



Faye Williams  
Department of Energy & Climate Change  
4<sup>th</sup> Floor Area C  
3 – 8 Whitehall Place  
London SW1A 2HH

8<sup>th</sup> September 2009

Dear Ms Williams,

### **Consultation Response – A Framework for the Development of Clean Coal**

I am pleased to respond to the Department of Energy & Climate Change consultation on a Framework for the Development of Clean Coal, on behalf of CoalImp – the Association of UK Coal Importers.

CoalImp represents major coal users (including all of the coal-fired generators in Great Britain), rail companies, ports and other infrastructure operators in the coal supply chain. The twenty two members (listed in the attached Appendix) account for the handling, transportation and use of the majority of imported supplies into the country, in turn accounting for around a quarter of electricity produced last year.

### **General Comments**

CoalImp welcomes the Government's recognition of the role that coal can continue to play in the UK's energy mix, within a low carbon agenda. Coal, which is available in abundance from a range of sources around the world – complementing indigenous production – can play a major part in maintaining the security and reliability of the UK's electricity supplies. CCS could also help generate employment and UK intellectual property. We believe that the proposed framework should be significantly enhanced to evolve into a platform for the large-scale deployment of CCS in the UK, including transport and storage, thereby laying down the foundations for 20-30GW of CCS deployment by 2030.

The clearest test for the viability of the Framework is whether it gives power companies the confidence to build new coal-fired plant equipped with CCS. CoalImp believes this consultation to be well-intentioned but fears that it does not yet provide sufficient certainty to allow the major investment that is required to go ahead. The Government recognises that it will have to contribute to the cost of demonstrating the feasibility of carbon capture and storage (CCS) but present proposals appear to leave so much risk with the developer that it must be doubtful whether any new coal-fired plant will be built.

The undefined nature of the regulatory contingency regime and the mandatory requirement for CCS retrofit present major risks. The fact that new gas plant does not face these risks, despite the long-term carbon lock-in associated with new gas stations, means that the playing field will continue to be skewed strongly in favour of gas build. With a 'generation gap' becoming a possibility, CoalImp is concerned that the uncertainty facing investors will drive them, unavoidably, to invest in more new gas-fired plant than would otherwise have been the case, with the benefits of the diversity that coal provides for the UK being lost.

It is appreciated that this is a consultation about coal and that it may be the Government's intention to require CCS to be retrofitted to gas. If that is so, then it must be clearly stated now.

The consultation raises the possibility of the introduction of an Emissions Performance Standard (EPS). CoalImp has concerns about introducing an EPS when CCS technology has yet to be demonstrated on a commercial scale. Not only is it rather soon to be considering an EPS, but, the key instrument of public policy for the reduction of CO<sub>2</sub> emissions remains the EU Emissions Trading Scheme (EU ETS). This is meant to provide a signal for market participants, including electricity producers, to direct investment into lower carbon production in an economically efficient manner. Proposals for EPS could undermine the EU ETS at a time when it needs its longer-term credibility to be strengthened.

As for the government-supported demonstration of CCS, the proposal that there should be 'up to four' projects is woolly and inadequate. It should be replaced with a clear commitment to four demonstration projects as a minimum. In order to achieve an objective of 30GW CCS by 2030, Government needs to rapidly commit to the four demonstrator projects with the aim of a second tranche to be constructed prior to the early 2020's when a major CCS build programme might commence. Without such early commitment, the UK would be faced with a substantial, and possibly infeasible, plant construction programme in the mid to late 2020s. The existing single plant competition needs to be fully integrated with this wider approach as soon as possible.

Detailed answers to the consultation questions are attached.

In summary, CoalImp congratulates the Government on what could be a major step forward for coal-fired generation and CCS. However, despite the good intentions underlying this consultation, there is a real risk that some of the measures proposed will deter potential investors in coal with CCS, and that they will be encouraged instead to build unabated gas plant.

**Government should make it clear, now, that CCS will also have to be applied to gas-fired power stations.**

Yours sincerely

**Nigel Yaxley**  
Managing Director

**Question 3.1. What are your views on how effective the proposed framework of financial and regulatory measures will be in supporting delivery of our vision for clean coal at home and abroad?**

We fully support the stated goal (para 1.9 of the Consultation Document) of stepping up efforts for the development and deployment of CCS. However, this should be done as part of a much wider vision for CCS than that articulated in the Consultation. The Framework is a useful first step but requires considerable development to set up the world-class CCS system to which it aspires.

