



WWF *for a living planet*

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Energy Bill - Second Reading briefing

EXECUTIVE SUMMARY

- WWF is calling for an enabling clause to be added to the Energy Bill which would require the Government to put in place a CO₂ emissions performance standard (EPS) for power plants. WWF believes that an EPS is essential to help ensure the UK decarbonises its power sector by 2030 and is on course to meet its climate change targets.
- The Government is still considering allowing a new 1,600 MW post-combustion plant, such as the delayed proposal at Kingsnorth, if it captures around 20% of its emissions from the start. If the plant fails, however, for whatever reason to fit CCS to the remainder of the station then it would emit nearly 240 million tonnes of CO₂ over its lifetime. This would undermine the UK's chances of meeting its climate targets.
- The Government has recognised the need for a 'safety net' policy should CCS not work or prove too expensive but it proposes waiting until 2018 before deciding whether such a mechanism is actually needed and what this might look like. WWF believes that this is an extremely risky strategy which could be easily reversed and a number of circumstances could result in this proposed safety net being ignored in the future.
- During the Report Stage of the Bill in the House of Commons on 24 February a vote to establish an EPS was narrowly defeated by 8 votes.
- The Government added Clause 5 to the Bill during the Commons Report Stage which will provide more frequent reporting to Parliament on the progress towards decarbonising the power sector and the commercialisation of carbon capture and storage (CCS). While WWF welcomes the reporting duty the clause does not in any way reduce the need for an EPS. It does not provide any firm guarantee, beyond the current policy aspiration, that a new coal-fired power station will be required to fully fit CCS within a certain timeframe and as such does not give any greater certainty to investors now of what exactly will be required of them come 2020 or later. In contrast the implementation of an EPS would address these issues and provide long-term clarity for both investors and the climate.
- An EPS, when combined with a funding package for demonstrations, would not undermine investment in CCS and may actually help to drive investment in CCS¹. California, the pioneer of the EPS, is currently progressing with a CCS demonstration project with Hydrogen Energy.

¹ "An EPS provides a clear outcome based target for investors and technology developers to work towards – without "picking winners" – and if set at an appropriate level should help pull capital intensive, low carbon generation technologies like CCS through from demonstration to commercialisation" - *"Delivering investment in coal & CCS: policy options and investor responses"* a policy briefing by Simon Skillings and Nicky Mabey, March 2009.



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BACKGROUND

At the centre of the debate over an emissions performance standard (EPS) is the issue of certainty – for the environment and for the market – and how best to demonstrate carbon capture and storage (CCS) technology. The Government's intention is for CCS to be retrofitted to the full generating capacity of any new coal-fired power stations by 2025 if it has been shown to 'work' by 2018. However, it does not currently consider that a legal framework to actually require this and to cope with circumstances in which CCS doesn't work (whether for economic or technical reasons) is needed now to prevent lock in to long lived high carbon power plants.

WWF strongly believes that it makes more sense to establish the full details of a long-term coal and CCS policy that addresses all the plausible outcomes now rather than later. Waiting until 2018 poses many risks such as a lack of clarity for investors and the possibility that any contingency has minimal or no impact on reducing carbon emissions should CCS not work.

Environmental context

The Climate Change Act 2008 requires the UK to reduce its greenhouse gas emissions by at least 80% by 2050. In order to deliver this the Committee on Climate Change (CCC) has recommended that the power sector should be almost completely decarbonised by 2030 and that achieving this is "key" for the UK to be able to meet its long-term reduction targets. In line with this the Committee states that *"there is a very limited role for conventional coal-fired plant beyond the early 2020's"*². This means that new and existing coal plants without full CCS would have to close down or run on a very minimal basis by 2025 if the UK is to comply with its own carbon budgets.

CCS could have a role to play in helping the UK reduce emissions from the power sector. However, it is crucial that it is demonstrated in a sensible way which prevents the UK being locked into new largely unabated coal-fired plants should the technology not work or prove too costly³.

The Government's proposals

The Government announced on 23 April 2009 that *"the era of new unabated coal has come to an end"*⁴. It proposed that any new coal-fired power stations would have to capture a proportion of their emissions from the outset and that up to four coal plants would receive funding to demonstrate CCS technology. The Energy Bill now before Parliament will establish the funding mechanism for this which is expected to raise between £7.2-9.5 billion for the demonstration phase.

