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30th January 2009

Email: thermalguidance@scotland.qsi.gov.uk

Dear Sir/Madam

Sustainable Development Commission Scotland response to the Scottish Government consultation on *The Consenting Process for Thermal Power Stations in Scotland*.

Please find enclosed our response to your above consultation. This response has been prepared in advance of publication of an active piece of work that the Sustainable Development Commission is undertaking on the topic of coal and carbon capture & storage. While we expect to publish our full position paper on this within the next few months, we are aware that you require information and views to assist your consultation. Hence, we have formulated a response to assist you in your current review.

This means that some of the views provided here are interim positions dependent on our finalised piece of advisory work. When this is complete we will provide the Scottish and UK Government's with our advice in a more formal manner than at present.

The Sustainable Development Commission is an executive non departmental public body, working across the four Governments of the United Kingdom. In Scotland the Commission provides scrutiny, advice and capability support to the Scottish Government to assist it in the delivery of relevant sustainability objectives. We have responded to this consultation based on assessing the sustainable development implications if the Government were to proceed with a consents process based on the consultation. Therefore we have used the five principles of sustainable development as agreed by the four UK governments, and which are also relevant to the Scottish Government's Single Purpose of providing opportunities for all in Scotland can flourish through increasing sustainable economic growth.

Our primary concern in reviewing the Government's consultation document is that we do not see that the Scottish Government has satisfactorily considered different options available for setting conditions on new thermal generation plant. While the EU Draft Directive contains provisions relating to carbon capture readiness, it is clear that this Directive is planning to set minimum standard, and the Scottish Government could therefore choose to go beyond this European minimum. However, this consultation does not set out and discuss options that could be taken which go beyond this minimum.

Without such consideration, we are therefore concerned that the building of new thermal generation plants in Scotland, that are carbon capture ready, but which may never capture any carbon will threaten achievement of Scottish and UK targets set out in the respective Climate Change Bills. This would have significant impacts on the sustainability of energy generation in Scotland.

The technology of carbon capture and storage offers significant potential, both as a means of reducing the greenhouse gas emissions for thermal generation, and as a potential new industry for Scotland. However, this technology is still within a development stage, so there remain important questions about the viability of this technology in scale and cost terms, as well as about timescale for adoption.

Therefore we would like to see the Government considering these issues more fully, before settling on a s36 criterion that new thermal generation plants should be carbon capture ready. Our recommendation is that Government should first consider what options exist for ensuring that plants will be fitted with carbon capture equipment, either from start of operation, or at an agreed point.

Government should also look more carefully at use of criteria such as emission standards, that could be used to help set minimum performance standards for new generation plant, but which would give developers and operators more freedom to decide how to meet such standards.

As already noted, the Sustainable Development Commission is currently reviewing the issue of coal and carbon capture technology, and we will submit this information to the Scottish Government in due course, as we are of the view that this work will provide useful background information and advice that will assist government in this matter.

Below are our specific answers to the questions set out in your consultation document, which I hope provide you with more useful background on our views.

If you require any further information or clarification on this consultation response or on our related work, please do not hesitate to get in touch.

Yours sincerely

A handwritten signature in blue ink, appearing to read 'Maf Smith', with a stylized flourish at the end.

Maf Smith
Director, Scotland

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

We do not agree with this statement, and think that this criterion will almost certainly prove inadequate. Our concern relates to what consideration the Scottish Government has given to the likelihood that consented plants that are carbon capture ready then become fitted with carbon capture technology in the future.

As it is unclear that carbon capture ready plants will capture carbon in the future, we are concerned that consenting new thermal generation plants will lead to an increase in greenhouse gas emissions, and so will be counter to the Scottish and UK Government aims to cut greenhouse gas emissions.

While “carbon capture ready” means that a plant is theoretically ready to accept and have new technology fitted in future to allow carbon to be captured, we do not see that there is currently any clear indication that this readiness will indeed lead to such technology being subsequently fitted and emissions from plants being reduced.

We agree that the do-nothing option is not one that Scotland can take, because Scotland needs to consider options for new generation capacity. However, it is not clear from this consultation that the Scottish Government has considered the different costs and benefits of options for setting conditions on new thermal generation plant. We would therefore recommend that before the Scottish Government establishes new guidelines, it should first review what options it has available that could be used as the basis for awarding any consents. We would have liked this consultation to set out more clearly the options available to Government.

Options for conditions around new thermal generation plant include:

1. consenting new generation plant without conditions on either carbon emissions or carbon capture technology
2. ensuring plants are carbon capture ready
3. imposing a time limit after which all new fossil fuel generating plant would require carbon capture technology to be fitted and in use.
4. ensuring new plants are fitted with carbon capture technology from commencement of operation
5. establishing minimum emission standards to govern the operation of any new generation plant
6. imposing a moratorium on new fossil fuel plant until there is a clear timescale over the commercial viability and market readiness of carbon capture technology.

The Commission is concerned that consenting new thermal generation plant which is carbon capture-ready but does not actually capture carbon will be in serious conflict with the emissions reductions required by the UK and Scottish Climate Change Bills. Carbon capture and storage is proven but not currently commercially viable, so we do not see that the Scottish Government has enough information to be sure that asking for plants to be carbon capture ready will lead to emission reductions.

We would also note the advice given by the UK Committee on Climate Change, which has recommended that:

“New conventional coal-fired power stations should only be built on the clear expectation that they will be retrofitted with CCS capability by the early 2020s (main report, p. 173), and

“There is therefore a strong case for buttressing the carbon price lever by establishing a clear and publicly stated expectation that coal-fired power stations will not be able to generate unabated through the 2020s and beyond the early 2020s.” (p.199)

We would recommend that the Scottish Government ensures that any section 36 guidance is compatible with the Committee’s recommendations.

