



E3G Submission to House of Commons Energy and Climate Change Committee inquiry on Emissions Performance Standards

Summary

1. E3G welcomes the Energy and Climate Change Committee inquiry on Emissions Performance Standards (EPS) for power generation. We believe that there is scope for the Committee to add value to the EPS debate by helping to clarify the specific objectives that an EPS will need to achieve, and by helping to identify the key criteria for evaluating policy design choices.
2. This submission makes three main points. First, we suggest that there is potential for an EPS to help to lower the long-term costs of decarbonisation, primarily by providing greater certainty to investors about future markets. Second, we evaluate EPS proposals in the context of European policy developments, and identify the strategic advantage to the UK of becoming an early mover. We address the specific question of how electricity imports should be treated under a UK EPS, and suggest that the EPS should be designed in a way that does not damage the wider goals of European power market integration. Finally, we briefly comment on the potential for adoption of an EPS to influence international climate negotiations.
3. E3G is an independent, not-for-profit European organisation committed to working in the public interest to accelerate the global transition to sustainable development.

What is an EPS and what is it for?

4. The UK power sector faces an unprecedented challenge, with a need to largely decarbonise electricity supplies by 2030 while supporting the electrification of heat and transport – and continuing to guarantee security of supply, provide best value to consumers and address fuel poverty concerns. Delivering on these aims will require considerable investment in both power generation and power networks. Most published low carbon scenarios suggest that power sector investment of at least £8-£12 billion per year will be needed.¹ As recognised by recent reviews by HM Treasury, OFGEM and the Committee on Climate Change (CCC), current power market arrangements are likely to be inadequate for delivering the necessary investment. Substantial reform is required to ensure that UK power markets remain fit for purpose during the low carbon transition.
5. An Emissions Performance Standard is one measure that could be introduced as part of a broader process of power market reform. It is a policy instrument with potential to deliver specific outcomes, which could include preventing the construction of new unabated high-carbon fossil fuel generation and setting a clear timeline for the retirement or retrofitting of existing high-carbon plant.
6. It is important to be clear, however, that an EPS is not a catch-all solution that can deliver a low carbon power sector for the UK on its own. An EPS can provide certainty about disinvestment in certain forms of power generation. It will not be

¹ E3G (2009) Investment momentum for decarbonising the EU power sector: Evidence review on current investment and future scenarios. www.e3g.org.

sufficient on its own to guarantee new investment in low carbon generation technologies, as this will depend on the wider design and operation of electricity markets and incentive schemes. We therefore urge the Committee to consider the debate on Emissions Performance Standards within the context of the need for broader power sector market reform.

7. With these considerations in mind, an EPS could play a useful role within a package of market reform measures by contributing to lowering the long-term costs of decarbonisation. An EPS could enable this in two ways: by providing greater certainty to investors on the long term market for CCS and other low carbon power generation technologies, and through avoiding lock-in to high carbon technology.

Reducing uncertainty for investors and suppliers

8. An EPS increases the certainty of the future market opportunity for low carbon generation and CCS in particular, by ensuring low carbon options are not undercut by high carbon generation. This will ensure that providers of CCS equipment begin investing in the technology development and supply chain capacity now that is necessary in order to begin deployment in 10-20 years time.
9. The UK has agreed to develop four CCS demonstration projects, and up to 12 further projects across Europe could receive funding from the set aside from earmarked allowances from the EU ETS New Entrants Reserve. However there is currently no credible strategy for managing the transition from the demonstration phase to commercial deployment of CCS. In the absence of forward visibility of a market for CCS technologies, competitive supply chains for CCS components are unlikely to be developed, and there will be no incentive for suppliers beyond those involved in the demonstrations projects to invest in technology development. If an EPS is not implemented until CCS is 'proven', the supply chain capacity will not be there and costs will be correspondingly higher.
10. There is no evidence that the carbon price through the European Union Emissions Trading Scheme (EU ETS) provides the same level of incentive to invest in supply chains for low carbon generation. Future carbon prices are often implicitly discounted in decisions on power generation. As the EU ETS is fundamentally a policy-led market, the carbon price is subject to political risk, and there is low confidence that politicians would allow the carbon price to rise to very high levels without intervention. An overallocation of permits in the current phase of the EU ETS, combined with ease of access to cheap credits through the Clean Development Mechanism, creates an expectation of continuing low carbon prices in future.² The structural link between the EU ETS price and macroeconomic conditions further contributes to low levels of forward price visibility. Power generation decisions are also subject to a wide range of uncertainties beyond carbon pricing alone. An EPS, in this context, should be seen as a corrective to a specific market failure rather than as an anti-market measure.

