

NOx control for high ash coals

Maggie Waitros-Moryka, IEA CCC, UK

Many countries have strict emission limits for nitrogen oxides (NOx) and so NOx control systems are widely used. India has recently introduced NOx emission limits which means that pollution control technologies will need to be installed. However, in India there is limited operational experience with NOx control systems. In addition, Indian coals have a high level of inherent ash which contains highly erosive silica and can influence the behaviour of some NOx control systems, and so affect the selection process. Primary measures for NOx control from coal-fired power plants include low NOx burners (LNBS), overfire air systems (OFA), fuel reburning, flue gas recirculation, fuel biasing, low excess air and combustion optimisation. Post-combustion NOx control includes selective catalytic reduction, selective non-catalytic reduction and multi-pollutant control systems. Retrofit of primary measures (LNBS and OFA) has been recommended to take place during next scheduled plant outages, and for many plants this could occur within the initially announced two-year period for compliance (by 2019). However, control strategies for individual plants will be needed to ascertain the appropriateness of installing post-combustion technologies or various combinations of NOx control measures. Hence, installation of secondary NOx controls is not expected before test results from SCR and SNCR on NTPC units are known.

This presentation reviews available NOx controls for coal-fired units in general. Examples of recent developments are given and systems are identified that could be successfully applied in Indian power plants. The role of SCR catalyst in mercury capture is discussed. The challenges facing Indian utilities are also considered.