

CCS REGULATION

NEWSLETTER

Welcome to the CCS Regulation newsletter. This is produced by the **MIT Carbon Capture and Sequestration Technologies Program**. It is a quarterly report designed to keep the reader up to date with the current regulatory news and issues surrounding Carbon Capture and Storage (CCS).

For more information about the program please see <http://sequestration.mit.edu/>

European CCS Regulation Update



by: *Rosalynne Watt and David Reiner*
University of Cambridge, UK

Progress on CCS and its regulation has been uneven across Europe. The main EU-wide advance has been the CCS Directive issued in 2009 which applies across all member states. In addition, there has been considerable effort in developing regulations in certain member states, particularly those with plans to move forward with CCS in the next few years and we provide recent updates from several EU member states. Finally, several European projects have fallen afoul of local opposition and we briefly describe a Dutch case which has received extensive public scrutiny.

1. EU CCS Directive

Promoting the safe use and development of CCS is key to the EU's aim for a 10% reduction in emissions by 2030. Legislation on geological storage of CO₂ has been in place under Directive 2009/31/EC since 2009 (<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:140:0114:0135:EN:PDF>).

The directive sets out a legal framework for CCS to enable the safe operation of CCS in Europe by:

- Establishing a legal framework for the environmentally safe geological storage of CO₂ by permanent containment in the ground.

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Federal CCS Regulation

News

Senate Bill S.2877, the Carbon Limits and Energy for America's Renewal Act (CLEARA) was introduced on December 11 2009, by Sen. Cantwell (D-WA) and Sen. Collins (R-ME). CLEARA would establish a cap on the amount of fossil fuels sold into commerce instead of an emissions cap. The volume of fossil fuels allowed into the economy would be established, by the President, at step down intervals from 2005 emissions eventually reaching 83% of 2005 levels in 2050. All the carbon allowances will then be auctioned off, by the Department of Treasury, as 'fossil shares' to regulated entities. The revenue generated from this is to be directed to the public to be used to promote clean energy jobs and economic growth with some money set aside for other purposes.

The bill has currently been referred to a Finance committee.

Article: <http://www.wri.org/stories/2010/02/wri-summary-carbon-limits-and-energy-americas-renewal-act>

For a Summary on S.2877: http://pdf.wri.org/wri_summary_clear_act_2010-02-17.pdf

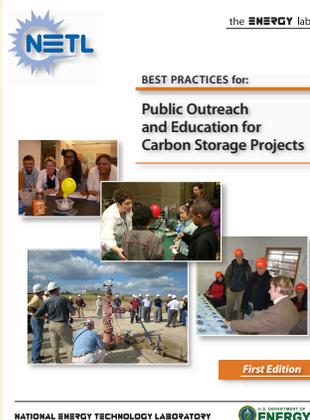
Bill Update: S.1733.

December 19, 2009: The Congressional Budget Office (CBO) released a cost estimate for S. 1733, the Clean Energy Jobs and American Power Act. S.1733 aims to cap CO2 emissions from power plants and industrial activities from 2012 onwards. The bill would allow the EPA to establish 2 cap-and-trade programs: one covering GHG's and the other hydrofluorocarbons. The CBO and the staff of the Joint Committee on Taxation estimate that over the 2010-2019 period enacting this legislation would:

- Increase federal revenues by about \$854 billion; and
- Increase direct spending by about \$833 billion.

This results in a surplus of \$21 billion over the 2010-2019 period. S. 1733 would also increase discretionary spending by about \$29 billion over the same period. In addition the CBO found that S.1733 would not increase the deficit after 2019.

http://www.energyspf.com/index.php?option=com_content&view=article&id=12372:cost-estimate-for-s-1733-the-clean-energy-jobs-and-american-power-act&catid=88888928&Itemid=88890163



DOE Releases Manual for CCS Public Outreach

DOE published a Best Practices Manual for Public Outreach and Education for Carbon Storage Projects, issued on January 13, 2010. The publication is designed to assist project developers understand the best outreach practices for siting and operating CCS projects, including regulatory issues. The recommendations are based on lessons learned by the Department's seven Regional Carbon Sequestration Partnerships during the first six years of the partnerships program.

