Breaking News 24/7

Circulating fluidized bed technology generates power while reducing emissions

Ani
July 19th, 2009

WASHINGTON - Reports indicate that the Circulating Fluidized Bed (CFB) technology uses burning coal and biomass to generate power while reducing emissions at the same time.

The CFB technology uses fluidization to mix and circulate fuel particles with limestone as they burn in a low-temperature combustion process.

Unlike conventional steam generators that burn the fuel in a massive high-temperature flame, CFB technology does not have burners or a flame within its furnace.

The limestone captures the sulfur oxides as they are formed, while the low burning temperature minimizes the formation of nitrogen oxides.

The fuel and limestone particles are recycled over and over back to the process, which results in high efficiency for burning the fuel, capturing pollutants, and for transferring the fuel's heat energy into high quality steam to produce power.

Due to the vigorous mixing, long burning time, and low temperature of the combustion process, CFBs are fuel flexible, which means they can cleanly burn traditional coal fuels, as well as "carbon neutral" biomass and waste fuels.

This ability to cleanly burn virtually any combustible material greatly surpasses the fuel limitation of conventional combustion processes.

Unlike conventional steam generators, CFBs capture and control harmful pollutants during the burning process and do not need to rely on add-on pollution control equipment.

In addition, Foster Wheeler Power Group, Clinton, N.J., has applied highly efficient vertical-tube, supercritical steam technology to their utility-scale CFB designs.

Supercritical steam enables more of the fuel's energy to be transferred to the steam.

This improves power plant efficiency, reducing the amount of fuel needed for electricity production and further reducing emissions.

Due to its ability to burn carbon-neutral fuels such as biomass along with coal, CFB technology offers a unique solution to the CO2 issue.

Due to its fuel flexibility, a large scale (300 MWe or larger) CFB power plant can be built to burn a combination of coal and several types of biomass.

This solution captures both the environmental benefit of reducing CO2 emissions, and the economic benefit of providing affordable electricity.

It is also flexible enough to utilize more biomass when it is available, or fall back on coal when it is not.

This concept can produce a substantial reduction in CO2 emissions. (ANI)