

# Weekly News Update

Friday 16<sup>th</sup> March 2012 - Friday 23<sup>rd</sup> March 2012



## *Ferrybridge CCPilot 100 + Power Station, United Kingdom*

Project Type - Carbon capture pilot plant

Location Ferrybridge Station, West Yorkshire, UK

Order Year 2009

Opened November 2011

Capacity 100t/day or 5MW equivalent

Estimated Investment £21m

Owner and Operator Scottish and Southern Energy

Energy giant Scottish and Southern Energy (SSE) commissioned the UK's largest carbon capture pilot plant at its coal-fired 2,000MW Ferrybridge Power Station in West Yorkshire, in November 2011. Known as CCPilot 100+, the plant is designed to extract about 100t/day of carbon dioxide (CO<sub>2</sub>) from the exhaust fumes. The CO<sub>2</sub> captured is equivalent to 5MW of power generation. The CCPilot 100+ project took two years to complete. It will conduct tests and develop a viable technology for carbon capture by 2013. The CCPilot 100+ project required an estimated investment of £21m. It received £6.3m in funding from the Department of Energy and Climate Change (DECC), Northern Way and the Technology Strategy Board (TSB) in March 2010. SSE collaborated with Swedish utility Vattenfall for the project. Doosan Babcock, UK Coal and Siemens provided the front end engineering design and construction services. Doosan Power Systems supplied its carbon capture technology for the pilot facility. University of Sheffield, University of Nottingham, University of Edinburgh and University of Leeds are the research partners.

Full article at: [http://www.power-technology.com/projects/ferrybridge-ccpilot-100-power-station/?WT.mc\\_id=WN\\_Prj13:18 16/03/2012](http://www.power-technology.com/projects/ferrybridge-ccpilot-100-power-station/?WT.mc_id=WN_Prj13:18 16/03/2012)

## *Study: Carbon can be stored underground*

The United States has enough deep saline aquifers to store a century's worth of carbon dioxide emissions from its coal-fired power plants, a study shows. While efforts to reduce greenhouse gases have focused on sources of clean energy, such as wind or solar power, "one thing that's not going away is coal" because it's such a cheap and widely available source of power, Ruben Juanes of the Massachusetts Institute of Technology said. Some researchers have proposed systems for capturing emissions from the burning of fossil fuels such as coal, then compressing and storing the waste in deep geological formations, an approach dubbed carbon capture and storage. While deep saline aquifers -- at more than half a mile below the surface safely below the freshwater sources used for human consumption and agriculture -- are attractive storage possibilities, the capacity of U.S. aquifers has been the subject of much debate. The MIT researchers used computer modeling to estimate the capacity of the available aquifers across the country, which they say is enough for at least a century's worth of carbon capture and storage. Though questions remain about the economics, it should be a part of any greenhouse gas reduction proposals, the researchers said. "I really think CCS has a role to play," Juanes said. "It's not an ultimate salvation, it's a bridge, but it may be essential because it can really address the emissions from coal and natural gas."

## *Petrofac, National Grid plan carbon capture plant*

(Reuters) - British energy network operator National Grid and London-listed oil and gas services firm Petrofac plan to build a carbon capture and storage (CCS) project in Britain with U.S. partner Summit Power, the companies said on Tuesday. The consortium will apply for funding from the British government, which is due to relaunch a 1 billion pound (\$1.6 billion) tender for CCS projects after a first round of funding failed on cost overruns. The new coal-fired power plant, named Caledonia Clean Energy Project, will be based at the Scottish port of Grangemouth, west of Edinburgh, and will capture carbon emissions on more than 90 percent of its production capacity. "The carbon dioxide captured will be transported via pipeline to St. Fergus by National Grid Carbon and then transferred offshore for geological sequestration deep under the North Sea by Petrofac subsidiary,



CO<sub>2</sub> DeepStore," Seattle-based Summit Power said in a statement. The British government considers CCS a vital technology to reduce carbon emissions from power plants, but developing these plants is expensive as the technology has not been proven to work on a commercial scale. In October last year, the government's plan to fund Scottish Power's Longannet CCS project failed after the parties could not agree on the funding. The government said in a pre-tender document published in the European Union's official journal in February that it wanted new CCS projects to start demonstrating carbon dioxide capture by 2016-2020.

### ***SaskPower, Hitachi to develop carbon capture test facility***

SaskPower and Hitachi Ltd. are partnering to construct a \$60 million carbon capture test facility (CCTF) at SaskPower's Shand Power Station in southeastern Saskatchewan. The CCTF will allow international developers to fully evaluate performance of their systems to capture carbon dioxide emissions from coal-fired thermal power plants. "This announcement is a double win for the province. Providing a testing facility for these advanced technologies means Saskatchewan will remain a world leader when it comes to carbon capture, and also supports Hitachi's substantial manufacturing capacity right here in Saskatchewan," said Rob Norris, Minister responsible for SaskPower. "Joining with Hitachi on the CCTF continues a long-standing partnership that dates back to the 1970s. This project is critical because it will help ensure that low-emission coal-fired generation remains an integral part of SaskPower's system for years to come," said Robert Watson, President and CEO, SaskPower.