Of the four proposed demonstrations, two are likely to be 'pre-combustion' coal plants which by their very nature will have CCS on their full generating capacity from the beginning. The Government, however, is still considering allowing new supercritical 'post-combustion' coal-fired power stations to be built which might capture as little as 20% of their emissions from the outset. Over the lifetime of a new 1,600 MW post-combustion coal plant, such as the proposal for Kingsnorth, this could still lead to the release of nearly 240 million tonnes of CO₂, if CCS was never fully fitted to the whole capacity of the plant⁵. Failure to fully fit CCS to the whole plant would, therefore, undermine the UK's chances of meeting its climate commitments.

² Meeting carbon budgets – the need for a step change, 12 October 2009, Page 21: <http://hmccc.s3.amazonaws.com/21667%20CCC%20Report%20AW%20WEB.pdf>

³ See "Climate value for money – funding carbon capture and storage demonstrations in the UK power sector" WWF and RSPB, September 2009, http://assets.wwf.org.uk/downloads/value_for_money.pdf

⁴ Rt Hon Ed Miliband MP, Secretary of State for Energy and Climate Change, 23 April 2009

⁵ "Carbon choices – options for demonstrating carbon capture and storage in the UK power sector" WWF-UK, May 2009, http://assets.wwf.org.uk/downloads/carbon_choices_final_.pdf

Having consulted over the summer, the Government announced on 9 November 2009 that it wanted to see all new coal-fired plants fitted with 100% CCS by 2025 and that the new consumer levy could be used to support this retrofit. The Government, though have accepted that if CCS should not work or prove to be too expensive that contingency measures will be needed. Importantly, however, the Government does not plan to consider introducing a contingency plan now and may not do so until 2018 or later.

In response to concerns that CCS technology might not be fully fitted to new coal plants by 2025 the Government added clause 5 to the Energy Bill during the Report Stage in the Commons. The clause introduces more frequent reporting to Parliament on progress towards developing CCS and decarbonising the power sector. It also introduces a review of coal policy every three years. The new clause does not, however, in anyway reduce the need for an EPS and is, on its own, insufficient. Whilst progress will be more clearly measured and reported it does not set out the end date for when the power sector should be largely decarbonised and this highlights the Government's continued reluctance to accept the 2030 recommendation made by Committee on Climate Change. Nor does the new clause give any greater certainty to investors now of what exactly will be required of them come 2020 or 2025. In contrast an EPS would address these issues and provide long-term clarity for both investors and the climate.

THE NEED FOR AN EPS NOW

The environmental case for an EPS is that it would set legal guarantees that new coal-fired plants had to have full CCS by a certain date and that the demonstration phase was ambitious enough to prevent the UK from being locked into high carbon power plants. This is essential if the CCC's recommendations on coal are to be met and emissions reduced in time to meet the requirements of the Climate Change Act.

An EPS would provide greater political certainty

As mentioned the Government has stated that should CCS technology not work it will consider putting in place a contingency or 'safety net' mechanism post 2018 to ensure that the emissions from new coal plants are addressed. One of the major concerns with this is that it is so far only a political statement which could be easily reversed by a future Government. Indeed the Government of the day might not feel bound at all by a statement made in 2009 especially if the UK had, in the mean time, allowed itself to become overly dependent on unabated coal for its energy needs. An EPS mandated in law and implemented now would provide greater certainty to actors across the debate that the Government is genuinely committed to reducing fossil fuel emissions in line with the recommendations from the CCC. Of course future Governments can seek to reverse legislation, but an up-front EPS introduced now with clear cross-bench support would pose much less of a risk. It would inform investment decisions being made now, avert the high carbon lock-in that would be risked by waiting 10 years before introducing a safety net, and avoid the creation of unnecessary conflict between carbon mitigation and energy security objectives for future Governments.

An EPS would improve investor certainty and could act as a technology accelerator

As the details of the Government's 'safety net' policy are unlikely to be decided until 2018 or beyond there is still scope for uncertainty for investors regarding what exactly will happen if the technology does not work by 2020, or proves too costly. The lack of details on allowed running hours is one such issue. In addition, would the Government of the day really follow through on its proposals to put contingency measures in place should this be the case?

