HM TREASURY

HM Revenue & Customs

Carbon price floor consultation: the Government response

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Contents

Foreword

Budget 2011 re-affirmed our aim to be the greenest Government ever. The Coalition's programme for Government set out our ambitious environmental goals:

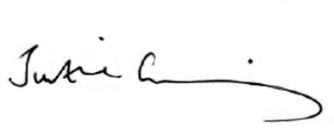
- introducing a floor price for carbon
- increasing the proportion of tax revenues from environmental taxes
- making the tax system more competitive, simpler, fairer and greener

This consultation response demonstrates the significant progress the Coalition Government has already made towards these goals. As announced at Budget 2011, the UK will be the first country in the world to introduce a carbon price floor for the power sector.

The price floor will provide certainty and support for low-carbon investment, vital if the UK is to move towards a genuinely low carbon future. It will also help ensure that the UK meets legally binding targets to reduce harmful emissions over the medium to long term. And without it, supplying power to our homes and businesses could become increasingly expensive and unreliable.

The introduction of the price floor will play a very important role in building incentives for investment in cleaner technologies as it based on the 'polluter pays principle'. It is however just one of the levers at our disposal. The Government will continue to pursue our wider environmental goals through a variety of means which will complement and work with the carbon price: a greener and simpler tax system, the creation of the Green Investment Bank, electricity market reform and the Green Deal.

A market-based approach to pricing carbon provides the most efficient and cost-effective policy framework to meet our environmental goals. This will minimise costs to consumers, support growth and ensure we maintain a sound fiscal position.



Justine Greening
Economic Secretary to the Treasury

Executive summary

The Coalition Agreement 'Freedom, fairness and responsibility: a programme for Government' made a commitment to introduce a floor price for carbon. Budget 2010 subsequently announced that the Government would publish a consultation on a carbon price floor in autumn 2010.

Following consultation, Budget 2011 announced the introduction of a carbon price floor from 1 April 2013. The floor will start at around £16 per tonne of carbon dioxide (tCO_2) and follow a linear path to target £30/tCO_2 in 2020 (both in 2009 prices). The carbon price support rates in 2013-14 will be equivalent to £4.94/tCO_2. Indicative rates for 2014-15 and 2015-16 are £7.28/tCO_2 and £9.86/tCO_2 respectively. Budget 2012 will confirm the carbon price support rates for 2014-15, and set out indicative rates for the subsequent two years.

Over the long term (2013-2030) a price floor targeting £30/tCO_2 provides £1.9 billion of net present value benefits. It also achieves the right balance between encouraging investment without undermining the competitiveness of UK industry. The £30/tCO_2 price floor in 2020 rising to £70/tCO_2 in 2030 will drive £30-£40 billion of new investment in low-carbon electricity generation. This is equivalent to 7.5-9.3 giga watts (GW) of new capacity.

Budget 2011 also set out the Government's approach to achieving environmental objectives, including that market-based solutions to price carbon provide the lowest possible cost option, whilst supporting growth and a sound fiscal position. The Budget also announced measures, which will offset impacts of the price floor on business and families:

- an extension of climate change agreements (CCAs) to 2023, an increase in the discount on electricity for CCA participants from 65 per cent to 80 per cent from April 2013, and a consultation on options to simplify the scheme to be published by summer 2011;
- not introducing the previous Government's planned complex and costly Carbon Capture and Storage (CCS) levy, which would have increased electricity bills by 2 per cent from 2015;
- a cap on the cost of policies funded through energy bills;
- a further 1 per cent reduction in corporation tax to help business;
- an increase in the personal allowance to help working families; and
- delaying the inflation only increase and a one penny per litre cut in fuel duty.

The primary legislative powers to implement the price floor will be presented to Parliament for approval in the 2011 Finance Bill. HM Revenue and Customs (HMRC) will continue discussions with industry to ensure the policy is implemented effectively in two years time. Legislation relating to specific tax reliefs for CCS and combined heat and power (CHP) will be introduced in Finance Bill 2012, to be followed with secondary legislation later that year.

A carbon price floor is a necessary first step that will be followed by wider reform of the electricity market. Later this year the Government will set out its response to the consultation on electricity market reform (EMR), including proposals for complementary public support for new investment in low-carbon generation and demand-side intervention. A mixture of tax and public spending incentives for new low-carbon investment offers better value for money for the taxpayer, is more affordable, and provides a more stable long-term policy framework than relying on either tax or spending alone.

1 Government response to the consultation

Rationale for consultation

1.1 Without major reforms to the electricity market, the UK will likely fail to meet its climate goals and power supplies will become increasingly unreliable.

1.2 Around a quarter of existing power plants in the UK are due to close by 2020. Replacing this capacity will require up to £110 billion of investment in new generation and grid connections by 2020. Compared with the last decade, rates of capital expenditure on energy infrastructure will need to double.

1.3 The Government is determined to encourage a step change in low-carbon investment in the power sector in the most affordable and cost-effective way. This will provide value for money for the taxpayer and minimise bill increases for businesses and households.

1.4 Providing greater support and certainty to the carbon price will create a credible long-term framework to incentivise investment in low-carbon electricity generation by reducing revenue uncertainty for generators and improving the economics of low-carbon investment. The consultation sought views on the best long-term trajectory for a price floor and how to implement it.

Consultation period

1.5 The consultation document *Carbon price floor: support and certainty for low-carbon investment*[1] was published on 16 December 2010. Draft legislation reflecting the consultation proposal was published and shared with respondents on 26 January 2011. 155 formal responses were received before the consultation closed on 11 February 2011.

1.6 Treasury Ministers held meetings with industry representatives. The Department for Energy and Climate Change (DECC), HMRC and HM Treasury officials met a number of representatives and companies. HM Treasury also held a workshop on 21 January 2011.

Consultation questions

1.7 The consultation document set out 30 questions relating to the design and implementation of a carbon price floor. These questions focused on factors affecting investment decisions; and sought views on the three carbon price floor scenarios (£20, £30 or £40/tCO_2 in 2020 rising to £70/tCO_2 in 2030); and the interaction with the EMR proposals. The consultation also asked for respondents to evaluate the impacts of the proposal on their business and invited comments on how to ensure effective implementation and administration.