The document outlines ten best practices which represent a framework for designing an outreach program that is tailored to the specific characteristics of a planned project, the project developers, and the community in which the project is planned. The most important is that public outreach should be an integral component of project management.

News-alert: http://www.fossil.energy.gov/news/techlines/2010/10002-DOE_Publishes_Best_Practices_Manua.html

Manual: http://www.netl.doe.gov/technologies/carbon_seq/refshelf/BPM_PublicOutreach.pdf

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European CCS Regulation

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- Setting up a permit regime for exploration and storage.
- Establishing selection criteria for storage sites.
- Ensuring CCS is regulated under the IPPC (Integrated Pollution Prevention and Control) Directive.
- Covering operation, closure and post-closure obligations, CO₂ acceptance criteria, monitoring and reporting obligations, inspections, measures in case of irregularities and/or leakage and provision of financial security.

On a national level, member states clarify existing regulation alongside the directive, and transpose into national law.

2. Regulation Updates

EU

EU member states have agreed to distribute 300 million allowances (EUAs) from the emissions trading scheme (ETS) to fund renewable energy and CCS projects from 2013. The EU climate change committee agreed that funds should be awarded in two stages. By the end of December 2011, 200 million EUAs will fund up to 8 CCS demonstration projects and 34 renewable energy projects. In this first round, the committee states that the CCS projects should include at least three with

hydrocarbon reservoir storage and at least three with saline aquifer storage. Decisions for the second round of 100 million permits will be made by 31 December 2013. The 300 million EUAs would amount to around €3.9 billion (\$5.4 billion) at the current market price of about €13 per tonne of carbon dioxide, but the sum could increase significantly if the price of carbon rises. The agreement requires a consultation with member states to take place before the Commission makes final decisions on eligible projects. Permits will be sold by the European Investment Bank (EIB) and then distributed to support projects. Each country can host a maximum of 3 projects funded using this scheme. The text of the decision and further information can be found at: <http://www.ner300.com>

A total budget of €1.0 billion (\$1.43 billion) has been allocated from the European Economic Recovery Programme (EERP) to fund 6 CCS projects in EU member states. The projects are:

- **Hatfield** in the UK (900 MW IGCC – Powerfuel),
- **Compostilla** in Spain (30 MW oxyfuel to be expanded to 320 MW by 2015 - Endesa),
- **Belchatow** in Poland (250 MW lignite-fired PC plant – PGE),
- **Maasvlakte** in the Netherlands (250 MW PC plant – E.on/Electrabel),
- **Jaenschwalde** in Germany (oxyfuel and PC), and
- **Porto-Tollo** in Italy (250 MWe CCS as part of a new 660 MW coal plant – Enel).

The first five are set to receive €180 million and the last €100 million in EC funding to

be supplemented by additional sources. <http://europa.eu/rapid/pressReleasesAction.do?reference=MEMO/09/542>

UK

On 23 April 2009, the UK confirmed that all new gas, oil, biomass and coal power stations at or above 300 MWe will have to demonstrate that they are carbon capture ready (CCR). This strategic framework is expected to enable timely and wider deployment of CCS. However, energy companies have challenged these CCR requirements as not being economically feasible.

http://www.decc.gov.uk/en/content/cms/consultations/ccr_consultati/ccr_consultati.aspx

The UK government is consulting on a new regulatory requirement that all new coal fired-fired power plants will have to capture at least 20-25% of their emissions from the outset of operation. This will be followed by a requirement to upgrade to full capture capacity within five years of CCS being 'technically and economically proven', estimated to be by 2020.

http://www.decc.gov.uk/en/content/cms/consultations/clean_coal/clean_coal.aspx

The UK Infrastructure Planning Commission will take responsibility of consent applications for energy projects from March 2010, taking over responsibility from the UK Department of Energy and Climate Change (DECC). Commission scrutiny will

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cover large electricity generating stations, high-voltage power lines, “nationally significant” gas infrastructures, and cross country oil and gas pipelines. This change might involve a modification in the permitting procedures for CCS power plants.

http://www.decc.gov.uk/en/content/cms/what_we_do/uk_supply/consents_planning/consents_planning.aspx

Germany

High environmental and safety standards were stipulated in German draft CCS-law as of April 2009 in order to stimulate successful CCS projects. However, in July 2009, parliament postponed CCS legislation, owing in part to concerns over public acceptance. For example, a plan to build an 800 MW coal-fired power plant at Stade, North Germany was abandoned due to civil resistance.

http://www.bellona.org/ccs/Subsite_articles/GDF_Suez_and_EnBW.

