Energy

DEPARTMENT OF ENTERPRISE, TRADE AND INVESTMENT, NORTHERN IRELAND

RESPONSE TO HM TREASURY AND HMR&C CONSULTATION ON CARBON PRICE FLOOR: SUPPORT AND CERTAINTY FOR LOW-CARBON INVESTMENT

11 FEBRUARY 2011

Introduction

1. The Department of Enterprise, Trade and Investment, Northern Ireland (hereafter DETI or the Department) offers the following views and comments in response to HM Treasury's consultation on the United Kingdom Government's proposals to implement a carbon price floor with the objective of increasing investment in low carbon electricity generation by providing a long term price for carbon.

2. HM Treasury's paper sets out measures that will affect the entire UK electricity generation sector, with a consequential increase in the cost of electricity for consumers. This includes Northern Ireland. DETI is making this response, primarily referenced against Q4.D3: *"What impact might the proposals have on electricity generation, trading and supply in the single electricity market in Northern Ireland and Ireland?"* set in the context of Northern Ireland's energy policy.

3. Under The Northern Ireland Act 1998 and the devolution of certain statutory duties and responsibilities DETI is responsible for the development and implementation of energy policy in Northern Ireland[1]. Devolution extends to the regulation of gas and electricity by the Northern Ireland Authority for Utility Regulation. Nuclear power was the only aspect of energy policy that was retained as an excepted matter under the control of national government. This makes Northern Ireland unique among the Devolved Administrations.

4. Further background to the Northern Ireland Executive's energy policy and the potential impact of HM Treasury's proposals is given below.

General Comments

5. HM Treasury's consultation of 16 December 2010 was issued in conjunction with the Department of Energy and Climate Change's (DECC) consultation on Electricity Market Reform (EMR). The Department welcomed Minister Hendy's letter of 9 December informing DETI of publication on 16 December 2010 by DECC of the EMR paper which contained references to HM Treasury's separate consultation. DETI understands that the other devolved administrations were informed at the same time.

6. DETI notes that while DECC provided for a 12 week consultation period, HM Treasury restricted its consultation period to only 8 weeks, which included the Christmas holiday period. This has

[1] The Electricity (Northern Ireland) Order 1992, as amended by The Energy (NI) Order 2003 and the Electricity (Single Wholesale Market) (NI) Order 2007 places a principle objective and a general duty on the Department to protect the interests of consumers and the need to secure that all reasonable demands in Northern Ireland or Ireland for electricity are met.

severely limited the opportunity for a considered and detailed response from affected parties. This limitation runs counter to the assertion at page 29 (5.1) that the UK Government is committed to understanding the wide range of possible impacts that a price support mechanism might have.

7. DETI also notes that there was no opportunity for pre-consultation engagement with the NI Executive or the Department in the preliminary work to establish the evidence base or policy positions of the taxation and energy issues in the lead up to publication of either paper. This was unfortunate as early discussion would have provided for a more considered analysis of the potential impact of the UK Government's plans on Northern Ireland government policy across energy, the economy and social welfare.

DETI Response

8. **The Department considers that HM Treasury's proposals for a carbon floor price and fuel duty need to be reconsidered to take into account:**

   (i) the unique and different nature of the wholesale Single Electricity Market (SEM) that operates in Northern Ireland and the Republic of Ireland. The proposals as currently drafted would have a significant and adverse affect on the competitiveness of the SEM, Northern Ireland's security of supply and generation capability.

   (ii) the action already being taken by Northern Ireland to deliver a low carbon / high renewable electricity energy sector and the impact of HM Treasury's proposals set in the context of the impact on Northern Ireland of DECC's proposals for Electricity Market Reform in GB.

   (iii) the negative effect on the Northern Ireland economy and manufacturing and industrial activity and growth of the private sector in Northern Ireland; and

   (iv) leading to an increase the level of fuel poverty in Northern Ireland, which is already the highest in the UK.

   DETI therefore considers that Northern Ireland should be granted an exemption from HM Treasury's plans for a carbon floor price and fuel duty.

9. DETI recognises the reasons why the UK Government is seeking to put in place measures aimed at increasing the incentives for investment in low carbon electricity generation in Great Britain.

10. HM Treasury's paper sits alongside the DECC consultation on Electricity Market Reform. Both are focused on how to ensure that the United Kingdom's national energy and climate goals are met. This involves addressing the problems that affect the electricity market in Great Britain to deliver low carbon generation, for example, the role of nuclear energy in providing a reliable and more diverse and secure energy generation and fuel mix.

11. The paper goes on to recognise on page 25 'Imports and exports of electricity' that there is a separate and different market in Northern Ireland and the Republic of Ireland – the SEM. And that interconnectors link Northern Ireland with Ireland, and the SEM with Great Britain's BETTA market. The paper asks the question (see above) how the proposals will affect Northern Ireland and the SEM.

12. The Department has significant concerns as to how the proposals will affect Northern Ireland if they are implemented as they currently stand. The main areas of concern are outlined below.

13. The perceived advantages of the proposals for government in delivering a more sustainable low carbon electricity market in Great Britain cannot be assumed to also transfer to Northern Ireland. Nor can they be assumed to outweigh the clear and substantive disadvantages arising from the proposals if they are imposed as presently drafted. The work done to gauge the impact clearly indicates that the net effect will be to put Northern Ireland's generation sector at a competitive disadvantage within the SEM with a consequential adverse impact on the economy and business and domestic consumers.

14. **DETI, therefore, will seek further discussions with HM Treasury on how to best progress this matter to ensure that a suitable arrangement for Northern Ireland is reached.**

Key Points on Impact on Northern Ireland

15. As indicated above, DETI is making this response, primarily referenced against Q4.D3: *"What impact might the proposals have on electricity generation, trading and supply in the single electricity market in Northern Ireland and Ireland?"*

16. Northern Ireland does not need to have a Climate Change Levy (CCL) applied or have the exemption from fuel duty removed to incentivise investment in renewable energy. DETI expects to meet its 40% renewable electricity target by 2020 under existing and planned renewable generation developments and incentives under the NI Renewables Obligation (NIRO). This 40% target will be an important contributory factor towards meeting the UK's overall target of 15% renewable energy by 2020. The NIRO works in conjunction with the other two Renewables Obligations for England

& Wales and for Scotland. DETI is therefore concerned that the Carbon Floor Price proposals, together with the EMR proposals for a Feed-In Tariff with Contracts for Difference and 'vintaging' of the RO from 2017, have not been developed with due consideration of the potential adverse implications for either the NIRO or Northern Ireland's 2020 target. Further detailed analysis would be needed to determine the full extent of that impact.

17. The SEM is a very different market to the BETTA market operating in GB. The SEM is unique in that it operates as a unified pool market across a national border with another Member State. Under the SEM rules, bids into the pool are cost reflective. Any change to CCL and fuel duty could impose a negative effect on the competitiveness of Northern Ireland generators and adversely affect investment and economic growth.

18. In addition, where increased costs, which arise due to the changes in CCL, are fed into wholesale prices within the SEM pool a perverse outcome would be windfall gains for Republic of Ireland generators who could benefit from increased wholesale prices. These benefits would then be passed on to the Irish State, i.e. state owned ESB is the largest generating company in the SEM.

19. If CCL is applied to Northern Ireland generators their relative position in the SEM merit order will reduce and they will be scheduled less frequently. This will reduce their profitability. Whenever a Northern Ireland generator is the marginal generator, this will set the clearing price in the market and the additional CCL cost will result in higher electricity prices for all customers in both Northern Ireland and the Republic of Ireland.

20. While the SEM operates an unconstrained wholesale market, due to the physical limitations in the transmission network between Northern Ireland and the Republic, existing limited North-South interconnector capacity leads to 'constraint costs' to consumers of some £18m+ per year due to the need to call on less efficient generators in the SEM. These constraint costs will continue to increase if Northern Ireland generators fall further down the dispatch merit order in the SEM due to carbon and fuel duty costs. This position will continue to worsen until the planned second North-South interconnector is approved and built in, say, 2016.

21. Increasing the cost of electricity under the proposed measures will increase further the level of fuel poverty in Northern Ireland, which already has the highest levels in the UK.

22. The small number of generators owned by international companies and the heavy dependence on fuel oil for backup affects security of supply. The proposed measures would push Northern Ireland generators down the merit order, resulting in reduced returns, which

may make it more profitable to locate new investment in power plants in the Republic of Ireland or elsewhere. Any taxation measures that weaken the competitiveness of Northern Ireland generators and the willingness of international companies with worldwide investment interests to continue to invest in maintaining these plants or in building plant replacements will threaten Northern Ireland's security of supply.

Northern Ireland Executive's Energy Policy

23. DETI published a new Strategic Energy Framework for Northern Ireland in September 2010. Key to the Executive's energy strategy is providing clear and timely signals of the priorities to guide market participants and encourage increased levels of renewable energy, as well as providing the infrastructure needed to improve security of supply and diversity of low carbon energy production. This will support local development of a green economy and aid the growth of general commercial activity.

24. This has led to the Executive setting a target to achieve 40% of Northern Ireland's electricity consumption from renewable electricity by 2020. This will be primarily from wind generation but will also involve other forms of renewable technology such as tidal and bio-mass. It is a level of renewable generation that will have a significant impact on the energy mix and use in Northern Ireland.

25. It will require a very significant investment in the electricity infrastructure, which it has been provisionally estimated will cost some £1 billion.

26. It is noted that Combined Heat and Power plants (CHP) will also be subject to HM Treasury's proposals. Given that Northern Ireland electricity prices tend to be much higher than GB prices, CHP offers the potential for businesses to improve their competitiveness in local and international markets through lower electricity costs. CHP will, in fact, have an increasing role to play in delivering Northern Ireland's energy objectives over the next decade and the proposal could reduce the attractiveness of this technology for businesses, which tends to be natural gas fired and therefore also low carbon. The Department would therefore contend that imposing a fuel duty on CHP fuels runs counter to creating a more energy efficient, low carbon model for generation and heating in Northern Ireland for business parks and district heating.

27. As noted above, the Northern Ireland Renewables Obligation is the main renewables incentive mechanism and we are concerned that the proposals contained in the EMR could impact on the NIRO's future viability and our ability to achieve the 2020 target.

Electricity Market Policy and the Single Electricity Market

28. The development of energy policy in Northern Ireland has involved establishing closer cooperation with the Irish Government. This led to the signing of an All-island Energy Market Development Framework in 2004. The Framework initiated the development of harmonised trading arrangements for electricity on an all-island basis and improving the grid infrastructure, including a second north-south interconnector. This resulted in the creation of the wholesale Single Electricity Market (or SEM) in 2007. The SEM put in place a new competitive and sustainable wholesale electricity market covering Northern Ireland and Ireland, set in the context of the European Union's policy on the creation of an EU-wide internal market for electricity.

29. Creation of the new wholesale market was undertaken during the period of Direct Rule and was based upon a formal Memorandum of Understanding between the UK Government and the Government of Ireland for development of a single wholesale electricity market. This recognised that the characteristics of the two electricity markets on the island of Ireland and issues such as security of supply and limited interconnection with Great Britain called for a design that was different to the BETTA market. The NI Executive took over responsibility for developing and implementing mutually beneficial new trading arrangements following devolution.

30. The SEM's operational arrangements were designed to meet the specific needs of the Northern Ireland and Irish electricity markets. This reflected their small scale and limited interconnection and security of supply needs.

31. The Department is now working with the Regulatory Authorities and the Irish Government to develop a better understanding of how the SEM needs to change in the medium to long term to harmonise regional trading arrangements with Great Britain under the EU Internal Market. Part of this process is increasing the level of interconnection and trading with GB.

32. The design of the SEM as a gross mandatory pool requires that all generators must sell their output into the pool and must bid to generate on the basis of their short run marginal costs. This ensures that under the SEM Trading and Settlement Code the Transmission System Operator can set a merit order to schedule the running of generators to meet demand. This ensures those generators that are the most efficient and have the lowest costs are called first at the least cost to consumers.

33. If Northern Ireland generators bid an increase in costs (due to the proposed changes) into the pool, there will be a negative impact on

the competitiveness of Northern Ireland generators versus Republic Of Ireland generators, leading to Northern Ireland generators falling down the merit order. If Northern Ireland generators do not bid the increase into the pool then there would be a negative impact on profitability, which could feed through into a negative impact on Northern Ireland generators ability to raise finance. Thus the proposed carbon floor price changes could lead to an incentive for base load generation to locate outside Northern Ireland. Given the very small scale of the Northern Ireland market this would degrade security of supply in Northern Ireland.

34. Regulation of the Single Electricity Market is the statutory duty of the two regulatory authorities [2] through a joint SEM Committee that was established under parallel primary legislation[3]. The SEM Committee is the decision making body which governs the exercise of regulatory functions on SEM matters. Its decisions are binding on participants. To illustrate the complexity of cross border markets and regulation on such matters, the Committee decided that – with regard to the Irish Government's plans to claw back so called windfall profits from Irish generators due free EU ETS carbon credits[4] - generators could not pass the cost of the levy through to customers. The SEM Committee would also need to consider and decide how HM Treasury's proposals would affect Northern Ireland generation and competition and trading in the SEM.

Northern Ireland Generation Portfolio and Security of Supply

35. Power generation in Northern Ireland is dependent on just three power plants and an interconnector with Scotland, as identified below. Renewable electricity, mainly from wind, currently accounts for some 10% of consumption.

Plant	MW	Fuel / Type
AES Kilroot	618	Coal / Oil
AES Ballylumford CCGT	1213	Natural Gas / Oil
ESB Coolkeeragh CCGT	455	Natural Gas / Oil
Moyle NI – GB Interconnector	450 trading capacity	
NI – RoI Interconnector	450 total transfer capacity[5]	

[2] Northern Ireland Authority for Utility Regulation and Commission for Energy Regulation.
[3] The Electricity (Single Wholesale Market) (Northern Ireland) Order 2007 and Electricity Regulation (Amendment) (Single Electricity Market) Act 2007
[4] The Electricity Regulation (Amendment) (Carbon Revenue Levy) Act 2010
[5] North South Interconnector – 750MW maximum secure capacity but for technical reasons max. power transfer level is 450MW with capacity constraints of 300MW (current position tbc).

36. To put Northern Ireland's electricity requirements in perspective - annual consumption in Northern Ireland is only 2% of total GB demand of 400 TWh.

37. The annual electricity consumption in Northern Ireland is in the region of 8 TWh and peak demand in 2010 was of the order of 1700 MW. There were 824,000 electricity customers in 2010 of which 93% were domestic customers. Small and medium enterprises (SME) accounted for a further 6% of customers and larger industrial and commercial (I&C) consumers the remaining 1%.

38. While there is an auctionable capacity of up to 450MW on the Moyle interconnector, there is very limited trade across the single interconnector with Great Britain[6]. This emphasises the separation of the two markets and the inappropriateness of putting in place CCL and fuel duty measures that are much more relevant to policy for the GB market. For example, the consultation recognises that the policy will be likely to change the relative attractiveness of investment in new coal and gas power stations as well as decisions about when to retire existing fossil fuel plants. While this impact may be manageable within the much larger GB market it has significant implications for investment in Northern Ireland and security of supply.

39. The small number of generators owned by international companies with worldwide investments and the heavy dependence on fuel oil for backup affects security of supply. The proposed measures would push Northern Ireland generators down the merit order - resulting in reduced returns and potentially affecting the long term economic viability of Northern Ireland power plants - may make it more profitable to locate new investment in plants in the Republic of Ireland or elsewhere.

40. Indeed preliminary analysis has confirmed that increasing the cost of carbon would have a detrimental impact on Northern Ireland generators. A price increase to just £20/t Co2 would be significant enough to move NI generators down the merit order, resulting in reduced profitability and calling into question the long term viability of such generation facilities.

41. Furthermore, analysis has demonstrated that an increase in the price of carbon by €10/t Co2, would result in the percentage of all island demand being supplied by NI reducing from 12.3% to 3.2%. This would serve to increase the amount of constrained generation, significantly increasing the costs to be recovered from customers through constraint payments. As constraint payments are based on generators short run (avoidable) costs, there would be no profit

[6] Moyle's current capacity limits of order of 295MW West to East and 450MW East to West. The new Ireland–Wales 500MW interconnector is not due to come on stream until late 2012.

earned, illustrating the point that the profitability and hence long term sustainability of NI generators would decrease significantly.

42. Any taxation measures that further weaken the competitiveness of Northern Ireland generators and the willingness of such companies to continue to invest in maintaining these plants or in plant replacements will significantly weaken Northern Ireland's security of supply.

43. Unlike GB all three Northern Ireland power plants are defined as "black start" plants. The loss of any one of these due to a company withdrawing from the market. or reducing investment in modern generating capability due to lack of competitiveness would weaken the resilience of Northern Ireland to respond to an electricity emergency.

44. The addition of CCL and the fuel duty on top of rising wholesale fuel costs only adds to the lack of competitiveness of local plants and the reluctance of companies to continue to invest in the Northern Ireland electricity sector.

Impact on Business

45. Northern Ireland electricity costs are generally the highest in the UK and higher than most regions in the EU. The Northern Ireland economy is heavily dependent on the public sector. The Northern Ireland Executive is working to balance the economy by sustaining current economic and manufacturing activity and promoting the expansion of the private sector in line with UK Government policy. HM Treasury's plans, as set out, will reduce the competitiveness of the Northern Ireland economy by the addition of these costs onto already high electricity prices, without any evidence that they will support the growth of the Green Economy in Northern Ireland.

46. The imposition on Northern Ireland consumers of costs that are aimed at supporting renewable investment in Great Britain must also be seen in the context of Northern Ireland business and domestic consumers already being asked to bear significant costs of some £1 billion to upgrade the electricity infrastructure in Northern Ireland to support the growth of renewable generation and help meet UK renewable targets.

Impact on Fuel Poverty

47. HM Treasury's proposals are expected to cause an increase in the level of fuel poverty in Northern Ireland.

48. Rising electricity prices due to the increasing cost of imported generator fuels have a significant impact on the ability of government to alleviate fuel poverty. In line with DETI's

responsibilities for protecting electricity consumers the Department works closely with the Department of Social Development (DSD), which has lead responsibility for fuel poverty policy, to ensure that fuel poverty is tackled coherently across government.

49. Fuel poverty levels in Northern Ireland are the highest in the UK. Northern Ireland levels stood at 44% in 2009. This compares to 33% in Scotland in 2009, 16% in England (2008) and 20% in Wales (2008).

50. There are considerable differences in average annual fuel bills across the regions of Northern Ireland and Great Britain, and the percentage of disposable household income this represents. For example, households in Northern Ireland spend more than twice as much of their disposable income on energy than households in London and around 60% more than the UK average. Heat needs are greater because of our latitude and climate and because of the higher proportion of rural households (not sheltered within towns). Household incomes are lower in Northern Ireland and we have higher rates of benefit dependency. Northern Ireland also has a much higher dependence on oil for domestic heating with 70% of homes using oil to heat their homes, thus suffering greater price volatility, unlike the regulated electricity and gas markets in Northern Ireland.

[redacted]

Subject: Carbon Price Floor. Consultation.
Date: 07 February 2011 11:52:52

Martin,

Please treat this e-mail as a response from the Department of Social Development in Northern Ireland to your consultation document "Carbon Price Floor", Support and certainty for low carbon investment. December 2010.

My interest in this consultation exercise from a N.I perspective is primarily around the area of fuel poverty, and the impact which these proposals will have on the fuel poor, and those living on the margins of fuel poverty.

The 2009 House Condition Survey reported the level of fuel poverty in Northern Ireland as 44% (302,310 households), a 10 percentage point increase from 34% (225,580 households) when the level of fuel poverty was last measured in 2006 by the House Condition Survey. However, the broad definition used to measure fuel poverty in Northern Ireland does not adequately reflect the experience of householders who struggle to pay their heating bills and who have to make lifestyle choices about how much to spend on heating their homes.

“A household is in fuel poverty if, in order to maintain an acceptable level of temperature throughout the home, the occupants would have to spend more than 10% of their income on all household fuel use.” This of course includes electricity.

The differences in average annual fuel bills across the regions of Northern Ireland and Britain, and the percentage of disposable household income this represents, are considerable. Households in Northern Ireland spend more than twice as much of their disposable income on energy than households in London and around 60% more than the UK average. The difference is explained by a number of factors, each of which impact on one of the three primary factors contributing to fuel poverty:

• heat needs are greater because of our latitude and climate and because of the higher proportion of rural households (not sheltered within towns);
• household incomes are lower and we have higher rates of benefit dependency;
• in 2010 average earnings were £356 per week compared to £404 elsewhere in the UK;
• Northern Ireland has a much higher dependence on oil for domestic heating with 70% of homes using oil to heat their homes;

Region Level of Fuel Poverty

Northern Ireland 2009 44%

Scotland 2009 33%

England 2008 16%

Wales 2008 20%.