1.8 A number of issues were raised by respondents throughout the consultation. These are addressed below.

[1] *Carbon price floor: support and certainty for low-carbon investment*, HM Treasury and HMRC, 16 December 2010.

EU emissions trading system

1.9 Some respondents suggested the proposal could undermine the European Union emissions trading system (EU ETS).

1.10 A European energy supplier was concerned about the impact of a unilateral UK measure within the operation of the EU ETS as it would not lead to additional EU abatement. Instead they suggested it would be more effective to tighten the EU ETS cap or reach EU wide agreement on a price floor.

1.11 Another energy supplier wrote:

> *"In principle we favour market solutions, such as the EU ETS, but agree that there is a need for complementary regulation and incentives to support faster development of the low-carbon economy."*

1.12 Some respondents suggested the policy would put downward pressure on the EU ETS carbon price or may encourage other countries to introduce similar measures.

Government response

1.13 **The UK Government remains a leading supporter of the EU ETS and the important role the carbon market plays in cost effective CO_2 abatement across the EU**. The EU ETS is already delivering emissions reductions across Europe and will be responsible for about half of UK emissions reductions up to 2020. It will remain at the centre of the UK's long-term decarbonisation and climate mitigation strategies.

1.14 However, to meet the UK's legally binding 2050 decarbonisation targets, the UK needs to increase the rate of decarbonisation in the power sector above the level that can be delivered through the EU ETS carbon price alone. A carbon price floor complements the EU ETS by strengthening the carbon price signal in the UK enabling higher levels of investment in low-carbon infrastructure and therefore a faster rate of decarbonisation.

1.15 The price floor is limited to UK-based electricity generators. The impact will be no different to other Member States making changes to tax, regulation, or public spending that affects businesses in the EU ETS.

1.16 The price floor will build on the EU ETS price and provide a clearer signal to investors about the long-term trajectory of the carbon price for the UK power sector.

Electricity market reform

1.17 Many respondents queried how the floor would interact with the option of a contract for difference or premium feed-in tariff outlined in the EMR consultation.

1.18 A representation from the manufacturing sector wrote:

> *"Only one of these proposals is needed to accelerate investment in low carbon electricity generation. We can't accept a situation which adds more layers of complexity which will only add further to the costs borne by UK manufacturers. The policy objective should provide greater certainty to investors, not more generous subsidies."*

Government response

1.19 **The carbon price floor is the first step in delivering a package of reforms for the electricity market to support low-carbon investment.** It is an early and credible long-term signal to investors that the Government is serious about encouraging investment in low-carbon electricity generation now. The carbon price floor complements both options for a feed-in-tariff outlined in the December 2010 consultation on market reform. The reform packages aim to attract all investors and market participants. Further proposals to support wider reform of the electricity market will be set out in a White Paper later this year.

1.20 Putting a price on carbon emissions is at the heart of the Government's strategy for enabling the UK to reduce emissions over the long term. The carbon price floor firmly establishes the 'polluter pays principle' through a combination of market-based instruments (tax and trading). Liability will be directly linked to the environmental damage caused by different types of fossil fuel-based electricity generation.

1.21 The Government must also consider the impact on the public finances. Developers of low-carbon generation projects need a reasonable return on their investments. This return can come from increased revenues from electricity sales or support through the Renewables Obligation and, in due course, a feed-in-tariff. Any increases in the electricity price arising from the introduction of a carbon price floor will enable lower levels of public support through the feed-in-tariff so that developers can make the necessary returns to support their investments.

Combined heat and power

1.22 Many respondents noted that the policy would have a negative impact for CHP plants.

1.23 Respondents outlined that CHP plants have a higher overall efficiency than the conventional means of generating heat and power, via a separate boiler and electricity generator. Providing both heat and power requires a higher level of input fuel per kilowatt hour (kWh) compared with an electricity only power station.

1.24 Some respondents provided evidence that this would make it more attractive to stop operating as a CHP. Instead they would use boilers to generate heat and import electricity from the grid, or convert CHP plants to combined cycle gas turbine electricity generators. This would be a less efficient means of generating heat and electricity and would result in an increase in UK emissions, whilst reducing the competitiveness of CHP plants and industry.

1.25 Respondents also suggested that the Government should develop a long-term strategy for CHP that would provide industry with a more stable framework for investment:

> *"CHP is an area in which policy uncertainty has, to date, stifled investment."*

Government response

1.26 **CHP supports industrial competitiveness and promotes energy efficiency. Relief from carbon price support rates will be available for supplies of fossil fuels to CHP stations as part of a wider reform of Government support to the CHP sector.** Therefore, Budget 2011 announced:

- relief from carbon price support rates for fossil fuels used to generate electricity in CHP plants registered under the CHP Quality Assurance programme; and that
- the exemption from the climate change levy (CCL) for electricity generated from CHP plants that is supplied indirectly to an energy consumer will be removed from 1 April 2013.

1.27 The Government will work with the CHP industry and energy suppliers to explore the most appropriate level of relief and the means to implement the changes so that on balance CHP remains incentivised through public subsidy.

1.28 DECC will also continue its discussions with industry over the summer as part of the development of the Government's long-term plans for CHP and for heat supply overall. This will also inform the Government's response to the Climate Change Committee's 4th Carbon Budget report in the autumn.

1.29 Replacing the complex exemption for indirect supplies of electricity with a relief that provides direct support for CHP plants will provide greater certainty over the long term. It will also offer better value from money for taxpayers and reduce administrative burdens for HMRC, the Office of Gas and Electricity Markets (Ofgem) and business.

Carbon Capture and Storage

1.30 Most respondents, including the CCS sector, agreed with the Government's proposal that there are good environmental grounds for introducing relief for fossil fuels used in CCS plants to reflect the proportion of CO_2 abated. For example:

> *"…tax relief should be granted for power stations with CCS since the goal…is to incentivise low carbon generation of power and CCS lowers carbon emissions."*

Government response

1.31 **The Government intends to introduce legislation at the earliest practical opportunity to ensure that both demonstration projects and commercial CCS plants receive relief from carbon price support rates equivalent to the proportion of CO_2 captured and stored.**

1.32 The Government aims to introduce a plant-specific relief. If a power station is capturing and storing a quarter of the CO_2 it produces, then it would be given relief on a quarter of its input fuel. HMRC and DECC will work with the CCS sector on the detailed design and implementation of the relief.

