



**WWF** *for a living planet*

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Wednesday 28<sup>th</sup> January 2009

Dear Sir/Madam

Please find attached a response from WWF Scotland to the Government consultation document 'The consenting process for thermal power stations in Scotland'.

WWF Scotland regards climate change as the biggest threat facing humanity and campaigns at an international and national level for action to reduce our greenhouse gas emissions and prevent dangerous climate change. We very much welcome the opportunity to contribute on this issue and would be happy to discuss any of the points raised in this response with you in the future.

Yours faithfully

Dr Sam Gardner  
Climate Change Policy Officer



INVESTOR IN PEOPLE

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## WWF Scotland's response to the consenting process for thermal power stations in Scotland.

### Introduction

WWF welcomes the opportunity to contribute to this consultation on future Sect. 36 Guidance under the Electricity Act for thermal electricity generation. Climate change is the most serious threat facing the planet and human development, and one which demands urgent global and national action. To prevent average global temperatures from increasing by more than 2°C above pre-industrial levels, a threshold above which the risk of severe and irreversible tipping points in the climate becomes increasingly likely, the world's emissions of greenhouse gases (GHGs) must peak and start to fall steeply within the next 5-10 years.

For Scotland to play its part in this challenge it must reduce GHG emissions by at least 3% a year. The Scottish Government's Climate Change Bill has the potential to set an international standard in tackling climate change. However, if this ambition is not to fall at the first hurdle the new consenting process under Sect. 36 of the Electricity Act **must not allow new unabated coal fired power stations in Scotland**. Coal is the most polluting of all fossil fuels and a new generation of coal power stations will lock us into a pathway of high emissions for the next 40 - 50 years. Opposition to new unabated coal is clear and unequivocal from a huge range of experts, including regulators, eminent climate scientists and economists<sup>1</sup>.

**WWF strongly disagrees with the use of the term carbon capture and storage readiness (CCSR) as a meaningful condition for thermal plant consent** and believes that requirements to demonstrate CCR are in effect almost indistinguishable from 'business as usual' in that they allow unabated coal-fired power plant to be built.

WWF accepts that carbon capture and storage could play an important role in decarbonising the power sector in Europe and globally. **However, WWF's strong view is that 'capture readiness' is a dangerous concept which in reality carries severe risks of lock-in to high carbon emissions now and in future. Although CCS technology has considerable potential, it may prove not to be technically or economically feasible, or political will may be lacking to enforce its uptake.**

To shed light on the risks of an approach based on "capture readiness", earlier this year WWF-UK commissioned the Scottish Centre for Carbon Storage (SCCS) to examine what might be necessary to make the approach remotely credible. The SCCS report highlights many areas where the current approach is extremely inadequate. But the overwhelming conclusion was that with capture readiness, the intention is irrelevant – "only the outcome matters". SCCS's conclusions<sup>2</sup> echo the recommendations of the Royal Society<sup>3</sup> and others – for the capture readiness concept to have any relevance, it must be accompanied by an absolute binding condition requiring full CCS to be fitted by 2020.

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<sup>1</sup> For example, Lord Stern, The UK Climate Change Committee the European Parliament Environment Committee, The Environment Agency, Environment Audit Committee, Al Gore, Professor James Hansen, The Royal Society, Sir David King, Henderson Global Investments, Prince Charles, Centrica, The Sustainable Development Commission and IPPR.

<sup>2</sup> [http://www.geos.ed.ac.uk/scs/Capture\\_Ready\\_CCS\\_power\\_plant\\_Report\\_for\\_WWF\\_\(FINAL\)\\_May08.pdf](http://www.geos.ed.ac.uk/scs/Capture_Ready_CCS_power_plant_Report_for_WWF_(FINAL)_May08.pdf)

<sup>3</sup> Letter to John Hutton, April 2008, <http://royalsociety.org/downloaddoc.asp?id=5183>

WWF's strong view is that even a strategy based on a mandatory retrofit deadline entails too many risks and may prove hard to enforce in practice – and as a result will impose dangers to both the climate. Indeed, attempts to define CCR appear to offer a perverse application of the precautionary principle whereby efforts to describe each step in the capture storage chain and prevent CO<sub>2</sub> leakage invokes this principle and yet sanctioning new unabated coal stations themselves would be contrary to this principle.