At para 5.31 of your consultation document you refer to fuel poverty and the impact these proposals will have on those affected and your mitigation against that is social price support. This does not operate in Northern Ireland, so energy customers here do not have the advantage of assistance from this type of scheme.

This proposal will increase the numbers of people in Northern Ireland living in fuel poverty, and as illustrated above these numbers are already significant.

Regards.

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Carbon Price Floor: support and certainty for low-carbon investment

11 February 2011

Our ref. HMT_CarbonFloor

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DONG Energy is aiming by 2020 to have reduced its CO_2 emissions per kWh of generation by 50 per cent, and by 85 per cent by 2040. As part of its strategy to achieve these targets, DONG Energy is focussing on expanding its offshore wind portfolio, where the UK plays a significant role.

We are one of the most active offshore wind operators and investors in the UK, currently operating four offshore wind farms (Gunfleet Sands 1&2, Barrow and Burbo Bank) with a stake in a further four sites currently under construction (London Array, Walney1&2 and Lincs). DONG Energy is the major shareholder in London Array and Walney1&2 and possesses a strong pipeline of potential future renewable projects. In thermal generation, DONG Energy has recently completed a new gas-fired power station of 824MW output at Severn in South Wales.

DONG Energy agrees with the proposal for a carbon price floor as this will support investment in renewable technology through better representation of the cost of carbon in the energy mix. Over time, it is also likely to reduce the quantity of carbon-based generation in the energy mix, allowing the UK to move towards its carbon reduction targets.

The specific questions raised in the consultation document are addressed below.

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Investment

3.A1: What are your expectations about the carbon price in 2020 and 2030? And how important a factor will it be when considering investment in low-carbon generation?

The carbon price is one of many factors that are taken into consideration when considering investment in renewable generation projects. It will have an impact on an investment decision but will be of lesser importance than other considerations, such as supply chain availability and the level of other support mechanisms.

DONG Energy supports the UK's approach to ensure the EU carbon market avoids becoming long in carbon credits over time. And to provide a long-term trajectory of carbon prices that reflects emission reduction costs in meeting progressive reduction targets for the long term.

3.A2: If investors have greater certainty in the future long-term price of carbon, would this increase investment in low-carbon electricity generation in the UK? If so, please explain why.

All other factors being equal, greater certainty in the future long-term price of carbon will improve the environment for making investment decisions in renewable electricity generation in the UK. Clarity and transparency of the future revenue streams for a project are all of benefit to a project and reduce risk associated with making a positive investment decision.

3.A3: How much certainty would investors attribute to a carbon price support mechanism if it were delivered through the tax system?

The proposals for delivery of the carbon price floor through the tax system have an inherent political risk as tax levels will vary depending on the policy and revenue requirements of future Government. However, cross-party consensus on this measure and publication of targets and long-term trajectories will mitigate this risk. A broad European foundation would enhance certainty further.

3.A4: In addition to carbon price support, is further reform of the electricity market necessary to decarbonise the power sector in the UK?

Whilst the carbon price floor will provide greater carbon price certainty, and encourage decarbonisation of electricity generation, other support mechanisms will ensure delivery of a diverse range of renewable and low-carbon technologies. We expect the reforms set out in the Government's Electricity Market Reform consultation to implement the necessary framework and legislation to deliver this support.

Furthermore, we would welcome some more concrete measures to improve the liquidity of the UK power market with the aim to have robust and trustworthy day-forward and intra-day prices at the power exchanges.

Types of generator

4.C1: Do you agree that all types of electricity generators should be treated equally under the proposed changes? If not, please explain why.

All types of electricity generators should be treated equally under the proposals in that the carbon price floor should apply to all generators. However, there is room for differentiation in the level of carbon price floor and it should reflect the relative carbon intensity of the fuel source used.

4.C2: Is there a case for providing additional or more preferential treatment for CHP? If so, what is the best way of achieving this?

CHP should not see preferential treatment with respect to the carbon price floor. However, it is possible that the prospects for future development of this technology will impacted by this tax and so, if the Government wishes to promote CHP projects, then it should consider other mechanisms for support.

4.C3: Do you agree that tax relief should be considered for power stations with CCS? If so, what are the practical issues in designing a relief; what operational standards should a CCS plant meet in order to be eligible; and how might these issues differ for demonstration projects?

DONG Energy supports the principle that the carbon tax should be levied in relation to actual emissions. In the case of CCS, the technology is still within the R&D stage which makes it difficult to set up specific rules and tax relief without the risk that new, unabated coal plant is constructed. As such, we do not believe tax relief should be available but the technology should be supported through alternative mechanisms if necessary.

Imports and exports

4.D1: What impact would the Government's proposals have on electricity generators and suppliers that export or import electricity?

The implementation of the carbon price floor will increase the cost of electricity generated from carbon-based fuels in the UK. There is likely to be a consequential rise in the wholesale market price. With the current and future projected increase in interconnection with the other EU markets, this will put UK based generation at a competitive disadvantage relative to imports and reduce the level of exports. However, a higher wholesale price may also encourage further interconnector developments which would be a positive step towards market coupling.

4.D2: What impact might the proposals have on trading arrangements for electricity?

Provided the proposals are implemented in a clear, consistent and transparent way impact on the current trading arrangements should be minimal. As discussed above, the introduction of the carbon price floor is likely to increase the cost of wholesale electricity.

Overall, these proposals and the Government's wider proposals for Electricity Market Reform, must ensure that the correct incentives remain on all generation to balance their output and respond to market price signals.

Carbon price support mechanism

4.E1: How should the carbon price support rates be set in order to increase certainty for investors, in particular over the medium and long term?

The support rates must be linked to the existing carbon markets and be set with a clear, transparent trajectory so that there can be certainty for investors and market participants over the long term.

4.E2: Which mechanism, or alternative approach, would you most support and why?

Any mechanism must be durable and abide by clear, transparent and firm rules. Changes on an ad hoc basis will cause confusion and add risk to the market. Of the three mechanisms set out, the first option of a rate escalator, set at levels to achieve a specific carbon price trajectory over the life of a Parliament consistent with an overall target for the carbon price in 2020 appears to achieve this. Ideally, we would like to see the carbon price targets and rates set out in legislation.

4.E3: What impact would the proposals have on you carbon trading arrangements?

As designed, the proposal would support the carbon price without having a direct impact on the EUA price. As such, it will have little influence on the carbon trading arrangements although there may be a need for a new physical or financial CfD product defined as the difference between the UK Carbon price and the EUA price and would need the support of a liquid and transparent day-to-day market.

Future price of carbon

4.F1: Should the Government target a certain carbon price a) for 2020 and b) for 2030? If so, at what level?

A target carbon price for 2020 is desirable as it would provide a clear and transparent signal for the market. However, the challenge for Government is to set a trajectory that will encourage a continuous and sustainable development of low carbon technology. This will encourage the development of the supply chain and support long-term growth.

Post-2020, there is both limited transparency in the emissions reduction trajectory in the EUETS and political uncertainty surrounding EU emission reduction targets for 2020. It would therefore be challenging to target a price for 2030 at this stage. However, it remains important to establish a target carbon price post-2020, as the increased uncertainty after 2020 will bring even higher risk premiums when deciding on investments if a minimum carbon price is not guaranteed in this period. A price trajectory consistent with the IEA 450 ppm scenario (degree temperature increase) could be used.

4.F2: What is the most appropriate carbon price for the UK to meet its emissions reduction targets in the power generation sector? How would this be affected by changes in the structure of the electricity market?

Provided that EMR changes lead to improved liquidity in the entire wholesale market, the electricity market will see lower barriers to entry which will allow for a more diverse range of renewable generation investors and operators to participate in the market. This will benefit carbon reductions and economics of investments in the renewable generation.

4.F3: When would be the most appropriate time for introducing a carbon price support mechanism and what would be the most appropriate level?

In order for the carbon price floor to be most effective it should be introduced at the earliest opportunity.

Electricity investment

5.B1: What impact would you expect the carbon price support mechanism to have on investment in low-carbon electricity generation?

We would expect the carbon price floor to support investment in new low-carbon generation, although as discussed above, we believe the primary driver for investment in new renewable generation should come through the initiatives set out in the Electricity Market Reform.

5.B2: What other impacts would you expect carbon price support to have on investment decisions in the electricity market?

The proposal should encourage a move to carbon reduction, either through new renewable and low-carbon technologies or through further carbon reduction measures on existing plant. Over time, it is likely to lead to closure of carbon-based generation and assist the transition to a low carbon energy mix.

5.B3: How should carbon price support be structured to support investment in electricity generation whilst limiting impacts on the wholesale electricity price?

The implementation of the carbon price support should be clearly signalled, with the trajectory for the price escalation set out to allow the market to adjust over time. However, it should be noted that the objective of the change is to reduce revenue certainty and improve the economics of low-carbon generation. In order for this to be achieved, it is inevitably going to impact on the wholesale electricity price.

Existing low-carbon generators

5.C1: Can you provide an assessment of the impact of the proposals on your generation portfolio and overall profitability?

As a company with a predominantly wind-based portfolio, the proposals will have a limited impact on our business. We do expect an increased cost to our gas-fired power station but, as this is a new and efficient plant, this will be competitive with other coal, gas and oil-fired generators.

5.C2: What would be the implications of supporting the carbon price for existing electricity generators and how should the Government take this into account?

Depending on the date of implementation and initial level of support, the proposals will provide a benefit to existing electricity generators through higher wholesale electricity prices. This impact will be mitigated through escalation of the price floor.

Electricity price impacts

D1: How do you currently manage fluctuations in the wholesale electricity price?

DONG Energy are very used to trading with the Nordic market, but with current conditions within the UK market we find it the only route that allows effective management of price risk is to sign power purchase agreements (PPAs) with vertically integrated companies to take our production. In the Nordic markets we effectively manage our risk through forecasting wind production and securing the lowest imbalance costs by trading in the short term market. Hedging of the long term power price is done by means of OTC contracts and it could be further facilitated by financial hedging e.g. on exchanges.

D2: What difference will supporting the carbon price make to your business?

As a developer of offshore wind generation, the supporting the carbon price will improve the economics of the projects in the medium term. This benefit

will decline as the proportion of electricity generated from low-carbon technology increases.

D3: As an electricity generator or supplier, how much of the cost of the carbon price support would you pass on to consumers?

DONG Energy's generation portfolio is largely wind-based generation and so the carbon price floor will not increase costs to the renewable energy business. In general though, it can be expected that the carbon price floor will be reflected in a higher cost of electricity which will be passed through to the consumer.

D4: As a business, how much of the cost of energy bills do you pass on to customers?

DONG Energy does not currently supply customers in the UK but generally the proportion of cost pass through will depend on the level of competition in the market.

D5: How might your company or sector be affected and would be there any impact on your profit margins?

DONG Energy is actively engaged in delivering offshore renewable generation projects and has recently invested in a CCGT. We support this proposal as it will improve the economics for renewable generation and act to reduce the carbon intensity of generation. Both are areas that are aligned with our company's objectives.

D6: Do you have any comments on the assessment of equality and other impacts in the evidence base of the Impact Assessment, included at Annex D?

Doosan Power Systems

Response of Doosan Power Systems to the Treasury Consultation Document: *Carbon Price Floor*

10 February 2010

1. Introduction

Doosan Power Systems (DPS), which incorporates Doosan Babcock, is committed to a clean energy future. Within the global Doosan Group, our company's business interests span all types of large-scale power generation including renewables (biomass and wind), nuclear, gas and coal with CCS and we are well placed to help the government achieve its ambitions for clean, secure, affordable electricity.

We are world leaders in carbon capture and if we have the right policies in the UK we will be well placed to roll out CCS worldwide, delivering in the process economic benefit to the UK economy. Already there are more than 100 professional engineers working on carbon capture at our offices and R+D Centre in Renfrew with plans for major expansion. The company employs 5000 people in the UK.

The Electricity Market Reforms including the Carbon Floor Price will be critical in establishing the route forward for our business, and are of particular immediate importance for CCS and for coal power generation to which we give particular attention in this response.

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[redacted]

2. Executive Summary

1. We understand the objectives of the government in seeking to establish a market framework which will ensure investment in low carbon electricity generation and have reviewed the proposals in the context of this and the governments declared wish to maintain a balanced generation portfolio including nuclear, renewables, gas and coal within the generation mix.

2. UK industry, including Doosan Power Systems, has matched the commitment of government in CCS, developing the technology for coal and gas and building teams of people in anticipation of successful CCS demonstrations and an implementation programme consistent with global climate targets.

3. The deployment of clean coal with CCS within the UK is important to ensure security and diversity of clean energy supplies, to maximise the use of economically advantageous indigenous resources, to reduce the risks of over-dependence on imported gas, and to ensure the UK has a voice of influence when negotiating with much larger users of coal. These objectives will only be achieved if

   i) CCS is successfully demonstrated as early as possible and then widely deployed in the UK and abroad
   ii) the UK infrastructure and skills for coal production and coal–fired generation are preserved at adequate scale. (UK coal production has stabilised and UK prices of coal delivered to power stations are competitive with imports).

   The Electricity Market Reforms need to ensure that the run down of old coal power plant is at least matched by the build up of capacity of new clean coal plant, progressively fitted with CCS.

4. Our comments are focussed on whether or not the proposals in combination will achieve these objectives. We find that the major challenge to delivering investment in nuclear, renewables and CCS is continued investment in unabated gas fired generation (without CCS) which is the alternative low-risk option but which does not fit with the government's objectives on security, diversity or decarbonisation.

   We would suggest the following policy combination of EMR policies to avoid premature closure of existing coal power plants before clean coal CCS plants are built and to avoid investment in low carbon generation (nuclear, renewables and CCS) being diverted to unabated gas:

   Carbon floor price: adopt Scenario 1 trajectory with lower initial carbon price target (£20/tCO2 in 2020) but retain £70/t for 2030.
   Emission Performance Standard (EPS): establish an EPS for 2025 that will require CCS on gas as well as coal.
   Feed-In Tariffs: confirm that FITs will apply for early CCS projects (coal and gas)
   Capacity payments: offer capacity payments for low carbon, flexible power plant (coal and gas) with CCS

5. Summary of our responses to the consultations:

5.1. The proposal for a ***Carbon Price Floor***: will have a very negative impact on generation from coal, major consequences for the coal industry and will not provide certainty for investment in CCS unless greater clarity is given.

5.2. We are supportive of a ***Feed-in tariff*** for all low carbon electricity generation based on a contract for difference with the wholesale electricity price. Premiums will be appropriate for specific technologies (eg new, more expensive higher risk technologies such as offshore wind, wave and tide) or for plant with specific important characteristics (eg flexible low carbon generation (including CCS)) .

5.3 The proposal for an ***Emissions Performance Standard*** as written has a very negative focus on coal and fails to send any signals in the direction of reducing carbon emissions from gas fired power stations.The combination of the EPS levels and the policy on grandfathering at the point of consent appears to weaken the intent of the current government policy of requiring CCGTs to be designed to be CCR (carbon capture and storage ready).

5.4 Separate ***Capacity payments*** will be needed for three types of capacity shortfall which require different solutions. Further consideration should be given to the relative economics of different mixes in the whole system.

3. Background to responses relating to coal fired generation and CCS

The Consultations highlight that securing Britain's energy supplies must be a national priority and recognise the importance of coal fired generation in the generation mix[1]. We believe strongly that the UK should remain at the forefront in demonstrating CCS technology and should plan now for it's for deployment. The UK should develop its own economically viable coal resources where it is environmentally acceptable to do so. The Electricity Market Reforms need to ensure that the run down of old coal power plant is at least matched by the build up of capacity of new clean coal plant, progressively fitted with CCS. This will also help to ensure that the indigenous coal industry and coal infrastructure is maintained.

Accelerating CCS and clean coal technology
In order to ensure that the UK remains at the forefront of international CCS development, the Government must accelerate progress to have four demonstration plants in operation by 2015 or as soon after as possible.

The government has previously set out four key objectives for its policies on clean coal and CCS. We agree with the four objectives, but they will be only be achieved if the four demonstrations are executed more quickly and followed by a deployment programme - planned now - based on confidence in the success of the demonstrations. A less rapid timescale would not be sufficient to maintain the UK's global leadership in this field nor to meet climate change targets.

1. *Advancing the global development of CCS technology*
We support the aim of placing the UK at the forefront of global technology, but the timeframe proposed is not sufficiently ambitious. As noted above, we need a firm timescale for progress which aims to have four demonstration plants in operation by 2015 or as soon after as possible. These four new stations when completed could deliver 6.4GW of new coal power plant with full CCS, which could cut UK emissions by 42 million tonnes a year, or 23% of emissions from power plant on 2007 levels.

2. *Improving the affordability of CCS investment*
It is important that the Treasury takes steps to ensure that the decisions on UK funding of Projects 2, 3and 4 do not come too late for them to be eligible for the first (and largest) tranche of NER 300 funding, which could significantly reduce the cost of the projects to the UK consumer.

3. *Delivering a diverse and secure low carbon economy in the UK*
At present there is 28GW of coal plant on the UK system. By 2016, 8GW will have closed under the LCPD. The Industrial Emissions Directive could force substantial further closures, possibly down to zero by 2023 or drastic restrictions in running hours, with a dramatic reduction of coal generation to less than 20% of the present. This would force the closure of deep mining in the UK.

Replacement of this coal generation capacity will be by the building of unabated gas generation which will lock in carbon emissions over the next 30 years and further diminish security and diversity of supply.

[1] See for example EMR Consultation paragraph 88

For this gap to be filled by coal generation will require CCS to be proven by 2018. To aid this transition the Government needs to act now and publish its ambitions for coal with CCS over the coming 20 year time period as part of delivering a diverse and secure low carbon energy supply.

4. *Helping create jobs and economic opportunities for UK based businesses in a new industrial sector*

In order to have sustainable business plans the CCS industry needs a clear commitment to an ongoing build programme commencing with and extending beyond four demonstration projects.

UK coal reserves –part of the energy security solution

On the contribution of our coal reserves to energy security and affordability, Wicks[2] argued that, "Given the abundance of proven coal reserves and its relative low costs and flexibility to meet fluctuations in demand for power, I believe that there is a long-term future for coal in the UK's energy mix. Indeed, given the importance of supply diversity to our security, it would be foolish to abandon coal … it must be part of the solution, not as now part of the problem" (para. 6.24). We agree with the DECC response: " It is also a reliable fuel for power generation, low cost, with abundant remaining global reserves and countries across the globe set to use increasing quantities for electricity generation. Developed countries need to show leadership in demonstrating that we can decarbonise electricity generation from coal. If we cannot tackle emissions from coal, it is difficult to see how a move to a future global low carbon economy can be reconciled with the need for energy security and affordability."

Wicks argued that, with major investment in both deep and surface mines, UK coal production "could be sustained at current levels of around 20 million tonnes a year to at least 2025." This represents a remarkable shift in energy policy since the 2003 Energy White Paper, which spoke of the continuing decline of domestic coal production, "as existing pits reach the end of their geological and economic lives". We agree that he UK should develop its own economically viable coal resources where it is environmentally acceptable to do so, including through the use of innovative technologies. Indigenous coal should be recognised as having the potential to meet a significant amount of the demand for coal in the UK. UK coal production has stopped falling at 18-19mtpa; the industry believes the reserve base is capable of maintaining an output of 20mtpa at internationally competitive costs; employment has risen to some 6,000 employees.

Coal fired generation with CCS – essential part of a low-carbon generation mix

Coal-fired generation with CCS is predicted to have a generation cost (wholesale price of electricity) midway in the range of low carbon generation between nuclear and offshore wind. It has the advantage of having high availability compared to wind and better flexibility compared to nuclear. By using the sites of existing coal power stations there will be less of a requirement for expensive grid improvements.We consider it is appropriate to plan on a 30/30/30 % mix of nuclear, renewables and coal/CCS capacity in 2030. Beyond that date one or other technology may take a larger share of the growing total capacity.The EMR proposals must be judged against their likelihood of delivering an appropriate mix in 2025/2030 whilst maintaining adequate generation capacity in the meantime.

[2] "Energy Security: A national challenge in a changing world" by Malcolm Wicks

4. Responses to Consultations

Whilst the government has issued two separate consultations we believe that the proposed measures have to be judged in combination. We have therefore provided a combined response.

Carbon Price Floor: support and certainty for low-carbon investment

This proposal will have a very negative impact on generation from coal, major consequences for the coal industry and will not incentivise CCS unless greater clarity is given.

Negative impact on coal generation and the UK coal industry

1. Of the existing 28GW of coal fired capacity, 8 GW is opted out under the LCPD and will close by 2016. The remaining coal power plants (20GW), which under the IED (formerly the LCPD) are facing the need to fit SCR if they wish to stay open with reasonable load factors after 2016, would now under this proposal find their economics versus unabated gas fired power stations worsened by the additional cost to the extent that they may well opt for the reduced running hours option and close by 2023. This is more likely under the cost impact of Scenarios 2 and 3 than for Scenario 1.