1.33 Budget 2011 also announced that the Government will not proceed with the CCS levy, but will instead fund the Coalition commitment to CCS demonstrations from general taxation. By not proceeding with the complex CCS levy, electricity bills will be lower than they otherwise would have been.

1.34 The Coalition Agreement commits the Government to fund four CCS demonstration plants. Demonstration projects are an important step in enabling the commercial deployment of CCS. The carbon price floor will not become a barrier to investment in such demonstrations.

Taxable person

1.35 The consultation proposed that the person who supplies fossil fuels that are subsequently used to generate electricity would be the person responsible for paying the tax.

1.36 Some respondents raised concerns that the first person in the supply chain who supplies fossil fuels would be liable to the tax and would need to establish how much of the fuel was used to generate electricity.

1.37 Respondents also suggested that it would be simpler if the generator was responsible for paying the tax, as the generator would be able to accurately determine how much fossil fuel was used to generate electricity.

Government response

1.38 It is the final supplier of fuel to a generator who will be liable to pay the carbon price support rates of CCL to HMRC. For oils, there will be no changes to the arrangements where the generator reclaims fuel duty.

1.39 Making the supplier the taxpayer is in line with the European framework for the taxation of electricity and fuels – and is the most administratively simple arrangement.

1.40 HMRC will meet energy companies and oil and gas suppliers to discuss how to implement the carbon price floor. In particular, HMRC will discuss the concerns expressed in consultation about who should be the taxpayer to try to devise workable arrangements that keep business burdens to a minimum while complying with the requirements of European law.

Indirect impacts

1.41 The consultation asked about the impacts on businesses. Many respondents provided a view of the indirect impacts from a carbon price floor but few companies gave complete replies.

1.42 The Tax Impact and Information Note published at the Budget set out the Government's statutory assessment of the impacts of the price floor[2].

1.43 The carbon price floor will increase the cost of generating electricity from high-carbon fuels. Over the short term this will lead to an increase in the wholesale electricity price. Over the long term consumers will benefit from lower wholesale electricity prices and cleaner, greener supplies of electricity than otherwise would have been the case.

Business competitiveness

1.44 Some respondents raised concerns about international competition and the effect the price floor could have on businesses operating in a global market.

> *"....we could support elements of the carbon price floor and electricity market reform proposals, [but are concerned about] the cumulative burden on manufacturers..."*

1.45 The Government is committed to creating a tax system that is more efficient and supportive of growth; more certain and predictable; simpler and easier to comply with; fairer with greater reward for work and aspiration; and with stronger incentives for investment and enterprise. The carbon price floor follows these principles. Taken together with other tax reforms announced at Budget 2011, the Government has increased the proportion of environmental tax revenues and reduced taxes on capital and income.

[2] *Carbon price floor*, HMRC, 23 March 2011, available at www.hmrc.gov.uk/budget2011/tiin6111.pdf and included in Annex B.

1.46 Based on energy intensity, and trade intensity with the rest of the world, which includes other EU Member States, the sectors most affected by the price floor and the existing CCL are: aluminium; calcium carbonate; cement and slag grinding; chemicals (fertilisers, basic inorganic, industrial gases); glass; kaolin and ball clay; lime; malt; non-woven textiles; paper; steel; and wood panel manufacture.

1.47 The Government's Plan for Growth[3] recognises the important contribution that energy-intensive industries will make towards rebalancing the UK economy. Energy-intensive industries also have an important role to play in delivering cost-effective abatement.

1.48 To mitigate the impact on energy-intensive industries Budget 2011 announced a package of supporting measures:

- not introducing the CCS levy so average business electricity bills will be 2 per cent lower from 2015 and 3 per cent lower in 2020 than they otherwise would have been – the levy would have had particularly damaging impact on energy-intensive businesses;
- a cap on the cost of policies funded through energy bills;
- extension of the CCL discount on electricity for participants in the CCA scheme to 2023 and an increase in the electricity discount from 65 per cent to 80 per cent from April 2013 so electricity bills will be on average 1 per cent lower; and
- a further 1 per cent reduction in corporation tax to 26 per cent from 1 April 2011 and, by 2014, it will be reduced to 23 per cent.

1.49 The cumulative impacts of climate change and energy policies are also being considered as part of the Energy Intensive Industry Strategy produced by DECC and the Department for Business, Innovation and Skills. This strategy will identify recommendations to maximise abatement while ensuring the future competitiveness of UK energy-intensive business.

Households

1.50 In addition to impacts on businesses, some respondents expressed concern about the impact on household electricity bills, especially for the fuel poor. Concern was also raised about the impact on district heating systems.

1.51 The Government recognises that the carbon price floor will marginally increase consumer bills. It is committed to supporting vulnerable consumers and tackling fuel poverty. The Government does not expect the carbon price floor will disadvantage district heating systems relative to alternatives.

1.52 Government is putting in place a range of policies in parallel to the carbon price floor to contribute towards these aims. These include:

- introducing the Warm Home Discount to assist more of the most vulnerable households with their energy bills;
- focusing the Carbon Emission Reduction Target scheme on improving insulation;
- introducing the Green Deal from 2012 so that households and businesses can improve their energy efficiency at no upfront cost, repaying through their savings on energy bills;

[3] *The Plan for Growth*, HM Treasury and BIS, 23 March 2011.

- additional support for the poorest and most vulnerable householders and hard-to-treat properties through an Energy Company Obligation; and
- not proceeding with the CCS levy so household energy bills will be 2 per cent lower in 2015 and 3 per cent lower in 2020 than they otherwise would have been.

1.53 Energy efficiency improvements as a result of these measures will support low-income and vulnerable households at risk of fuel poverty.

Security of supply

1.54 Some respondents were concerned that the UK's security of supply would be put at risk as the carbon price floor could limit the diversity of energy suppliers and encourage early closure of coal plants. Some respondents suggested:

> *"Change is needed to deliver the required investment to provide the UK's energy security and meet targets for the decarbonisation of power, whilst simultaneously coping with increased electricity demand."*

> *"Only by ensuring a diversity of fuel sources can potentially very high and volatile electricity prices at peak periods be avoided."*

1.55 The Government considers that introducing the carbon price floor will not have a material impact on the security of the UK's electricity supplies. The price floor will help increase the diversity of the UK's generating mix by supporting investment in a broader range of technologies, including nuclear, as opposed to a focus on gas-fired generation were no action taken.