As of October 2009 a new coalition agreement was reached allowing short-term implementation of the EU-CCS-Directive in a national framework and an

information campaign to enhance public acceptance of CCS was launched.

http://www.mannheimerswartling.se/Nyhetsbrev/MSA_GER_NEW_jun09.pdf

Spain

New Spanish legislation is under review to establish the legal framework to grant CO₂ storage permits for a minimum of 20 years before legal responsibility is passed to the State. The bill will be under public consultation until 30th September 2010 and if approved by the Spanish General Courts, the new law will come into force in January 2013.

<http://www.bellona.org/files/fil Mapping CCS in Spain Report Final new.pdf>

3. Local Opposition

Public acceptance of CCS has inhibited some CCS development, particularly in Germany and the Netherlands. Directive 2009/31/EC does not have any special provisions on public participation with respect to CCS, although it does require member states to make environmental information relating to CCS available to

the public. As part of the European Commission’s Seventh Framework Programme for Research (FP7), the Commission has funded the ‘NearCO₂’ project to study public reaction to CCS in terms of how people will perceive storage projects in their local area, the risks and the benefits. The purpose of the NEARCO₂ project (<http://www.communicationnearco2.eu/>) is to develop effective strategies for communication with stakeholders and the public at large about risks and advantages of CCS so that stakeholders and the public can be included in local decision-making on CCS projects. Studies have been carried out across a range of countries: Belgium, Poland, the UK, the Netherlands, Germany and Spain, examining the policies and project approval process at the EU level and in the six member states. The preliminary report can be found at: http://www.communicationnearco2.eu/fileadmin/communicationnearco2/user/docs/Review_of_the_regulatory_context_for_public_participation.pdf. Additional consultations and interviews with stakeholders and local publics will be conducted over the course of 2010.

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Obama Creates CCS Task Force

President Obama announced on February 5 2010 that he was creating an inter disciplinary CCS task force to address incentives and barriers for CCS deployment. Included in this is clearly defining the legal and regulation issues. The EPA and DOE will chair the program. It will outline a plan to address these issues within 6 months and the goal of 5-10 commercial CCS demo's by 2020.

<http://www.ogj.com/index/article-display/0110401016/articles/oil-gas-journal/general-interest-2/hse/2010/02/obama-memorandum-creates.html>

Germany Case Study:

Barendrecht, The Netherlands

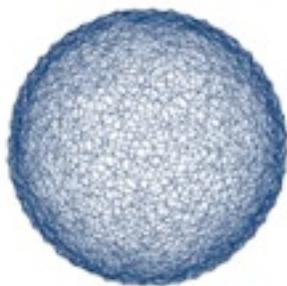
The Dutch town of Barendrecht, brought to light how local opposition has created obstacles in the implementation of CCS. Shell had planned to develop a CCS project based on diverting CO₂ from its Pernis oil refinery near the port of Rotterdam to nearly exhausted gas fields located under Barendrecht. Shell drew up an environmental-impact assessment for the project in early 2009 and put it up for public consultation where a town meeting of 1,300 residents raised objections to the plan resulting in the town council voting against the plan. Council members argued that Barendrecht, located in one of the most densely populated, built-up parts of Europe, already played host to a number of big infrastructure projects such as new housing developments, high-speed rail links and freeways, and locals expressed fears of catastrophic leaks or gas explosions. However, the Dutch national government overrode local concerns and gave the go-ahead to Shell's CO₂ storage plans. The Shell Barendrecht project will now be divided into two stages in order to

scale up the storage gradually. The Ministry of Environment believes that this will dissipate doubts regarding the safety of CO₂ storage.

<http://www.communicationnearco2.eu/fileadmin/communicationnearco2/user/docs/>

[Review of the public participation practices.pdf](#) (Barendrecht case is in Appendix G of the report.)

We thank David Reiner and Rosalynne Watt for this contribution.