Redpoint's modelling has non-CCS coal capacity reducing to18GW in 2020 and 5 GW in 2030. However the reduction could be faster - at present only one power plant (2GW out of the current total coal capacity of 28GW) has committed to SCR.

2. The four CCS demonstration projects will face increasing costs on their residual emissions (which may be the small proportion of carbon dioxide not captured on a 400MW plant with "full "capture or the carbon dioxide emitted from the rest of a larger plant where partial CCS is fitted(eg 400MW on an 800MW plant) and this will act as a disincentive to build CCS demonstrations and new coal fired power plants.

3. Reduction in coal burn will have major consequences for the UK coal industry and associated infrastructure (ports and rail). This is not mentioned in the Impact Assessment statement.

Carbon Dioxide capture and storage

Paragraphs 4.30 and 4.31 are not sufficiently clear that carbon dioxide not emitted due to CCS will be exempt from the new CCL. There is the implication that this does not need to be addressed until after the Demonstrations are up and running.

If "Carbon Price Support" is a tax on emissions of carbon dioxide, not a tax on using fossil fuel, then it should be levied only on emissions.

Potential investors in CCS projects need clarity *now* when projects are being formulated that they will have full relief from CCL for all carbon dioxide stored both at the demonstration stage and at the retrofit stage when CCS is extended to the full plant. It is not sufficient to leave this for further future legislation.

If this certainty is given, then it will act (especially in Scenarios 2 and 3) to incentivise investment in CCS, both the demonstrations and follow on projects. Early clarity on incentives for follow-on projects is important because the means

has to be found to ensure that the fledgling CCS industry does not whither as soon as the demonstration projects are built.

Feed-In Tariff(s)

We are supportive of a Feed-in tariff for all low carbon electricity generation based on a contract for difference with the wholesale electricity price. Premiums will be appropriate for specific technologies (eg new, more expensive higher risk technologies such as offshore wind, wave and tide) or for plant with specific important characteristics (eg flexible low carbon generation (including CCS)) .

Generators will only build new coal power plant with CCS if they are confident of the financial business case for the plant capacity for 20 years when measured against gas-fired power plant, especially if gas plant has no CCS retrofit obligation.

It is essential that there is early commitment to a Feed –in tariff applicable to coal or gas with CCS so that generation companies can take this into account when making decisions on project development.

Emissions Performance Standard

We recognize that an EPS may be necessary in order to define what is meant by low carbon generation in the context of Feed-in Tariffs or Carbon Price Support exemption.

Potential investors in coal fired power plant with CCS need clarity on how the proposed rules will apply to coal plant and also to gas plant and also how the rules relate to the funding rules for CCS demonstrations and exemption from the CCL levy (Carbon Price Support)

We interpret the proposals as written as follows with our commentary below:

Existing power plant
EPS not applicable because of the importance of coal generation for security of supplies

-we agree

New coal power plant
Such plant must meet the EPS applicable at its date of consent. A level based on 600g/kwh would require CCS on 25% of the plant whilst one of 450g/kwh would require CCS on 50%.

-In practice the rules on demonstration funding (currently proposed 300/400MW of CCS) would then determine the maximum sizes of plant to be built for Projects 2, 3 or 4.

- The 600g/kwh option is consistent with current policy and some developers' proposals for the NER300 have assumed this policy.

- A tighter standard could be introduced as a requirement from a later date and would be applicable to the second tranche of CCS projects (see below)

-If such plants meeting the EPS are classified as Low Carbon generation and thereby gain exemption from the Carbon Price Floor/CCL levy the effect of Carbon Price Support would be to help incentivize retrofit of CCS on the full plant as the cost of emissions rises.

New gas power plant

-Neither 600 nor 450 g/kwh require CCS and with the grandfathering principle this will be the case for the life of the plant. The incentive for CCS will come only from the effect of the Carbon Price Support.

-CCS will only be possible if plants are built CCR so this requirement should continue.

After the CCS review

New plant commissioned after the Review would have to meet a new EPS established during the Review in the light of the results of the Demonstrations.

-Since we are confident in the technology, we would expect an EPS based on a level of 100g/kwh could be applied from 2025. We would urge a relaxation of this to say 150 g/kwh for plants consented before 2020 and for retrofits to complete CCS on Demonstration Projects in order to encourage their early Implementation. This should be indicated now.

Overall:

We find these proposals discriminate against investment in coal power plant to a greater extent than justified by the relative unabated emissions.

The proposal as written will have a very negative impact on investment in new cleaner, more efficient capture and storage ready (CCR) coal power plant and in CCS (gas or coal) and fails to send any signals in the direction of reducing carbon emissions from gas fired power stations, despite this being clearly necessary to meet 2030 targets.

An EPS should not be introduced which allows gas plant to be built and operated throughout its life unabated whilst effectively imposing CCS on coal generation. This will undermine investment in renewables, coal, CCS and nuclear It would lock in carbon over the next 30 years and further weaken our diversity and security of supply through import dependency and leave consumers highly exposed to future moves in international gas prices and supply interruptions.

Capacity Payments

We understand the government's concern that their will be insufficient investment in new generation capacity to replace the plants that close. The consultation describes a large number of different potential responses to a capacity shortage.

We believe that It is necessary to consider quite separately three types of capacity shortfall which need different solutions:

i) the capacity shortage that could occur at the relatively short teatime peak of demand. Such shortage would be for just a few hours, and a few GW maximum

Solutions would be more interconnection, more pumped storage and more open cycle gas turbines plus some demand side management.

ii) the capacity shortage that could occur due to the difference in demand between day and night in winter lasting, each weekday for about eight hours and measured around 20 GW

The responses listed above have less relevance. Currently this capacity is provided by older coal power plant and gas CCTGs which are “two shifted”, with consequentially modest load factors (30- 35%), which are acceptable commercially because the capital investments in these plants have been written off.

In the medium term such plant will continue to be needed. In the longer term it is technically feasible for coal with CCS to provide flexible, low carbon capacity but there would need to be capacity payments to compensate for the modest load factors.

iii) the capacity shortage that could occur at periods of low wind across the whole generation system, sometimes lasting several days and up to 25 GW if wind targets are met.

The responses listed above have less relevance. It is technically feasible for coal with CCS to provide flexible, low carbon capacity to back up gaps in wind generation but there would need to be capacity payments to compensate for the low load factors.

Further consideration should be given to the relative economics of different mixes in the whole system.

Combination of EMR measures

We would suggest the following policy combination of EMR policies to avoid premature closure of existing coal power plants before clean coal CCS plants are built and to avoid investment in low carbon generation (nuclear, renewables and CCS) being diverted to unabated gas:

Carbon floor price: adopt Scenario 1 trajectory with lower initial carbon price target (£20/tCO2 in 2020) but retain £70/t for 2030.
Emission Performance Standard (EPS): establish an EPS for 2025 that will require CCS on gas as well as coal.
Feed-In Tariffs: confirm that FITs will apply for early CCS projects (coal and gas)
Capacity payments: offer capacity payments for low carbon, flexible power plant (coal and gas) with CCS

5. Responses to Specific Questions in HM Treasury Consultation

Investment

3.A1: What are your expectations about the carbon price in 2020 and 2030? And how important a factor will it be when considering investment in low-carbon generation?

This will depend on government/ EU/international policies.

It is important for UK competiveness that we do not institute measures that are costly at home and reduce the cost of meeting the overall cap for other Member States. There is a danger of doing this in an effort to meet Climate Change Act objectives. UK policy should be tested against this criterion.

3.A2: If investors have greater certainty in the future long-term price of carbon, would this increase investment in low-carbon electricity generation in the UK? If so, please explain why.

The first effect of high carbon prices is the negative impact on investment in coal fired generation. There is much less impact on gas-fired generation because there is confidence that wholesale electricity prices will follow the price of gas plus carbon

3.A3: How much certainty would investors attribute to a carbon price support mechanism if it were delivered through the tax system?

The proposals laid out in this policy are, in effect, a carbon tax on fuel for power generation and attractive to the government initially at least as a politically acceptable source of additional revenue. However in the longer term when the costs of the tax begin to make a noticeable impact on electricity prices there may be a public reaction, similar to that against the fuel tax escalator.

3.A4: In addition to carbon price support, is further reform of the electricity market necessary to decarbonise the power sector in the UK?

This tax alone will not stimulate low carbon investment; although making conventional coal and gas generation more expensive is a way to give everything else a competitive advantage. The primary incentive for low-carbon investment should come from a combination of FIT and capacity/availability payments included in the DECC EMR consultation.

Administration

4.B1: What changes would you need to make to your procedures and accounting systems to ensure you correctly account for CCL on supplies to electricity generators?

No comment

4.B2: How long would you need to make the necessary changes to your systems to account for CCL on supplies to electricity generators?

No comment

4.B3: Please provide an estimate of how much the system changes would cost, both one-off and continuing?

No comment

Types of generator

4.C1: Do you agree that all types of electricity generators should be treated equally under the proposed changes? If not, please explain why.

All types of electricity generation should be treated equally in relation to their Carbon Dioxide emissions.

4.C2: Is there a case for providing additional or more preferential treatment for CHP? If so, what is the best way of achieving this?

If CHP or any other technology (e.g biomass) is ascribed special tax-free provisions it should not result in a perverse impact that subtracts in any way from the incentive to capture and store the emissions. CCS projects should always receive full tax credit for the emissions they avoid whether or not exemption has already been granted for the heat or biomass components of the generation.

4.C3: Do you agree that tax relief should be considered for power stations with CCS? If so, what are the practical issues in designing a relief; what operational standards should a CCS plant meet in order to be eligible; and how might these issues differ for demonstration projects?

Yes.

Paragraphs 4.30 and 4.31 are not sufficiently clear that Carbon dioxide not emitted due to CCS will be exempt from the new CCL. If “Carbon Price Support” is a tax on emissions of carbon dioxide, not a tax on using fossil fuel, then it should be levied only on emissions.

There is the implication that this does not need to be addressed until after the Demonstrations are up and running. Potential investors in CCS projects need clarity *now* when projects are being formulated that they will have full relief from CCL for all Carbon dioxide stored both at the demonstration stage and at the retrofit stage when CCS is extended to the full plant. It is not sufficient to leave this for further future legislation.

If this certainty is given, then it will act (especially in Scenarios 2 and 3) to incentivise investment in CCS, both the demonstrations and follow on projects. Early clarity on incentives for follow-on projects is important because the means has to be found to ensure that the fledgling CCS industry does not whither as soon as the demonstration projects are built.

Imports and exports

4.D1: What impact would the Government’s proposals have on electricity generators and suppliers that export or import electricity?

No comment

4.D2: What impact might the proposals have on trading arrangements for electricity?

No comment

4.D3: What impact might the proposals have on electricity generation, trading and supply in the single electricity market in Northern Ireland and Ireland?

No comment

Carbon price support mechanism

4.E1: How should the carbon price support rates be set in order to increase certainty for investors, in particular over the medium and long term?

Carbon price support rates need to have a binding trajectory over at least fifteen to twenty years from plant operation, i.e. perhaps twenty-five years from project inception.

However, the UK carbon floor price should not be allowed to increase substantially above the ETS market price of allowances. If it does so the situation would be deemed to be unsustainable due to UK commercial power consumers becoming uncompetitive. This could result in a policy review undermining the long term Carbon price stability that was intended.

4.E2: Which mechanism, or alternative approach, would you most support and why?

No comment

4.E3: What impact would the proposals have on you carbon trading arrangements?

No comment

Future price of carbon

4.F1: Should the Government target a certain carbon price a) for 2020 and b) for 2030? If so, at what level?

The Government's objective of providing price stability in carbon is creditable; however, there is a danger that if the trajectory turns out to be much steeper than the market then, for reasons of UK competitiveness, a future Government would be inclined to reduce the tax rate undermining the long term price signal.

4.F2: What is the most appropriate carbon price for the UK to meet its emissions reduction targets in the power generation sector? How would this be affected by changes in the structure of the electricity market?

The primary incentive mechanism should be the FITs so the level of the carbon support price should be as low as possible beyond the ETS price. The objective of the carbon price floor should be to provide price stability only.

We believe that Scenario 1 with the low trajectory to 2020 and high trajectory onwards to 2030 is the best choice since it reduces s the risk of premature run down of coal generation and sends a clear longer term price signal that will benefit investors in offshore wind, nuclear and CCS.

4.F3: When would be the most appropriate time for introducing a carbon price support mechanism and what would be the most appropriate level?

Generators need to understand the likely impact of this measure as soon as possible because of its impact on investment decisions on coal fired plant upgrades necessary to meet the requirements of the IED

Electricity investment

5.B1: What impact would you expect the carbon price support mechanism to have on investment in low-carbon electricity generation?

The impact on investment on CCS and new coal fired generation depends on an early understanding of the rules. See 4.C3.

However, the primary mechanism for incentivising low-carbon investment will be the FIT

5.B2: What other impacts would you expect carbon price support to have on investment decisions in the electricity market?

Carbon price support will clearly act against high carbon fuels. Taken together with an EPS this package penalises unabated coal. There are still good strategic reasons for the UK to maintain fuel diversity incorporating coal so these proposals run the risk of threatening UK energy security.

5.B3: How should carbon price support be structured to support investment in electricity generation whilst limiting impacts on the wholesale electricity price?

Carbon price support will inevitably impact the price of electricity, since the additional tax will have to be paid for from electricity sales. There will be benefit for investment if the revenues are re-cycled via FITs for low carbon electricity generation from fossil fuels (ie with CCS).

Existing low-carbon generators

5.C1: Can you provide an assessment of the impact of the proposals on your generation portfolio and overall profitability?

No comment

5.C2: What would be the implications of supporting the carbon price for existing electricity generators and how should the Government take this into account?

Existing fossil generators will be penalised by this measure with the impact on coal roughly twice that on coal. This will increase the risk of early run down of fossil plant with consequential effects on supply diversity and security and potential lost opportunity to refit flexible fossil generation sites with low-carbon CCS.

Of the existing 28GW of coal fired capacity, 8 GW is opted out under the LCPD and will close by 2016. The remaining coal power plants (20GW), which under the IED (formerly the LCPD) are facing the need to fit SCR if they wish to stay open with reasonable load factors after 2016, would now under this proposal find their economics vs unabated gas fired power stations worsened by the additional cost to the extent that they may well opt for the reduced running hours option. This is more likely under Scenarios 2 and 3 than for Scenario 1.

Redpoint's modelling has non-CCS coal capacity reducing to18GW in 2020 and 5 GW in 2030. However the reduction could be faster - at the current time only one power plant (2GW out of the current total coal capacity of 28GW) has committed to SCR.

Electricity price impacts

5.D1: How do you currently manage fluctuations in the wholesale electricity price?

No comment

5.D2: What difference will supporting the carbon price make to your business?

If the carbon price support causes a a reduction in coal-fired generation it will have an impact on our repair, maintenance and upgrade business which employs more than 2000 people in the UK.

5.D3: As an electricity generator or supplier, how much of the cost of the carbon price support would you pass on to consumers?

We cannot see how the generators would pass on less than the full cost.

5.D4: As a business, how much of the cost of energy bills do you pass on to customers?

100%

5.D5: How might your company or sector be affected and would there be any impact on your profit margins?

See 5.D2

5.D6: Do you have any comments on the assessment of equality and other impacts in the evidence base of the Impact Assessment, included at Annex D?

Annex D.100 refers to the interaction with other policies, specifically other parts of the overall EMR package which are addressed in the DECC consultation. However, of the four package options studied, all options include CPS and all assume a level of carbon price support of £30/tCO_2. Furthermore, all options include EPS. We believe that the modelling should test the impact at different price levels including zero as well as with or without EPS.

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11 February 2011

Response to HM Treasury's Consultation on '*Carbon price floor: support and certainty for low carbon investment*', December 2010

Executive Summary

Drax has some major reservations about this policy proposal. We believe that, if implemented as proposed, it will distort the competitive market and deliver detrimental unintended consequences. In particular, it will:

- **lead to very significant windfall profits to existing nuclear and renewable generators, estimated to run into several £billions;**
- **distort electricity market competition both within the UK and between the UK and other EU markets;**
- **have no real effect on overall CO_2 emissions since any reduction in the UK's emissions will simply result in higher emissions in the rest of the EU;**
- **have no real impact on new build renewable investment, which will be much more effectively incentivised by either the ROC mechanism or a CfD FiT mechanism;**
- **cause critical marginal and flexible UK coal-fired plant to close earlier than replacement new low carbon plant can be constructed, adversely affecting security of supply; and**
- **result in higher UK power prices which will reduce the competitiveness of UK industry and exacerbate fuel poverty issues in the residential sector.**

All these impacts will have an adverse effect on UK consumers and all are avoidable. They could, and should, be significantly mitigated by ensuring that the carbon price floor closely tracks the market price of EUAs.

About Drax

Drax is predominantly an independent power generation business responsible for meeting some 7-8% of the UK's electricity demand. The Company also owns Haven Power, a small electricity supplier serving the needs of business customers.

Drax is the owner and operator of the 4000MW Drax Power Station in North Yorkshire, which is the largest, cleanest, most efficient and most flexible coal-fired power station in the UK. As such, Drax is committed to playing its part in reducing its carbon footprint and that of UK power generation. To this end, in summer 2010 the largest biomass co-firing facility in the world was commissioned at the power station.

Drax is by some distance the largest renewable generator in the UK, with the capability to produce 12.5% of the station's output from sustainable biomass (equivalent to the output of around 1000 2MW wind turbines). In 2010, Drax produced over 6% of the UK's renewable

power, more than twice that of the next largest renewable generator. In addition, we are more than two-thirds of the way through the largest steam turbine modernisation programme in UK history. Together these two initiatives will reduce our emissions of carbon dioxide (CO_2) by over three and a half million tonnes a year, which represents a reduction of over 17% compared to 2006 levels.

Drax is pleased to have the opportunity to participate in the carbon price support consultation. As a key provider of flexible generation and system support services to the System Operator and a very significant investor in renewable electricity generation from biomass, Drax believes it is well placed to comment.

Introduction

This consultation is part of a package of proposals developed by the Government to put in place a framework to facilitate the £200bn + investment needed to ensure we can meet our binding 2020 carbon emissions and renewables targets. It should also put the UK on a secure, sustainable, affordable and, importantly, credible path to its longer-term commitment to reduce carbon emissions by 80% by 2050. As such it needs to be considered alongside the rest of the Electricity Market Reform (EMR) proposals put forward by DECC in December 2010.

Drax agrees with the Government that the current EU-ETS mechanism has not stimulated as much investment in low-carbon technology as might have been expected. However, we question whether addressing this by unilaterally introducing a carbon price floor in the UK is the best way forward. Any substantial difference between the implicit price of CO_2 in the UK and in the rest of the EU cannot really be sustainable. That in itself will create uncertainty and reduce the 'bankability' of the floor price for UK low carbon investments. We would instead urge the Government to rely on the current Renewables Obligation, and on the new low-carbon Feed in Tariff (FiT) mechanism proposed under the EMR to stimulate such investments. In the meantime we should work hard with our EU partners to improve the current EU-ETS.

Windfall Profits

The stated purpose of the carbon price floor is to stimulate new low carbon (primarily new nuclear) investment. However, when introduced it will impact the electricity prices paid to all generators. This will provide substantial and unnecessary windfall proFiTs for existing nuclear and renewables generation. We estimate this could be between £4-9bn depending on the assumptions used. It will also provide windfall profits to existing gas generators when coal is the marginal plant on the system. This needs to be addressed to ensure that UK consumers do not pay any more than is absolutely necessary to meet our climate change targets.

Distorting EU trade

Any substantial difference between UK and EU carbon prices would raise potential questions about the degree to which the UK carbon price floor may affect trade in energy between Member States – whether over interconnectors, or in the case of Ireland, as part of the SEM. A higher power price in the GB market will provide incentives for greater imports into GB over interconnectors, and thus dependence on foreign producers. This will put GB plant at a competitive disadvantage and lead to lower load factors, or even closure, of existing

marginal GB peaking / mid-merit generation capacity with direct impact on GB employment and higher costs for consumers.

Effect on overall EU Emissions

Any benefit this unilateral UK proposal may have in lowering UK emissions will be offset by a corresponding increase in overall emissions in the rest of the EU-27. This is because the EU-ETS scheme applies an overall cap on total EU emissions allowances. A reduction in UK use of EU ETS certificates will simply mean the rest of the EU will use more EU ETS certificates.