1.56 The carbon price floor is the first step of wider reforms to the electricity market, which include the possible introduction of a capacity mechanism to support investments in additional generation capacity or demand-side management.

Energy market liquidity

1.57 Liquidity is an important feature of a well functioning market. Ofgem has identified a lack of liquidity in electricity wholesale markets as a particular concern that may be acting as a barrier to entry and growth in retail and wholesale markets.

1.58 In March 2011 Ofgem set out options to boost liquidity in their Retail Market Review[4]. To ensure customers get a fair deal, Government will closely follow developments in the energy sector in the light of the OFGEM review.

1.59 The carbon price floor will not undermine Ofgem's work. Carbon price support rates will be set two years in advance to allow generators time to plan hedging strategies.

Northern Ireland

1.60 Some responses to the question on the impact on electricity generation in the single electricity market (SEM) in Northern Ireland and Ireland were concerned it would increase fuel poverty and could undermine Northern Ireland's ability to meet a 40 per cent renewables target.

[4] *The Retail Market Review*, Ofgem, 21 March 2011.

1.61 The carbon price floor is a UK-wide policy. It will drive further investment in low-carbon technologies. The Government will monitor the interaction with the SEM and Northern Ireland's commitment to higher level of investment in renewable electricity. The Government supports the Northern Ireland economy and will continue to work with Northern Ireland Executive.

Import and export of electricity

1.62 Some respondents suggested a price floor could lead to an incentive to import electricity from Europe and that this could penalise UK-based generators.

1.63 Generators outside of the UK may have a relative cost advantage; however, this will depend on wider factors affecting the structure and cost base of electricity generation in other EU Member States.

1.64 The scope for imports into the UK is limited by both the amount of spare generation and interconnector capacity in the short to medium term. The choice of location to invest will also be affected by the UK's competitive rates of corporation tax and wider factors such as the cost of capital and planning rules. As set out in Budget 2011, the Government is taking measures to reduce corporation tax and to reform the UK's planning system to better support investment and domestic growth.

1.65 Over the longer term it may be possible for generators to make additional investment in generation and interconnector capacity, which currently provides around 2 per cent of total UK generation capacity. However, the carbon price would have to be considerably higher than the EU ETS price for such investment to be considered commercially attractive.

2 The carbon price floor

Carbon price floor

2.1 A price floor that targets £30/tCO_2 in 2020 rising to £70[1] in 2030 (real 2009 prices) balances incentives to achieve the Government's environmental and energy security goals, whilst mitigating the short-term impacts on bills and competitiveness in the most cost-effective way.

2.2 A price floor of £40t/CO_2 in 2020 would have led to a faster and higher level of low-carbon investment. However, the impact on electricity bills could have undermined competitiveness and increased fuel poverty unnecessarily. A price floor of £20t/CO_2 in 2020 would not have sent a strong enough signal to encourage investment.

2.3 Investment in low-carbon generation is key to the Government's plans to transform the power sector. Investors require long-term certainty. Respondents to the consultation agreed that greater certainty and predictability about future carbon prices would encourage further investment in low-carbon electricity investment.

2.4 This chapter outlines how the carbon price floor will work in practice and how carbon price support rates will be set.

Box 2.A: Carbon price support rates

The carbon price floor announced in Budget 2011 begins at around £16/tCO_2 in 2013 and follows a straight line trajectory to £30/tCO_2 in 2020, rising to £70/tCO_2 in 2030 (2009 prices). The floor will increase at around £2/tCO_2 per year from 2013 to 2020.

The carbon price support rates for 2013-14 represent the difference between the Government's target carbon price (the floor) and the futures market price for carbon in the EU ETS in 2013. These tax rates are equivalent to £4.94/tCO_2 in 2013-14.

The carbon price support rates for 2014-15 will be announced in Budget 2012 and will follow the same formula.

The Office for Budget Responsibility's (OBR) economic determinants and exchange rates published at Budget 2011 were used to calculate carbon price support rates.

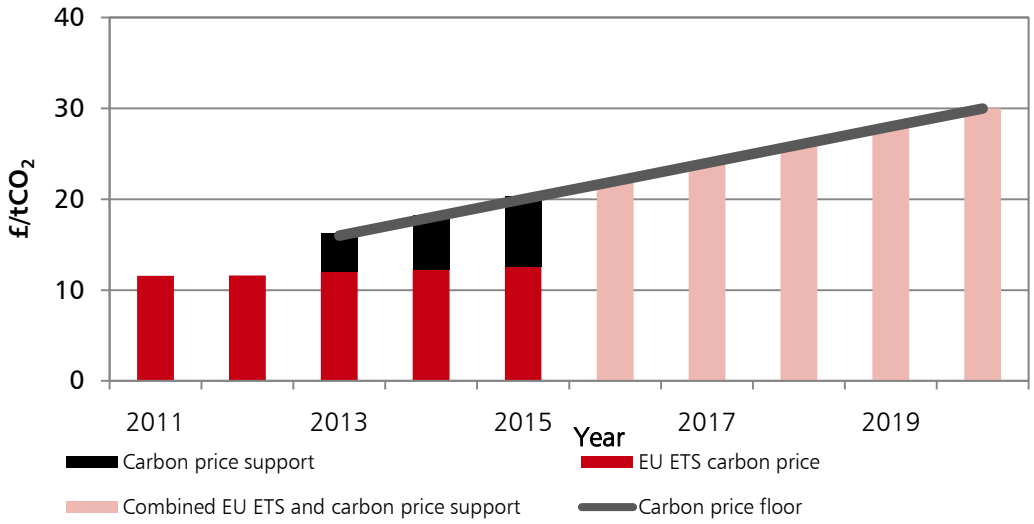
[1] The Government's current estimated carbon price consistent with global action to limit the increase in temperature to 2° Celsius is £70/tCO_2 in 2030. This estimate is subject to the progress of international negotiations and may be revised as the science of climate change develops. Following the Copenhagen Accord, some academics believe that a global carbon price of more than £100/ tCO_2 will be required to limit warming to 2° Celsius (Nordhaus, W.D. "*Economic Aspects of Global Warming in a Post-Copenhagen Environment*" Yale University, Feb 2010).

