carbon capture journal

IEA - progress of CCS must be speeded up

Pöyry - flexible CCS for power generation

B9 Coal - UCG with fuel cells CCS project

Sept / Oct 2010 Issue 17

US Federal Task Force concludes CCS is viable

Paying for CCS in oil refineries

UK Biochar Research Centre - carbon capture through biochar in soils

British Geological Survey - sub-surface expertise for CCS

Oxand - risk management methodology for CO2 storage

Institute of Petroleum Engineering at Heriot-Watt University - experimental observations of CO2 for storage

"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.

Process Group receives contract for "multi-solvent" CO2 capture system

www.processgroup.com.au

Process Group Pty Ltd, based in Australia, has been awarded the contract for the design and engineering for CO2 capture at the QER Shale to Liquids Project.

The plant will capture carbon dioxide from syngas associated with the QER Shale to Liquids Project with the aim of developing low carbon footprint shale oil technology.

Process Group has been awarded Phase 2 of the contract which is for the detailed design of the carbon capture plant including provision of a fixed price to complete the plant construction.

The contract is based on the use of solvent based carbon capture technology and includes the requirement for the provision of a "Multi-Solvent" Design. That is, a plant which can operate with a number of commercial carbon capture solvents.

The plant will demonstrate two new generation carbon capture solvents. Process Group has joined forces with Siemens to demonstrate the POSTCAP solvent as well as the CO2CRC Uno process.

The plant will also be the world first pilot demonstration of the WES Froth Absorber Technology developed by WES LLC. This technology uses micro froth matrix technology to reduce the packed height of the carbon dioxide absorber by more than 50%.

"Solvent technology for carbon capture is rapidly evolving," said Process Group's Managing Director Mr Craig Dugan. "It seems new solvents are coming into the marketplace every six months. Offering a plant which can operate with a number of solvents provides customers with assurance they can access new solvent technologies as they are developed. Process Group is unique in this area in that it is not tied to any one solvent technology."

The ability to test these solvents using conventional absorber technology and the new WES Froth Absorber technology will enable QER to minimise the potential cost of future large scale CCS for the project.

As this is the first field demonstration of the WES technology, the company is expecting considerable international interest in the trial outcomes.

Process Group and WES believe the WES absorber technology offers potential to reduce the cost of CCS by up to 30% through dramatic reductions in absorber size and by facilitating higher solvent CO2 loadings.

Carbon storage using salt compounds research update

www.uq.edu.au

A new study by Sirius Exploration and the University of Queensland demonstrates how salt and potash mines could help to prevent CO2 from entering the atmosphere.

The organisations have completed a nine month proof-of-concept study exploring the method which converts salt and CO2 into sodium carbonates (e.g. bi-carbonate of soda) which can be safely stored in empty underground mine caverns preventing that CO2 from entering the atmosphere.

Key points of the study are:

* Potash and nickel processing can be enhanced to provide a long-term storage solution for CO2 emissions;

* for potash processing, the energy requirements can be met by the heat already present in the salt brine; and

* the output includes clean water that can be recycled back to the mine, improving the overall water consumption of the mine.

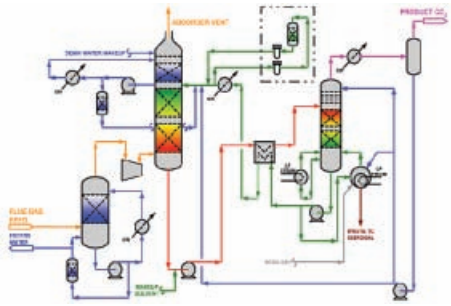
Sirius and the University of Queensland designed this technology to work in conjunction with potash solution mining. Besides providing a long-term storage solution for CO2, an attractive feature of this new process is that it finds a use for the sodium rich salt solution generated from the solution mining of potash, providing both a storage solution for sodium and clean water that can be reused back down into the cavern.

In addition to potash brines, a variant on the process using magnesium silicate ore, common to nickel mining, was explored and demonstrated.

Further details cannot be released at this stage pending a review by the parties of possible patent applications.

Tenaska chooses Fluor carbon capture technology

Tenaska has chosen Fluor Corporation's Econamine FG Plus carbon capture technology for use in its proposed Tenaska Trailblazer Energy Center, being developed near Sweetwater, Texas.



Fluor Corporation's Econamine FG Plus process

Trailblazer will be a 600-megawatt (net) electricity generating plant fueled by pulverized coal and is expected to be among the first full-scale commercial power plants in the nation, and the first in Texas, to capture 85 to 90 percent of its CO2 emissions and send them via pipeline to the Permian Basin to be used in enhanced oil recovery.

Based on the projected rate of capture, the plant will emit significantly less CO2 than an equivalent capacity natural gas-fueled plant.

Econamine FG Plus is a Fluor proprietary, amine-based technology for large-scale, post-combustion CO2 capture. The technology is one of the first and among the most widely applied commercial solutions proven in operating environments to remove CO2 from high-oxygen content flue gases.

Tenaska's initial design and engineering work for Trailblazer is also being performed by Fluor, the project's engineering, procurement and construction contractor.