Low Carbon Investment Signals

The 'bankability' of the proposed mechanism to support new build low carbon investments is uncertain and will not be as effective as a direct support mechanism like the existing ROC mechanism or a CfD FiT mechanism as proposed in the EMR. This is for two main reasons:

- Indirect price signal : the carbon floor is an indirect and inefficient forward price signal for investment in low carbon generation. This is because it will only impact the wholesale electricity price when fossil fuel plant are the marginal generators in the system and thus setting electricity prices. Whereas this is expected to be predominantly the case in the near term, in the medium to longer term there will be extended periods where low carbon generation is the price setting plant on the system. The carbon floor will not influence the wholesale price of electricity in those periods; and
- Political Risk : since the level of carbon uplift is not grandfathered, and as it is a tax, it will always be subject to potential change. Indeed, successive Governments may well take different views on the purpose of the tax and the rate and/or trajectory at which it should be set. This will be increasingly likely the further out of line UK prices (and hence competitiveness) get from prices in the rest of the EU-27.

Effect on Existing Marginal Coal-fired plant

Over 40% of installed generation capacity in the UK is coal and oil generation plant and low efficiency gas generation plant. The resultant cost increase from the introduction of a carbon price floor at a significant premium to the EUA price could jeopardise the viability of marginal fossil fuel generation plant. Such generators are already facing key investment decisions for compliance with such measures as the Industrial Emissions Directive in 2016, against a background of current unsustainably low generation margins in the wholesale market. There is a real risk that, if a carbon floor is introduced, there will be premature closure of generation capacity and cessation of the provision of the flexible services provided by such plant. Premature closure should be of major concern because it is likely to happen too quickly to permit the commissioning of the low carbon generation plant which would be needed to replace it. This would lead to security of supply issues.

Consultation Process

The Carbon Price Floor is a key strand of the Government's overall EMR package proposals. Hence we are disappointed that we were not given more time to consider this consultation response alongside the other elements of the package. Indeed, it was surprising that HM Treasury were not able to accommodate a normal 12 week consultation period for such an important issue.

Response to Specific Consultation Questions:

Investment:

3A1: What are your expectations about the carbon price in 2020 and 2030? And how important a factor will it be when considering investment in low-carbon generation?

Price Expectations:

There is already today some indication in the market of the 2020 carbon price. For example, a 2020 EUA forward trade was executed in August 2010 at €22.72. The market does not currently trade beyond 2020, but Drax would support the market price range included within the consultation as a reasonable indication of the potential future EUA price track.

Impact on Investment Decisions:

We believe that the carbon floor will provide only marginal support for investment in low carbon generation. As noted above, we believe this is the case for two reasons:

- Indirect price signal : the carbon floor is an indirect and inefficient price signal for investment in low carbon generation. This is because it will only impact the wholesale electricity price when fossil fuel plant are the marginal generators on the system and thus setting electricity prices. Whereas this is expected to be the predominantly the case in the near term, in the medium to longer term there will be extended periods where low carbon generation is the price setting plant on the system. The carbon floor will not influence the wholesale price of electricity in those periods; and
- Political Risk : Since the level of carbon uplift is not grandfathered, and as it is a tax, it will always be subject to potential change. Indeed, successive Governments may well take different views on the purpose of the tax and the rate and/or trajectory at which it should be set. This will be increasingly likely the further out of line UK prices (and hence competitiveness) get from prices in the rest of the EU-27.

Given the generally risk adverse nature of investors, a carbon floor above the EUETS price will provide greater discouragement to investment in higher emitting forms of generation than it will an incentive for investment in low carbon generation. However

- carbon floor will disproportionately and adversely affect Independent Generators without a diversified portfolio - increasing credit and therefore funding costs; and
- Independent Generators would therefore be less able to make investments to help meet Government targets.

For these reasons, the carbon floor will not be an important factor, and other incentives such as the CfD FiT proposed in the EMR will be much more effective in attracting low-carbon investment.

3A2: If investors have greater certainty in the future long-term price of carbon, would this increase investment in low-carbon electricity generation in the UK? If so, please explain why.

Not really. As noted above, the primary and more effective incentive mechanism should be the FiT. It is also worth noting that carbon has traded in the EU ETS through to 2020. Thus longer term price certainty for carbon is already available through forward contracts traded on the market.

A price of carbon above that of EUAs will discourage investment in higher emitting forms of generation. However, a system of revenue support for low-carbon generators such as the

CfD FiT is still required, and this would deliver more confidence than a floor price introduced through the tax system, for the reasons given in 3A1 above.

Regulatory uncertainty (i.e. knowing the EUETS target or whether it will exist in the future) is not resolved by this policy. A robust carbon price would be better delivered via an EU-wide mechanism and we should be working hard with our EU colleagues to deliver this.

3A3: How much certainty would investors attribute to a carbon price support mechanism if it were delivered through the tax system?

Not much. For the reasons set out in 3A1 above, this mechanism is unlikely to be credible to investors in the longer term because:

- The policy is disconnected from Europe, and any significant differential will be unsustainable
- The role of the market will be distorted
- UK will potentially face the prospect of some of the highest electricity costs in the world
- The CCL as a tax which can be varied will be perceived to be exposed to significant political risk of reversal in policy by a future Government.

For new build projects a carbon tax will not provide as much certainty as ROCs or a FiT. A higher level of perceived risk would increase the level of discount applied to it for investment and financing purposes.

3A4: In addition to carbon price support, is further reform of the electricity market necessary to decarbonise the power sector in the UK?

Decarbonisation of the UK power sector would be best facilitated by encouraging wide and open competition for investment in low carbon generation in the UK and also in the complementary flexible and peaking generation required to support the increase in intermittent wind and inflexible nuclear generation. This is not addressed by this proposal. It will best be achieved by:

- Ensuring longer-term wholesale market liquidity, which would bring the added benefit of sourcing power from only the most efficient producers, reducing emissions; and
- Reform of the Renewables Obligation and a move to a CfD FiT
    - A successful outcome of the banding review is required to provide certainty and avoid a hiatus in development prior to the EMR being introduced.
    - A carbon tax is not a replacement for ROC / FiT support
- Implementing a broadly-based capacity mechanism to incentivise the required investment in existing and new flexible plant

Administration:

4B1: What changes would you need to make to your procedures and accounting systems to ensure you correctly account for CCL on supplies to electricity generators?

No comment

4B2: How long would you need to make the necessary changes to your systems to account for CCL on supplies to electricity generators?

No comment

4B3: Please provide an estimate of how much the system changes would cost, both one-off and continuing?

No comment

Types of generator:

4C1: Do you agree that all types of electricity generators should be treated equally under the proposed changes? If not, please explain why.

No – in the interests of consumers, and to minimise competitive distortions, the windfall profits to existing low carbon nuclear and renewables generation and gas generation must be addressed.

4C2: Is there a case for providing additional or more preferential treatment for CHP? If so, what is the best way of achieving this?

Yes there is a case for providing additional relief from the CCL for CHP to include the fuel used for the heat element as well as the electricity element. There may also be a case for extending the existing ROC scheme to cover CHP. To be effective any such additional support needs to be certain in value and grandfathered over the long term

4C3: Do you agree that tax relief should be considered for power stations with CCS? If so, what are the practical issues in designing a relief; what operational standards should a CCS plant meet in order to be eligible; and how might these issues differ for demonstration projects?

In principle Yes, but this depends on the overall structure of support for CCS investments. This is a complex issue that will need careful consideration to ensure that CCS (both in the demonstration phase and beyond) is appropriately incentivised. Relief from the CCL will not provide that framework. Support for all CCS investments needs to be designed to recognise the high technical risk of this innovative technology, particularly for demonstration projects. In addition, the issue of how biomass plants with CCS can properly capture the benefits of potentially providing negative overall carbon emissions will need to be considered.

Imports and exports:

4D1: What impact would the Government's proposals have on electricity generators and suppliers that export or import electricity?

This policy will have a distorting effect on EU market competition. The price of power in the UK will be higher than that on the continent, encouraging higher levels of interconnector imports. UK peaking and mid merit plant will be encouraged to close and therefore encourage greater use of peaking plant elsewhere on the continent (eg. German coal or lignite plant) which may actually result in higher overall emissions.

Power prices will also be increased outside of the UK:

- this policy will directly increase prices in the Republic of Ireland where marginal supply is met by, and the price set by UK plant in Northern Ireland as part of the SEM; and
- this policy may also at times indirectly increase continental European power prices due to export to the UK creating an apparent increase in demand requiring the use of increasingly marginal, costly and more polluting plant.

The impact on UK employment should not be underestimated. The power generation sector is a substantial employer both direct and indirect. Greater use of imported power will lead to closures and unemployment in the UK.

4D2: What impact might the proposals have on trading arrangements for electricity?

Electricity is traded in the GB market under a number of different arrangements, and the impact of the proposals will differ for each.

- Wholesale power sales will be least impacted.
- Power Purchase Agreements/ Virtual Power Plants. A carbon price floor could cause existing contracts to be renegotiated on uncertain terms or severed, depending on such factors as:
    - the contractual arrangements for fuel costs
    - ISDA interpretation of this proposal.
    - the duration of existing contracts, which could be 5 years or more.

The impact overall might be that hedges against physical generation assets are impaired, increasing risk exposure and funding costs.

The proposed policy would not create a certain carbon price (see 4E3), due to the regulatory risk and regular adjustment of the CCL mentioned above. Hence we expect that this policy may reduce the ability of generators to sell power forward because forward costs become more uncertain. This will reduce liquidity in the UK power market.

4D3: What impact might the proposals have on electricity generation, trading and supply in the single electricity market in Northern Ireland and Ireland?

This policy will directly increase prices in the Republic of Ireland due to marginal supply being provided by, and the price being set by UK plant in Northern Ireland subject to the carbon price floor.

Carbon price support mechanism

4E1: How should the carbon price support rates be set in order to increase certainty for investors, in particular over the medium and long term?

Medium-term approach (to 2020):

- Price floor should be set at the EUA market values to ensure that UK consumers pay no more than is absolutely necessary to meet our climate change objectives. This would minimise distortions, eliminate windfalls, protect UK competitiveness, and allow fossil plant to close in a controlled manner, giving security of supply.

Longer-term approach (2020 and beyond)

- If introduced, the carbon price floor should take effect only when the new investment it is seeking to incentivise (ie. new nuclear) starts to generate.

:
As noted above, it is Drax's strong view that the proposed CfD FiT is better able to provide investor certainty and hence better suited to incentivise the necessary investment in low carbon generation than this carbon floor price approach.

4E2: Which mechanism, or alternative approach, would you most support and why?

A CfD FiT structure would eliminate any practical need for a carbon price floor, and additionally provide power price certainty and reduce costs to the consumer.
With respect to the options set in section 4.39 of the consultation document, a variation of the third option *'Rates set annually based on a carbon market index averaged over a specific annual or biennial period to reflect future carbon prices'* is likely to represent the best option. Firm prices must be known at minimum 3 years (4 years at budget) in advance at any time.

4E3: What impact would the proposals have on your carbon trading arrangements?

The impact should not be underestimated. The actual EUA prices paid by installations are exposed to market volatility often when power is being sold years ahead. It is therefore unrealistic to expect an annually-set supplemental tax on top of a volatile market carbon price to deliver carbon price certainty.

The inability to lock in the exposure to CCL price against poor market spreads is a real risk exposure and would reduce our ability to sell power forwards. Hence actual EUA costs may well not be reflected within the CCL mechanism which could lead to company losses.

Future price of carbon

4F1: Should the Government target a certain carbon price a) for 2020 and b) for 2030? If so, at what level?

Any carbon price floor should be set at a level based on forward EUA market values until the (mainly new nuclear) plant it seeks to incentivise start generating.

Government should undertake to periodically review this policy for post 2020 floors and the magnitude of the targets set, perhaps coinciding with future EUETS phases.

The CfD FiT is the real policy measure to ensure the UK attracts investment to reach its low carbon targets.

4F2: What is the most appropriate carbon price for the UK to meet its emissions reduction targets in the power generation sector? How would this be affected by changes in the structure of the electricity market?

Any carbon price floor should be set at a level close to projected EUA market values. This will facilitate investment within the existing fleet, minimising emissions abatement costs to the consumer and minimise the pan-European arbitrage against the UK. Other measures within the EMR package, namely CfD FiT are required to encourage renewables investment irrespective of a carbon price floor.

Impact of changes in power generation sector:

- As the UK fleet becomes increasingly decarbonised, low carbon plant will increasingly become the price setting plant which will ultimately negate this policy.
- The volatility of the other commodity prices for example the cost of gas and coal may well derail the effectiveness of CCL. See 5D6.

4F3: When would be the most appropriate time for introducing a carbon price support mechanism and what would be the most appropriate level?

If a carbon price floor is to be introduced, it should not have any material difference from EUA prices before 2020, to co-incide with the timing of the new nuclear investment it is trying to incentivise. It should therefore initially be set at a level close to the EUA market price.

Electricity investment

5B1: What impact would you expect the carbon price support mechanism to have on investment in low-carbon electricity generation?

Very little. It is a poor price signal for low carbon investment (see 3A1 above). A carbon price floor is therefore not really needed. It would not address long term power price uncertainty as effectively as other EMR mechanisms such as the CfD FiT. In particular, the FiT price would be set reflecting the carbon price floor, so the latter would therefore provide little or no additional incentive.

Because of the distorting effect on UK / EU markets, this proposal may even reduce investment in the UK. New power plant could be built in continental Europe with the power produced sold into the UK

5B2: What other impacts would you expect carbon price support to have on investment decisions in the electricity market?

A carbon price floor would diminish the value of existing fossil-fuelled assets. It will dissuade investment and accelerate end of life for existing coal and the most inefficient gas assets. It will create a potential security of supply issue because the vital flexible marginal plant will become unviable on timescales that will not allow for a managed replacement.

The increased uncertainty introduced by this measure will lower market liquidity and increase the cost of financing, both of which will make investment in for example NOx abatement measures to meet IED requirements more difficult and expensive.

5B3: How should carbon price support be structured to support investment in electricity generation whilst limiting impacts on the wholesale electricity price?

As stated above, we do not believe the carbon price support is the most appropriate approach. The CfD FiT approach proposed in DECC's EMR consultation would better support investment in electricity generation whilst limiting adverse impacts on the wholesale electricity price.

Existing low-carbon generators

5C1: Can you provide an assessment of the impact of the proposals on your generation portfolio and overall profitability?

Depending on the outcome of the ROC Banding review and/or FiT proposals

- Drax would seek to burn more biomass at Drax power station. We are developing investment proposals to progressively convert Drax from a coal fired power station to a biomass fired power station. With appropriate ROC/FiT support we would expect to embark on this investment programme in 2012 with the announcement of the new ROC bands. We do not believe that the carbon floor will be material to the investment decision because of our concerns about its inadequacy as an investment signal for low carbon generation.
- Drax is working in partnership with Siemens Project Ventures to invest £2-3bn in 3 new dedicated biomass generation plants.
- Drax has submitted in partnership with Alstom and National Grid a proposal for the Government's CCS completion to build an oxyfuel CCS demonstration plant at Drax

- Planned investment to meet increased environmental limits post 2016 (IED) will be more difficult and expensive and therefore less likely.

Planned investment in ever higher biomass burn at Drax power station and new dedicated biomass generation plants could be constrained if a carbon price floor is not smoothly implemented, and if profitability is significantly affected.

5C2: What would be the implications of supporting the carbon price for existing electricity generators and how should the Government take this into account?

Existing nuclear, renewables (and gas when coal is the marginal plant) generators will benefit from a significant and unnecessary windfall given the inevitable rise in the price at which they are able to sell power in the near to medium term (until low carbon generation routinely sets the wholesale market price).

This potential for windfall profits should be addressed as a matter of urgency, to avoid distorting the market and ensure consumers do not pay any more than is strictly necessary to meet our climate change targets.

The forced early closure of existing marginal fossil plant will affect security of supply. That will result in an increased cost for investment in replacement plant and increased uncertainty, both of which will increase costs to investors and ultimately to consumers.

The most effective way to mitigate these issues would be to set the floor price at the EUA market price.

Electricity price impacts

5D1: How do you currently manage fluctuations in the wholesale electricity price?

Drax progressively hedges power output over the years ahead to mitigate risk. This is done mainly in the forward market through bilateral contracts with counterparties.

The clean dark green spread and the bark spread (difference between wholesale electricity price, ROC and cost of biomass) have been volatile. Drax seeks to minimise the commodity risks by:

- Locking in clean dark spread and bark spread as power is sold; and
- Purchasing carbon as coal generated power is sold to minimise carbon price exposure

5D2: What difference will supporting the carbon price make to your business?

A carbon price floor will increase the costs of fossil generation. This could reduce the ability of Drax to make its proposed investments in decarbonising its existing fossil fuel generation assets investing in new low-carbon generation assets, dedicated biomass plant and CCS plant.

CCL rates cannot be hedged at the time of power sales (see 4E3) and so our ability to trade forward will be reduced. CCL risk will therefore inhibit the ability of generators to sell power forward thereby further damaging the UK power market liquidity.

5D3: As an electricity generator or supplier, how much of the cost of the carbon price support would you pass on to consumers?

As an independent generator, Drax predominantly sells through the wholesale market. Drax's ability to recover the additional cost of carbon price support through the wholesale market is therefore limited by the extent to which the costs are included in the prevailing wholesale power price. Assuming gas plant is price setting (which is the norm), then the additional carbon costs of coal over gas will have to be absorbed by Drax. In contrast, the 'Big 6' Vertically-integrated companies with their retail and generation businesses could pass on all of this cost, and run less efficient plant resulting in higher costs to the consumer and higher emissions.

5D4: As a business, how much of the cost of energy bills do you pass on to customers?

We predominantly sell into the wholesale market. Where we do sell direct to I&C consumers (through Haven) our prices are linked to prevailing wholesale prices plus our retail costs and margin.

5D5: How might your company or sector be affected and would be there any impact on your profit margins?

No Comment

5D6: Do you have any comments on the assessment of equality and other impacts in the evidence base of the Impact Assessment, included at Annex D?

The quality of the underlying analysis is undermined by:

- A downward price track for coal in the same 'central' scenario where oil and gas prices rise. This does not appear credible.
- Perhaps overly ambitious expectations for the timing and volume of CCS plant build.

These proposals would radically change the competitive environment of the UK power market.

- The impact of this single mechanism would not be equal for all power generators.
- Carbon leakage is highly likely from Energy Intensive users. The attractiveness of the UK as a location for investment will be reduced.
- The impact on UK competitiveness and the knock-on impact on EU power prices may be cause for concern to the European Commission.

Thorough analysis is urged with respect to the cost impact these proposals will have on consumers and businesses. A doubling of the power price in real terms by 2030 is highly significant.

CCL
ETT David Kemp

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Ms Justine Greening MP
Economic Secretary to the Treasury
HM Treasury 1 Horse Guards Road
London
SW1A 2HQ

17th January 2011
Dear Ms Greening

RE: the impact of the carbon price floor proposals on combined heat and power plant

I am writing to ask you to exempt CHP from the new carbon price tax so as to ensure that CHP as an emissions saving technology continues to be recognised within Government policy.

Dresser-Rand CHP Solutions manufactures and operates combined heat and power (CHP) plant at various locations within the UK. CHP plants deliver both power and useful heat and are more efficient than operating separate power stations and boilers. By operating as CHP our clients make considerable utility carbon savings when compared to separate generation (power plant and a boiler).

The Government's key policy for supporting CHP plant operation, and the resultant emissions reductions, is the exemption from the Climate Change Levy (CCL). Both the fuel used and electricity generated are exempt from the CCL and this has led to a limited but significant increase in CHP plant installations in the UK. In 2009, this exemption was extended out until in 2023.

The Coalition Government is committed to reforming the CCL to include a carbon price signal in the electricity market. The effect of the reform proposals would be to:

- Discourage plant from operating in CHP mode - the Government's data indicate that CHP plant may have to pay HM Treasury for each tonne of CO2 saved!
- Harm the competitiveness of CHP plant and the customers of CHP operators who buy CHP derived heat.
- Discourage investment in new CHP plant locking in higher emissions and harming CHP businesses such as ourselves.
- Discourage public sector investment in CHP where the technology has been providing a growing level of tangible emissions reductions

As a solution, the Government could simply exclude the fuel used for the heat generated from CHP from the new carbon tax. This would preserve the value for CHP operators and is administratively very simple as it would use the existing CHP Quality Assurance programme. To increase support for CHP, it could be entirely exempted from the new carbon tax.

[redacted]

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Environmental Taxes HM Revenue and Customs
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M60 9LA

Ecotricity Group Limited
Axiom House
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GL5 3AP

11th February 2011

[redacted]

The Renewable Energy Company (Ecotricity)
Consultation Response to Carbon Price Floor: Support and Certainty for Low-carbon Investment

Dear Martin Shaw,

Ecotricity welcomes the opportunity to respond to HM Treasury and HMRCs consultation on carbon price floor: support and certainty for low-carbon investment. Ecotricity is a small supplier of both gas and electricity. Ecotricity own and operate several onshore wind farms throughout the UK, providing renewable energy to our customers. We are also adding solar parks to our generation mix in the very near future. Ecotricity has not provided individual responses to the questions posed in this consultation but rather our general opinion.