How the carbon price floor will work

2.5 From 1 April 2013 supplies of fossil fuels used in most forms of electricity generation will become liable either to CCL or fuel duty. Supplies will be charged at the relevant carbon price support rate, depending on the type of the fossil fuel used. The rate will be determined by the average carbon content of each fossil fuel.

2.6 The carbon price support rates for CCL and fuel duty to achieve the price floor reflect the differential between the future market price of carbon and the floor price. The £30/tCO_2 in 2020 carbon price floor is shown in Chart 2.A.

Chart 2.A: Carbon price floor illustration (in real 2009 prices and calendar years)



Source: HM Treasury, 2011

2.7 The rates for 2013-14 were announced in Budget 2011 and are equivalent to £4.94/tCO_2. The indicative rates for 2014-15 and 2015-16 are equivalent to £7.28/tCO_2 and £9.86/tCO_2 respectively. Rates beyond 2015-16 will be calculated at future Budgets and will reflect the difference between the future EU ETS carbon price and the price floor.

How the carbon price support rates are calculated

2.8 The methodology for calculating the CCL carbon price support rates is summarised by the formula in Box 2.B and explained below.

Box 2.B: Carbon price support rates formula

Rate = (target carbon price – market carbon price) x (emission factor of the fuel)

2.9 The final rates will be determined two years in advance with indicative rates published for two further years. For example, the rates for 2013-14 were announced at Budget 2011, together with indicative rates for 2014-15 and 2015-16. This is to provide greater certainty and to allow generators time to include this in hedging activities.

2.10 The Government announced at Budget 2011 that the target carbon price will start from around £16/tCO_2 in 2013 and follow a linear path to £30/tCO_2 in 2020 rising to £70/tCO_2 in

2030. Consistent with the consultation document these figures are in real 2009 prices. The corresponding nominal prices are then calculated using the RPI index series in the latest Budget forecast.

2.11 To determine the market carbon price, futures contracts of carbon for delivery in December 2013 were used and an average of their end of day settlement price during the 12 months prior to Budget 2011 was calculated. Taking an annual period covers the full cycle of carbon trading and smoothes out short-term fluctuations in the market in order to provide the certainty for investors.

2.12 Responses to the consultation recommended using future market prices of carbon from a recognised exchange. The Government has determined the market price using ICE-ECX benchmark end of day settlement prices. ICE-ECX has the largest market share of the European futures market. The carbon price in euro is then converted into sterling using the OBR exchange rates set out in the Budget.

2.13 The difference between the nominal target price and market carbon prices in a future year gives the equivalent carbon price support rate for that year, expressed as pounds per tonne of CO_2.

2.14 This rate, when multiplied by the standard emission factors of individual fuels (gas, LPG, solid fuel and oils) are used to derive CCL carbon price support rates expressed as pence per unit of energy, weight or volume. Carbon prices (£/tCO_2) are converted into tax rates for individual fuel inputs using standard emission factors as published by the Department for Environment, Food and Rural Affairs (DEFRA)[2].

Box 2.C: 2013-14 tax rate calculation

The target carbon price in the calendar year 2013 is £15.70/tCO_2 (2009 real prices). In order to calculate the tax rate the real 2009 price needs to be converted into a nominal price for the financial year 2013-14. Using the 2014 calendar year price of £17.74/tCO_2, the rate for the financial year 2013-14 is £16.21/tCO_2 (2009 prices). These numbers do not take account for inflation.

The OBR's RPI inflation rate for 2009 to 2013 fluctuates between 3 and 5 per cent. This means that the carbon price floor in 2013 is about 18 per cent higher than its level measured in 2009 prices. The target carbon price is therefore £19.16/tCO_2 in 2013-14.

The market price of futures contracts for carbon for delivery in 2013 was used. These are calculated from the average annual ICE-ECX benchmark end of day settlement price from March 2010 to February 2011 (€16.63/tCO_2). Following this methodology, the average annual price for carbon for delivery in 2013-14 (in two years time) is £14.21/tCO_2.

The OBR sterling/euro exchange rate for 2013 (0.855) is then used to convert this to sterling.

The difference between the carbon price floor (in nominal prices) and market carbon prices for 2013-14 is £4.94/tCO_2[3]. This represents the 'carbon price support rates' by carbon content.

The standard carbon emission factor for gas is about 0.184 kg CO_2 per kWh, or 0.000184 tCO_2 per kWh. Multiplying £4.94 by the emission factor for gas gives £0.00091 per KWh. This is the tax rate for gas.

The rate of relief for oils used to generate electricity will be varied to reflect the carbon price support rate in £/tCO_2.

[2] http://www.defra.gov.uk/environment/business/reporting/conversion-factors.htm

[3] The rate of £4.94/tCO_2 is based on unrounded numbers for target and market carbon prices.

How this affects you

2.15 The Government will introduce the carbon price floor by amending CCL and fuel duty. The key changes arising from the introduction of the carbon price floor are set out below.

Fossil fuels

2.16 All fossil fuels currently liable to CCL and fuel duty will be liable to the new carbon price support rates when such fuels are supplied to a person who uses them to generate electricity. For generators who use oil to generate electricity, the amount of fuel duty they can reclaim will be varied.

Combined heat and power

2.17 Subject to State aid approval, fossil fuels used to generate electricity in a CHP plant registered under the CHP Quality Assurance programme will be liable to reduced carbon price support rates of CCL and fuel duty.

Carbon Capture and Storage

2.18 Fossil fuels used in CCS plants will pay reduced carbon price support rates based on the extent to which the CO_2 produced by burning fuel in a CCS plant is captured, stored and not emitted.

Auto-generation

2.19 From 1 April 2013, supplies of fossil fuels used by auto-generators will be taxed at the relevant carbon price support rate rather than the relevant CCL rate as at present.

2.20 Auto-generators will no longer be able to reclaim the CCL or fuel duty charged on the fossil fuels they use to produce electricity which is subsequently supplied via the electricity transmission and distribution networks.

Micro generation

2.21 The exemptions from CCL for supplies to non-business consumers and those businesses whose energy consumption is below specified de minimis limits will also apply to the carbon price support rates. The limits are available on HMRC's website[4].

