

Weekly News Update

Saturday 14th April 2012 - Friday 20th April 2012



Elsevier's Peer Review Challenge

How do you see the future of peer review?

On March 28th Elsevier launched the "How do you see the future of peer review?" challenge. The aim of the challenge is to invite our reviewing community to submit ideas on any of the following 3 aspects of the peer review system (for journals):

1. The peer review process itself - new approaches or enhancements of current approaches
2. Approaches to help early career researchers to become reviewers
3. Improving the recognition and rewarding of reviewers by their institutions and/or journal publishers

The challenge website will remain open to entries until midnight May 7th 2012 (CET).

We will work with the overall winners of the challenge to determine if their idea could be piloted with a suitable Elsevier journal, and in cooperation with the editors of that pilot journal. The winning ideas will be announced around August 15th through the challenge website.

We hope that this challenge will help inform the ongoing discussions on peer review and help us, as your publishing partners, to work more closely with the reviewing community.

You are welcome to forward this challenge announcement to your colleagues and editorial network to encourage submissions. Please visit <http://www.peerreviewfuture.com/> for more details.

EPA publishes national greenhouse gas inventory

Greenhouse gas emissions increased by 3.2 percent from 2009 to 2010, according to the 17th annual U.S. greenhouse gas inventory, published by the U.S. Environmental Protection Agency (EPA). The final report, released on April 16th, says the increase in emissions is attributed to an increase in energy consumption across all economic sectors, increasing energy demand associated with an expanding economy, and increased demand for electricity for air conditioning due to warmer summer weather during 2010. Total emissions of the six main greenhouse gases in 2010 were equivalent to 6,822 million metric tons of carbon dioxide. These gases include carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons and sulfur hexafluoride. The report indicates that since 1990, U.S. greenhouse gas emissions have increased by 10.5 percent. The Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2010 is the latest annual report that the United States has submitted to the Secretariat of the United Nations Framework Convention on Climate Change, which sets an overall framework for intergovernmental efforts to tackle the challenge posed by climate change. EPA prepares the annual report in collaboration with experts from multiple federal agencies and after gathering comments from stakeholders across the country. The inventory tracks annual greenhouse gas emissions at the national level and presents historical emissions from 1990 to 2010.

Clean coal plant as important to Dubai as its landmarks

Dubai has become known worldwide for its ambitious projects - the tallest, largest, longest, most expensive or prestigious. Its latest venture matches all those superlatives - but is being adopted more from necessity than pride. At its latest meeting early this month, Dubai's Supreme Council of Energy confirmed it is pressing ahead with a "clean coal" power plant. This behemoth will not only be the first coal power station in the Gulf, but also potentially by far



the world's largest carbon capture scheme, three times bigger than any other currently planned. Dubai's plant will be an innovative type which converts the coal to a gas before burning it, improving efficiency and reducing pollutants - poisonous mercury and gases responsible for acid rain - dramatically. Only a few of these are operating around the world. This plant alone would more or less double Dubai's emissions of carbon dioxide, the main gas responsible for global warming. Dubai residents' carbon footprint is already one of the world's biggest. To prevent this, the power station would have to be fitted with carbon capture - a system to trap the carbon dioxide so that it can be permanently disposed of several kilometres underground, in carefully chosen locations. Several schemes are moving forward in the United States, Canada and China, but there is so far no commercial-scale power plant with carbon capture.

Masdar, Abu Dhabi's clean energy vehicle, announced in January that it would move ahead with carbon capture at the Emirates Steel plant in Mussaffah. Almost 1 million tonnes of carbon dioxide per year will be used to increase recovery at the emirate's oil fields. But that is tiny compared with Dubai's coal power station, which could produce some 30 million tonnes of carbon dioxide annually. Some of that could be used to revitalise Dubai's declining oil production. The rest will have to go to Abu Dhabi's fields or other safe disposal sites, as indicated by Nejjib Zaafrani the chief executive of the Dubai Supreme Council of Energy. "We also aspire to play an active role at the federal level in the UAE's efforts to develop and implement carbon capture and storage activities," Mr Zaafrani said in February. The project clearly fits in Dubai's tradition of groundbreaking endeavours. It is being pursued for solid economic reasons, not only prestige. With Dubai's electricity demand continuing to grow, the emirate cannot continue to rely solely on increasing imports of expensive liquefied natural gas (LNG) for fuel. Enhanced energy efficiency will help, but clean coal, solar and nuclear power, presumably in cooperation with the Emirates Nuclear Energy Corporation (Enec), are needed to diversify supply.