Ecotricity is in support of carbon credits for low-carbon generation rather than penalties for fossil fuel generation as proposed in this consultation. However, this should be in addition to the current emissions trading scheme and not in place of. Low-carbon generation should be incentivised and therefore the financial benefit of carbon credits should sit with such generators. As a green company we are in support of increasing the incentives for low-carbon generation.

The generators directly affected by the carbon support proposal in this consultation will have to purchase carbon credits to cover their obligation or face the penalty of a more expensive buy out. Consequently Ecotricity is concerned with what the government will do with this additional revenue. If it is not used to directly fund new sources of low-carbon generation to replace some of the existing fossil fuelled generation then the effectiveness of the scheme will be severely compromised. Ecotricity feels any new revenue should be ring fenced to go towards funding new sources of low-carbon generation or renewable technology development schemes.

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We support the long term aim of the government to move the wholesale price of electricity away from fossil fuels (coal and gas) being the price setters. However, Ecotricity understands that renewable generation cannot and will not set the power price without new technology to mitigate the unpredictable nature of the majority of renewable sources. Renewable generation would be an unreliable and unrepresentative index too, if the power price was set by technologies that only provide 5-7% of the nation's total requirement. Therefore, at this stage we do not feel it would be appropriate to support this measure.

Furthermore, Ecotricity believe oil should also be subject to CCL, in the same way as coal and gas. Oil is also a fossil fuel and high carbon method of electricity generation and should also not be exempt from paying fuel duty.

In conclusion Ecotricity supports the use of carbon credits for low-carbon generation rather than penalties for fossil fuel generation. Ecotricity feel that all revenue raised from the carbon price support proposal should be ring fenced to go towards funding new sources of low-carbon generation or renewable development schemes. We do not feel it is currently appropriate to support renewable generation as the power price setter without new technology to mitigate the unpredictable nature of the majority of renewable sources.

Ecotricity are grateful for the opportunity to comment on carbon price floor: support and certainty for low-carbon investment. We look forward to your response including the final impact assessment by Budget 2011.

Ecotricity welcomes the opportunity to respond and hope you take our comments on board. We also welcome any further contact in response to this letter. [redacted]

[redacted]

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Martin Shaw
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11 February 2011

Dear Martin,

Carbon price floor: support and certainty for low-carbon investment

EDF Energy is one of the UK's largest energy companies with activities throughout the energy chain. Our interests include nuclear, renewables, coal and gas-fired electricity generation, combined heat and power, and energy supply to end users. We have over five million electricity and gas customer accounts in the UK, including both residential and business users.

EDF Energy welcomes the opportunity to respond to the Government's consultation on the carbon price floor. We believe that greater certainty in the future long-term price of carbon will form an important and significant part of the market framework required to increase investment in cost effective low-carbon generation.

With our co-investor Centrica, we stand ready to make a major contribution to a low-carbon future - driving a multi-billion pound investment programme in new nuclear generation in the UK. Accordingly we urge the Government to carry forward these proposals into the 2011 Finance Bill, which will help support major investment decisions that we expect to make over the coming year. Although many had hoped that the EU Emissions Trading Scheme (ETS) would have put a reliable long term price on carbon dioxide emissions, it is clear that it has not done so, for a number of reasons. We therefore strongly support the Government's intention to establish a minimum price of carbon, and believe that the proposals put forward reinforce the existing policy to price carbon emissions by beginning to restore an effective price signal over the next decade.

EDF Energy believes that carbon price support is an essential first step to providing a clear signal to encourage investment in low carbon generation, and we therefore believe that this signal should be confirmed by introducing the carbon price support mechanism at the earliest opportunity. A gradual and relatively linear trajectory would provide sufficient time for carbon-intensive users and generators to adapt to the new low-carbon environment and would be preferable to a sudden and sharp rise if introduced later. It is for this reason that we support scenario two in the consultation that would see the carbon price support starting at £1/tCO_2 on top of the prevailing EU ETS price in 2013, with the support rising to target a combined carbon price of £30/tCO_2 in 2020 and £70/tCO_2 in 2030. We believe that these two prices are consistent with the Government's carbon reduction targets and are

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edfenergy.com

underpinned by DECC's own analysis. We also believe that this scenario strikes the right balance between mitigating any impacts on customers in the short term and providing the right incentives for future investment.

The proposal will also have a positive impact on investment in existing plant and will support investment in energy efficiency upgrades, increased biomass co-firing, and will also be a factor in the investment decisions for the life extensions of the existing nuclear fleet. The carbon price floor will also act to reduce the emissions from the existing plant mix, by ensuring that a stronger price signal is factored into day to day operational decisions; this is consistent with the environmental aims of the proposal.

We recognise that there is a difficulty in providing absolute certainty for a minimum carbon price beyond the life of the current Parliament. In this regard, while a target trajectory over a long period is very important for planning and hedging decisions, a cross-party political consensus supporting the continuation of the carbon price support mechanism and its trajectory would be desirable. This would assist in providing long term assurance to investors that the current intended target price trajectory will be implemented over the coming decades.

It is important that the rate setting mechanism should be clearly defined and transparent. This will help provide clarity for all market participants and will minimise any adverse impacts on trading activity and market liquidity. In terms of the structure of the carbon price support mechanism, we recommend a variation of option three ("rates set annually based on a carbon market index"). We elaborate on this in our attached response, and believe that the carbon price support rate should be set each year in March for the delivery year three years ahead. We would welcome the opportunity to discuss options with the Government that develop a credible methodology and result in a transparent carbon market index based on publicly available data.

EDF Energy considers carbon price support as a fundamental part of a coherent and holistic package of electricity market reforms. This is because we agree with DECC's view that carbon price support is unlikely on its own to lead to the investment in low-carbon generation required for the UK to make its transition to a low-carbon economy, since other market defects would also need to be remedied. For example, it is also important that steps are taken to secure arrangements that will provide investors with greater revenue certainty over the course of their proposed investment. We therefore also welcome the Government's proposals for electricity market reform, which, when taken together with these proposals to support the carbon price, can we believe be developed into a robust market framework which is capable of underpinning the investment required in affordable low carbon electricity generation.

Our detailed responses to the consultation questions are set out in the attachment to this letter.

Should you wish to discuss any of the issues raised in our response or have any queries please contact my colleague Ravi Baga on 020 752 2143, or myself.

[redacted]

Attachment

Carbon price floor: support and certainty for low-carbon investment

EDF Energy's responses to your questions

Investment

3.A1: What are your expectations about the carbon price in 2020 and 2030? And how important a factor will it be when considering investment in low-carbon generation?

EDF Energy supports the EU ETS as the primary means to meet the EU's emissions reduction objectives, but recognises that the prevailing energy policy landscape differs between member states and that the EU ETS cannot be expected to meet efficiently specific energy policy and climate change mitigation objectives in individual member states. We consider the long-term visibility of the carbon price to be critical when considering investment in low-carbon generation, given the long asset lives of such technologies. We do not believe that the current EU ETS price is providing the long-term signal to make these investments. We therefore welcome the Government's proposals for a carbon price support mechanism in order to establish a minimum price of carbon that will encourage cost effective investment in low carbon generation.

Our expectations of the possible range of the carbon price in 2020 are consistent with the private sector carbon price forecast displayed in Chart 3.D of the consultation. This reflects our internal assumptions on both market trends and regulatory developments within the EU, and is based on the current EU 2020 emissions reduction target of a 20% in greenhouse gas emissions relative to 1990 levels. However, the uncertainty that exists over the final emissions reduction target that the EU will adopt for 2020 makes it very difficult to have a firm view on the price trajectory out to 2020. This further underlines the merits of having a carbon price support mechanism to provide investors with certainty.

We believe it is even more difficult to forecast the carbon price in 2030. This is because there is uncertainty over both the final emissions cap in 2020, and the complications that that may arise if further sectors are added to the scheme. It is also not clear how allowances from other mechanisms such as the Clean Development Mechanism (CDM) will be considered in the future, or whether a successor to the Kyoto Protocol will ultimately be agreed. However, we believe that the carbon price in 2030 would have to be substantially higher than is forecast for 2020, if the ultimate objective of limiting the global temperature rise to two degrees Celsius above pre-industrial levels is to be achieved.

3.A2: If investors have greater certainty in the future long-term price of carbon, would this increase investment in low-carbon electricity generation in the UK? If so, please explain why.

Greater certainty in the future long-term price of carbon would provide an incentive to increase investment in low-carbon generation. We believe that carbon price support would go a long way in helping to achieve such certainty by giving investors something that is 'bankable'. It is equally important that steps are taken to secure arrangements that lead to a strong price that will provide investors with greater revenue certainty over the course of their proposed investment. Investors require a robust, long term price signal and, as we will discuss in our response to 3.A4, this needs to be part of a coherent set of complementary measures that provide sufficient incentives to investors to deliver energy security and investment in low carbon generation. Without this carbon price certainty there is a risk that investors will instead choose to invest in more gas-fired plant, which would increase the risk that the long term emission reduction targets would not be met, as we lock in the higher carbon emissions from these new assets and so significantly delay the decarbonisation of the UK economy.

3.A3: How much certainty would investors attribute to a carbon price support mechanism if it were delivered through the tax system?

We believe that a carbon price support mechanism delivered through the tax system would be broadly welcomed by investors, as long as they could be adequately reassured of the long-term political commitment to retain the system over a significant part of the lifetime of the proposed project. This is particularly important because, even as the economy decarbonises, fossil-fuel plant will continue to be the marginal plant for a significant period of time. Our analysis shows that the carbon price will continue to be an important factor in the wholesale electricity price until at least 2035. We believe that this will provide investors with further confidence with regard to the longevity and relevance of the mechanism.

A mechanism delivered through the tax system would be relatively simple and inexpensive to administer, as it could be incorporated into the current tax infrastructure. We would point to the landfill tax as a successful fiscal mechanism that has promoted behavioural change and led to a significant reduction in the production and disposal of municipal waste.

We recognise that any tax is subject to political risk, but we believe that this may be mitigated by adequate cross-party political support and evidence of support 'from the top'. Both factors would further help demonstrate to investors the genuine political commitment towards a low-carbon economy. Further certainty could also be secured by having the combined carbon price trajectory scrutinised and monitored by an independent body such as the Committee on Climate Change (CCC). Such an approach could help ensure that the trajectory chosen was commensurate with the carbon emission reductions being sought.

We also believe that investors would have confidence about the longevity of a mechanism, such as the proposed combined carbon price (support plus EU ETS), that generated positive and predictable tax revenue for the Exchequer. This would be more likely to endure than

alternative proposals to support the carbon price that would impose a direct cost on the Government, such as having to intervene directly in the carbon market as buyer of last resort at the proposed floor price.

3.A4: In addition to carbon price support, is further reform of the electricity market necessary to decarbonise the power sector in the UK?

EDF Energy believes that carbon price support will help secure additional investment in low-carbon generation. However, further reform of the electricity market is necessary to help ensure that investment is at a sufficient pace and scale for the UK to meet its long-term carbon dioxide emissions reduction targets. Current market arrangements will not ensure that adequate capacity (both baseload and standby) will be built, and they do not address the issue of volatility in the electricity price or the distortion caused by subsidies for renewables and potentially Carbon Capture and Storage (CCS). We therefore additionally welcome the Government's proposals for electricity market reform, which we believe can be developed into a robust market framework which is capable of underpinning the low carbon investment required. We view carbon price support as a fundamental part of such a balanced package of reforms.

We believe that there is a need to recognise the difference between instruments, such as the carbon price support mechanism, which are necessary to correct the defects of the existing market arrangements, and additional measures such as Contracts for Difference (CfDs) that can mitigate risks for both customers and investors. It is generally agreed that the EU ETS carbon price has not provided a secure and enduring, long-term price signal to encourage investment in low-carbon generation, and the carbon price support helps to restore the price to where it was expected to be. In addition to this, we believe that some mechanism that recognises and rewards the value of capacity is necessary to ensure that the future wholesale prices more accurately reflect the underlying cost of delivering low carbon electricity.

In EDF Energy's view, the future market arrangements must provide a framework to bring forward sufficient generation capacity to meet electricity demand and have a sufficient margin to deal with the projected scale of intermittency that the GB system will have to deal with by the end of this decade. The existing market arrangements, where the market price is largely based on marginal production costs, are unlikely to provide a credible market signal to bring forward the required capacity; nor do they provide sufficient reassurance to underpin investment in capital intensive low carbon plant. We therefore believe that some form of capacity payment is required to achieve the levels of security of supply that customers expect. Such need is further emphasised by the increase in the proportion of high capital, low marginal cost plant required on the system to deliver the UK's decarbonisation objectives. Under the current market arrangements this plant is never likely to set a marginal price that is capable of recovering its full costs.

Administration

4.B1: What changes would you need to make to your procedures and accounting systems to ensure you correctly account for CCL on supplies to electricity generators?

If we work under the assumption that it is always intended that the final supplier to an electricity generator will be the entity that collects the CCL, we would first need to ensure that our systems and processes could clearly differentiate between those purchases of fossil fuels that are for electricity generation, and those that may be resold at a later stage.

In terms of the specific administrative process:

- For each cargo we would need to supply a certificate to our supplier informing them whether CCL is not chargeable (where there is an onward supply of the fuel) or whether CCL at the carbon price support rate is applicable (where the fuel is for use in electricity generation).
- Any onward supply of the fossil fuel would require us to add the facility to charge CCL at the carbon price support rate to our accounts receivable billing system. Our current system does not have the ability to charge a tax other than VAT, and so this would involve implementing a system workaround solution in conjunction with the software provider.
- We would need to request confirmation from those entities that purchase fossil fuels from us as to whether they would be using the fuel for electricity generation. We would then need to collate and record the certificates received.

EDF Energy believes that the legislation, as currently proposed, will bring more wholesale traders within the scope of the CCL than is currently estimated, and that many of them will be established outside the UK. We therefore strongly recommend a system where generators always charge themselves CCL on the fossil fuels used in generation. This would have the additional benefit of overcoming the fact that fossil fuels can be traded on numerous occasions before their final supply to an electricity generator. Such a system would mean that, in contrast to the case where the charge remained with the last supplier to the generator, no provision for bad debt relief for unpaid amounts would be required. We believe that that this approach would be administratively simpler and clearer to those involved and would be consistent with the Government's objective to simplify the tax regime.

We have identified a number of points where clarification would be helpful in resolving any outstanding issues:

1. What is considered to be the weight that the carbon price support rate is applied to?
    a. If it is a physical weight, can adjustment be made for the water (moisture) content of coal? Or, can proximate analytical techniques be used to infer the actual level of carbon dioxide emissions that would arise from a tonne of coal

from a given source and therefore enable more accurate calculation of CCL liability?
   b. At what point will the fossil fuel weight be calculated (loadport, disport, supplier weighbridge, generator weighbridge)?
   c. What if there is a dispute between the supplier and the generator about the weight of the fossil fuel?

2. What happens if a cargo that was intended to be used for generation purposes and that has had CCL charged upon it is then diverted for onward sale or export?
   a. Is the CCL refundable by the last supplier upon receipt of a retrospective certificate?
   b. If the generator self-charges the tax when the fuel is consumed this point is removed.

3. Will the current CCL form be adapted to include this additional 'rate' of CCL?

4. For imports of fossil fuel, will the current importation document processes be adapted for the new CCL charge?
   a. If so, can the current duty deferment system and guarantees be used for the CCL charge on importation?

5. With regard to the CCL charge on Heavy Fuel Oil used in electricity generation, will the current EX55 process be adapted and the CCL 'offset' against the reclaim of fuel duty?
   a. If not, what process will be used?
   b. Will the CCL charge apply only to stocks delivered and consumed after 1st April 2013?

4.B2: How long would you need to make the necessary changes to your systems to account for CCL on supplies to electricity generators?

This will depend upon the level of sophistication of any identified solution. Regardless of the solution, all IT changes would need to be identified, built, tested and approved, in a process that usually takes a number of months from cradle to grave. However, we believe we have sufficient time in most foreseeable circumstances to be ready for the tax to apply in 2013.

4.B3: Please provide an estimate of how much the system changes would cost, both one-off and continuing?

This will again depend upon the level of sophistication required and cannot be determined until the full administrative process is known. However, this further strengthens the case for a system where generators always charge themselves CCL on the fossil fuels used in generation. We believe that this will be a cheaper alternative as most companies will be able to manage the change within existing processes at a relatively low cost, and would also reduce the administrative burden on the Government.

Types of generator

4.C1: Do you agree that all types of electricity generators should be treated equally under the proposed changes? If not, please explain why.

We agree with the proposed changes, subject to our response to 4.C3, that all types of electricity generators, both large and small should be treated equally (as long it is administratively cost-effective to do so) and should be subject to the carbon price support mechanism and so pay a minimum price for their carbon emissions. This is consistent with the Government's commitment to operate under a 'polluter pays principle', and we believe that a more transparent and level playing field would prevent further distortions to the wholesale electricity price developing.

4.C2: Is there a case for providing additional or more preferential treatment for CHP? If so, what is the best way of achieving this?

EDF Energy agrees with the Government's proposal not to provide relief for fossil fuels used in CHP stations. We support ambitions to have a diverse low-carbon generation mix but we believe that a wide scale rollout of CHP would not deliver the deep emission cuts needed to deliver the Government's emission reduction targets.

It is our view that the scope of CHP's potential application is limited and should therefore not be unduly encouraged at the expense of other more effective low-carbon technologies. EDF Energy does not support government policies that favour CHP irrespective of the economic and environmental benefits. We believe that the Government's role should be to remove barriers to developing CHP, such as implementing planning reform that will reduce delays and uncertainty for all energy infrastructure projects, and focusing on efforts to provide a robust and stable carbon price that will benefit all low carbon technologies.

CHP should only be developed where the best opportunities exist. In practice it is very difficult to match demand patterns for heat and electricity for industrial and domestic users. Power stations are located according to criteria such as proximity to cooling water, convenient grid connections and fuel sources and therefore tend to be far from industrial and domestic heat demand. This limits the scope for the economically viable use of low grade waste heat from the existing power generation fleet. Locating power stations closer to large populations to access the necessary heat demand is likely to face problems with public acceptance. We believe that further support for CHP, through relief from CCL and fuel duty, would not constitute value for money, given the limited benefits, and given that the technology already receives support in a number of forms as listed in the consultation document. It would be more appropriate to support technologies such as heat pumps that can be deployed at scale to deliver carbon savings both now and increasingly over the longer term as the grid decarbonises.

EDF Energy recognises that if CHP plant is exempt from paying CCL then this might require the Government to seek State aid exemptions from the EC, and involve design complexities

and costs. Given the urgency of the need for carbon price support to incentivise low-carbon investment, we recommend that the mechanism be introduced at the earliest opportunity, to avoid any unnecessary delay. This will still allow the Government to deal with the issue of tax relief at a later stage, if it is minded to do so.

4.C3: Do you agree that tax relief should be considered for power stations with CCS? If so, what are the practical issues in designing a relief; what operational standards should a CCS plant meet in order to be eligible; and how might these issues differ for demonstration projects?

CCS has major potential to assist in decarbonising the power sector and meeting the legally binding target to deliver an 80% reduction in carbon emissions by 2050. CCS technologies could potentially reduce as much as 90% of carbon emissions, and we therefore believe that it is appropriate that power stations with CCS should be eligible for some form of benefit that reflects this abatement. However, to keep the scheme as simple as possible, we recommend that the carbon price support CCL liability should stay as proposed to avoid any complications, and that it should be up to the CCS generator to claim a rebate (as opposed to tax relief) based on the verified emissions that have been stored. This approach will also simplify the consideration to be given to how much of the fossil-fuel plant will be eligible for the rebate. We feel that this methodology should also be extended to the four planned CCS demonstration projects.

Imports and exports

4.D1: What impact would the Government's proposals have on electricity generators and suppliers that export or import electricity?

As noted in our response to 3A.1, there is considerable uncertainty about the level of the carbon price in the EU ETS. It is possible that the EU ETS price will actually be above the floor level set for this support mechanism. Nevertheless, EDF Energy recognises that the introduction of a carbon price support mechanism is likely to lead to an increase in the wholesale power price in the British electricity market and to some increase in net imports of power into Great Britain in the short to medium term. However, imports and exports of power depend on many inter-related factors that are likely to have a more significant impact than the level of carbon price support. To the extent that net imports of power do increase, this will be largely offset by reduced imports of fossil fuels for power generation.

Our analysis also shows that net carbon emissions would not increase as the increased imports would originate from gas-fired generation in various European countries. This would be displacing either marginal gas or coal plant in the UK and so could have a favourable net impact.

In the longer term, we believe that the Government's package of Electricity Market Reform measures including carbon price support will promote the development of a low carbon

generation mix, leading to lower system marginal costs in Great Britain which will in turn lead to increased net exports of electricity from Great Britain.