2.22 Supplies of small quantities of taxable commodities are always regarded as being for domestic use under CCL legislation. This treatment will continue. Supplies of electricity for domestic use are excluded from CCL, including when the quantities supplied exceed the de minimis limits, and are therefore excluded from carbon price support rates.

Imports and exports

2.23 Imports of fossil fuels that are used to generate electricity in the UK will be liable to carbon price support rates. Exports of fossil fuels that are used to generate electricity outside of the UK will not be liable to carbon price support rates.

[4] Notice CCL 1/3 section 2.5, HMRC, July 2010.

2.24 Fossil fuels burned in the UK to generate electricity that is subsequently exported will be liable to the carbon price support rates. Electricity imported into the UK will not be liable to the carbon price support rates as electricity is not a fossil fuel.

Climate change levy rates

2.25 The existing rates of CCL for supplies of fossil fuels to final consumers other than electricity generators will be retained and will be different from the CCL carbon price support rates.

2.26 CCL will still be charged on taxable supplies of electricity to business and public sector consumers, but not to those consumers who either consume less than the CCL de minimis threshold or are non-business consumers, such as charities and domestic users. Fuels that are not currently taxed under the CCL legislation will not be liable to new carbon price support rates.

2.27 The exemption from CCL for electricity used to generate further electricity will be retained.

Anti-avoidance legislation

2.28 Anti-avoidance provisions for supplies subject to the CCL carbon price support rates have been introduced with effect from 23 March 2011. These were introduced to prevent taxpayers forestalling (i.e. in order to avoid paying tax on a supply that is delivered on or after 1 April 2013) on supplies of taxable commodities used in electricity generation which are currently exempt from CCL.

Administration

2.29 As the carbon price floor is being introduced mainly via amendments to CCL, businesses already registered for CCL will be required to make minimal changes to how they account for CCL.

2.30 Those businesses that currently do not pay CCL, but will be liable to pay the carbon price support rates of CCL, will need to register for CCL.

2.31 Tax from the carbon price support rates will be declared on the CCL return forms in the appropriate box for the fuel type.

2.32 While the amount of fuel duty that can be reclaimed by generators who use oil to generate electricity will be varied accordingly, there will be no administrative changes to the reclaim process.

Next steps

2.33 The Government will explore with interested parties the scope for introducing reduced carbon price support rates for supplies of fossil fuels to CHP stations and electricity-generating stations with CCS technology.

2.34 HMRC will work with industry and affected stakeholders on the implementation of the carbon price floor.

2.35 Government plans to publish for consultation further primary legislation in autumn 2011 and secondary legislation in 2012.

A Contributors to the consultation

A.1 HM Treasury and HMRC would like to thank everybody for their contributions to the consultation process.

A.2 The consultation received wide interest from a range of groups – energy suppliers, energy users, consultants, academics and trade groups. There were 155 formal written responses to the consultation before it closed. In addition, a number of members of the public contributed written responses, articles and letters and HM Treasury and DECC officials met with interested organisations. A list of the organisations who submitted written responses is provided below.

Written responses received

AES

Alcan Aluminium UK Limited

Alstom

Association for the Conservation of Energy

Association of Electricity Producers

ATH Resources plc

B&Q plc

BG Group

British Ceramic Confederation

British Glass Manufacturers' Confederation

British Retail Consortium

British Sugar Group

British Tyre Manufacturers' Association Ltd

Brunner Mond

BT Group

Calor Gas Limited

Carbon Markets & Investors Association

Cemex

Centrica plc

Ceres Power Limited

Chemical Industries Association

Clean Coal Task Group

Climate Change Capital

Climate Strategies

Coal Forum

Coal Pro

CoalImp

Combined Heat and Power Association

Confederation of British Industries (CBI)

Confederation of Paper Industries Limited

ConocoPhillips

Construction Products Association

Consumer Focus

Costainn Energy & Process

Covanta Energy Limited

Cristal Global

Cumbria County Council

Department of Enterprise, Trade & Investment Northern Ireland

Department of Social Development in Northern Ireland

DONG Energy Power (UK) Ltd

Doosan Power Systems Limited

Drax Power Ltd

Dresser-Rand

E.ON UK

Ecotricity

EDF Energy

EEF, the Manufacturers' Organisation

Eggborough Power Ltd

ELEXON Limited

Endesa Ireland Ltd

Eneco Wind UK Ltd

ENER-G Combined Power Limited

Energy Institute

Energy Intensive Users Group

Environment Agency

Environmental Industries Commission

Environmental Law Association's Climate Change & Energy Working Party

Environmental Services Association

ESB International

European Forest Resources Group

ExxonMobil

Fichtner Consulting Engineers Ltd

Food and Drink Federation

Gatwick Airport

Gazprom Marketing & Trading Limited

GE Energy

Good Energy

Grant Thornton UK LLP

Green Alliance

Green Energy (UK) plc

Greenpeace

Hargreaves Services Ltd

Helius Energy plc

HES Biopower Ltd

INEOS ChlorVinyls

Ineos Manufacturing Scotland Ltd

Infinis plc

InterGen (UK) Ltd

International Emissions Trading Association (IETA)

International Power plc (IPR)

