury Rule. This will necessitate a decision to scrub earlier for some utilities, and for others, a need to install additive injection systems.

However the decisions are made much more difficult because utilities must also consider the need to reduce small particulate (PM<sub>2.5</sub>). The simultaneous removal of mercury and fine particulate will cost less than separate removal.

On the other hand, if the large investment in new particulate control equipment isn't necessary, then the best approach will be the additive system in conjunction with the existing particulate control. The utility must therefore consider the SO<sub>2</sub>, particulate and mercury removal needs simultaneously.

NO<sub>x</sub> control, boiler efficiency and SO<sub>3</sub> emissions are all interlinked in negative ways. Therefore, the decisions on removing these two pollutants while maximising boiler efficiency are equally complex.

Another problem facing the utility is the difficulty in assessing new and better technologies, components, and materials. *Power Plant Air Quality Decisions* provides assessments of all the latest options to insure that a new and better solution is not overlooked.

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