4.D2: What impact might the proposals have on trading arrangements for electricity?

EDF Energy believes that the practical impact of the proposals on trading arrangements will ultimately be dependant on the carbon price support mechanism chosen. We will elaborate further in our response to 4.E2.

We would envisage minimal impact on power trading for periods in which the market has confidence in the trajectory of the total carbon price. This is because the trajectory level could be assumed to be the combined carbon price (support plus EU ETS), for the purposes of hedging and modelling. As a result, both hedging and trading strategies could then be adjusted to take in to account this change.

However, beyond this point, the question of political uncertainty would become relevant. As there would be the risk would exist that a future government might alter the carbon price support mechanism. If investors perceive such a risk, then this may potentially lead to a reduction in liquidity of the contracts seen to be at risk, or even a rise in the risk premium attached to such contracts.

If the long term trajectory of the combined carbon price was legally guaranteed, then this would reduce uncertainties. However, if this is not possible, then a robust trajectory in receipt of cross-party political support, together with the other considerations that we highlighted in our response to 3.A3, may reduce any perceived uncertainties.

4.D3: What impact might the proposals have on electricity generation, trading and supply in the single electricity market in Northern Ireland and Ireland?

EDF Energy does not participate in the single electricity market in Northern Ireland and Ireland and believes that this question is best answered by the relevant participants.

Carbon price support mechanism

4.E1: How should the carbon price support rates be set in order to increase certainty for investors, in particular over the medium and long term?

EDF Energy supports the proposal that the carbon price support rate should be based on the difference between the prevailing (or forecast) EU ETS price and the target level, and should be set according to the carbon content of the fossil fuel. This method will ensure that the tax penalises the most carbon intensive fuels.

In order to increase certainty for investors, EDF Energy believes that the support rates should be visible to the market and published well in advance. This would allow long term planning

and investment decisions to be made on the most accurate and up to date information available. We believe that this would be best accomplished by publication of the target trajectory of the desired level of the combined cost of carbon for the intended time period, i.e. to 2030 and beyond. This should be published on an annual basis, to enable participants to use the relevant annual prices both to model long term decisions and to be able to model their input costings on an annual basis for the purposes of contracting output and hedging input costs.

EDF Energy recognises that there is particular difficulty in providing absolute certainty for a minimum carbon price beyond the life of the current Parliament. In this regard, while a target trajectory over a long period is very important for planning and hedging decisions, a cross-party consensus supporting the continuation of the carbon price support mechanism and its trajectory would be desirable. This will assist in providing long term assurance that the current intended target price trajectory will be implemented over the coming decades. We also believe that investors would value the additional certainty gained by having the trajectory scrutinised and monitored by an independent body such as the CCC. Such an approach could help ensure that the trajectory chosen was commensurate with the carbon emission reductions being sought.

4.E2: Which mechanism, or alternative approach, would you most support and why?

EDF Energy believes that the mechanism for setting the level of the tax rate has to satisfy two criteria:

- The objective of carbon price support is to provide long-term certainty over the carbon price, and the mechanism should be designed to deliver this.
- The rate setting mechanism should be clearly defined and should be transparent. This will provide clarity for all market participants and will minimise any adverse impacts on trading activity and market liquidity.

In addition, there is a balance to be struck between providing certainty over the level of the combined carbon price (EU ETS price plus carbon price support) and providing certainty over the carbon price support component itself. In the long term, the trajectory of the total carbon price is important to provide certainty for investors. However, in the very short term, the efficient scheduling and despatch of generation requires certainty over the carbon price support rate.

It is also important to consider the transition between the long term and the short term. This transition period (the "trading horizon") is the period in which generators typically purchase fuel and carbon allowances and they also sell their generation output forward for hedging purposes. The existence of liquid wholesale markets for fuel, carbon and power is critical not only for generators but also to provide the signals that drive prices for electricity customers. Although some hedging activity takes place three or more years before physical delivery, most hedging occurs on a shorter timescale; the length of the "trading horizon" may be assumed to be around 2-3 years.

In light of this balance, EDF Energy supports a variation of option three ("rates set annually based on a carbon market index") as its preferred approach. This is because of the three proposed options for setting the carbon price support rate, we believe that the second option ("annually adjusted CCL rates and fuel duty rebates") does not meet the criterion of clear definition and transparency. By giving rise to uncertainty about the rate that will be set, it will create some unnecessary risks for generators and other participants in the carbon and power markets; the nature of these risks is such that it will not be possible to hedge against them and this may lead to reduced market liquidity.

The first and third options both have some merits and some potential drawbacks. The first option (a "rate escalator") provides long term certainty over the support rate but runs the risk that subsequent changes in the EU ETS carbon price will mean that the combined carbon price fails to track the required trajectory as closely as intended. Moreover, setting rates for the life of a Parliament will also lead to greater uncertainty towards the end of the term.

We believe that the third option ("rates set annually based on a carbon market index") is in principle the right approach provided that the basis of the index, the calculation process and the timetable are all clearly defined. The index used for this purpose should be published to ensure transparency. The potential drawback of the third option is that, while it is in theory possible for a generator to devise a trading strategy to hedge movements in the carbon market index that determines the carbon price support rates, this may be viewed by some as introducing additional complexity into the market. As a result, there is some risk that some generators would delay hedging their electricity output until the carbon price support rates are fixed, thus reducing market liquidity in longer-dated forward contracts. However, we believe that the impact will be negligible as the volume of contracts traded in the long term horizon is low. We also note that this risk should not be overstated since hedging activity in respect of coal-fired generation is being reduced in any event by the uncertain economics of coal generation (under the pressure of low gas prices) and environmental measures such as the Large Combustion Plant Directive and the Industrial Emissions Directive.

One possible means of managing this risk would be to adopt option three but to set the carbon price support rates two, three or four years ahead of the delivery year on a rolling basis. This would provide the certainty to support liquid wholesale markets while retaining the principle of bridging the gap between the required trajectory and the EU ETS market.

However, this approach does require consideration of two further issues:

Firstly, in the event of large changes in the EU ETS carbon price after the support rate has been set, the combined cost of carbon to generators would diverge from the target trajectory for a while. The support rate would be adjusted to restore the combined cost of carbon to the required trajectory, but with a lag of two, three or four years.

Secondly, the creation of the carbon market index requires the existence of a liquid carbon market on which the index can be based. It would be difficult to set the index directly on the basis of forward trades of carbon for delivery four years ahead because this market is itself

relatively illiquid. However, given the existence of "banking" arrangements which mean that carbon allowances can be stored until needed, there is a close relationship between the price of carbon for one delivery year and a later year, the difference in price being driven by financing costs. Therefore, in practice, the price of carbon for the front delivery year could be used as a reasonable proxy.

It is for these reasons that EDF Energy recommends a variation of option three. The basis of the carbon market index, the calculation process and timetable for determining and publishing the carbon price support rate would need to be clearly defined and published, as would the values of the carbon market index itself on a regular basis. We recommend that the carbon price support rate should be set each year in March for the delivery year three years ahead (i.e. the rates for the years 1 April 2013 - 31 March 2014 and 1 April 2014 – 31 March 2015 would be set in March 2011; subsequently the rate for the year 1 April 2015 – 31 March 2016 would be set in March 2012 and so on).

In recommending that the rate be set three years ahead, EDF Energy seeks to strike a balance between:

- minimising deviations in the total cost of carbon from the required trajectory (which might lead to a recommendation for a short period, say, two years); and
- minimising any risks to market liquidity (which might lead to a recommendation for a longer period, say, four years).

EDF Energy would welcome the opportunity to discuss options with the Government that develop a credible methodology and result in a transparent carbon market index based on publicly available data.

4.E3: What impact would the proposals have on you carbon trading arrangements?

EDF Energy would have to assess its hedging strategy as part of its regular review process but does not foresee the need for a fundamental change to our trading arrangements as long as the carbon market index is transparent and predictable to participants.

It should also be noted that if the EU ETS price comes to exceed the carbon price support in the future, then any impact will be minimal as activity and attention will simply once more re-focus on the EU ETS price.

Future price of carbon

4.F1: Should the Government target a certain carbon price a) for 2020 and b) for 2030? If so, at what level?

As we discussed in our response to 3.A1, we agree that the current EU ETS price is not providing the long-term signal to make investments in low-carbon generation. Although many had hoped that the EU Emissions Trading Scheme (ETS) would have put a reliable long

term price on carbon dioxide emissions, it is clear that it has not done so for a number of reasons. These include the lack of international consensus on sufficiently ambitious carbon reduction targets, the relative immaturity and operational imperfections of the EU ETS market, and the inherent short term nature of this market.

EDF Energy therefore welcomes the Government's proposals for a carbon price support mechanism, ahead of any improvements to the EU ETS. We agree that the Government should target a clear trajectory for the carbon price up to 2030 by stating clearly the target prices for 2020 and 2030. We believe that a combined carbon price of £30/tCO_2 in 2020, and £70/tCO_2 (at 2009 prices) in 2030, as outlined in scenario two of the consultation, strikes the right balance between mitigating any impacts on customers in the short term and providing the right incentives for future investment. We believe that these two prices are consistent with the Government's carbon reduction targets and are underpinned by DECC's own analysis. The prices proposed will also have the added benefit of optimising the generation mix by influencing day to day plant scheduling and despatch decisions to deliver energy to customers in a manner that will reduce carbon emissions in the most economical way.

4.F2: What is the most appropriate carbon price for the UK to meet its emissions reduction targets in the power generation sector? How would this be affected by changes in the structure of the electricity market?

Over the next twenty years, the generation sector in Great Britain faces a set of challenges. We can divide this period into three segments:

- Between now and 2015, there is sufficient generating capacity to meet security of supply objectives. Although some existing plants are likely to close, and some new gas-fired and wind generation plants will be commissioned, the overall generation mix will change only slowly from the current position.
- From 2016 to 2023, there will be major changes in the generation mix. The impacts of the Low Combustion Plant Directive (LCPD) and Industrial Emissions Directive (IED), combined with the deteriorating economics of ageing and relatively inefficient plant will result in the closure of all existing oil-fired plant in 2016, most existing coal plant by 2023 and some older gas-fired plant over the same period. Subject to the right economic incentives and market and regulatory framework, new plant will be built to replace these assets. However, in order to meet carbon reduction targets, this plant must be overwhelmingly low carbon, with some higher carbon plant required for peaking/balancing purposes.
- After 2023, it is harder to be precise about the likely evolution of the generation sector. However, we believe there will be a need for further substantial investment in low carbon generation assets.

This will have a number of consequences:

- The level of the carbon price for the period up to 2016 will have little impact on investment decisions because the decisions affecting this period will have already been taken. However, the early introduction of a mechanism to provide certainty

about the carbon price during this period will have an impact on investment decisions affecting later periods.

- For the period 2016 to 2023, the level of the carbon price has an increasing importance for investment decisions. Companies are currently developing the projects that will deliver new capacity during this period.
- This importance grows further for the carbon price after 2023, as this gives one of the major signals for investment in low carbon rather than high carbon generation.

In light of this, we believe the Government is right to target £70/tCO_2 (at 2009 prices) in 2030 and to consider carefully the level of the price in the early years, where it is necessary to recognise the balance between the long term drivers for decarbonisation and some other short term factors, including the impact on consumer bills. In the long run, it is necessary that the existing, high carbon-emitting, coal generation fleet be phased out. However, we recognise that it has an important role at present in providing the capacity needed to ensure security of supply. This role will decline as new low carbon generation capable of providing reliable capacity is commissioned.

For these reasons, we agree that the carbon price support rates could start low but then rise to the required level towards 2020 (as discussed in our response to 4.F3) and beyond, as more low carbon investment comes on stream. Early implementation (for example from 2013) would be a confidence-building measure for investors. This gradual and steady approach would address any potential concerns about any undue benefit accruing to existing conventional plants such as CCGTs, as well as existing low carbon generation such as nuclear and renewables. It would also provide time for carbon-intensive users and generators to adapt to the new low-carbon environment.

EDF Energy believes that the trajectory for carbon price has to take account of physical and economic considerations related to the evolution of the generation mix (as explained above). However, we do not believe that the trajectory should be affected by the structure of the industry, or by the other measures taken to support the development of a low-carbon generation mix. The reason is that the carbon price provides an important signal for a wide range of investment and operational decisions for all generation plant. Getting the carbon price "right" will have the effect of incentivising:

- the right investment in new capacity to deliver a low carbon capacity mix;
- investment in existing plant in the form of energy efficiency improvements and increased biomass co-firing;
- the potential life extension decisions for existing nuclear power stations; and
- the right scheduling and despatch decisions to optimise the operation of the generation mix year by year, day by day, minute by minute to deliver energy to customers in a manner that will reduce carbon emissions in an economical way.

We therefore believe that this measure should focus on the "right" carbon price as the first component of the new electricity market arrangements providing a foundation on which other measures will be added.

4.F3: When would be the most appropriate time for introducing a carbon price support mechanism and what would be the most appropriate level?

EDF Energy believes that carbon price support is an essential first step to provide a clear signal to encourage investment in low carbon generation and we therefore believe that this signal should be confirmed by introducing the carbon price support mechanism at the earliest opportunity.

We believe that the Government's announced intention to bring forward legislation as part of the 2011 Finance Act, with the tax being applied from 1 April 2013, achieves this. In line with our response to 4.E2, we believe that the target trajectory and carbon price support rates for the next three years would have to be known by the end of March 2011 for this timetable to be met. Early implementation would be a confidence-building measure for investors. A gradual and relatively linear trajectory would provide sufficient time for carbon-intensive users and generators to adapt to the new low-carbon environment. This would be preferable to a sudden and sharp rise if introduced later, for example in 2018 and would additionally expose investors to greater political risk.

Consistent with the above arguments for an evolutionary change with the level of the 'top-up tax' starting low, we believe that the Government is right to propose a relatively low level of 'top-up tax'. It is for this reason that we support Scenario two that would see the carbon price support starting at £1/tCO_2 on top of the prevailing EU ETS price in 2013, with the support rising to target a combined carbon price of £30/tCO_2 in 2020 and £70/tCO_2 in 2030.

Electricity investment

5.B1: What impact would you expect the carbon price support mechanism to have on investment in low-carbon electricity generation?

EDF Energy believes that a carbon price support mechanism would have a positive impact on the investment in low-carbon electricity generation, and that the higher the carbon price, the more low-carbon capacity will be brought forward. We agree with the analysis that there would be greater investment in low-carbon generation as a result of expectations of a higher carbon and electricity price, and from the reduction of revenue uncertainty and risk for investors due to a more predictable carbon price. However, we assume that the capacity mix in the modelling for the baseline in 2020 in Chart 5.8 includes new nuclear. We would like to point out that whether the investment we describe in 5.D2 goes ahead will itself be contingent on securing the carbon price support mechanism in the first place. Therefore this additional capacity cannot be taken as certain and so further strengthens the importance of a carbon price support mechanism. However, as stated in our response to 3.A2, we recognise that this mechanism alone is unlikely to be sufficient by itself in encouraging the volumes required to decarbonise the power sector. We would re-emphasise the wider electricity market reforms that would be required to encourage investment in low-carbon generation, as discussed in our response to 3.A4.

A strong carbon price signal, as a result of the carbon price support mechanism, would also guide the day to day operational decisions of station operators. This could additionally encourage the greater use of co-firing of biomass during the residual life of existing fossil-fuel plants and would help further reduce carbon dioxide emissions.

5.B2: What other impacts would you expect carbon price support to have on investment decisions in the electricity market?

EDF Energy believes that the carbon price support mechanism will not radically alter investment decisions for existing coal and gas-fired stations that will be subject to the requirements of the IED. It is our view that carbon price support will not be the key factor influencing such decisions. We believe that the drivers for such investment relate to primarily the wholesale electricity price risks that may result from a potential low-gas scenario, and additionally the costs involved in investing in those technologies that help fulfil the requirements of environmental legislation such as the LCPD and IED.

We would also point out that uncertainty still currently exists over the final emissions reduction target that the EU will adopt for 2020, which will as a result lead to uncertainty over the carbon price. Together with the fact that it was only as recently as 2008 that market participants were exposed to a carbon price of around €27/tCO_2, we do not believe that the carbon price support levels under consideration should be seen as being unprecedented or unexpected by market participants.

We do not subscribe to the argument being put forward by some parties that carbon price support could lead to a deterioration in security of supply by forcing too much plant to close. As a coal generator ourselves, we expect that the wholesale electricity price will correct to make it commercially worthwhile for sufficient plant to remain on the system. This will particularly be the case if electricity market reform includes the broadly based capacity arrangements that we advocate.

5.B3: How should carbon price support be structured to support investment in electricity generation whilst limiting impacts on the wholesale electricity price?

Decisions relating to investment in electricity generation are affected by the expected level of the carbon price over the life of the asset and the degree of certainty that can be attached to forecasts of carbon price. Additionally, as a consequence of discounting, for long-lived assets such as new nuclear power stations, the expected power price over the first 20-30 years of the asset life will be more significant than that in later years.

By contrast, the operation of the wholesale market, and the consequent impacts on customer pricing, generation outage planning and scheduling and despatch decisions focuses on the level of the carbon price over a much shorter period – a "trading horizon" that extends from now to around three years ahead. This means that costs should either be reasonably certain or that there should be effective wholesale market mechanisms that enable companies to hedge their exposure to these costs. We therefore recommend a carbon price support

mechanism like the one outlined in our response to 4.E2. We believe that transparency and predictability of the mechanism will minimise any undue risk and prevent any potential loss of liquidity in the UK power market.

Existing low-carbon generators

5.C1: Can you provide an assessment of the impact of the proposals on your generation portfolio and overall profitability?

When assessing the impact of the proposals we believe it is important to remember that carbon price support is not new policy. It simply helps restore the carbon price signal that was expected from the EU ETS (as discussed in 5.B2 and further in 5.D5), and puts a meaningful value on carbon dioxide reduction, by requiring generators to internalise a more accurate reflection of the carbon that they emit. It is also important to be clear about what baseline we are comparing the mechanism against, because, given the volatility in carbon prices during Phase II of the EU ETS, this will generate different results.

The impact of these proposals on our asset portfolio depends critically on the assumed trajectory of carbon prices in the absence of any support mechanism. There will clearly be no impact whatsoever if it is assumed that underlying carbon prices would have reached decarbonisation target levels without support measures in place. Conversely the impact becomes more pronounced as forecasts of unsupported carbon price growth are progressively reduced. As stated earlier, market participants were exposed to prices of around €27/tCO_2 as recently as 2008. While we expect short-term volatility to have some influence on future plans, we must recognise that most plant investment decisions are based on long-term projections of the market. This includes any investment decisions driven by the IED.

Assumptions on the relative level of future coal and gas prices also play an important role since they determine the extent to which coal and gas plant is marginal on the system and thus how much of the carbon price uplift is passed through to power prices.

In this uncertain context we provide below a directional summary of the impact of the proposals on our generation portfolio in 2020. These results are based on DECC baseline fuel and carbon price assumptions and are applicable across all three carbon price support trajectory scenarios:

Generation type	Production (MWh)	Profitability	Impact of carbon price support on investment in existing plant
Coal	No sig. change	Reduced	Increase in efficiency and biomass measures
Gas (CCGT)	No sig. change	No sig. change	Increase in efficiency measures
Nuclear	No sig. change	Increased	Influence plant life extension
Wind	No sig. change	Increased	No significant change

Overall we expect very little impact on the production from our generation fleet. We are currently reviewing all the options for the future operation and investment at our coal plant.

This will driven by the timetable set out for the IED, as well as the outcome of the Electricity Market Reform. However, it is likely that profitability from these plants will fall as a result of narrower clean dark spreads whereas our nuclear and wind generation will see improved earnings in response to higher power prices. We do not anticipate significant changes to clean spark spreads, and so profitability of our gas plants is expected to remain largely unchanged. The portfolio as a whole should see an increase in profitability reflecting the low carbon nature of our plant mix. These directional outcomes are repeated across all three scenarios for target carbon price trajectory. However, they become more pronounced as this trajectory is progressively increased (moving from scenario 1 to scenario 3). We have examined the likely effect of the proposals for the broader sector in 5.D5. We have also considered the impact of carbon price support on our investment plans in our existing plant. Higher wholesale electricity prices driven by a strong carbon price will improve the economics of investing in a range of measures. This could include plant life extension of our existing nuclear fleet, as well as investment in energy efficiency upgrades and increased biomass co-firing at our fossil plant. This will have the benefit of helping to ease any security of supply concerns as the UK makes it transition to a low-carbon economy and will also benefit consumers by helping to keep costs down.