### **The value of an Emissions Performance Standard**

As described in a briefing paper 'Evading Capture' (May 2008)<sup>4</sup>, WWF-UK's preferred regulatory approach is modelled on the emissions standard introduced in California in 2006. This sets a limit on the amount of CO<sub>2</sub> that new and replacement power stations can emit. An emissions performance standard (EPS) is a market-friendly approach that would not specify any particular technology – highly efficient gas stations, renewables and coal with operational CCS would all comply. It would also provide much greater certainty to investors and decision-makers than the alternative 'capture ready' approach. Our key recommendations to the Scottish Government are as follows:

- Focus on fulfilling our renewable energy potential and delivering the savings possible from reduced energy demand and improved efficiency.
- Introduce a ghg emissions performance standard of 350gCO<sub>2</sub>/kWh for *new* power plants immediately, and then for *existing* plant from 2020.

This legally binding limit provides a level-playing field for all actors. Those generators that cannot comply with the proposed EPS need to either invest in other generation technologies, foster demand-side options or – in case of old installations must close down. The proposed EPS shall be reviewed regularly in the light of the best available science and over time strengthened towards <150 g CO<sub>2</sub>/kWh. The standard should be tightened significantly if CCS technology is proven to be technically and economically viable. An EPS level of 350 gCO<sub>2</sub>/kWh, would allow both new combined cycle gas fired plants with some heat recovery and new coal with CCS from the outset. As a result it presents no risk to energy security as it does not prevent the use of technology that is currently available. Such regulation reflects the fact that on its own the EU ETS will not provide sufficient incentive to close down unabated coal plant before 2030, the deadline by which we must be close to decarbonising our power sector if we are to meet both the UK and Scottish climate change targets<sup>5</sup>.

There is precedent for this kind of intervention, not just in California, but also Oregon, Washington and Montana and in the EU response to SO<sub>x</sub> and NO<sub>x</sub> emissions which used the Large Combustion Plant Directive (LCPD) to set a baseline for power plant performance on air pollution. A recently published report by ECOFYS offers a comprehensive analysis of the various scenarios on the introduction of CO<sub>2</sub> EPS for the EU power sector and the carbon savings each scenario offers<sup>6</sup>.

### **No need for new unabated coal**

WWF and Greenpeace recently commissioned Pöyry energy consultants to look at the implications for the UK electricity sector of meeting the UK's share of the EU renewable energy target<sup>7</sup>.

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<sup>4</sup> [http://www.wwf.org.uk/filelibrary/pdf/evading\\_capture\\_brief.pdf](http://www.wwf.org.uk/filelibrary/pdf/evading_capture_brief.pdf)

<sup>5</sup> [http://assets.wwf.org.uk/downloads/80percent\\_report.pdf](http://assets.wwf.org.uk/downloads/80percent_report.pdf) and <http://www.theccc.org.uk/reports/>

<sup>6</sup> [http://www.ecofys.com/com/publications/reports\\_books.asp](http://www.ecofys.com/com/publications/reports_books.asp)

<sup>7</sup> [http://www.ilxenergy.com/pages/Documents/Reports/Renewables/July08\\_2020RenewablesTarget.pdf](http://www.ilxenergy.com/pages/Documents/Reports/Renewables/July08_2020RenewablesTarget.pdf)

The report was based on the assumption (supported by government analysis) that there was around 76GW of connected capacity in 2007. Of this, 22.5GW is expected to close by 2020. Pöyry constructed various scenarios of energy demand and renewable energy growth to ascertain whether these technologies would be able to meet the so-called 'energy gap'. Please note that its scenarios were arguably conservative in that no new fossil-fuelled capacity was included other than that already under construction (i.e. it was assumed that the additional 8GW or so of CCGT capacity which has consent is not constructed). There is also very considerable unfulfilled potential for large-scale CHP on industrial sites and elsewhere. The key finding of the Pöyry analysis is:

- **If the UK government meets its own energy efficiency and renewable targets, new base load electricity generation capacity will not be needed until the period beyond 2020. By this point other low carbon technologies will be close to commercialisation – potentially including fossil-fuelled stations with CCS, provided the technology has been demonstrated to be economically and technically feasible.** Therefore, there is no need to build new “capture ready” fossil fuelled power plants.
- **Of course, here in Scotland the projected longer life of our existing thermal plant and the far greater renewable potential means there is even less reason to develop replacement coal power plant.**

Rather than sanctioning new polluting coal with the weak condition of CCR and all the investment that it would soak up Scotland's should commit to fulfilling our significant renewable potential and in doing so remove the need for CCR coal plant.