² The IEA notes that overallocation of permits due to the recession combined with use of CDM credits creates an overall surplus of credits of 0.5 gigatonnes by 2013. Banking these permits enables them to be used in Phase III of the EUETS – which means by 2020 domestic EU emissions could be similar to today's level while still complying with the EU ETS cap. IEA (2009) World Energy Outlook 2009: Post-2012 Climate Policy Framework. OECD/IEA: Paris. p. 182.

Avoiding lock in

11. Under current market conditions, it is highly unlikely that new unabated coal-fired power stations will be built: the risks relating to regulatory change, capital costs, future demand, carbon prices and relative fuel prices are simply too large. An Emissions Performance Standard would guarantee that new unabated coal generation would not be built even if market conditions change. Avoiding new unabated coal generation – whether explicitly through legislation or implicitly through unfavourable market conditions - is essential for avoiding lock in to generation infrastructure that is incompatible with the imperative of decarbonising the power sector by the mid-2030s. If UK carbon reduction obligations under the Climate Change Act are to be met, new unabated fossil plant would either need to be forcibly retired before the end of their operational life or would be pushed off the system through an unfeasibly high carbon price. Neither option is economically desirable; both would raise overall costs for consumers.

Design criteria

12. Careful policy design decisions on the level, timing and structure of an EPS will be needed based on the precise outcomes sought. A poorly-designed EPS may risk unintended consequences such as extending the life of the oldest and least efficient power stations or preventing implementation of supply-side energy efficiency measures.
13. A key design choice for the EPS relates to the future for gas and unabated Combined Cycle Gas Turbines (CCGTs). It is likely that an EPS will fail to deliver the incentives to invest in low carbon generation if the limits can be met by unabated gas – as CCGTs would become the obvious investment choice. Similarly, a coal-only EPS would have little effect other than intensifying current trends towards gas-fired generation. The time horizon for the EPS must therefore clearly signal the point at which high load factor CCGTs will need to be fitted with CCS.
14. For reasons of security of supply and balancing power from renewable sources, the EPS will need to be designed in a manner that does not prevent the operation of power generation plant at very low load factors. There are a number of options for doing this – for example, similar flexibility mechanisms have been included in the EU Industrial Emissions Directive (IED). Careful policy design will be needed to avoid gaming or perverse incentives.

EPS in the European context

15. There has been considerable interest and debate at a European level on Emissions Performance Standards for power generation. In 2008, the European Parliament Environment Committee voted to support an EU-wide Emissions Performance Standard from 2015 onwards as part of the EU Climate Package, although the EPS was not included in the final agreement. The potential for an EU-wide EPS was also debated in relation to the Industrial Emissions Directive earlier this year.

16. The European Commission has now signalled that EU-wide EPS proposals will be revisited in its planned review of the CCS Directive in 2015.³ A recent amendment to the Industrial Emissions Directive also clarifies that member states are free to implement their own standards for carbon emissions.⁴
17. It is in the UK's strategic interest to push for an EU-wide EPS. Harmonised standards would widen the market for low carbon technologies, and a single EPS for Europe would contribute towards the aim of achieving an integrated and more competitive European power market.
18. Moreover, a number of circumstances specific to the UK create the possibility that the UK could become a centre for CCS technology development. The UK's geological CO₂ storage opportunities are extensive and well-understood; UK industry's experience of North Sea oil and gas has led to a strong skills base; and the UK will need to replace its power generation capacity earlier than other countries. This provides a strong case for early adoption of CCS technologies in the UK context.
19. Until an EU-wide EPS can be agreed, there is value in the UK proceeding with an EPS of its own. By moving ahead of Europe, unilateral introduction of an EPS would provide strong signals for industrial development to be UK based, and may generate significant commercial opportunity for UK firms. Developing practical experience of an EPS in the UK would also make it more likely that an EPS would be adopted by other countries or at an EU level.

EPS and electricity imports

20. Concerns have been expressed that an EPS in a single member state such as the UK could lead to 'carbon leakage' through providing an incentive for higher-carbon generation to locate in neighbouring countries and export electricity back to the UK. It is worth considering this issue in detail.
21. At an EU level, this is evidence of carbon leakage occurring in response to the EU ETS: coal-fired power stations are under development in Albania and Ukraine with a view to exporting power into the EU. In designing an EU-wide EPS, addressing this risk of carbon leakage may be a key concern.
22. In the UK context, carbon leakage from neighbouring markets is likely to be relatively small in the short- to medium-term, due to limited capacity for electricity imports. The GB power market has the lowest level of interconnection with its neighbours of any major European power market. There are currently 2.5GW of interconnection capacity to France and Northern Ireland, and new links to the

³ European Commission (2008) Questions and Answers on the directive on the geological storage of carbon dioxide. <http://europa.eu/rapid/pressReleasesAction.do?reference=MEMO/08/798&format=HTML&aged=0&language=EN&uiLanguage=en>

⁴ Recital 9a to the Industrial Emissions Directive reads: "In accordance with Article 193 of the Treaty on the Functioning of the European Union, nothing in this Directive prevents Member States from maintaining or introducing more stringent protective measures, for example greenhouse gas emission requirements, provided that such measures are compatible with the Treaties and the Commission has been notified."

