THINK PIECE

CO_2 Emission Performance Standards: a submission to the UK Select Committee on Energy and Climate Change

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Current emission performance standard regimes

At the time of writing, the only CO_2 performance emission standards currently in existence are those found a small number of States in the USA. There are currently two models underlying the design of emission performance standards for CO_2 – one based on equivalent emissions from combined-cycle gas turbine (CCGT) plants with the figure of 1100 lbs CO_2/MWh being adopted; the other is based on the percentage of CO_2 emissions captured and sequestered.

California led the way with legislation passed in September 2006[1] with more detailed regulations made in the following year. The legislation did not specify an emission standard in numerical terms as such, but required that the performance level must be no higher that the emissions rate of a CCGT plant. The California Public Utilities Commission subsequently determined this to be 1100 lbs CO_2/MWh based on a review of emissions from CCGT plants. The standard reflects the emission levels of older existing plants compared to the emission limits of around 800 lbs CO2/MWh that can be reached by new natural gas combined cycle plant.[2] Meeting the standard for a new, efficient coal fired plant would require a CO_2 emission reduction of between 30 to 40 percent.

The main motivation behind the California legislation appears have been the view of both the legislature and the California Public Utilities Commission that greenhouse gas controls would inevitably tighten up in the future and that emission performance standards were needed now to protect the ratepayer from higher costs at a later date. According to Simpson and Hausauser "Both the California Legislature and the California Public Utilities Commission (CPUC) concluded that if utilities or other load-serving entities were allowed to enter into new long-term commitments with high-greenhouse gas (GHG) emitting power plants, California ratepayers would be exposed to high costs of retrofits (or the need to purchase expensive offsets) under future emission control regulations. California ratepayers would also be exposed to potential supply disruptions when these high-emitting facilities are taken off line for retrofits, or retired early, in order to comply with future regulations."[3]

The State of Washington modelled its 2007 legislation[4] largely on the Californian law, and it contains a performance standard of the lower of (1) 1,100 pounds of GHG per MWh; or (2) the average available GHG emissions output as determined and updated by the Washington Department of Community, Trade & Economic Development which is obliged to carry out a survey every five years of new CCGT available and offered for sale in the US.

Oregon's 2010 legislation[5] also follows the Californian model applying a performance standard of 1100 lbs CO_2/MWh to baseload power stations. New Mexico's 2007 legislation[6] adopts the same standard for CO_2 but with additional financial incentives in the form of text credits for certain plants.

Montana's 2007 legislation[7] adopts a different approach to defining an emission performance standard which is more explicitly aimed at carbon capture and storage. Applying essentially to coal fired generating stations to be constructed after 1 January 2007, it requires that the facility must capture and sequester 50 percent of the carbon dioxide produced. In terms of actual emissions this appears to be slightly tighter than the Californian approach. The 2009 legislation of Illinois[8] is also focussed on carbon capture and storage standards, and requires state utilities and electricity suppliers to obtain 5 percent of their power from the proposed Taylorville clean coal facility with a goal of 25 percent of electricity for CCS coal-fuelled power stations by 2025. A clean coal facility is defined as one that sequesters 50 percent of CO_2 emissions if commencing operations before 2016, 70 percent for those commencing operations between 2016/17, and 90 percent for post 2017 plants.

Legality of national emission performance standards under EU law

The 2003 EU Emissions Trading Directive[9] amended the 1996 Directive on Integrated Pollution and Prevention Control (IPPC)[10] by providing that where greenhouse gas emissions from a plant subject to IPPC permit requirement fell within the EU Emissions Trading Scheme (ETS),[11] "the permit shall not include an emission limit value for direct emissions of that gas unless it is necessary to ensure that no significant local pollution is caused." The European Commission legal services argued that this meant that a national CO_2 emissions performance standard for a plant subject to the ETS scheme would be illegal under Community law.

In January of this year, Derrick Wyatt QC and I were commissioned by WWF to write a legal opinion analysing the meaning of the amendment and whether the Commission was correct in its view.[12] In particular we were aware that both the IPPC Directive and the ETS Directive had been made under the environmental provisions of the Treaty, and that Article 193 of the Treaty permits Member States to impose stricter standards in relation to such measures. One of the issues was whether a provision in a directive could exclude the operation

of this Treaty provision. In the event it was not necessary to rely upon Article 193, and we concluded that Member States still possessed the freedom to impose national emission standards under non-IPPC laws, and that the European Court of Justice would uphold this view if it came before them. But we felt that the position should be made absolutely clear in any subsequent revision or replacement of the IPPC Directive.

The legal opinion was made public to the European Parliament during its debates this year on the Industrial Emissions Directive (IED), which will replace the IPPC Directive, and as a result agreed an amendment to the IED giving Member States the residual discretion to impose national emission standards.