An EPS which tightens over time would help to improve investor certainty by establishing the ground rules under which plants would be expected to operate now and in the future. In their response to the Government's recent coal consultation Progressive Energy also state that "*It would be extremely unwise to rely on the carbon signals coming from the Emissions Trading Scheme to ensure that investment is made to limit CO₂ emissions from coal generating plant. Hence an EPS has real value in providing a market signal against which investment decisions can be made*".⁶

In addition the combination of finance for demonstrations and the establishment of a clear limit on emissions from fossil fuel plant now and in the future could also create a certainty for investors that there would be a market demand for CCS beyond the demonstration phase(s) potentially acting as a "technology pull" which drives investment and innovation in CCS⁷. In their response to the coal consultation C.GEN.NV site an EPS as being a potential technology forcer: "*We are positive on an overall emission performance standard requirement, as it is a mandatory condition to force new technology and more stringent emissions criteria (e.g. car industry). The level and timing of EPS should be clear in advance for all new plants, otherwise eternal discussions on what is proven or not will be a tactical approach for those market players that gain on CCS delay.*"⁸ The recent technology road map on CCS from the International Energy Agency also notes that an EPS could accelerate the commercialisation of these technologies⁹.

POINTS RAISED AGAINST AN EPS AND WWF'S COUNTER-ARGUMENTS

The UK Government is opposed to introducing an EPS at this current time. Joan Ruddock MP, DECC Minister of State, set out the Government's reasons during the Report Stage of the Bill and in a letter to MPs. The main arguments are below and WWF has responded to these.

a) An EPS introduced now would undermine investment in CCS

*"Both the TUC and CBI have written to MPs to explain the threat to investment posed by the introduction of an EPS at this time. It could mean no investment in new coal at all thus making the development of carbon capture and storage (CCS) technology impossible in the UK."*¹⁰

WWF believes there is no danger that investment in CCS will be deterred by an EPS when this is combined with funding for demonstrations – indeed it may act to encourage investment in innovative projects. The US State of California has implemented such a standard and is currently progressing with a project by Hydrogen Energy to demonstrate CCS¹¹.

⁶ See page 99 of: http://www.decc.gov.uk/Media/viewfile.ashx?FilePath=Consultations\A framework for the development of clean coal/responsesdocs\1_20091109111825_e_@@_ipcleancoalconsresponse.pdf&filetype=4

⁷ "Importantly, power plant standards also have been shown to be powerful drivers of technology innovations that significantly reduce the cost of emissions control. Retrospective studies credit the introduction of stringent new source performance standards for major advances in flue gas desulfurization systems for SO₂ control....Stringent standards for power plant NO_x emissions in Japan and Germany in the 1970s and '80s (and more recently in the U.S.) led to similarly dramatic reductions in the cost (and thus improvements in the cost effectiveness) of selective catalytic reduction (SCR) technology....In both cases, analysis of patent data for SO₂ and NO_x capture systems showed dramatic increases in inventive activity in response to stringent emission control requirements" – Coal Initiative Reports – a performance standards approach to reducing CO₂ emissions from electric power plants - Pew Centre, June 2009.

⁸ See page 130 of: http://www.decc.gov.uk/Media/viewfile.ashx?FilePath=Consultations\A framework for the development of clean coal/responsesdocs\1_20091109111803_e_@@_acleancoalconsresponse.pdf&filetype=4

⁹ Pgs 35 and 42 of "*Technology Roadmap – carbon capture and storage*" International Energy Agency, 2009.

¹⁰ Joan Ruddock MP, Minister of State, letter to MPs, 22 January 2010

¹¹ As of April 2009 state-level performance standards for power plant were also enforced in four other U.S States (Illinois, Montana, Washington and Oregon), and proposed in New Mexico.

An EPS, in combination with a funding package, would provide a much more comprehensive framework for demonstrating CCS. The Government has already committed to spending up to £9.5 billion on funding the demonstration programme (delivered through the proposed levy in the Energy Bill) and this finance will ensure the demonstrations go ahead. An EPS would provide long-term guidance on what was expected in terms of emissions from the companies involved in the demonstration programme.

In addition, the CCS demonstration programme could be clearly designed to comply with a robust EPS¹². WWF and other NGOs are calling for the standard to be set at 300gCO₂/kWh¹³ for new plant now (a level which could be met by a modern gas plant with some heat recovery). This would enable demonstrations of post-combustion CCS to take place on existing coal plant (such as at Longannet in Scotland). For pre-combustion demonstration the Government has already said that any such projects would be required to have CCS on 100% of their generating capacity from the start (due to this technology being integral to the design and construction of the plant). Taken together these sorts of projects would actually deliver a net emission reductions from the power sector from day one.

b) An EPS would also undermine investment in new gas plants and therefore threaten energy security.