John Lewis

Lichen Renewal

London School of Business & Finance

Mainstream Renewable Power

Manufacturers' Climate Change Group

Mineral Products Association

Morgan Stanley

Mowrey Meezan Coddington Cloud LLP

National Energy Action

National Grid

NIE Energy - Power Procurement Business

North East Chamber of Commerce

North East Process Industry Cluster

Northern Ireland Authority for Utility Regulation

Northumbrian Water

Nuclear Industry Association

NuGeneration Ltd

Ofgem

Oil & Gas UK

Oxford Institute for Energy Studies

Peel Energy Limited

Progressive Energy Ltd

PwC

PX Limited

Renewable Energy Association

Renewable Energy Systems Limited

RenewableUK

Royal Institution of Chartered Surveyors

RWE npower

Scotch Whisky Association

Scottish Environment Protection Agency

Scottish Government

Scottish Renewables

Scottish Resources Group plc

Scottish Water

ScottishPower

Sellafield Ltd

Sembcorp Utilities (UK) Limited

SEMO Market Development

Shell International Ltd

Siemens UK Energy Sector

smartestenergy

Springfields Fuels Ltd

SSE

Statoil (U.K.) Limited

Statkraft

Tata Steel Europe

Tees Valley Unlimited

Tesco Stores Limited

The Banks Group

The BOC Group Limited

The Carbon Capture & Storage Association

The Chartered Institute of Taxation

The Energy Power Resources Limited Group

The Low Carbon Finance Group

The Mineral Wool Energy Savings Company

The Royal Academy of Engineering

The Society of Motor Manufacturers and Traders Limited

The UK District Energy Association

The Utilities Exchange Ltd

TUC

UK Coal PLC

UK Energy Research Centre

UK Oil Industry Taxation Committee

UK Petroleum Industry Association

UK Power Reserve Limited

United Utilities

Vattenfall AB

Vivid Economics Ltd

Water UK

Welsh Power Group Limited

World Coal Association

WWF UK

Yorkshire Coal Task Force

Yorkshire Water

B HMRC Tax Impact and Information Note

Who is likely to be affected

Businesses that supply fossil fuels to generators of electricity, including power stations and auto-generators. Generators of electricity using oils that currently reclaim fuel duty.

General description of the measure

A carbon price floor will be introduced on 1 April 2013. Supplies of fossil fuels used in most forms of electricity generation will become liable either to the climate change levy (CCL) or fuel duty from that date. Such supplies will be charged at the relevant carbon price support rate, depending on the type of the fossil fuel used, which will be determined by the average carbon content of each fossil fuel. The carbon price support rates will reflect the differential between the future market price of carbon and the floor price determined by the Government.

From 1 April 2013, the 'carbon price support rates' for CCL and, in the case of oils, fuel duty will be equivalent to £4.94 per tonne of carbon dioxide (tCO_2). The rates will be:

Table B.1: Carbon price support rates from 1 April 2013

Supplies of commodity	1 April 2013 to 31 March 2014	Unit
Gas	£0.00091	per kilowatt hour (kWh)
Liquefied petroleum gas (LPG)	£0.01460	per kilogram
Solid fuel (e.g. coal or coke)	£0.01188	per kilogram
Fuel oil	£0.01568	per litre
Gas oil	£0.01365	per litre
Source: HM Revenue and Customs, 2011		

Indicative rates for 2014-15 and 2015-16 will be equivalent to £7.28/tCO_2 and £9.86/tCO_2 respectively. Based upon these carbon prices, the indicative carbon price support rates for future years will be:

Table B.2: Carbon price support rates for fuels used in electricity generation

Supplies of commodity	Indicative rate for 1 April 2014 to 31 March 2015	Indicative rate for 1 April 2015 to 31 March 2016	Unit
Gas	£0.00134	£0.00181	per kWh
LPG	£0.02150	£0.02912	per kilogram
Solid fuel (e.g. coal or coke)	£0.01749	£0.02369	per kilogram
Fuel oil	£0.02310	£0.03128	per litre
Gas oil	£0.02011	£0.02724	per litre
Source: HM Revenue and Customs, 2011			

Policy objective

The purpose of this change is to encourage additional investment in low-carbon power generation by providing greater support and certainty to the carbon price. The Government believes a carbon price floor will build upon the EU emissions trading system (ETS).

Background to the measure

- In most cases, gas, solid fuels (including coal) and LPG used to generate electricity are currently exempt from CCL. Oils are not subject to CCL, but fuel duty is payable at the point oils leave the refinery. This duty can currently be reclaimed in full by the electricity generator.
- In the June Budget 2010, the Government announced it would consult on introducing a carbon price floor from April 2013, to support investment in low-carbon generation.
- On 16 December 2010, the Government published the consultation document *Carbon price floor: support and certainty for low-carbon investment* outlining the proposed scheme.
- Draft Finance Bill 2011 legislation was published on 11 January 2011 covering the changes needed to CCL primary legislation in order to deliver the proposal set out in the consultation.
- The consultation, which generated 155 responses, closed on 11 February 2011. The Budget confirms the carbon price floor will be introduced on 1 April 2013.

Detailed proposal

Operative date

Supplies of fossil fuels used to generate electricity will become liable to carbon price support rates on and after 1 April 2013. Anti-avoidance provisions will be introduced for supplies subject to the carbon price support rates for CCL with effect from 23 March 2011.

Current law

Schedule 6 to the Finance Act 2000 (c17) contains the primary legislation for CCL. Paragraph 14 exempts supplies of solid fuels, LPG and gas used for the generation of electricity.

The Hydrocarbon Oil Duties (Reliefs for Electricity Generation) Regulations 2005 enable generators who use oil to create electricity to reclaim the fuel duty paid on the oil when it leaves the refinery. The regulations also contain details of the relief from fuel duty for oils used in a combined heat and power (CHP) plant to generate electricity.

Proposed revisions

The carbon price floor will be introduced broadly in line with the consultation proposal:

- The exemption from CCL for solid fuels, gas and LPG used to generate electricity will be removed. These commodities will become liable to new 'carbon price support rates' for CCL taking account of the commodities' average carbon content. These rates will be different from the main CCL rates levied on consumers' use of gas, coal, LPG and electricity, which will be retained.
- As oil is not subject to CCL, the amount of fuel duty that can be reclaimed on oil used in electricity generation (fuel oil and gas oil) will be adjusted to establish new 'carbon price support rates' for oils.
- The exemption from CCL for electricity used to generate further electricity will be retained.
- CCL will still be charged on taxable supplies of electricity to consumers.
- The treatment of imported electricity will not change.
- Fossil fuels used to generate electricity in the UK that is subsequently exported will be taxed at the relevant carbon price support rate.
- Supplies of fossil fuels to auto-generators will be taxed at the relevant carbon price support rate.
- Auto-generators will no longer be able to reclaim the CCL or fuel duty charged on the fossil fuels they use to produce electricity which is subsequently supplied to the electricity transmission and distribution networks.
- Fossil fuels used in carbon capture and storage (CCS) plants will pay reduced carbon price support rates based on the extent to which the carbon dioxide produced by burning fuel in a CCS plant is captured, stored and not emitted.