**Question 1 - Scottish Ministers are therefore minded to insist that developers demonstrate that all new fossil fuel power stations over 300MWe in Scotland demonstrate CCR. Do you agree?**

As outlined above and explored in more depth in the report 'Evading Capture' CCR is a concept that offers little confidence in future carbon abatement and considerable risk of carbon intensive lock in for the next 30 -40 years. The consultation document itself states that 'assessments for CCR, in particular on the transport and storage factors, can be no more than outline'.

The conclusions of the work by the Scottish Centre for Carbon Storage (SCCS) highlighted the challenge, and therefore the considerable risks attached to CCR. Some of their key findings are set out below:

- For power plants the essential requirements for consents/permits are i) plant layout enables easy addition of capture equipment, and space is available to build the equipment; ii) plant design permits a range of potential capture equipment to be added within 10 years at most; iii) staff skills and expertise is available. Power companies, project developers and investors should also be required to provide design studies, that is, detailed information about the design decisions made, and show that they have considered the potential impacts of a retrofit on all parts of the plant.
- If capture is to operate in the UK, it is necessary to have not only the technical hardware, but also expertise and skills in capture across a range of plants, run by large and small power plant operators. SCCS proposes an immediate requirement that each new CR plant constructs and operates a pilot capture facility of 1-25 MW size. This may also start development of a UK industry supply chain for components and services.

- The standard of CR design and planning must be sufficiently detailed that an outline planning application can be made for the capture addition to the power plant, the transport route can be safeguarded by planners, and the storage site can be appraised to guarantee the required volumes at the required times.
- Liability and financial arrangements (e.g. insurance against future leakage of CO<sub>2</sub>) must be planned and confirmed in outline, to safeguard public and government risk during capture, transport, storage site operation, and handover to government after site closure.
- A plan for system integration and operation must include the full chain of: capture, transport, and storage operation. This will also specify ranges of CO<sub>2</sub> flow rate, composition/purity, pressures and temperatures.
- In addition to these technical issues, material evidence is needed that there are preparations on-going for an operating CCS value chain. Documentation identifying potential operators of the planned transport and storage operations, and what relevant competence they have or need to acquire or develop is needed. An indicative business model for the CCS value chain should also be outlined.

These conclusions and the remainder of the report make it clear that the concept of CCR is in effect a fig leaf that could open the door to new unabated coal with devastating climate change impacts.

**Question 5 - Do you agree that developers should have suitable space on site or adjacent to it to accommodate future carbon capture and processing plant?**

The availability of suitable space to accommodate future carbon capture plant is just one of a number of requirements that need to be placed on developers to give meaning to CCR. We consider it to be unacceptable for developers to be merely required by government and/or the regulator to set aside space for carbon capture technology to be fitted at some unspecified time in the future when CCS is hopefully viable. The possibility of CCS being viable at sometime when the price is right should not be used as a fig leaf to give unabated coal-fired plants the go-ahead.

**Question 14 - Do you agree a plant should only be consented if the studies and assessments carried out enable the consenting body to judge it capable of being built CCR?**

No. The expert analysis of the term CCR commissioned by WWF has clearly shown that there is far too much ambiguity and uncertainty surrounding the many components of CCR for it to have any value. WWF would not have sufficient confidence that any assessment of CCR by the consenting body would prevent unabated coal development that would effectively lock us into a high carbon power sector.

**Question 15 - Should the final drafting of the EU directive allow Scottish Ministers be able to consent to new power stations that do not meet all the four factors that underpin the CCR criterion in some circumstances? If yes, what might such circumstances be?**

No. There should be no circumstances under which Scottish Ministers are able to apply weaker conditions of CCR on new unabated power plants that the EU Directive lists as necessary. To do otherwise would undermine Scotland's position of leadership on climate change and simply serve to attract polluting development to Scotland.

However, if the Scottish Government proposed to apply an Emissions Performance Standard of no more than 350gCO<sub>2</sub>/kWh to all new thermal generating plant then this would supersede factors listed to determine CCR.