Government ambitions in CCS appear limited despite the urgent need to develop options for effective and efficient decarbonisation of the power sector. The Consultation provides little incentive to progress beyond the first few demonstrators until 2025. We believe that the proposed framework should be significantly enhanced to evolve into a platform for the large-scale deployment of CCS in the UK, including transport and storage, thereby laying down the foundations for 20-30GW of CCS deployment by 2030.

Specifically, Government needs to set out a clear action plan in order to provide developers with confidence as well as to signal the importance of CCS in achieving the UK's carbon reduction targets. The Climate Change Committee (CCC) has recommended that the UK should seek to decarbonise the electricity production sector by 2030 and has recognised that, over the next few decades, a substantial amount of the power sector infrastructure will need to be replaced if that target is to be met. Indeed, it is understood to be considering scenarios in which up to 20-30GW of coal plant could be operating with CCS by 2030 and is developing a 'road-map' by which such an objective could be established. We believe that this level of forward thinking is essential if the UK is to achieve both its carbon and its energy security objectives. Commercial signals are required urgently to ensure that the current coal plants, many of which will be closed by the early to mid 2020's, are replaced by coal CCS rather than gas.

The UK is strategically well placed in terms of a need to replace a major tranche of coal plant over the next two decades, combined with a number of large CO<sub>2</sub> emitters in close proximity to a potentially very large offshore storage capacity. In addition to the economic benefits of a CCS programme compared to a major offshore wind build, coal with CCS is a power source independent of the vagaries of the availability of wind.

The focus of the CCS Demonstration Programme put forward in the Consultation is mainly restricted to capture technology demonstration activity. The deployment of CCS on a large-scale will require the funding and development of transport and storage infrastructure. The Consultation notes the benefits of clusters of CCS plants but does not provide clarity of vision of deployment and neither does it attempt to integrate them adequately with the demonstrator programme.

***Question 3.2. How do you think the proposals might impact on decisions to invest in new coal power stations and CCS demonstration in the UK? How can the framework best be developed to encourage investment in coal and CCS in the UK?***

CoalImp has concerns about the level of risk that the developer would be expected to carry under the proposals set out in the consultation document, which may impact negatively on investment decisions. Firstly, the uncertainty regarding the number of demonstrations to be supported may in the first instance deter businesses from spending sufficient resource on developing project proposals to competition standard. There is also concern that, if a proposal is accepted, developers will not be able to access any financial support before the demonstration is operational, and will therefore have to bear the full weight of the initial capital costs. Finally, there appears to be a disconnect between the finite funding allowance and the long-term regulatory requirements placed upon developers. If left unresolved, these issues are likely to damage investor confidence and may drive companies to invest elsewhere in Europe where the risk profile for projects is lower.

We do not believe that the proposals in the Consultation provide sufficient confidence to the market that the Government is seriously considering CCS as a long term contributor to climate change mitigation. The proposals introduce uncertainty and delay rather than providing the confidence to developers that investment in coal and CCS will be remunerated. Without that confidence, and with an urgent need to replace older, high-carbon plant, developers will continue to build gas (without CCS), rather than coal (with CCS), plant. The UK is already experiencing a new 'dash for gas' which will result in a high level of 'locked-in' fossil CO<sub>2</sub> emissions together with a high future dependence on imported gas; a situation which will only deteriorate unless coal CCS can be brought on line quickly.

***Question 3.3. What are your views on the proposed objectives of the UK CCS demonstration programme, including the scale of individual demonstration projects?***

We suggest that the Government needs to be much more ambitious and that it should set out a key strategic objective of ensuring that CCS provides a substantial contribution to the UK to meet its 2030 carbon reduction targets, (around 20-30GW). This would require the demonstration of integrated CCS systems, enabling the appropriate development of CO<sub>2</sub> transport and storage infrastructure, that will encourage further deployment of CCS into the future.

Without such ambition, the Consultation objectives do not appear realisable. For example, "maintaining momentum" and developing a "sustained UK capability" will not be delivered simply by gaining experience on a couple of capture projects. Neither will the ambition of gaining a significant share of the global CCS market. These will only be achieved if there is a substantial long term CCS deployment programme (including transport and storage) which will attract the investors and the engineering expertise to the UK. The objective of helping to establish competitive UK supply chains for CCS design, equipment and operation

is, without long term confidence in UK funding and UK regulatory stability, unlikely to be achieved.

