



Clean Power Today!

The reduction of CO₂ emissions

Growing levels of CO₂ and other Greenhouse Gases are increasingly contributing to global warming and to fundamental shifts in the Earth's climate. It is now generally accepted that a more stringent post-Kyoto reduction in CO₂ emissions will be required to limit world temperature rise to 2 to 3°C over the coming decades.

Existing power generation accounts for a third of these Greenhouses Gases. Worldwide demand for electricity is expected to grow by 3% a year over the next ten years, even more so in developing economies such as China and India, increasing needs for energy production. This implies a need for substantial reduction in CO₂ emissions from power generation, compared to a "business as usual" scenario. While a shift to non-CO₂ energy sources (such as hydro, nuclear and renewables) will play a more significant role going forward, such technologies are unlikely to displace fossil fuels as a primary source of energy. Irrespective of price issues, coal in particular is abundantly available, with over 160 years of reserves, nearly three times that of natural gas.

Efficiency First

- Efficiency improvements = lowest-cost CO₂ reduction
- Efficiency improvements = lower fuel costs and reduction of conventional emissions
- Ultra-supercritical steam cycles commercial today – 600° C class (1112° F)
- Driving development of $\geq 700^{\circ}$ C (1300° F)

Proud to partner in DOE USC Boiler Project and EU Thermie Project

Additional Commercial Strategies to Mitigate CO₂

- Co-firing biomass in PC and CFB plants
- Existing fleet – efficiency upgrades
- Fuel switching

Developing Innovative Technology Options for the Future

- Combustion technology for CO₂ capture:
 - Oxyfiring for both PC and CFB plants
 - Chemical Looping – promising test results
- Post-combustion CO₂ capture technology:
 - Chilled Ammonia