

What's on 2014-2

BIGCCS

International CCS
Research Centre

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From the BIGCCS Team

Dear BIGCCS Friends!

In BIGCCS, the activity level is high; this goes also for CO₂ capture. This issue of the newsletter is devoted more or less completely to capture activities. You can read about capture by liquefaction of CO₂, a new EU project on advanced materials and electric swing adsorption, and a report presenting 23 new CO₂ capture technologies. It is also our pleasure to present a new PhD, Ms. Camilla K. Vigen.

Enjoy you reading!

News

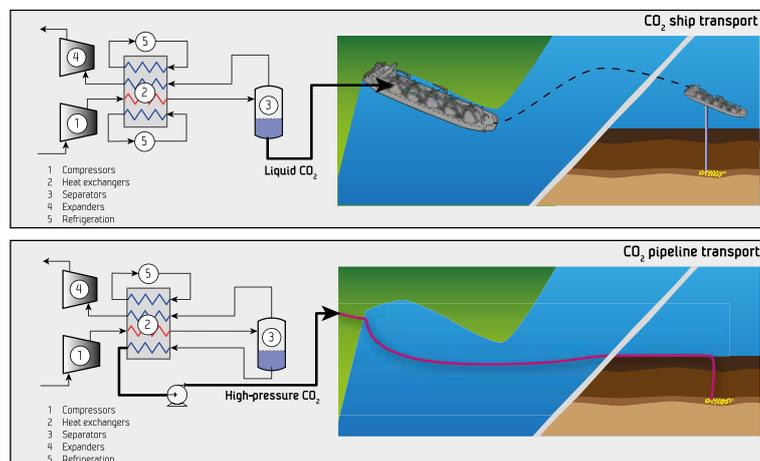
Cold shortcut to CO₂ storage

All over the world, scientists are on the hunt for solutions that will allow CO₂ to be captured from large power stations and industrial plants. Many of the methods in use today employ chemicals or advanced materials to extract CO₂ from flue-gases. But now, a chilly alternative is showing signs of heating up.

When CO₂-rich gases are compressed and refrigerated, the carbon dioxide turns into a liquid, and can be separated. Calculations performed by SINTEF suggest that in many cases, this method is cheaper and less energy-intensive than competing capture methods, in spite of predictions that the opposite would turn out to be true. CO₂ captured in this way can be loaded directly on board ships before pipelines are ready to take over. This is good news for everyone who hopes that Europe will soon start to implement carbon capture and storage (CCS). [Read more.](#)



SINTEF scientists (from left: Kristin Jordal, David Berstad, and Petter Nekså) have found that it could be more energy-efficient and cheaper than previously thought to capture CO₂ by turning it into a liquid. CO₂ captured in this way can be loaded directly on board ships before pipelines are ready to take over. Photo: SINTEF/Thor Nielsen



Transport flexibility when using low temperature CO₂ separation technology. Process redesign between the two transport options should be straightforward.

SINTEF leading EU Project on New Capture Technology

The European project MATESA (Advanced Materials and Electric Swing Adsorption Process for CO₂ Capture) aims to develop a new-generation high-efficiency capture process called Electric Swing Adsorption, based on selective adsorption of CO₂ on hybrid honeycomb monoliths. The objective is to develop a more efficient CO₂ capture technique from post-combustion power plants with reduced environmental and economic impact.

The project is coordinated by SINTEF Materials and Chemistry and has a total of 12 partners: University of Belgrade (Serbia),

Fraunhofer Institute (Germany), University of Torino (Italy), Corning (France), Linde Engineering (Germany), Politecnico di Milano (Italy), CYCLECO (France), Biokol (Sweden), PSE (United Kingdom), Monash University (Australia) and University of Melbourne (Australia).

The project started during the fall 2013 and has a duration of 36 months. Total budget is 5.7 M€. Project coordinator is Dr. Carlos Grande. The kick-off meeting took place in Oslo (14-15th October 2013). The application scored 15 out of 15 points. More information about the project can be obtained in the webpage of the project: www.sintef.no/Projectweb/MATESA



From the kick-off meeting in Oslo, October 14-15, 2013. Project coordinator Dr. Carlos Grande is second from the left.

New report on promising CO₂ capture technologies from BIGCCS and SINTEF Energy Research

In January 2013, SINTEF Energy Research completed a study commissioned by the Test Centre Mongstad (TCM) on next generation CO₂ capture technologies. The study was initiated as a result of the cooperation between TCM and BIGCCS, and conducted by SINTEF researchers working in BIGCCS. The study accounts for the potential of 23 new CO₂ capture technologies and their potentials at TCM. The report from the project is now made public and can be found [here](#).



*Test Centre Mongstad
Photo: Mona Malmvik*

New PhD - Camilla Vigen

Camilla Vigen successfully defended her PhD dissertation entitled "Mixed conductivity in novel oxides for dense ceramic hydrogen gas separation membranes" April 11th at the Department of Chemistry, University of Oslo. Her work was funded through BIGCCS and she was joined by fellow SINTEF researchers and collaborators from Innovative Membrane Technologies (Task 1.2).



*Camilla Vigen (middle)
with supervisors Reidar Haugsrud (left) and Truls Norby (right)*

Upcoming PhD Defense

Mr. Mansour Soroush will defend his PhD thesis on May 27, 2014. The location is P13, PTS I, Gløshaugen. The title of his thesis is: "Simulation and Experimental Investigation of Different Phenomena in CO₂ Storage in the Saline Aquifers".

Calendar of events

- May 20: BIGCCS Board Meeting No 12, Paris, France
- May 28: Site visit by The Research Council of Norway, Trondheim, Norway
- Jun 4-5: [3rd Trondheim Gas Technology Conference](#), Trondheim, Norway
Organised by the Gas Technology Centre NTNU-SINTEF
- Sep 23: BIGCCS Consortium Day 2014, Trondheim, Norway
- Sep 24: BIGCCS General Assembly No 7, Trondheim, Norway
- Nov 27: BIGCCS Board Meeting No 13, Trondheim, Norway

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