Therefore it will be more appropriate for the Government to consider setting either an emission standard, a time limit on how long new plant can operate without carbon capture technology fitted, or a moratorium on new plant fitted without such technology.

Our ongoing review of Coal and Carbon Capture technology will be considering these options, and their relative sustainability, and we will be happy to share the emerging findings of this work with the Scottish Government.

Question 2 - Do you envisage any difficulties with using the consent regime under section 36 Electricity Act 1989 to implement Article 32 of the draft EU Directive on the Geological Storage of Carbon Dioxide?

We do not foresee difficulties using the consent regime under the section 36 Electricity Act 1989 to implement Article 32 of the draft EU Directive on the Geological Storage of Carbon Dioxide. However, we would note that the provisions within this draft set out the current minimum standard. We would recommend that before the Scottish Government signs up to these standards, it should first consider whether it wishes to go beyond these proposed European wide minimum standards, and in doing this Government should consider whether implementation of this Directive is in accordance with the advice received from the UK Committee on Climate Change.

Question 3 - In relation to CHP, what impact might a CCR requirement have on the likelihood of new build, whether for 300MWe or more standalone CHP plants or Good Quality CHP plants attached to coal and gas generating stations?

If the Scottish Government wishes to reduce the emissions of thermal generation, then we would recommend that it actively considers both how to encourage greater efficiency (through for example use of CHP technology) as well as about options for carbon capture readiness.

It is clear that there is a spectrum of efficiencies that could come from different consents offered.

At one end of this spectrum would be consenting new plant with no constraints on efficiency or technology. At the other end of this spectrum would be consenting new plant on condition that it both uses CHP and carbon capture technology.

Not including criteria for use of CHP technology, while only requiring thermal generation plant to be carbon capture ready, will result in performance towards the bottom end of this spectrum, and will mean little action is being taken to limit emissions from any new plant.

We note that in its consideration of energy from waste plant, the Scottish Government has indicated that it wishes to set an efficiency target which will encourage CHP or heat only generation to be used for new waste plants in Scotland. The Government should consider whether it is appropriate to set the same or similar criteria for new thermal generation plant.

We would also recommend that the Scottish Government looks more closely at the options for using emission standard (which is progressively lowered over time) to guide the development and use of new generation plant. Advice from the UK Committee on Climate Change is that an appropriate ceiling would be 550 gCO₂/kWh today, reducing to 310 gCO₂/kWh in 2020 and to well below 50 gCO₂/kWh in 2050.

Setting such a standard may be the best way to deliver emission reductions, while allowing developers and plant operators to consider how best to meet the target. This could be through a mixture of measures such as CHP, heat provision and carbon capture readiness.

Question 4 - What might be the impact of the potential costs of CCR for 100% biomass power plants and so the implications for their future build?

The Scottish Government should look more carefully at what the net carbon emissions from biomass power stations might be. It seems unlikely that biomass power stations need to be included in provisions relating to Carbon Capture Readiness. However, we would note that consideration of the option of setting an emission standard for a consented plant would allow developers more freedom to look at options such as use of renewable fuels alongside or instead of fossil fuel use.

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?

Question 6 - What do you see as the appropriate space requirements to accommodate different types of capture technologies and why?

Question 7 - How might these vary in relation to different sizes or types of plant?

In relation to these three questions, we would note that there will be a minimum requirement to meet the EC Directive, so having appropriate space alongside a plant will be important. We do not have any advice we can give to Government as to what this level of space might be, but do note wider concerns that as the technology is developing there may be insufficient information to be confident that sufficient space requirements will be provided.

Question 8 - What should be the information parameters that developers would be required to produce in order to demonstrate the feasibility of retro-fitting carbon capture technology to their combustion plant?

We would be very sceptical about a developer's ability to demonstrate the feasibility of retro-fitting of carbon capture technology to any proposed plant, given that the technology has yet to be developed at sufficient scale, so find it hard to provide Government with views on what information could effectively demonstrate the feasibility of retro-fitting carbon capture technology.

Question 9 - How should a developer demonstrate the identification of a potential storage area or areas when it develops new combustion plant?

Question 10 - How should identifying a potential area be referenced? What studies should be considered?

We would be sceptical that a developer would be able to demonstrate that they had identified the correct potential storage area, given that the technology has yet to be developed at sufficient scale.

Question 11 - What issues should a feasibility study for each application address in relation to the transport component of CCR?

Question 12 - Should this transport assessment address the three issues set out above?

We would be sceptical that the Scottish Government or developers would have sufficient knowledge today to be able to predict with certainty what issues should be addressed in any feasibility study.

Question 13 - We would welcome any comments on these headline areas and the 'no-barriers' approach being adopted regarding CCR assessment.

We have not considered this matter in detail because we are of the view that simply requiring plants to be carbon capture ready is the wrong approach to take by the Scottish Government.

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.

We agree with the implication that no plant should be consented that does not or will not be able to capture carbon during its design life. However, we are of the view that this minimum threshold is too low a standard and that the Scottish Government should consider other options that will better deliver carbon capture of any emissions generated by new plant.

Question 15 - Should the final drafting of the EU directive allow should 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. Of the example reasons given in the consultation, we do not see that these would provide sufficient justification to weaken any conditions given as to consent of new generation plant. We would see that the conditions agreed would represent the minimum acceptable standard, meaning that it would then be up to any developer to find suitable sites on which these conditions could be met for any proposed scheme.