“But it is not just coal that is at risk. The extension of an emissions performance standard to gas-fired power stations...would delay, and possibly deter altogether, investment in new gas projects.”¹⁴

As mentioned, the initial level at which WWF and other NGO's would like to see an EPS set could be met by a modern gas-fired power plant with some heat recovery. This would, therefore, not stop new gas plants from being built, rather it would encourage the more efficient use of gas and help to guide the appropriate location of any new plants.

In addition, an EPS could be consulted upon and set within six months and any delay, therefore, would be minimised. WWF believes it is preferable to take a few months now to set a clear comprehensive framework rather than to wait a number of years, possibly until 2018, for this to be in place.

c) The Committee on Climate Change has not said that an EPS is needed now

“The Independent Committee on Climate Change has said that there could be as many as four ways of making further progress on decarbonisation, of which EPS is one...EPS may become the favoured means if we have to deploy other means than CCS, but at this stage it would be premature to decide that an EPS was the right instrument, because several could be used and EPS is just one of them...Even the independent Committee on Climate Change does not recommend the introduction of an EPS now.”¹⁵

It is correct that the CCC included the EPS as one of four policy options to ensure that unabated coal plays a limited role beyond the early 2020's. The Committee, however, was of the firm view that a clear signal for investors was needed now to avoid misunderstanding and uncertainty:

¹² “Climate value for money – funding carbon capture and storage demonstrations in the UK power sector” WWF and RSPB, September 2009, http://assets.wwf.org.uk/downloads/value_for_money.pdf

¹³ An EPS set at such a level on fossil fuel plants would also ensure the most efficient use of gas.

¹⁴ Joan Ruddock MP, Minister of State, Hansard Col: 338 24 February 2010

¹⁵ Joan Ruddock MP, Minister of State, Hansard Col: 339 24 February 2010

*“The Government should provide a strong signal to investors now that this is the case whether or not CCS is later proven – **to prevent investments proceeding** on the misconception (based on the lack of a clear carbon price signal) that conventional coal will continue to operate (even at low load factors) over the next decades¹⁶”*

WWF does not believe that the Government’s statements which ‘aim’ or ‘expect’ new coal plants to retrofit by 2025 are a strong enough signal for investors. An EPS on the other hand would provide firm long-term direction for investors and energy companies.

d) Legislation is not required for EPS

“Legislation is not required to introduce an EPS as government already has the powers to do so.¹⁷”

While the Government may indeed already have the powers to set an EPS it is under no requirement to do so. The main point of an EPS is that it should be implemented now to provide long-term certainty and a time bound amendment requiring regulations within 12 months, which is what the NGOs favour, would ensure this is the case.

e) The EU emissions trading scheme already regulates emissions from the power sector

“Emissions from the power sector are already regulated through the EU emissions trading scheme, which is at the heart of our domestic and EU efforts to tackle climate change. Phase 3 of the scheme, starting in three years’ time, provides a significantly stronger framework than previous phases.¹⁸”

The Minister quickly notes, however, that the ETS is not the whole answer:

“I acknowledge, however, that the EU ETS on its own is not sufficient to reduce emissions from the power sector to the extent required. That is why the transition plan contains a raft of measures aimed at promoting the development and deployment of renewables, new nuclear and, of course, clean coal.¹⁹”

WWF agrees that additional policies, over and above the carbon markets, are required we just do not believe that the Government’s policy is robust enough as it stands. An EPS would be compatible with the ETS and would help to ensure the UK is on track to decarbonise the power sector and meet its climate change targets which the ETS cannot do on its own.

CONCLUSION

WWF believes that an EPS is a necessary policy addition that should form part of the Government’s coal and CCS strategy. Without it the UK runs the risk that it may fail to decarbonise the power sector and miss its climate targets. An EPS would provide greater certainty for the climate, for investors and ensure the billions of pounds spent on demonstrating CCS maximises the benefits for the environment.

¹⁶ Emphasis added. “Meeting carbon budgets – the need for a step change. Progress report to Parliament, Committee on Climate Change, October 2009” <http://hmccc.s3.amazonaws.com/21667%20CCC%20Report%20AW%20WEB.pdf>

¹⁷ Joan Ruddock MP, Minister of State, letter to MPs, 22 January 2010

¹⁸ Joan Ruddock MP, Minister of State, Hansard Col: 335 24 February 2010

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