

TECHNOLOGIES USED WITH GAS TURBINES TO ACHIEVE ULTRA LOW NOX EMISSION LEVELS

There are various technologies currently available to achieve low NOx emission levels with gas turbines. Research and development undertaken by gas turbine manufacturers, government agencies and industry participants has seen a concentration on the combustion process to achieve low NOx emission levels.

Currently available technologies include:

- Catalytic Combustors - Precision Combustion Incorporated¹
- Lean Pre-mixed Combustors – Catalytica Combustion Systems Inc²
- nanoSTAR™ surface stabilized combustion – Alzeta Corporation and Solar Turbines³
- Diffusion combustion – Osaka Gas⁴

Catalytic and lean pre-mix combustors are the common generic form of low NOx combustion systems used, with the lean pre-mix combustion systems the most predominant in the USA today, as it has been demonstrated to be effective for emission reduction for the bulk of the HAP (hazardous air pollutant) substances of concern to US environmental regulators.

Branded and modified variations of these generic technologies are now appearing on the market, often associated with the equipment from specific gas turbine manufacturers.

¹ Precision Combustion Inc, 2004. Gas Turbine Products, February 2004, < <http://www.precision-combustion.com/gasturbineproducts.html>>.

² Catalytica Combustion Systems Inc., Xonon Combustor, http://www.catalyticaenergy.com/xonon/emissions_haps.html

³ Alzeta Corporation, 2004. nanoSTAR™, February 2004, < <http://www.alzeta.com/nanostar1.htm>>.

⁴ Energy Technology Laboratories, 2004. Development of Innovative Burning Technology for a Low NOx Gas Turbine Combustor, February 2004, <<http://www.osakagas.co.jp/rd/sheet/126e.htm>>.