It is also to be noted that the stated objectives include the development of CCS on gas. The otherwise one-sided nature of the Framework (requiring CCS on coal but not on gas) is a serious flaw since developers will, unless security of supply is addressed in the market, prefer to build gas without CCS, rather than coal with CCS. The Government has lost the opportunity to require CCS on gas plant, even though it is forcing these plant to develop them as Carbon Capture Ready (CCR). The Framework has implicitly reduced this requirement to a mere paper exercise rather than providing a positive signal to gas plant developers as well as levelling the 'playing field' for fossil plant.

The objectives introduce, but do not define, the concept of "commercially viable", giving the impression that the CCS programme will only require support until the EU ETS carbon price rises sufficiently. For a potential developer of CCS plant, this introduces far too much uncertainty and doubt about Government commitment, particularly given the level of subsidies already being allocated to expensive renewables such as offshore wind. Indeed the contrast between the proposed CCS Framework and the current Renewables Obligation (where new build is encouraged through targets and appropriate support mechanisms) is marked. Even with today's technology the economic performance of coal CCS compares well against renewable generation. Offshore wind receives 2ROCs/MWh whilst in contrast it is expected that CCS projects could require significantly less than this level of support.

We are concerned that the future technological capacity for CCS will be developed outside the UK. Unless there is real confidence that the UK is prepared to support a development programme as well as a long term deployment of CCS, the expertise will not remain in the UK and the Government will fail in its objective of being at the forefront of CCS technology and industry. Many other countries have ambitious CCS programmes in which developers appear to be more willing to invest. If there is too much delay or uncertainty, the (multi-national) industry will no doubt focus on countries where the incentives are greatest, leaving the UK to eventually import the technology and expertise. The initial Government CCS competition, whilst welcome in concept, is already too late.

***Question 3.4. What are your views on whether and how an emissions performance standard (EPS) could support our policy objectives?***

CoalImp believes that it would be inappropriate to use an EPS to support the Government's policy objectives. The EU Emissions Trading Scheme (EU ETS) should remain the key policy instrument to achieve a reduction in carbon emissions by providing sufficient incentive for market participants to direct their investments towards low-carbon energy generation. Introducing a further regulatory measure may only serve to undermine and distort the existing mechanism. With regard to retrofit, we feel it is fair to assume that, once technically and commercially proven, CCS will effectively become the Best Available Technology (BAT) for new coal power stations, and an EPS would therefore be an unnecessary additional measure.

The key objective at this stage of development should be to set in place the foundations of a CCS programme rather than to attempt to second-guess the detailed regulation of an integrated capture/transport/storage system whose technological performance is imperfectly known and where the different components may develop at different rates.

***Question 4.1. Do you agree, in principle, that new coal power stations should be required to demonstrate CCS?***

The Consultation is biased in favour of gas. We believe that all new fossil plant, whether coal or gas, should be built as part of a clear programme for integration into a future CCS regime. It is unhelpful for new gas plant to be built without any demonstrator, or future retrofit, requirement. This omission destroys the credibility of recent Government regulations around CCR and reduces the likelihood of any new coal plant being built.

***Question 4.2. What additional planning conditions do you think an operator should have to meet to show that they would be able to meet a requirement to demonstrate CCS?***

There are no additional planning conditions necessary.

***Question 4.3. What are your views on the best approach to monitoring the operation of CCS demonstrations?***

The mechanisms for monitoring already exist in the Environmental Permit (EP) for the plant which will be issued by the EA. All EPs have an annual reporting requirement which covers the previous year's performance as well as an assessment against improvement targets. The EA merely needs to ensure that the plant provides an adequate assessment of the CCS demonstrator as well as progress towards the complete retrofit and can achieve this simply by specifying, in the Permit, the level of detail required.

***Question 4.4. Under which circumstances would you consider it acceptable and/or necessary for power station operators to switch off the CCS chain?***

***Question 4.5. Do you agree that new coal power stations should be required to cease operation if the operator cannot demonstrate that they are making reasonable efforts to operate the CCS chain?***

Government is clearly concerned that one or more of the CCS technologies being developed will work at less than the anticipated performance level. Such concerns exist at the capture, transport and storage phases. In an innovative area such as CCS, it is to be expected that technology improvements and developments will occur as plant designers and operators gain experience. However, potentially requiring a plant to close is a draconian measure,

particularly without adequate definition of 'reasonable efforts', and this will reduce the likelihood of a developer wishing to build a CCS demonstrator in the first place. The whole point of demonstrators is to establish the limits of the technology, and hence setting up regulatory regimes which penalise failure will be counterproductive. As indicated in the answer to Question 4.3., the EA will have plenty of opportunity to interrogate the plant's performance prior to any difficulties in deployment emerging.