UK to push ahead with shale gas exploration

A report commissioned by the government said the 'fracking' process - where pressurised water and chemicals are pumped underground to open shale rocks and release trapped gas - could resume with tighter rules on seismic monitoring and drilling surveys. One of the report's authors, the British Geological Society's Brian Baptie, said: "The risk of seismic activity associated with hydraulic fracking operations is small and the probability of damage is extremely small. We suggest fracking can continue under our recommendations." Last year Cuadrilla Resources, the company at the forefront of UK exploration, had to halt its operations in Lancashire, northwest England, after fracking triggered small earthquakes. The report has been welcomed by British business trade associations. Rhian Kelly, director for business environment policy at the Confederation of British Industry, said: "The government has signalled that gas should play a big part in moving to a low-carbon economy, so it makes sense to explore new gas sources here, rather than increasingly depend on sources from elsewhere in the world. Provided safety standards are observed, shale gas could unlock significant new infrastructure investments, help meet our carbon reduction goals and create many new jobs around the UK." Tim Fox, head of energy at the Institution of Mechanical Engineers, said: "The recommendations that any shale gas operations should be more closely monitored are welcome. UK and European environmental regulations are already some of the most stringent in the world and these proposed precautions are a good example of how to help mitigate the risk of any damage caused by seismic activity as a result of shale gas activity."

China leading global efforts on clean coal

Tianjin will be home to China's GreenGen coal gasification plant.

China is come a step closer to capturing and storing its carbon emissions with the launch of the GreenGen coal gasification plant in Tianjin, according to a report in Nature. Carbon capture and storage was highlighted by the leaders of the G8 group of nations in 2008, when they called for the development of 20 large-scale projects demonstrating carbon capture technologies by 2010. But with the exception of a few initiatives in Australia, Europe and the United States, many plans been delayed or cancelled. As a result, even though the state-owned Huaneng Group's GreenGen project is more than a year behind schedule, its progress means that China is leading global efforts to exploit coal resources without releasing carbon dioxide. The first phase of the US\$1.5 billion project is a 250-megawatt power plant that will convert coal into a mixture of carbon monoxide and hydrogen to produce electricity.



Separating carbon dioxide from the waste outputs of such plants is easier than in conventional plants. It is due to be fired up during the northern hemisphere Spring. Work has also begun on the second phase of the project, which will involve the development of a small pilot plant to produce electricity from hydrogen. Phase three, scheduled for completion by 2020, will be a 400-megawatt, fully functioning carbon capture and storage plant.

“GreenGen represents both a high degree of technical sophistication and a real commitment on China’s part to clean-energy technology,” Julio Friedmann, head of the carbon-management programme at Lawrence Livermore National Laboratory in California, United States, told Nature. “There can be no doubt that China has achieved something remarkable.” Other countries, such as the United Kingdom, are trying to renew interest in carbon capture and storage. But Howard Herzog, a carbon storage expert at the Massachusetts Institute of Technology in the United States, says that the lack of a firm carbon policy to reward such initiatives makes turning a profit difficult. “The question is whether there is a CCS [carbon capture and storage] market anywhere in the world. If there isn’t, why develop the technology?,” he said.

Carbon capture called a viable strategy

Capturing and burying carbon dioxide from power plants is a viable way to deal with the greenhouse gas, but government support is vital, a British report says. Experts spent two years researching carbon capture and storage, or CCS, for the U.K. Energy Research Council, the BBC reported Wednesday. Although the British government has announced a \$1.6 billion fund to help develop CCS, the report says wider, long-term support is required.

“CCS is seen as the key to many scenarios of how to mitigate climate change, whether that’s the United Kingdom meeting its targets on cutting emissions or global targets that keep warming below 2 degrees centigrade” the report’s lead author Jim Watson at Sussex University said. “But unlike other low-carbon technologies, CCS doesn’t exist at the commercial scale.” So it is vital that the government’s commitment leads to several full-scale CCS projects as soon as possible; only through such learning by doing will we know whether it is a serious option for the future,” Watson said.

