Pre-combustion process 'saves 30-40% energy'

Capture, Aug 11 2010 (Carbon Capture Journal)

- London Management, Inc. has a US patent pending for pre-combustion CO2 capture from a gas which it claims could use up to 40% less energy than existing processes.

The new process results in a pure stream of CO2 pressurized to supercritical pipeline pressure and a pressurized hydrogen gas stream, suitable for blending with nitrogen and combusting in a gas turbine, used in a combined cycle process.

Company President Arnold Keller has developed this new CO2 capture process as the result of an extensive review and examination of the state of the art CO2 capture processes, commonly employed today, following coal/coke gasification, and CO-shift reaction. Keller realized there was an opportunity to make significant improvements not disclosed by larger competitors.

The new CO2 capture process will achieve significant cost reduction in both CAPEX and OPEX, compared to current state of the art technology, Mr. Keller claims.

One of the features of the process is that it requires only equipment that is available in the market place today from multiple vendors, and will not require any new R&D effort to develop new technology, such as new solvents, new catalysts, or new techniques.

"In comparison to the state of the art process, the new process is designed to better integrate the processing steps downstream from the gasifier, all the way to the delivery of supercritical CO2 to the battery limits of the CO2 pipeline, and also the high pressure hydrogen stream used to fuel the gas turbine," said Mr. Keller.

"The significance of this feature is that the design can be independently confirmed, and that the new process is fundable by banks or by investors. This is because the technology is based on existing, proven technology, assembled in a more cost effective processing sequence, compared to how other organizations are doing it today. The process assembles existing known technology, in which, each element of the process is commercially demonstrated. It is the manner of the sequence and the integration of the process which will be covered by the patent."

Prospective clients are invited to evaluate the process under a Non Disclosure Agreement (NDA).

Preliminary design simulations of the new CO2 capture process have identified over 30–40% savings in parasitic power consumption of the total power needed for combined CO2 capture and compression. The new process was compared to the DOE/NETL benchmark publication regarding IGCC with carbon capture and sequestration. {Ref: Cost and Performance Baseline for Fossil Energy Plants - DOE/NETL 2007/1281. - Volume 1: Bituminous Coal and Natural Gas to Electricity Final Report (Original Issue Date, May 2007) Revision 1, August 2007}.

Mr. Keller said that he is currently seeking independent organizations which are capable of quantifying the CAPEX savings and will independently verify the energy savings. These organizations will have full access to the process technology through a NDA.