These changes have been made to the scheme following the consultation:

- Fossil fuels used to generate electricity in a CHP plant registered under the CHP Quality Assurance programme will be liable to reduced carbon price support rates for CCL and fuel duty, subject to State aid approval. The reduced rates and administrative details will be determined following further discussion with the CHP sector.
- Anti-avoidance provisions for supplies of fossils fuels subject to the carbon price support rates for CCL will be introduced with effect from 23 March 2011. The provisions will affect businesses that invoice or receive payment before 1 April

2013, in a way that is not acceptable normal practice. It will cover supplies that will not be delivered until 1 April 2013 or later. The legislation defines acceptable business practice as when:

- it is normal to invoice or pay in advance;
- it does not involve issuing invoices or making payments more than 15 weeks in advance of the delivery of the fossil fuels; and
- the advanced invoicing or payment is in accordance with these practices.

In cases caught by these anti-avoidance provisions, the proportion of the invoice or payment related to supplies to be delivered on or after 1 April 2013 will be treated as supplied on 1 April 2013 and so liable to the relevant carbon price support rate for CCL.

In addition:

- The current exemption from CCL for electricity generated in CHP plants which is supplied indirectly to an energy consumer will be removed from 1 April 2013. HM Revenue & Customs (HMRC) will discuss the details of removal with the CHP Association and other interested parties.
- The discount from CCL for electricity will be increased from 65 per cent to 80 per cent from 1 April 2013 for energy-intensive sectors with Climate Change Agreements.

Paragraphs 6, 14, 21, 42 and 101 of Schedule 6 to the Finance Act 2000 will be amended in Finance Bill 2011 and a new paragraph 42A inserted. This will remove the exemption from CCL on supplies of taxable commodities (apart from electricity) used to generate electricity and create new carbon price support rates for CCL for such supplies. The Bill will also include the anti-avoidance provisions relating to supplies subject to the carbon price support rates for CCL.

The Government plans to introduce further changes to primary legislation relating to CCS plants and CHP plants in Finance Bill 2012. Changes to the administrative provisions for CCL arising from the changes in Finance Acts 2011 and 2012 will be introduced by secondary legislation after Royal Assent to Finance Bill 2012.

The Hydrocarbon Oil Duties (Reliefs for Electricity Generation) Regulations 2005 will be amended during 2012 to adjust the amount of fuel duty that can be reclaimed by those generating electricity using oils (including oils used in a CHP plant registered under the CHP Quality Assurance programme) to reflect the carbon price support rates.

Summary of impacts

Further information about impacts will be published in the Government response document shortly.

Exchequer impact (£m)	**2011-12**	**2012-13**	**2013-14**	**2014-15**	**2015-16**
	0	**0**	**740**	**1,070**	**1,410**
Economic impact	The price floor is designed to rebalance the electricity market towards greater low-carbon generation. The £30/tCO$_2$ price floor is expected to drive £30-40 billion of new investment in low-carbon, increasing low-carbon generation capacity by 7.5 to 9.3 giga watts (GW) by 2030; broadly equivalent to 5,000 wind turbines or five new nuclear power stations. Higher levels of investment will lead to an increase in capital investment. Total resource costs will increase by £6.1 billion from 2013 to 2030. The price floor increases the wholesale electricity price above the baseline forecast price until the late 2020s. Wholesale electricity prices are expected to flatten out in the 2020s as more low-carbon generation capacity lowers the marginal cost of electricity generation. As a result, wholesale electricity prices are lower by 2030.				
Impact on individuals and households	Around 40 per cent of total costs are likely to be borne by households. Based on the market prices of fossil fuels and carbon, the economic determinants published at Budget, and assuming full pass through to the wholesale electricity price, average household electricity bills will increase by around one per cent (£6) in 2013 and around four per cent (£17) in 2016. However, in the late 2020s electricity bills will be between two to four per cent lower than would otherwise have been the case. Any increase in wholesale electricity prices tends to increase the risk of fuel poverty.				
Equalities impacts	In absolute terms households with higher levels of electricity consumption will face a proportionally larger bill increase from the same increase in price. However, poorer households will spend a larger proportion of their expenditure on electricity. Single parent households and single pensioners are likely to be affected as, on average, electricity bills represent a relatively higher proportion of total expenditure. This is likely to affect relatively more women than men. In the longer term these households will see a greater benefit from lower bills as a result of increased investment in low carbon generation.				
Impact on business including third sector	Electricity bills for an average energy-intensive business will increase by two per cent and six per cent in 2013 and 2016 respectively. However, in the late 2020s electricity bills will be between two to five per cent lower than would otherwise have been the case. The sectors most affected by the price floor and CCL are likely to be: aluminium; calcium carbonate; cement and slag grinding; chemicals (fertilisers, basic inorganic, industrial gases); glass; kaolin and ball clay; lime; malt; non-woven textiles; paper; steel; and wood panel manufacture. The increased electricity cost as a percentage of Gross Value Added (GVA) ranges from between 1 per cent to 5 per cent for the most electricity intensive sectors. To mitigate the impacts, the Budget also announces an increase in the discount from CCL for electricity from 65 per cent to 80 per cent from 1 April 2013 for energy-intensive sectors with Climate Change Agreements. Around 150 fossil fuel electricity generators embedded into the National Grid and around 1,000 CHP plants and a large number of small electricity generators will incur the carbon price support rates upon their fuel input. The total one-off familiarisation and IT costs and continuing administration burdens for the affected businesses are negligible.				
Operational impact on HMRC	Additional operational costs for HMRC will be negligible.				

Other impacts	A price floor will reduce emissions from electricity generation by a total of 263 million tonnes of carbon dioxide over the period to 2030. Over this period the power sector will reduce purchases of EU ETS allowances by around £7.2 billion. In addition, a reduction in the use of fossil fuels for electricity generation will have benefits for air quality valued at £0.9 billion across the period 2013 to 2030. Adding together carbon emissions permits savings and air quality benefits, set against resource costs and administrative burdens, the net present value (NPV) of this policy over the period 2010-2030 is +£1.9 billion (in 2009 prices).

Modelling assumptions: short term and long term

Short-term impacts over the Budget forecast horizon, 2013-2016, are based on market prices and economic determinants, published in the Budget. The assessment of impacts beyond this period reflects the Government's long-term fossil fuel price assumptions and emission projections.

Monitoring and evaluation

The Government will consider how best and when to evaluate the policy against its objective to encourage investment in low-carbon power generation.

Further advice

If you have any further questions please contact carbon-price-support@hmtreasury.gsi.gov.uk.

HM Treasury contacts

This document can be found in full on our website at:
hm-treasury.gov.uk

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