In June this year, during the co-decision procedure, agreement has been reached between Member States and MEP on the IED leading to its 2nd Reading in Parliament in July, and likely agreement by Council.[13] Article 9 of the agreed text provides again that: "Where emissions of a greenhouse gas from an installation are specified in Annex I to Directive 2003/87/EC in relation to an activity carried out in that installation, the permit shall not include an emission limit value for direct emissions of that gas, unless necessary to ensure that no significant local pollution is caused". But then the Preamble provides: "(10) In accordance with Article 193 of the Treaty on the Functioning of the European Union (TFEU), 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".

It is clear that national greenhouse emission standards are legal, provided they are not discriminatory and are notified to the Commission. Case-law of the European Court of Justice indicates that the level of standards adopted by Member States under the stricter standards provisions is left to their discretion and not subject to an overarching Community principle of proportionality.[14]

Impact of national emission performance standards

Emissions trading schemes, such as that for SO_2 in the United States, have generally allowed for local emissions standards to prevent local pollution or unfair burdens being carried by some localities. Indeed the European ETS Scheme allowed national emissions standards to deal with 'significant local pollution', though in the case of greenhouse gases it is difficult to envisage the circumstances in which this might apply.

It is perhaps rather less easy to predict the impact of national emissions standards on an emissions trading scheme operating throughout the EU. If only one or two countries introduce such standards, and industries required to comply with such standards are still permitted to hold and trade in any allocated allowances, then the immediate effect on overall greenhouse reduction targets is likely to be neutral. Industries subject to standards will have surplus allowances to sell on the market allowing industries in countries without such standards to emit up to the limits of the allowances purchased. The extra allowances on the market may well depress the price, reducing the economic incentive for investment in abatement as an alternative route for meeting obligations.

The main purpose of introducing national emission performance standards is to quicken the pace of investment in abatement technology on the assumption that the ETS scheme cannot deliver the correct price signals within the time-scales required by policy-makers dealing with climate change, or provide the consistency required by industry for long-term, large-scale investment. Assuming that the performance standard does encourage such investment, then its main impact on the emissions trading scheme is likely to be felt when the overall caps are calculated for the next trading period. Emission performance standards can drive technological innovation and in fields such as NOx reduction for power plants, they have led to dramatic reductions in costs.[15,16] The actual operational experience and availability of abatement technology, albeit in one or two countries, is likely to encourage a tightening of overall caps, leading to an overall reduction of greenhouse gases. But it follows that integrating the timing of the introduction and implementation of a national emission performance standard in relation to the next trading periods under the EU ETS may be signicant.

It is also important to ensure that the design and application of an emission performance standard does not have a perverse or unintended effect. For example, if an emission standard applied only to coal-fired power stations within the United Kingdom, and generators still retained the option of choosing the type of power station they invested in, there might well be a greater investment in gas fired powered stations if that were a less expensive or troublesome option. If the emission standard for coal-fired stations was essentially the same as the rate of emissions reached by combined cycle gas powered stations (the approach currently adopted under the Californian model), then presumably from a purely climate change perspective a move to gas at the expense of coal is neutral in policy terms. But if an additional policy objective is security and/or diversity of supply, then it is clearly important that the introduction of an emission performance standard does not have unintended consequences. In the absence of portfolio requirements obliging suppliers to purchase certain proportions of electricity from coal-fired stations, then the introduction of selected performance standards might well give rise to significant shifts. For a start it is therefore probably important that the performance standard for greenhouse gases applies equally to generating stations or other processes whatever the source of power.

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[1] *SB1368; entered into force 29 September 2006*

[2] *E Rubin (2009)* A Performance Standards Approach to Reducing CO_2 Emissions from Electric Power Plants *Pew Center on Global Climate Change, Washington DC*

[3] *C Simpson and B Hausauer (2009) Emission Performance Standards in Selected States Regulatory Assistance Project, November 2009, Washington DC*

[4] *SB 6001 An act relating to mitigating the effects of climate change; entered into force 22 July 2007*

[5] *SB 101 Relating to greenhouse gas; entered into force 1 January 2010*

[6] *SB994 entered into force 3 April 2007*

[7] *HB 25 Electric Utility Industry Generation Reintegration Act; entered into force 1 October 2007*

[8] *SB1987 Clean Coal Portfolio Standard Law (Public Act 095-1027); entered into force 12 January 2009.*

[9] *2003/87/EC*

[10] *96/61/EC*

[11] *Directive 2003/87/EC and Revised EU Emission Trading Directive 2009/29/EC*

[12] *Available online at www.ucl.ac.uk/cclp/pdf/LegalAdvice_Wyatt_Macrory.pdf*

[13] *ENDS Report 425 June 2010 p55*

[14] *see Case C-6/03 Deponiezweckverband Eiterkopfe ECR 2005 I-2753*

[15] *M Taylor, E Rubin, and D Hounshell Effect of Government Actions on Technological Innovation for SO_2 Control* Environmental Science and Technology *37 5427-4534*

[16] *S Yeh, E Rubin, M Taylor and D Hounshell (2005) Technology Innovations and Exeprience Curves for Nitrogen Dioxide Control Technologies* Journal of Air and Waste Management Association *55 1827-1838*