***Question 4.6. Do you agree, in principle, that there should be a requirement to retrofit?***

Yes, but only if it is made clear, now, that there will be a requirement to retrofit CCS to gas plant.

***Question 4.7. What are your views on the criteria that should form the basis of an assessment of when CCS is technically and economically proven?***

***Question 4.8. Do you agree that the Environment Agency should be tasked with assessing when CCS is technically proven?***

***Question 4.9. Who do you think should be tasked with judging when CCS is economically proven?***

***Question 4.10. Should the decision of when CCS is proven be one for an independent body to take, or for the Government on the basis of independent advice?***

***Question 4.11. Do you agree that the Environment Agency should implement any requirement to retrofit CCS through the Environmental Permitting regime?***

It is not unreasonable that the EA should manage these tasks since this would be an extension of its current role of permitting complex industrial plant and judging the application of Best Available Technique (BAT) as a combination of economic and technical factors. However, the EA does need additional resources and expertise, particularly since it will be required to extend its scope of competence into the technical aspects of the capture, transport and storage parts of the CCS chain.

However, the Consultation consistently uses the phrase 'economically proven'. This is not adequately defined and should not be defined by an organisation such as the EA, which can simply make judgements about the costs of technologies. It cannot make judgements about the level of subsidy which is politically acceptable to ensure security of supply. It is to be noted that Government has recently concluded that offshore wind will not be 'economically proven' unless a support of 2 ROCs is provided and a similar approach needs to be implemented for CCS.

The impression is given in the Consultation that Government interprets 'economically proven' as simply being when the carbon price under the ETS reaches a certain, unspecified, level. This is unlikely to be a sufficient criterion to attract investors. The aim should be to develop the regulatory regime such that it is economically viable for demonstrators to continue their retrofit process rather than establish regulatory barriers which operators will use to delay investment. The current example of offshore wind and the necessity to increase the ROC award is highly apposite; developers need to have an economic incentive to invest in capital-intensive and risky projects.

***Question 4.12. What are your views on how the requirement to retrofit should apply to existing power stations?***

The mechanism for retrofitting existing plant already exists in the Environmental Permit and the requirement to justify the use of BAT, the definition of which will incorporate an analysis of whether CCS is technically proven and whether it can compete in the market place. All plant, in particular those which are currently being built as Capture Ready (i.e. coal and gas), would then be expected to retrofit to BAT standards over a defined period of time or else gradually reduce output.

***Question 4.13. Do you agree, in principle, that there is a need for a contingency measure?***

***Question 4.14. Do you agree that decisions about the introduction and design of any contingency measure should be subject to an independent review that would report in 2020?***

***Question 4.15. Which aspects of any contingency should be defined through a review and which should be defined now?***

CoalImp does not agree with a need for a contingency measure. Every effort should be made to ensure the commercialisation and wide-scale deployment of CCS, however, should this fail, the EU ETS should remain the back-stop mechanism for achieving carbon abatement in the power sector.

In the extremely unlikely event that CCS does not work, this would be a catastrophic setback to climate change mitigation at a global level. It will be completely irrelevant then for the UK to envisage proceeding with a contingency measure in isolation. The greater risk is that such a measure will be a further disincentive to developers wishing to deploy CCS in the UK, with all the lost opportunities and threats to security of supply which this entails.

***Question 5.1. What are your views of the proposed mechanism for providing financial support to CCS demonstration projects? Does it strike the right balance between attaining value for money from public funding while addressing the needs of potential investors? Do you agree with our initial view that a CfD is the most appropriate model for a disbursement mechanism?***



The Framework needs to develop an implementation plan and long term support mechanisms to ensure that the necessary investments in generating/capture plant, transport pipelines and long term storage are delivered. The key issue for a potential investor is the removal of investment uncertainty combined with the introduction of policies and regulations which provide realistic objectives and incentives. We believe that the way forward should be to develop a support mechanism which would be applicable to all demonstrators, demonstrator retrofits and second phase projects. As such it needs to have the potential for longevity as well as flexibility to reflect the changing environment of carbon prices and market structures. The CfD process, as suggested in the Consultation, has merit but it needs to be deployed more widely.