We have additionally considered the impact of the proposals in an alternative scenario where gas prices are lower (both in absolute terms and relative to coal prices). Under these circumstances we forecast an improvement in the fortunes of our CCGT, nuclear and wind generation plant compared with the outcomes under the DECC baseline scenario. The operation and role of our coal plant is already limited to serving as a back-up under these fuel price conditions, so the incremental impact of carbon support measures on their profitability is actually reduced. These outcomes reflect the fact that coal plant will be operating at the margin to a much greater extent and thus the higher carbon costs will be passed through to power prices more directly. Power prices and spark spreads are consequently driven higher under this scenario.

5.C2: What would be the implications of supporting the carbon price for existing electricity generators and how should the Government take this into account?

We expect the impact of the proposals on existing GB electricity generators to closely mirror that for our own generation portfolio, as outlined in our response to 5.C1. There is one qualification in relation to coal generators - we would expect an overall reduction in their output due to the adverse impact on plants able to operate without constraint under the IED.

We do not believe that carbon price support precipitates a security of supply threat. As a coal generator ourselves, we expect that the wholesale electricity price will correct to make it commercially worthwhile for sufficient plant to remain on the system. Electricity market reform should aim to provide the proper incentives to undertake the transition to a low-carbon economy, and a capacity payment may be part of wider and holistic package of reforms that will help achieve the levels of security of supply to which customers are accustomed.

Electricity price impacts

5.D1: How do you currently manage fluctuations in the wholesale electricity price?

EDF Energy manages the fluctuations in the wholesale electricity price by progressively hedging its exposure in the markets over the liquid trading horizon.

5.D2: What difference will supporting the carbon price make to your business?

EDF Energy plans, with its partner Centrica, to build up to four nuclear power stations over the next 15 years, creating thousands of jobs and providing enough low carbon electricity to meet 40% of the UK's domestic customer demand. EDF Energy is already investing hundreds of millions of pounds in new gas and renewable electricity capacity. This will add to our existing, diverse generation portfolio, which includes renewables, coal, gas and nuclear.

Our final investment decisions for new nuclear generation have yet to be taken, and are reliant on receiving the necessary consents and on the Government implementing proposals to introduce a carbon price floor and wider electricity market reform.

5.D3: As an electricity generator or supplier, how much of the cost of the carbon price support would you pass on to consumers?

EDF Energy broadly agrees with the wider policy impacts considered in the Impact Assessment. As both a generator and supplier of electricity, we believe that the economically rational approach would be to pass the cost of the carbon price support into the wholesale electricity price, as otherwise the differential in carbon output of coal and gas would not be recognised. We understand that this will have an impact on customer bills, and in the long run electricity customers will be required to pay for the costs of decarbonisation. However, they should also benefit from the reduced exposure to volatility in fossil fuel prices that should follow, and we believe that the burden on customers will not be excessive in the period before significant amounts of low-carbon generation capacity have been delivered.

5.D4: As a business, how much of the cost of energy bills do you pass on to customers?

Please see our response to 5.D3.

5.D5: How might your company or sector be affected and would be there any impact on your profit margins?

The electricity industry is faced with the challenge of making investment in new, low-carbon generation at a cost of around £100 billion over the next decade. EDF Energy considers carbon price support as a fundamental part of a coherent and holistic package of electricity market reforms. The reforms will allow us, as the UK's largest generator of low carbon

electricity, to play our part in making the investment required in new nuclear and deliver secure and affordable energy to our customers.

As an operator of a range of generation assets (including nuclear, coal, gas, CHP and renewables), EDF Energy's immediate profitability will be impacted by this measure – favourably for some assets and unfavourably for others, subject to our caveat below that this depends on the comparison baseline chosen. As previously stated, carbon price support is not new policy and is simply restoring the carbon price signal that was expected from the ETS. However, from EDF Energy's point of view, the overwhelming factor is not the short to medium term impact which can be minimised by starting from a low base, but the long term impact of encouraging our investment in new nuclear to deliver new low carbon generation capacity, as outlined in our response to 5.D2.

The Government has published a significant amount of analysis of the impacts of the proposed measure on the electricity generation and supply sector. We have also carried out our own analysis of these impacts, as outlined in our response to questions 5.C1 and 5.C2 above. Our analysis shows that, from a wider sector perspective, the proposed carbon support mechanism will have a favourable impact on low-carbon generators, such as renewables and nuclear, and an adverse impact on high-carbon generation such as coal. The specific impact of the measure on individual generators and suppliers depends on the carbon intensity of their plant mix and penalises those companies with a higher-than-average carbon intensity of their generation mix. That is exactly what the mechanism is designed to achieve.

A more detailed impact analysis shows that the specific results depend on some of the input assumptions particularly:

- the assumed level of the EU ETS carbon price;
- the commodity price scenarios used for gas and coal prices; and
- the degree of confidence that investors attach to the mechanism.

In respect of the EU ETS carbon price, although this has settled at a relatively low level in the recent past, it should not be forgotten that, before the economic downturn, there were sharp swings in the EU ETS price (rising to over €32 at one point and falling to under €1 at another). For example, it is quite possible that the EU ETS price will move into the range in which carbon price support under this measure is expected to be set; if so, the carbon price support mechanism may have a negligible direct impact on generation costs or on wholesale or retail prices.

It is our view that the carbon price support mechanism should simply reflect the price the carbon price was previously expected to achieve, and that we are looking for the "right" price rather than just a "high" price. For example, in July 2009 DECC published five independent long-term model based forecasts of the EUA price in 2020, including from the European Commission, and these forecasts ranged from €27.3 - €36.8/tCO_2 (in 2009 prices)[1], and this is consistent with the proposal in scenario two of a price of £30/tCO_2. If we

[1] Carbon Valuation in UK Policy: A Revised Approach, DECC, July 2009

are to consider this together with proposals, albeit pending international agreement, for the EU to tighten its 2020 greenhouse gas emissions reduction target from a 20% to a 30% reduction, (and thereby further strengthening the carbon price), then we do not believe that the proposed carbon price support rate seems unreasonable, and is simply restoring the carbon price that many stakeholders had expected the EU ETS to create.

Additionally, we would point out that Redpoint's analysis for the Government has used DECC central commodity price scenarios, which have relatively high gas prices compared to some other possible scenarios (and compared to recent actual prices). Under a lower gas price scenario, where gas generation would be more competitive against coal, the impact of the proposed measure would be favourable to gas generation but more adverse to coal generation than Redpoint's modelling shows.

Modelling of the long term impacts of this measure depends on the extent to which it is assumed that the carbon price support mechanism changes investors' decisions regarding future generation investment. EDF Energy believes this is a very difficult issue to model in a quantitative manner; nevertheless, the fact that we and other potential investors regard the introduction of carbon price support as a key issue in our own investment decision making confirms this assumption qualitatively.

5.D6: Do you have any comments on the assessment of equality and other impacts in the evidence base of the Impact Assessment, included at Annex D?

We do not have any comments to make.

EDF Energy
February 2011

eef

The manufacturers' organisation

February 2011

EEF response to HM Treasury proposals for a carbon price floor

Current climate policy is a confusing patchwork of overlapping schemes that imposes unnecessarily high compliance costs and deters investment

We welcome the opportunity to comment on the HM Treasury proposals for a carbon price floor. EEF is dedicated to the future of manufacturing. Everything we do is designed to help manufacturing businesses evolve, innovate and compete in a fast-changing world. Around a quarter of the UK's manufacturing businesses are our members and many more use our services to help them work better, compete harder and innovate faster.

This response is also made on behalf of UK Steel, the trade association for the UK steel industry. The steel industry is a very large electricity consumer.

Summary

1. The Carbon Price Floor (CPF) consultation sets out how government intends to encourage investment in low-carbon electricity generation with a clear, long-term price for carbon by taxing input fuels for electricity generation.

2. The HM Treasury proposals reflect the electricity generation sector's desire for greater support for nuclear power, as the proposals set out to significantly reduce risk in future investments of low carbon generation.

3. But while the consultation paper sets out one way of accelerating investment in low carbon electricity generation, the unintended consequences will be another layer of costs for manufacturers in addition to the EU emissions trading scheme, climate change levy, CRC energy efficiency scheme and the renewables obligation (or any successor measures introduced following DECC's concurrent consultation on electricity market reform).

4. The proposals do not adequately set out, or address, the negative impacts on the UK economy that the carbon price floor will have on manufacturing, and in particular energy-intensive sectors.

5. Whilst EEF would broadly support reforming the climate change levy (CCL) by taxing upstream fossil fuel consumption instead of downstream electricity consumption, it is not able to support the proposals set out in the consultation process as the proposed tax would be additional to the CCL, and as any support must be conditional on countervailing measures ensuring that the overall cost burden on manufacturers does not increase.

6. The policy objective should be to provide greater certainty to investors, not raising increased taxes at the expense of the UK manufacturing sector, especially at a time when government is looking to this sector to help drive economic growth.

Recommendations

A convincing case for introducing the 'carbon price floor' as well as 'contracts for difference' for low-carbon generators is not made. The objective of both is to increase certainty for investors. Arguably, only one of the two is necessary to achieve government objectives. Of the two proposals, there are a number of reasons why CfDs appears more attractive:

1. **Investor Risk:** FITs based on CfD provide absolute certainty for investors over returns rather than merely guaranteeing a minimum return. In addition, legal contracts are less subject to political risk than government policies which could change.

2. **Consumer Cost:** FITs would replace a costly support mechanism with a more cost-effective one rather than merely introducing an additional subsidy. Furthermore, FITs mean that consumers would only pay for low-carbon electricity when it is generated, whereas the 'carbon price floor' would represent an immediate cost to electricity consumers as soon as it is introduced (albeit it at an initially low level), irrespective of the level of low-carbon electricity actually being generated.

3. **Long term certainty**: Any policy outcome must reflect, 'certainty now, costs later'. As stated above, low carbon investors require the certainty now that when new generation capacity comes on stream, it will then receive financial support. If government is committed to introduce a CPF, then the level should remain at zero until at least 2020 (estimated timescales for new nuclear capacity coming on stream). Any additional measure introduced must not be seen as merely a revenue raising exercise.

4. **Offsetting cost increases**: Throughout this consultation response we have continually raised our concern in relation to unilateral cost increases on UK manufacturers. In absence of any proposals to mitigate these impacts, EEF would propose reducing the burden elsewhere in the climate change policy regime. If despite our and other manufacturers' concerns the government persists in introducing the CPF, in order to offset any cost increases to manufacturers resulting from higher electricity prices, government could reduce the standard electricity CCL rate to marginally above the minimum rate, as set out in the Energy Taxation Directive. This position would align with the government's stated position to provide certainty, simplicity and cost effectiveness within the wider policy landscape. We estimate that this measure could offset any increase in costs on manufacturers by approximately £450 million.

5. **International agreement**: Whilst unilateral policy measures can deliver policy goals, we would reiterate our support for an international agreement on climate change which seeks to regulate greenhouse gas emissions from industry on an equal footing, regardless of location, as the best way to achieve global success in combating future climate change.

Detailed response

The structure of the consultation paper does not provide us with the opportunity to express our key concerns. So at this stage we wish to highlight four broad points.

Current government policy is to encourage manufacturing growth, which can only be achieved if government-imposed costs are comparable with EU and global competitors, therefore any new policy/legislation must be tested against this criterion. The CPF proposal deliberately increases costs to manufacturers and therefore fails manufacturers and the growth agenda.

There is a very short window of opportunity to consult on these major policy proposals. We believe that government should have made adequate time available for these two policy proposals to be debated together in order to achieve the desired policy outcome with least damage to the UK economy. Government should be taking a more strategic approach to reforming the climate change policy landscape, rather than consulting on each separate policy in turn.

1/ The government has failed to consider the impact on the wider economy

Government has misjudged the impact that these proposals will have on sectors other than electricity generators. The consultation document does not address the impacts on manufacturers, which is evident from the outset, as in the summary table within the consultation document, under the heading "*who should read this*", it only states "*companies and individuals involved in the generation and supply of electricity and/or the supply of fossil fuels used to generate electricity*".

Our concerns are further compounded when looking at the formal questions within the document. All of the questions are aimed at the electricity generating sector and nowhere is government seeking to understand the indirect impact these proposals will have on the competitiveness of the UK manufacturing sector.

An attempt to address the impact on the manufacturing sector is made in the regulatory impact assessment, but in this respect the assessment does not go far enough. Whilst the regulatory impact assessment is refreshingly honest in its assessment that "*the impacts on competition from supporting the carbon price are likely to be more severe for energy intensive sectors and particularly those that are trade intensive and therefore subject to a high degree of international competition*", it doesn't seem to address how to mitigate these significant impacts. The impact assessment even goes on to state that there will be "*a significant impact on a small, but important number of energy intensive sectors in the UK*". Further on, it even lists those sectors that the government believes will be adversely affected.

It is concerning that there is an assumption that any cost increases for these sectors, can either be passed on to their customers, or that the sectors will be able to absorb the increased costs, thus reducing their profits. This concern is further compounded in paragraph 106 of the impact assessment, where it seems that HM Treasury believe energy intensive sectors in the UK are not subject to European or international competition. To give just one example: the UK steel industry exports 55% of its output, while imports account for 50% of the UK steel market.

The effect of this measure would be to create a future *de facto* carbon price for power generators in the UK higher than the price incurred in all other 26 Member States. The bulk of UK trade (both inwards and outwards) in manufactured goods is of course with the rest of the EU.

At the very least, EEF calls on government, to quantify the costs of these proposals on manufacturers and in particular on energy intensive sectors. The cost of these proposals

must not be seen in isolation but be cumulated with the impacts in of other current and planned measures which have already forced, and will force in the future, higher electricity costs, as well as with the direct impacts on manufacturing companies of EU and UK climate change policies.

2/ Move to a low carbon economy cost effectively

EEF supports measures to accelerate a move to a low-carbon generation mix. Such a move will not only help the UK meet its climate change commitments, but also maintain security of supply through into the 2020s. A secure and affordable energy supply is vital for maintaining a robust manufacturing base here in the UK.

The government sets out a scenario (in the consultation document) where electricity prices will decrease in later years as a result of the proposals. However, we would question whether short and medium-term investment will be able to weather the storm into the long-term. It is widely accepted that the EU already has some of the highest energy costs in the world. Yet rather than addressing this inequality, these proposals aim to further increase the difference in electricity prices. We fear the proposals would be at the expense of our manufacturing base.

But this is only part of the picture. Manufacturers are subject to an increasingly heavy cumulative cost in respect to climate change policy. For example, this year the rate of climate change levy relief for manufacturers able to enter into a climate change agreement has been reduced from 80per cent down to 65per cent relief. This amounts to a tax increase on manufacturers of £50 million per annum. Research [1]shows that currently 20 per cent of energy costs are as a result of climate change policy in the UK. The same research shows this will rise to 70 per cent of energy costs by 2020. Whilst some of these artificial cost increases are borne by European competitors, global competitors do not suffer the same pressure on costs as UK manufacturing companies.

Feedback from members indicates that the complex and costly nature of the UK approach to climate change policy is already having a negative impact on investment in the UK. Firms report that when global investment decisions are being made within their organisations, the UK's policy landscape means that too often the UK is not considered as a favourable place to invest.

3/ EEF support for an upstream carbon tax, but only as part of a package

EEF has previously set out its support for an upstream carbon tax as part of a comprehensive package of climate change reforms[2]. As it stands there are too many schemes, with different costs of carbon. It is not conducive to business.

We believe a carbon tax would provide a clear, more consistent and stable incentive to energy users to reduce high-carbon energy and fuel use; to use high-carbon fuels more efficiently; and, to provide electricity generators with a stronger incentive to invest in lower-carbon forms of energy.

However, support for such a measure is conditional on countervailing measures to ensure that the overall cost burden on manufacturers reduces and in fact leads to a consolidation of the many climate-related costs that fall upon manufacturers.

Although we could support elements of the carbon price floor and electricity market reform proposals, the cumulative burden on manufacturers, in terms of costs, puts us in a position where we simply can't support the package as a whole.

[1] The Cumulative Impact of Climate Change Policies on UK Energy Intensive Industries – Are Policies Effectively Focussed? A summary report for The Energy Intensive Users Group and the Trades Union Congress by Waters Wye Associates

[2] Changing the climate for manufacturers. EEF report, June 2010

As an additional, UK-specific tax paid by power generators on their use of fossil fuel,.the current proposals will undoubtedly increase costs to all electricity consumers, as generating companies pass on costs arising from this new tax.

Indeed, we note with concern that this is in addition to the proposals outlined in DECC Electricity Market Reform Consultation which contain measures that aim to achieve a similar outcome to the CPF's , this time through 'Contracts for Difference (CfD)[3].

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.

4/ Provide clarity on your strategic direction

As manufacturers, we are currently being asked for our views on a whole raft of government initiatives that all aim to achieve a low carbon UK economy. These parallel consultations cover CPF, electricity market reforms, CRC energy efficiency scheme and climate change agreements.

The government needs to set out a very clear timetable and vision that highlights its strategic thinking on reform of the entire policy landscape. Currently we are finding it extremely difficult to comment on individual measures as we are lacking the government's wider view in this important policy area.

This government has stated it wants to be the most open and transparent government in the world. To achieve its goal it must set out the wider strategic goals and associated costs of meeting this aim Only by being fully transparent about the cumulative costs can industry successfully adapt and plan for the future.

More detailed analysis showing the impact on prices and different types of businesses has been promised as a part of next spring's White Paper, although by the time it is published, the decisions on future market arrangements will already have been made. Government should consider publishing these findings now.

[3] Electricity Market Reform Consultation set out plans for a 'Contracts for Difference' mechanism that sets a fixed price for low carbon generation and renewables. If the wholesale price of electricity falls below these varied Contracts for Difference levels, then the generator will be paid the difference.

A CARBON PRICE FLOOR: SUPPORT & CERTAINTY FOR LOW CARBON INVESTMENT

CONSULTATION RESPONSE FROM EGGBOROUGH POWER LIMITED

Introduction

Eggborough Power Limited (EPL) is an independent generator which owns and operates Eggborough Power Station (EPS), a 2000 MW Coal Fired Power station situated in the Aire Valley in North Yorkshire. EPS was previously owned and operated by British Energy (and latterly EDF) to provide flexible and reliable mid merit support to the "baseload" nuclear portfolio. EPL is now owned by two substantial private shareholders, SVP and Bluebay and is operating as an essentially merchant power plant in the wholesale market.

Our aim in responding to this consultation is not to answer every question posed but to provide a short and objective comment on the proposed "Carbon Price Floor" and how it should be implemented.

Response

- Policy must take account of the social cost of carbon. But the proposed Carbon Price Floor (CPF) runs the risk of serious unintended consequences unless it is carefully designed.

- The CPF will have no effect on investment in low carbon electricity generation. This is because the Electricity Market Reform proposes to offer low carbon generators long term contracts for differences (CFDs). These CFDs will offer generators fixed prices and make them indifferent to the CPF and to the carbon price in the EU ETS. So the CPF is not needed to create certainty and reduce the costs of capital for low carbon investment.

- The combination of the CPF and the CFDs will also have no effect on EU carbon emissions, since these are fixed by the cap within the EU ETS. Other things being equal, unilateral UK action will reduce demand for EU carbon allowances (EUAs); reduce the price of EUAs; allow other member states to emit more carbon; and reduce the incentive for them to decarbonise. A move to a 30% emissions reduction target within the ETS would arguably remove the need for a carbon price floor by strengthening the EUA price.

- Moreover, since the CPF is not a floor but an addition to the carbon price in the EU ETS, it will

    - create windfall gains for the owners of existing nuclear and renewable plant – a transfer of wealth for no policy purpose;

    - increase the likelihood of the early closure of existing fossil fired generation at precisely the wrong moment. Flexible conventional plant will be needed to back up intermittent wind and inflexible nuclear generation.

And the UK already faces a serious reduction in capacity margins as large amounts of coal, oil, gas and nuclear plant are forced to close;

- raise prices to consumers – when the costs of the EU renewable energy target are already raising prices considerably; and so

- reduce the competitiveness of UK industry and commerce.

- While the CPF may raise tax revenue, and reduce the public spending effects of the CFDs, it will only do so by creating all the perverse and unintended consequences noted above.

- The policy of offering CFDs in the electricity market recognises the cost of carbon by taxing electricity consumers to subsidise low carbon investment. Arguably, no CPF is therefore needed and tax policy should concentrate on introducing a carbon price into other sectors, such as heat and transport.

- If a CPF is to be introduced, the perverse consequences should be mitigated by

  - Introducing the CPF from the point at which new nuclear plant is likely to be commissioned, say, 2020 and

  - Making it a genuine “floor” by targeting a combined CPF+ETS price at the bottom end of the range of private sector projections of the ETS price.

Context

As the document on Electricity Market Reform points out, over 19GW of nuclear, oil, coal and gas plant is scheduled to close over the coming decade as stations reach the end of their design lives and EU environmental legislation imposes stricter limits on emissions. De-rated capacity margins are expected to reduce in the latter part of the decade from some 20% to below 10%. It is important that policy does not reduce this further.