COP15
COPENHAGEN
UN CLIMATE CHANGE CONFERENCE 2009

Pledges after Copenhagen

55 countries have submitted their mitigation pledges to the UN by January 31 2010. These countries, which account for 78% of the worlds emissions and include the EU, China and India, have pledged to reduce their CO₂ emissions and move to a low Carbon Economy. The US has pledged a 17% reduction of 2005 emissions by 2020.

<http://www.eco-business.com/news/2010/feb/02/55-countries-make-their-emission-pledges-un/>

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State CCS Regulation

Many State of the State addresses covered CCS as a way to tackle increasing CO₂ emissions. Gov. Joe Manchin (WV) at his address on January 13 2010, spoke of the start up of AEP's Mountaineer CCS project in 2009 <http://www.wsaz.com/home/headlines/81370342.html> Gov. Haley Barbour (MS) in his State of the State address on January 18 2010, outlined the Mississippi Power's plans for a coal gasification plant which will capture the CO₂ for EOR. www.governorbarbour.com/news/2010/jan/1.18.10stateofstatetext.html. Elsewhere, States have been continuing to define their own regulation:

Idaho

December 14, 2009. Idaho State environmental regulators have issued Southeast Idaho Energy the first State air permit to construct a clean-coal gasification fertilizer plant near American Falls, Power County, ID. This is the first facility in the US to accept limits on CO₂ emissions in anticipation of the Clean Air Act coming into force.

The plant is planning to ship the captured CO₂ via rail to Wyoming for EGR. The \$2 billion plant will turn coal into gas to produce nitrogen fertilizer and sulphur, it is estimating to capture 58% of the estimated 2.3 MT CO₂/Yr.

<http://www.martenlaw.com/newsletter/20091214-permit-with-enforceable-co2-limits>

New Mexico

New Mexico's Senate has run out of time to approve legislation that would establish pore space ownership, February 23, 2010. The bill, led by NM rancher Jake Chatfield, was initially heard on February 4, and hoped to define that surface owners own the pore space directly below their property in order to avoid future legal challenges. The bill is planned to be re-submitted next year.

[http://finance.yahoo.com/news/NM-carbon-capture-storage-apf-2226952705.html?](http://finance.yahoo.com/news/NM-carbon-capture-storage-apf-2226952705.html?x=0&v=1&utm_source=twitterfeed&utm_medium=twitter)

[x=0&v=1&utm_source=twitterfeed&utm_medium=twitter](http://finance.yahoo.com/news/NM-carbon-capture-storage-apf-2226952705.html?x=0&v=1&utm_source=twitterfeed&utm_medium=twitter)



CCS Financial Awards

\$979 million from DOE for CCS projects

U.S. Energy Secretary Steven Chu announced on December 4, 2009, that the DOE had selected 3 new CCS projects to receive almost a billion dollars to advance CCS in the US. The majority of the funds will come from the American Recovery and Reinvestment Act. The 3 projects are required to demonstrate a minimum capture of 0.3MT CO₂/Yr at a 90% capture efficiency and low cost. The projects are: [AEP Mountaineer](#), [Southern Energy Plant Barry](#) and [Summit Texas Clean Energy](#)

Unfortunately Southern Energy withdrew on February 23, 2010, from the 1MT CO₂ /Yr Plant Barry project due to insufficient time from DOE to understand the financial ramifications. Southern energy has returned the money to the DOE.

Financial award news article: http://www.fossil.energy.gov/news/techlines/2009/09081-Secretary_Chu_Announces_CCS_Invest.html
Southern Pulls out: http://blog.al.com/live/2010/02/southern_company_pulls_out_of.html

Images:

Page 1: Power plant www.geology.com;

Page 1&3: EU flay www.ida.gov.uk

Page 4: Alps www.lovelysystems.com

Page 5: Copenhagen Conference Logo
www.scientificamerican.com; Hands

together www.earthcharterinaction.org/content/categories/Communication%20and%20Media; Smoke Stack
www.redgreenandblue.com

Page 6: Smoke Stack www.telegraph.co.uk/earth/earthnews/5257162/Power-plants-could-store-carbon-dioxide-under-North-Sea.html

This newsletter was constructed using information from internet searches. All the websites used have been cited.

Holly Javedan compiled this report. For more information, questions and comments please email javedan@mit.edu. Thank you.