In addition, consideration needs to be given, even at this early stage, of how the future power generation market would work when many major energy generation technologies (renewable power, renewable heat, CCS and, perhaps nuclear) will be funded through subsidies or support mechanisms. The development of a plethora of support mechanisms will inevitably have an influence on the way that the market operates and will affect the extent of penetration of an individual technology. Government has the opportunity, whilst developing a CCS support mechanism, to consider how it will fit into the wider, integrated, market framework and how the overall cost to the UK consumer of realising carbon reduction goals can be minimised. (As noted above, coal CCS is potentially less costly than offshore wind and provides considerably superior benefits in terms of security of supply.)

***Question 5.2. What are your views on the proposed arrangements for selecting and managing CCS demonstration projects? Are there additional or alternative arrangements we should consider?***

There should be one call for all four (not up to four) projects with immediate selection in the first round. In order to achieve an objective of 30GW CCS by 2030, Government needs to rapidly commit to all 4 demonstrator projects with the aim of a second tranche to be constructed prior to the early 2020's when a major CCS build programme might commence. Without such early commitment, the UK would be faced with a substantial, and possibly infeasible, plant construction programme in the mid to late 2020s. The existing single plant competition needs to be fully integrated with this wider approach as soon as possible.

***Question 6.1. What are your views on how the demonstration projects could make the most cost-effective contribution to future CO<sub>2</sub> infrastructure?***

***Question 6.2. What are your views on how can we best ensure that CCS business clusters are encouraged, maximising the future opportunities for UK business?***

We believe that the first four projects should be considered in the context of the wider deployment of CCS and not just for the purpose of demonstrating capture

technology. It is therefore crucial that the important potential of clusters is recognised early in the development of these projects in order to maximise their role in enabling wider use of CCS in the UK as early as possible.

The success of CCS depends on all three elements – capture, transport and storage – being set up simultaneously in locations able to service the long term UK fossil-fired infrastructure. Whilst the capture technologies will be developed globally, the implementation of the transport and storage aspects of CCS will remain local and highly dependent on Government policy and ambition.

The single-pipe option implied by the present demonstrator project framework will act to deter co-ordinated development and long term clustering of sources. It is noteworthy that several companies participated in the recent Yorkshire Forward study on CO<sub>2</sub> transport that identified the potential for linking a substantial amount of fossil-fired generating plant, and other industrial emitters, with North Sea storage sites by a pipeline. Other studies in Scotland and the Thames Estuary have also identified interest in a multi-contributor pipeline.

The Consultation does not offer any discussion on the mechanisms by which pipelines could be managed, regulated or encouraged. Similarly, processes by which storage locations can be identified and proved are absent from the Consultation. It is evident that no future CCS generating plant will ever be constructed without simultaneous security of the availability of both transport and storage and hence the Government needs to grasp the opportunity, initially through the demonstrator programme, to ensure that the CO<sub>2</sub> pipelines and storage areas are constructed at the appropriate size, and in the appropriate locations, to service a substantial future CCS programme.

At a minimum, any pipeline for a demonstrator plant should be constructed at a size capable of handling CO<sub>2</sub> from the whole power plant (in preparation for eventual full retrofiting). Beyond this, it could be a missed opportunity, and a potentially poor use of public finance, to build a pipeline that is not appropriate to the development of a cluster of CCS projects in the area within which the demonstration project is taking place. Within the demonstrator programme, Government should preferentially select projects that bring clustering benefits to the area. The prospect of actual or planned CCS infrastructure will influence the location of future power projects, contributing to a larger, and hence more economic, transport pipeline.

### ***6.3. Are there any other actions that the Government should consider taking at this stage to prepare for the full commercial deployment of CCS?***

It is appreciated that this is a consultation about coal and that it may be the Government's intention to require CCS to be retrofitted to gas. If that is so, then it must be clearly stated now. Otherwise, all other new fossil fuel capacity will be gas.

The one-sided nature of the Framework (requiring CCS on coal but not on gas) must be reversed to ensure that developers consider coal with CCS rather than

the current alternative of gas without CCS. New gas plant should only be built with both a demonstrator and future retrofit requirement.

There is an urgent need for public understanding and acceptance of the need for CCS, therefore we would recommend that the government seeks to engage with local communities as soon as possible as well as implement a wider public awareness campaign. Finally, CoalImp would like to see a clearer and more transparent policy 'roadmap' along with a strict timetable for policy decisions.

## **CoalImp Membership**

Associated British Ports  
British Energy Trading and Sales  
Clydeport  
DB Schenker  
Drax Power Limited  
EDF Energy  
E.ON Energy Trading  
Fastline Freight  
Fergusson Group  
FirstGBRf  
Freightliner Heavy Haul  
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International Power  
Network Rail  
Oxbow Coal  
Port of Tyne Authority  
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