Environment Agency

Evidence

The CRC Energy Efficiency Scheme: Coverage, Abatement and Future Caps

Project summary SC080013/S1

A new report published by the Environment Agency estimates that up to 11.6 million tonnes of carbon dioxide a year could be avoided by 2020 through the CRC Energy Efficiency Scheme (CRC). This reduction in emissions could be achieved at no long-term extra cost, and could even be cost beneficial to participants, due to lower energy bills. This study provides the first independent quantification of the potential carbon emissions savings possible under the CRC.

The CRC is a pioneering carbon emission trading scheme aimed at reducing emissions from organisations in the services, public administration and non-energy intensive industry sectors. Under the scheme, participants will have to buy allowances to reflect the carbon emissions resulting from the heat and power that they use. The scheme will come into force in April 2010. The first year will be a reporting only year followed by a two-year introductory phase in which there will be no cap on allowances sold under the scheme. From April 2013, total emissions from the CRC sector will be limited through a cap on the number of allowances sold to participants. The money raised from selling emission allowances each year will be re-distributed back to participants, through a league table system according to emissions reduction performance.

The scheme covers large public and private sector organisations which use in excess of 6000MWh of electricity per year through half hourly meters. These organisations are grouped into two sectors for the purpose of modelling, Industry and Non-Domestic Buildings. These sectors are then further disaggregated into 27 subsectors these include for instance the chemical industry, hotels and restaurants, public administration, retail trade and the water industry.

Previous estimates of the emissions covered by the CRC suggested the scheme would cover emissions of nearly 52 million tonnes of carbon dioxide per year ($MtCO_2$/yr), around 8 per cent of UK emissions (652$MtCO_2$ equivalent, 2006). In this study CRC sectors, trade bodies, energy companies, and the Carbon Trust were approached to take a view on current coverage.

The findings in this report suggest that this figure is too low. The report estimates coverage of at least 57.5 $MtCO_2$ and possibly higher.

This report also uses marginal abatement cost curves (MACCs) to explore the extent to which technical measures could be used to reduce carbon emissions in the CRC sector. The MACCs provide an assessment of the level of emissions reduction ('abatement') which a range of measures could deliver, showing how much CO_2 each measure could save ('abatement potential') and how much this would cost per tonne of CO_2.

Marginal abatement cost curves show that around 11.6 $MtCO_2$ could be saved each year by 2020 without extra cost, or even at a net financial benefit to participants. For simplicity this estimate does not assume any reduction in the carbon intensity of electricity generation. If the carbon intensity is reduced by 50% by 2020 as advocated by the Committee on Climate Change (CCC) then the overall emissions from the CRC sector would be lower still but the saving that could be attributed directly to the CRC would be up to 27 per cent less.

This abatement potential is higher than a previous estimate of 7.5 Mt CO_2/yr after 5 years operation of the CRC scheme predicted by NERA/Enviros in 2006 (this study also did not incorporate assumptions on increasing decarbonisation of the electricity mix).

A number of factors are likely to account for this difference, including updated scheme coverage; fuel price and economic growth forecasts; and differences between models and therefore the measures considered.

The modelling shows that as the price of allowances rises, it becomes cost effective for organisations to invest in a wider range of technologies to help reduce emissions. This study identified that cost effective carbon abatement opportunities under the CRC are much higher in the service sub sectors as opposed to industry sub sectors.

The emissions savings identified in the report are the technical potential available in 2012. In the past, it has been difficult to realise the full potential of energy demand reduction measures, but it is envisaged that the CRC will pull the right financial and behavioural levers needed to bring in such measures and that 2020 is a realistic timescale by which to achieve these measures.

From 2013, we recommend that CRC caps are best set based on the projected EU ETS carbon price. Taking this approach would provide:

- consistency with the budget setting approach used by the Committee of Climate Change;
- consistency between the CRC and the EU ETS trading sectors;
- a significant effort towards meeting the key environmental effectiveness goals of the CRC; potentially providing an emission reduction of 29% against 1990 levels.

This summary relates to information from Project SC080013, reported in detail in the following output(s):

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