SaskPower and Hitachi will each contribute approximately \$30 million to the CCTF, with SaskPower acting as owner/operator. Construction will begin in late 2012 or early 2013, with a scheduled completion date of summer 2014. Hitachi will supply their skilled process development team, as well as core process equipment from their Saskatoon manufacturing facility. Hitachi's proprietary amine technology will be the first technology tested at the CCTF. SaskPower expects to evaluate a number of current and emerging carbon capture technologies over the life of the facility. The CCTF has been built to accommodate a wide range of test configurations, ensuring it remain a viable facility for many years. In addition to the CCTF, SaskPower will be among the first electric utilities in the world to operate a commercial-scale power plant with a fully-integrated carbon capture and storage operating system. The \$1.24 billion project to rebuild a coal-fired unit at the Boundary Dam Power Station and equip it with a fully-integrated carbon capture system will allow for the generation of low-emission electricity and the capture of carbon dioxide for oil extraction.

### ***CCP – CCS Stakeholder Issues Review and Analysis Report (no link)***

The CCP has made available findings from its recent CCS Stakeholder Issues Review and Analysis Report. The report identifies and evaluates key concerns amongst NGOs, the public and politicians at both a local and a global level, to gain greater understanding of the sensitivities surrounding CCS projects. It focuses on Australia, Brazil, Canada, the EU and the USA. A summary of the findings is available to download on [www.co2captureproject.com](http://www.co2captureproject.com)

For information:

Short-sighted approaches to climate and energy won't fix anything

<http://www.onlineopinion.com.au/view.asp?article=13377>

Nearing a simple fracking solution

<http://www.climatespectator.com.au/commentary/nearing-simple-fracking-solution>

We need facts not nationalistic sentiment or party politics

<http://www.theengineer.co.uk/opinion/comment/we-need-facts-not-nationalistic-sentiment-or-party-politics/1011998.article>



### ***Mitsubishi to build Qatar CO<sub>2</sub> Recovery Plant***

Mitsubishi Heavy Industries (MHI) is to build, through subsidiary MHI Industrial Engineering & Services (MIES), a large-scale CO<sub>2</sub> recovery plant for Qatar Fuel Additives Co (QAFAC), a major fuel additive producer in Qatar.

The CO<sub>2</sub>, which is to be recovered at up to 500 tons per day will be used to increase production of methanol. This is the first overseas order for an MHI CO<sub>2</sub> recovery plant specifically targeted at raising methanol production. Construction of the plant should be completed in October 2014.

The CO<sub>2</sub> recovery plant, which will be built within QAFAC's methanol production plant near Doha, will capture CO<sub>2</sub> from combustion exhaust gas emitted in the methanol production process. The CO<sub>2</sub> separated and recovered from the flue gas using MHI's proprietary KS-1™ solvent will be provided as feedstock for boosting methanol production.

### ***ESA gives Mongstad support go-ahead***

EFTA's Surveillance Authority approved state aid for the development of a full-scale carbon capture and storage (CCS) plant at Mongstad.

Statoil press spokesperson Morten Eek tells Aftenbladet: "We are very pleased with ESA's decision, which is an important milestone on the road to a full-scale CO<sub>2</sub> capture and storage facility at Mongstad."

"This financial approval means that Statoil will take over as project leader in the development towards an investment decision," he adds.

The move follows ESA's previous green light to state-sponsored funding of the facility's test centre for carbon capture and storage, known as the CO<sub>2</sub> Technology Centre Mongstad (TCM). This will be officially opened in May.

This is the first step in Prime Minister Jens Stoltenberg's so-called moon landing at Mongstad.

### ***Carbon capture could deal with energy-intensive mining industry's challenge***

More than 90% of South Africa's electricity is generated from coal, resulting in the release of about 224-million tons of carbon dioxide (CO<sub>2</sub>) a year.

State-owned power utility Eskom reports that South Africa produces about 224- million tons of marketable coal a year, with 53% used to generate electricity and mining companies dominating the Energy Intensive User Group.

Eskom burns about 120-million tons of coal a year and emits about 230-million tons of CO<sub>2</sub> a year, says South African Centre for Carbon Capture and Storage (SACCCS) head Dr Tony Surridge.

South Africa's coal reserves are estimated at 53-billion tons and are expected to last for almost 200 years at the current production rate.

"As the country's gross domestic product is largely dependent on the mining sector, we need to look at ways of being more environment friendly without negatively impacting on our economy. The introduction of a carbon tax would impact on the country's economy, says Surridge.



### ***Aker Solutions is extending and strengthening the company's long-term commitment to the treatment of CO<sub>2</sub> from industrial sources by taking full ownership of Aker Clean Carbon***

The 28 employees, who represent world-class carbon capture expertise, will join Aker Solutions' technology and front-end team in Oslo, Norway.

"We want to build on Aker Clean Carbons' strength and competence in the CO<sub>2</sub> technology field. Together with the highly skilled teams in related industry disciplines in Aker Solutions, we aim to further develop our strategy for CO<sub>2</sub> and gas technology," says Valborg Lundegaard, executive vice president and head of Engineering in Aker Solutions.