Netherlands and Ireland should increase total interconnection capacity to 4GW by 2012.⁵ This compares to a total UK generation capacity of 80GW (expected to rise to 110GW in 2020).

23. Increasing interconnection with other markets is an increasingly important strategic priority for the UK power sector. Market integration can be expected to increase competition and lower prices. Interconnection is also essential for the integration of power from variable-output renewable sources, to allow access to markets at a time of high output and to ensure security of supply at times of low output. It will therefore be imperative to structure a UK EPS in a manner that does not unnecessarily limit cross-border trade and the development of interconnection capacity.
24. There are two main options for addressing carbon leakage within a UK EPS, but both have substantial limitations:
25. **Procurement standards:** In California, legislation to establish an Emissions Performance Standard does not regulate individual plants directly. Instead, it places an obligation on public utilities not to procure electricity from power stations that fail the standard, whether in-state or out-of-state. It thus avoids the problem of carbon leakage. However, market structures in the UK are considerably different than in California, with less trade through long-term contracts. Careful consideration would be needed of how this requirement could be implemented without damaging the liquidity of power markets. This model also introduces risk of emissions displacement: it is likely that high-carbon generation would continue to operate and simply supply other markets that do not apply an EPS.
26. **Average intensity:** A second option would be to apply the Emissions Performance Standard to the average CO₂ intensity of electricity from supplier countries. This would avoid carbon leakage and may encourage EPS adoption in other states. In practice, this approach would only apply to France, Ireland and the Netherlands (and potentially Norway and Belgium if proposed interconnectors are built). Due to high levels of nuclear and hydro power, the carbon intensity of electricity generated in France (90g/kWh), Norway (7g/kWh) is relatively low, and electricity imports from these countries are unlikely to be affected by an EPS.⁶ Ireland (544g/kWh), the Netherlands (395g/kWh) and Belgium (261g/kWh) have higher levels of carbon intensity, and - depending on the level of the EPS - could be precluded from electricity trade with the UK under this approach. This would have negative implications for the integration of wind power as well as energy security.
27. Both options restrict cross-border trade in electricity, and may limit the UK's ability to develop new interconnection capacity. In this context, it may be preferable initially to implement a UK Emissions Performance Standard with no restrictions on the carbon emissions associated with imported electricity – while actively monitoring risks of carbon leakage over time.

⁵ OFGEM (2010) Electricity Interconnector Policy consultation. OFGEM: London.

⁶ IEA (2009) CO₂ Emissions from fuel combustion: highlights. <http://www.iea.org/co2highlights/CO2highlights.pdf>

EPS in the international context

28. The Committee call for evidence asks whether ‘unilateral action by the UK to introduce an EPS contribute towards global climate negotiations in Cancun in November 2010’ and whether ‘greater use of Emissions Performances Standards internationally help promote agreement on global efforts to address climate change’. A degree of political realism is required here. There are deep and increasingly entrenched divides between the main players in the international climate negotiations, and levels of trust remain low after last year’s failure in Copenhagen. Political timelines also suggest that it will not be possible for a UK EPS to be enacted before the Cancun climate conference. It is therefore unlikely that an EPS for the UK power sector will contribute substantially to the negotiations unless it is accompanied by further reaching proposals - such as a commitment to raising the EU 2020 carbon reduction target from 20% to 30% or a breakthrough on climate finance. Nevertheless, introduction of an Emissions Performance Standard in the UK could be interpreted as a signal of intent that demonstrates that the UK takes its existing climate commitments seriously, and in this respect it is to be welcomed.
29. Finally, a UK EPS would establish an important model that could play a useful role in the development of sectoral crediting and trading mechanisms in key developing countries. The EU is proactively seeking to develop new international mechanisms to ensure comprehensive low-carbon development, beyond the current fragmented project approach under the Clean Development Mechanism (CDM). Including an EPS within an international finance mechanism would have three positive impacts:
- Providing a crediting baseline for the power sector: An EPS would establish a robust baseline that removes the need for subjective and costly production of project-by-project baselines that have caused many problems with the current operation of the CDM.
 - Widening the impact of climate finance: Currently, the CDM rewards low carbon investments such as solar and wind but does not prevent investments in high carbon fossil fuel power generation capacity, which has continued to increase in most countries in receipt of CDM finance. An EPS would ensure that the power sector as a whole moves to a low carbon trajectory.
 - Attracting private sector finance: As with a UK EPS, use of an Emissions Performance Standard as part of an international climate finance mechanism would remove some of the policy risk associated with low carbon technology solutions, and could thereby help mobilise private finance alongside public funding.