Qafac showcase on CO₂ Recovery

On the opening day of the QP Environment Fair 2012, Qatar Fuel Additives Company (Qafac) showcased its world-scale carbon dioxide (CO₂) recovery plant. Qafac will use the Mitsubishi Heavy Industries (MHI) flue gas CO₂ capture technology that was developed to combat global warming.

At present there are only two commercial technologies available in the world capturing CO₂ from flue gases and MHI’s technology is the more advanced of the two, in terms of energy consumption, economics and experiences.

Qafac’s CO₂ Recovery (CDR) project is the first project in the world to utilise CO₂ captured from flue gas for methanol synthesis. Qafac’s CDR project will contribute for both global warming prevention and methanol production.

California’s Energy Future CCS report published

The California Council on Science and Technology (CCST) has released a new publication as part of California’s Energy Future (CEF) project. The CEF project was designed to help California state and local governments achieve California’s greenhouse gas reduction target of 80% below the 1990 level by 2050. A summary report of the project was published in May 2011.

The new document, “Electricity from Renewable Energy and Fossil Fuels with Carbon Capture and Sequestration”, examines electricity generation through fossil fuel combustion with CO₂ capture and sequestration.

Business community gets update on major projects

The Estevan business community took advantage of an excellent opportunity to get a first-hand report on major projects taking place on the city’s doorstep when Malcolm Wilson and Douglas Nixon attended the Estevan Chamber of Commerce monthly business meeting.



The two men were later joined by a cadre of various industry experts at an open house event at the Saskatchewan Energy Training Institute (SETI) which shed even more light on the SaskPower carbon capture project at Boundary Dam Power Station, the nearby carbon dioxide sequestration project Aquistore, which is under the direction of the Petroleum Technology Research Centre (PTRC) and the SaskPower test facility at Shand Power Station.

Students take control of four storey carbon capture pilot plant in the heart of a university campus

Students are taking control of a £2 million carbon capture pilot plant in the heart of London, which officially opens today, 18 April, at Imperial College London.

Imperial's carbon capture pilot plant, the most sophisticated of its kind in an academic institution in the world, will provide a unique hands-on education experience in a controlled and safe environment for the College's undergraduate engineers. The plant demonstrates how CO₂ emissions can be captured by a power plant. Through this, students will learn the principles that can be applied in a range of industrial settings including petrochemical plants. The plant is controlled by the latest communication, computing and sensing technology and Imperial academics expect to train more than 8,000 undergraduates during the plant's predicted 25 year lifespan.

Firms could sell UK offshore fields to store carbon

Owners of depleted oil and gas fields offshore Britain could sell carbon storage space to neighbouring countries as pumping carbon captured from power plants out to sea would be better accepted by the public than burying it on land, academics said.

Britain's depleted fields can store around 70 billion tonnes of carbon, while the UK's own carbon capture and storage (CCS) programme would only require storage space for around 900 million tonnes of carbon by the mid-2020s.

CCS captures climate-warming emissions from power plants and stores the carbon underground, a technology which the UK government has singled out to help it meet legally-binding emissions reduction targets and which it wants to support with one billion pounds of public money.

"Offshore storage is of little public concern (...) the extra space could be sold to other countries," said Professor Stuart Haszeldine, one of 18 authors at the UK Energy Research Centre (UKERC) who published a new study into the feasibility of CCS on Thursday.

Carbon Capture and Storage - New research from UKERC shows tough road ahead to realise potential

Research highlights key challenges for the Government's new CCS strategy

Government plans to develop carbon capture and storage (CCS) technologies to reduce carbon emissions received a cautious welcome today. A new report concluded that most of the uncertainties facing these technologies can – in principle – be resolved.

Carbon capture and storage: realising the potential? is the culmination of a two-year project funded by the UK Energy Research Centre (UKERC). The report assesses the technical, economic, financial and social uncertainties facing CCS technologies, and analyses the role they could play in achieving UK energy policy goals. Its publication today follows the announcement earlier this month of a new long-term strategy for CCS by the Department of Energy and Climate Change, including the re-launch of the UK's £1 billion competition to develop commercial scale CCS projects.

To read the full press release and download the report http://www.ukerc.ac.uk/support/tiki-read_article.php?articleId=1881

CCSA supporting NPL (no link - see pdf attached to e-mail)

CCSA are supporting NPL in the arrangements of a meeting to cover the critical role of measurement monitoring and verification in enabling CCS. This event is being held on 14 May at NPL, Teddington – details are attached to the e-mail as a pdf.