Aker Clean Carbon was established in 2007 to commercialise carbon capture technology, developed by a group of in-house expert engineers. Aker Solutions has developed and applied CO<sub>2</sub> technology solutions since the beginning of the 1990s.

### ***DECC defends decision to delay gas CCS requirement until 2045***

The Department of Energy and Climate Change (DECC) yesterday hit back at criticism of its decision to allow gas-fired power plants to operate without carbon capture and storage (CCS) until 2045, insisting it would not allow a new "dash for gas" to undermine the UK's carbon targets.

Energy and Climate Change Secretary Ed Davey and Chancellor George Osborne announced over the weekend that the promised emissions performance standard (EPS) governing new fossil fuel fired power stations would be set at 450g/kWh through to 2045, effectively banning new coal-fired power stations without CCS, but allowing gas-fired power plants to operate unabated for the next 33 years.

### ***Industrial Demonstration of Post-Combustion Co<sub>2</sub> Capture***

On 13 and 14 March this year, the Octavius project dedicated to post-combustion CO<sub>2</sub> capture has been launched at IFPEN (France). The main challenge of the project is to significantly increase the energy efficiency of the capture technologies in order to reduce its costs.

The objectives are as follows:

- to prepare for the first CO<sub>2</sub> capture and storage (CCS) demonstrators on a thermal power plant scale, implementing 1st generation CO<sub>2</sub> capture processes using amine-type solvents. Three CO<sub>2</sub> capture pilot units – the Cato pilot unit in Maasvlakte (Netherlands), the Enel pilot unit in Brindisi (Italy) and the EnBW pilot unit in Heilbronn (Germany) – will be used to test the operability and flexibility of 1st generation processes.
- to demonstrate the DMXTM 2nd generation post-combustion capture process resulting from IFPEN research on an industrial scale. This demonstration will be conducted on the Enel pilot unit, capable of capturing up to 2.25 tCO<sub>2</sub>/h on coal combustion flue gases.

Coordinated by IFPEN, the project brings together 16 other partners: TNO, Sintef, NTNU, Ineris, DTU, TUHH, E.ON, EnBW, Doosan Power Systems, Enel, Laborelec (GDFSuez), EDF, Prosernat, TIPS, EcoMetrix and Eskom.

Scheduled to last 5 years, Octavius has a budget of €13.5 million, €8 million of which will be provided by the European Commission.

### ***Government of Canada Invests in Carbon Capture and Storage Technology***

Canada moved forward today with its plan to advance clean energy technologies and reduce greenhouse gas emissions. The Honourable Joe Oliver, Minister of Natural Resources, announced an investment of \$14 million in Aquistore, a carbon



capture and storage demonstration project near Estevan, Saskatchewan. Minister Oliver was joined for the announcement by Saskatchewan's Minister of Environment Dustin Duncan.

The Government of Canada is contributing \$9 million through its ecoENERGY Technology Initiative and \$5 million through Sustainable Development Technology Canada (SDTC) to the Aquistore Project.

"The Government of Canada is strengthening its support for carbon capture and storage," said Minister Oliver. "The Aquistore Project is an example of governments, academia and industry working together to advance clean energy technologies and reduce greenhouse gas emissions."

"The Aquistore Project represents a first in the world: the first time carbon dioxide is sequestered safely at this scale in the ground from a coal-burning plant," said SDTC President and CEO Vicky Sharpe. "It is clean tech innovation like this that will help drive the Canadian economy, creating jobs and economic growth, and a source of innovative solutions."

### *IPAC-CO2 is Working to Keep CCS on Track*

CCS technology adoption, in conjunction with the increased deployment of renewable energy and greater energy efficiency, are critical if the world hopes to meet its GHG reduction targets thereby maintaining the "Goldilocks Climate" that Earth (more to the point humanity) currently enjoys.

There are a number of issues that need to be addressed to keep CCS on track, many of which IPAC-CO2 is able to contribute directly.

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### *Great Opportunities for CCS Deployment*

When more research must be conducted regarding Carbon Capture and Storage before it can be deployed worldwide, the best way to do so is by examining ongoing projects. The 2012 CCS Conference in Abu Dhabi last week opened the lines of cooperation to make CCS a reality.

Energy, power, CO<sub>2</sub> technology providers, and related companies met to share their knowledge about CCS, with the purpose of supporting and accelerating CCS projects deployment around the world.

[Read more...](#)

### *New Stakeholder Report from CCP*

The CO<sub>2</sub> Capture Project (CCP) released its Stakeholder Issues Report last week. The objective of the study was to identify and analyze the main stakeholder concerns, and provide available options to project developers and industry for responding to these concerns.

CCP is based in London, England and is a partnership of several major energy companies. Its objective is to advance technologies and operational approaches to accelerate the deployment of CCS.

This report is a key instrument that will help CCS-related organization fulfill the stakeholders needs regarding different projects, and in obtaining the acceptance required to expand CCS projects worldwide as a safe and effective tool to reduce carbon emissions.

To read the Stakeholder Issues Report [click here](#).