But security of supply is not just a peak capacity issue. With large amounts of wind on the system, it is a flexibility issue. Analysis by Birmingham University suggests that by 2020, the most extreme hour-to-hour change in demand net of wind output could be as much as 17GW, which is a significant increase from the maximum variation of 5GW in 2009.

Yet subsidies for intermittent wind, and inflexible nuclear and CCS plant, will mean that the wholesale electricity price will be low and unpredictably spiky and that conventional gas and coal plant will have to try to survive on reduced running hours and reduced wholesale prices. Analysis by Redpoint suggests that load factors for ‘new CCGTs’ are likely to fall to 55% from around 75% at present and, for ‘Old CCGTs’, to below 5% from 25%.

Any measure, such as an additional tax on carbon, which further reduces margins for existing coal and gas fired plant is therefore likely to reduce the capacity margins

and the flexibility necessary to maintain security of supply as we make the transition to a low carbon power sector.

Eggborough Power Limited
February 2011

BY EMAIL

11 February 2011

Martin Shaw
Environmental Taxes Team
HM Revenue and Customs
3rd Floor West
Ralli Quays
3 Stanley Street
Salford
M60 9LA

Dear Mr Shaw,

ELEXON's response to the consultation on a carbon price floor

This is ELEXON Limited's response to the Government's consultation on "Carbon price floor: support and certainty for low-carbon investment".

What is ELEXON's interest in the electricity market?

ELEXON delivers the centrally-mandated electricity settlement services that are critical to the successful operation of Great Britain's electricity trading arrangements under the Balancing and Settlement Code (BSC). We manage processes and systems from electricity meter to bank, handling over £500 million of our customers' funds each year and interacting with over 200 companies in the electricity industry. As part of this we administer the settlement of the Balancing Mechanism and the determination of electricity imbalance prices for generators and suppliers in respect of each half hour of each day.

Impact on existing trading arrangements for electricity

One of the questions in the consultation (Question 4.D2) asks what impact the proposals for a carbon price floor might have on trading arrangements for electricity. As far as the BSC settlement arrangements are concerned, we have not identified any direct impact that would require a change to these arrangements. We understand that the intended effect of the carbon price floor is to incentivise new build in low carbon generation and to incentivise operational switching to less carbon intensive forms of generation. The BSC arrangements do not need to change to enable the entry of new generators into the settlement arrangements; this is a normal and routine process for us. And the BSC arrangements do not need to change as a result of a change in the merit order (relative pricing) of generation that would be the result of a carbon price floor. Our arrangements would just pick up any price changes in the balancing actions.

However, we recognise that the Government has concerns about the suitability of the wider existing trading arrangements in a low carbon generation environment with high capital cost/low operational cost generation. We will be responding to the DECC Electricity Market Reform consultation on the proposals made there.

How ELEXON can help with monitoring the effect of the carbon price floor

In its role as the BSC administrator, ELEXON holds data in the BSC Central Systems on actual generation. So we can assist with the monitoring of the effect of a carbon price floor and in any post-implementation review. We also hold data on the operation of the Balancing Mechanism so can assist with monitoring any effect on price switching between fuels.

Please do not hesitate to contact me if you wish to discuss any aspect of this letter or the current BSC electricity settlement arrangements. [redacted]

[redacted]

[redacted]

[redacted]

10th February 2011

Mr Martin Shaw,
Environmental Taxes,
HM Revenue and Customs,
3rd Floor West,
Ralli Quays,
3 Stanley Street,
Salford, M60 9LA.

Via email

Re: Carbon Price Floor: Support and Certainty for Low Carbon Investment

Dear Martin,

Endesa Ireland welcomes the opportunity to respond to the consultation on Carbon Price Floor.

Endesa Ireland owns a number of generating stations in Ireland and is a participant in the cross-jurisdictional Single Electricity Market (SEM) in operation on the island of Ireland.

The SEM is a mandatory gross pool where generators with an export capacity of 10MW or over must sell electricity produced into a pool and suppliers must purchase from the pool. Under the SEM market rules, generators are required to submit their *Short Run Marginal Cost* (referred to as an 'offer') to the Market Operator and the most economic generators available to meet demand are included in the market schedule. The *System Marginal Price*, which is based on the offer price of the most economic next available MW to meet any additional demand is paid to all scheduled generators. This is also the basis for the price charged to suppliers in buying electricity from the pool. Some adjustments to this market schedule are required to overcome technical constraints.[1]

Endesa Ireland highlights to the Treasury that the imposition of a carbon price floor on generators in Northern Ireland would cause a distortion in the market and asks the Treasury to fully consider the impacts on the SEM market before making a decision on this matter. The impact on any future initiative to deliver a regional market in Europe should also be examined.

[1] Further information on the market can be found at http://www.allislandproject.org/en/trading-settlement-code-decision.aspx?article=ae9d4aa4-888b-48e0-a973-6845d54ca467

Endesa Ireland would also ask that the mechanism whereby a non-UK company buying fossil fuel in the UK is exempt from this carbon price floor should not be administratively burdensome and should not expose the company to currency risk, as in the case of a system whereby the charge is paid on purchase of a fossil fuel and then reclaimed.

Please don't hesitate to contact me should you wish to discuss any aspects of this response.

Eneco

Martin Shaw
Environmental Taxes
HM Revenue and Customs
3rd floor west
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3 Stanley Street
Salford, M60 9LA.

3 Athena Court,
Athena Drive,
Tachbrook Park,
Warwick,
CV34 6RT

Date: 11 February 2011
Subject: Consultation Carbon price support [redacted]

Dear Mr. Shaw,

On behalf of the Eneco Board of Directors, I welcome the opportunity to express our views on the proposed Carbon Price Support (CPS) mechanism. Eneco is a progressive and sustainable energy company and we fully support the UK energy policy of decarbonisation and regard it is an important part of the European transition from fossil to low carbon energy.

Eneco is a Dutch energy producer and supplier, the third largest energy company in the country. Eneco's main activities are located in the Netherlands, with an increasing number of activities in the UK, Belgium, Germany, and France. In the electricity market, Eneco is a low carbon, vertically integrated company that believes in a sustainable future. We are willing investors in wind energy in the UK, provided that the financial and market conditions support such investment. Eneco is ideally placed as a new entrant and has invested over £100m over the last two years on onshore wind. As well as our onshore interests we are a major sponsor of offshore wind with the development of the Round 3 West of Wight 900 MW project.

We shall separately comment on the proposed Energy Market Reforms (EMR) as outlined by the Department of Energy and Climate Change (DECC) but would like to state that we specifically welcome this measure proposed by HM Treasury. Eneco actively supports a stronger carbon pricing signal than is being presently delivered by the current European Union Emissions Trading Scheme (EUETS) and we commend the UK government's example to the rest of Europe.

In our response we would like to focus on three elements regarding CPS: creating a level playing field between fossil and renewable energy, a stable and predictable carbon price and the interaction with the proposed DECC EMR.

Level playing field
Eneco welcomes the inclusion of actual societal costs in the price of fossil energy and to bestow carbon costs on high carbon generators. We believe this sends the right market signals and helps create a level playing field for investments in renewable electricity generation. However, carbon pricing alone is insufficient and additional support is required, as is recognised in the current RO system or indeed any replacement mechanism as proposed in the EMR.

Stability, CPS and interaction with other proposed measures in EMR

Eneco requires a stable investment climate for renewable energy in all countries that it invests in. Stability of the UK ROC regime has been one of the major factors that attracted Eneco to the UK market and as such any change of system will cause us to consider future investment plans until such time as revenue streams are clearer. In our view the underlying support of renewable electricity generation in the UK should not be adversely affected by the introduction of a carbon price floor. We do note however that measures such as the CPS will be highly intertwined with other market reform proposals. For example: we would expect that CPS will affect wholesale electricity price levels and will therefore have an impact on the FIT system (where the wholesale price functions as the basis of a reference price).

Given the above, Eneco considers that the details of the CPS should be clear and unambiguous prior to the implementation of any further market reforms, as the wholesale price has a fundamental role in further measures. The RO continues to be an effective tool supporting renewable investment and we believe it should remain in place until these issues are resolved. Overall, we would urge a stepwise approach to be adopted.

Thank you for giving us the opportunity to respond to the proposed Carbon Price Support. If there are any questions about our response, please do not hesitate to contact our office, details are provided below. Furthermore, we would be more than willing to elaborate on the response personally and bring Eneco's market experience to the debate.

[redacted]

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Mr Martin Shaw
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3rd Floor west
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Salford
M60 9LA

11 February 2011

Dear Mr Shaw

Re: Response to Carbon Price Floor Consultation

Please find herewith our response to the Carbon Price Floor consultation.

We are a UK based sustainable energy business with our HQ and Manufacturing business in Salford, Manchester.

As you would expect, our responses are biased and we hope to protect the integrity of the UK CHP market.

This low-carbon, cost effective technology has seen modest growth with modest incentive. However the CPF strategy does not differentiate between a highly efficient (85-90%) provision of CHP power and relatively low efficiency (30-50%) grid power generation.

This acts as a slight dis-incentive which is most unwelcome. We therefore urge the HM Treasury to consider a slight adjustment that will help our low carbon technology grow in the UK.

We have answered where we feel we have a reasoned opinion, should you wish to meet for a further more detailed discussion we would be happy to oblige.

[redacted]

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3.A1: What are your expectations about the carbon price in 2020 and 2030? And how important a factor will it be when considering investment in low-carbon generation?

We expect that the carbon price will be more than double by 2020 and double again by 2030.

3.A2: If investors have greater certainty in the long-term price of carbon, would this increase investment in low-carbon electricity generation in the UK? If so, please explain why.

This depends upon the international energy markets. The UK will need to remain competitive and attractive to investors. A global long-term certainty will increase investment in low-carbon electricity generators. A local disproportionate increase in carbon taxes could push UK investment away unless Government can assure business that the operating costs can be partially offset through favourable tax conditions.

3.A3: How much certainty would investors attribute to a carbon price support mechanism if it were delivered through the tax system?

Providing it was proportional to other countries, hence seen as fair, much certainty would be provided.

3.A4: In addition to carbon price support, is further reform of the electricity market necessary to decarbonise the power sector in the UK?

Yes; efficient use of power generation should be supported. For example, large-scale combined heat and power (CHP) should be differentiated from CCGT with no heat recovery. Under current proposals the recovered heat would be taxed.

4.C1: Do you agree that all types of electricity generators should be treated equally under the proposed changes? If not, please explain why.

No.

It does not make sense to treat an auto generator the same as on-site CHP since the latter is not throwing its waste heat away. Current proposed measures mean that the increased capital investment in heat recovery equipment would not be recouped at a reasonable rate because the heat would be taxed. Furthermore, industrial sites that would normally receive exemptions on boiler plant fuels would be more cost effective operating a traditional boiler regime.

Furthermore, offering Coal Generation with Carbon Capture and Storage tax benefits and exemptions seems contradictory.

4.C2: Is there a case for providing additional or more preferential treatment for CHP? If so, what is the best way of achieving this?

The small-scale market size and penetration indicates that there is a case for additional preferential treatment of CHP.

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As a result of the modest support for CHP in the UK, vendors including us, are investing in countries such as the USA, Italy, Slovenia, Poland, where government incentives are more favourable. This option is also simple to administer.

In the context of this consultation, the easiest way to encourage low carbon, distributed energy is to exempt CHP from CCL entirely. This option is also simple to administer.

At the very least CHP should be treated with partial exemption according to its efficiency – we believe that Northern Ireland has a similar model to this. The CHPQI system is already in place to support this approach.

4.C3: Do you agree that tax relief should be considered for power stations with CCS? If so, what are the practical issues in designing a relief; what operational standards should a CCS plant meet in order to be eligible; and how might these issues differ for demonstration projects?

No, not specifically, what about CCS for gas power stations or support for high carbon efficiency generators?
Perhaps CCL in general could be subsidied for demonstration projects to encourage commercialisation.

4.D1: What impact would the Government's proposals have on electricity generators and suppliers that export or import electricity?

It would make export unattractive and import very attractive.

4.E1: How should the carbon price support rates be set in order to increase certainty for investors, in particular over the medium and long term?

Support rates should be set to avoid significant disparity between UK energy costs on those of central Europe.

4.E2: Which mechanism (outlined above), or alternative approach, would you most support and why?

Rate set and based on carbon market index.

4.F1: Should the government target a certain carbon price a) for 2020 and b) for 2030? If so, at what level?

No – the carbon market should prevail.

4.F3: When would be the most appropriate time for introducing a carbon price support mechanism and what would be the most appropriate level?

As soon as is practically possible (subject to CHP exemptions). Set at carbon market rates.

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5.B1: What impact would you expect the carbon price support mechanism to have on investment in low-carbon electricity generation?

Generally the carbon price support mechanism will increase the investment in low-carbon electricity generation.

***5.B2**:* What other impacts would you expect carbon price support to have on investment decisions in the electricity market?

It appears that there is a lack of differentiation for carbon efficient technologies such as CHP. Hence the investment in CHP could be slower or at the same modest level. This will ultimately encourage companies like ENER-G to further accelerate investment outside the UK.

5.B3: How should carbon price support be structured to support investment in electricity generation while limiting impacts on the wholesale electricity price?

It should be structured to reflect the efficiency of plant. In other words where heat is wasted in electricity generation the customer is not charged irrespectively. Should there be an efficiency measure, the use of this waste heat would be encouraged.

5.D3: As an electricity generator or supplier, how much of the cost of the carbon price support would you pass on to consumers?

We would pass 100% of the cost to consumers.

5.D4: As a business, how much of the cost of energy bills do you pass on to customers?

We have no option but to pass all costs of energy bills to our customers.

5.D5: How might your company or sector be affected and would there be any impact on your profit margins?

We are a CHP company. Projects that showed marginal cost savings would be shelved given the higher operationals costs with not recompence for high efficiency power generation.

Natural Gas CHP offers a cost effective medium/long term impact on carbon reduction. Currently biomass is expensive, limited in supply, with growing demand – hence expensive and likely to eat-up Government incentives.

ENER-G is investing in nations that have simple and helpful incentives for low-carbon technology. Our hope is for some modest support for CHP, on the basis that it is low carbon, cost effective and offers security.

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HM Treasury consultation: Carbon Price Support

Submission by the Energy Institute

February 2011

Introduction

The Energy Institute (EI) is pleased to make the following submission to the HM Treasury Carbon Price Support consultation. This document is a synthesis of the views of EI members collected through a call for contributions and various stakeholder workshops and briefings.

The EI is the professional body for the international energy industry. It has a membership of over 14,000 individuals and 250 organisations and provides an independent focal point for the energy community, bringing together industry, academia and Government. The EI's purpose is to develop and disseminate knowledge, skills and good practice towards a safer, more secure and sustainable energy system. In fulfilling its purpose, the EI can address a wide range of topics in detail, from upstream and downstream hydrocarbons and other primary fuels and renewables, through to power generation, transmission and distribution to sustainable development, demand side management and energy efficiency.

As a charity, incorporated by Royal Charter, with membership across the full range of the energy sectors, it is not appropriate for the EI to promote specific technologies or options. Instead it seeks to assist the policy process by helping to clarify the key issues and by improving the evidence base on which decisions will be made.

The EI response attempts to bring into focus the differing views of a range of stakeholders, from suppliers, producers and consumers. It reflects the views of a cross-section of EI members; it makes observations about the implications of a carbon floor price and the uncertainties that persist.

Key points

1. EI members agree that 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.

2. There is also agreement that the introduction of a carbon price floor is reasonable and robust, providing long-term support, stability and certainty for investors. However, this must be seen by the investment community to be bankable for it to be a useful mechanism and provide the signals needed by investors.

3. The issue of bankability is of critical importance to investors, incumbents and new entrants alike. Without greater stability and predictability for investors, the value of a carbon price floor would be much reduced and could even be counter-productive.

4. At present, further clarity is needed with regard to the details and practicalities of implementing the proposals.

3.A1: What are your expectations about the carbon price in 2020 and 2030? And how important a factor will it be when considering investment in low-carbon generation?

3.A1.1. The EI would expect to see the carbon price rise between 2020 and 2030 as is suggested by the consultation document.

3.A1.2. In terms of the importance of a carbon price floor, compared to other areas of the overall reform package, EI members see a low-carbon incentive mechanism, in the form of a Feed-in Tariff (FIT), as able to deliver the greatest level of new investment. Certainty in the long-term price of carbon plays an important supporting role to the FIT mechanism, enabling a lower cost of capital for developers whilst reducing the burden on the consumer.

3.A.2: If investors have greater certainty in the long-term price of carbon, would this increase investment in low-carbon electricity generation in the UK? If so, please explain why.

3.A2.1. Electricity generators are reliant on a robust investment framework being in place to secure the levels of capital investment needed to deliver economic, large scale, low-carbon projects. Due to the lead times involved between the decision to invest and the plant generating electricity, the ability to factor in the long-term price of carbon significantly increases the likelihood of greater investor confidence in low-carbon technologies.

3.A2.2. As is proposed, the strengthening of the carbon price will increase the cost of fossil fuel electricity generation and make lower-carbon power more attractive. Concerns have been raised by EI members as to the possibility of windfalls for existing renewable energy systems, nuclear plants and, to a certain extent gas, at least while unabated coal is part of the energy mix. It will ultimately be the consumer who will pay for this.

3.A3: How much certainty would investors attribute to a carbon price support mechanism if it were delivered through the tax system?

3.A3.1. EI members see there being a potential issue in the pricing differences of a UK carbon price with the EU ETS. The EU ETS is priced in Euros, whereas the carbon price floor will be priced in pounds Sterling. It may therefore be difficult to gauge accurately the true carbon price and administer the scheme in practice.

3.A3.2. EI members are concerned that in making the carbon price predictable it may become detached from the traded price of carbon under the EU-ETS, thus putting investment at risk.

3.A3.3. There is also the practical difficulty of emitters (i.e. utilities) purchasing EU ETS allowances, whereas it will be the fuel suppliers paying the carbon floor tax. Given the difficulties associated with implementation of a carbon price in conjunction with the EU-ETS, EI members are concerned the carbon price floor could become detached from the EU-ETS, putting the UK at a disadvantage compared to the rest of the EU.

3.A4: In addition to carbon price support, is further reform of the electricity market necessary to decarbonise the power sector in the UK?

3.A4.1. Under the current proposals from HM Treasury and DECC, EI members are unanimous in their support for a FIT, whichever option is chosen between CfD, Fixed FIT or Premium FIT, seeing this as central to the necessary electricity market reforms and being the most likely of the four proposals (FITs, Carbon Price Support, EPS or capacity mechanism) to leverage new investment in low-carbon generation.

3.A4.2. EI members believe that, while a low-carbon support mechanism is the most important to industry and investors, the price of carbon has an important role to play in the reform package proposed. A carbon price floor drives reductions in emissions through differentiating the costs of high- versus low-carbon generation, thus providing an incentive to reduce emissions, whilst simultaneously encouraging market participants to identify the lowest-cost ways of doing so.

3.A4.3. There are a variety of views from EI members on both the necessity and effectiveness of capacity payments and little support from EI members for an Emissions Performance Standard (EPS). However, members recognise that Government has attempted to put forward a balanced package and that there is a risk of losing that balance if one or more legs were to be taken away, given the complexities of the package. Members simply recognise the EPS as being the least valuable element in the package to stimulate low carbon investment.

3.A4.4. The EI will address in greater detail the views of its members with regards to the full package of electricity market reform proposals in its response to the DECC EMR consultation.

4.C1: Do you agree that all types of electricity generators should be treated equally under the proposed changes? If not, please explain why.

4.C1.1. The EI membership agrees that all types of electricity generators should be treated equally. Investment is needed in all forms of energy technology in order to meet the energy challenge, particularly from a security of supply perspective.

4.C1.2. The reality is that different generating technologies are at different stages of development. Treating all equally gives an immediate advantage to mature technologies, even when they do not fulfil the requirements of society and government policy. There is recognition by EI members that, even between new technologies, there will be a degree of bias in order to fulfil these requirements.

4.C1.3. There must be recognition of the fact that we are not starting with a clean sheet. There are many existing players in the electricity market and the interests of these incumbents must be considered in addition to inviting and supporting new entrants to the market. This will therefore require a transitional period and appropriate grandfathering arrangements.

4.C1.4. The inherent difficulty with the reform is that, in order to achieve the long-term market certainty needed to ensure investment today, there must be a clear outline from Government of the transitional period. Lack of clarity, certainty and any destabilisation during this transition may lead to a hiatus in investment. Every effort should be made to avoid a period of stop-start investment.

4.C1.5. There are also concerns from EI members that grandfathering of the Renewables Obligation and other existing arrangements could err on the side of caution, leading to potential windfalls for existing electricity generators and Power Purchase Agreements. Further clarity is needed as to how such transitional arrangements will be implemented.

4.C2: Is there a case for providing additional or more preferential treatment for CHP? If so, what is the best way of achieving this?

4.C2.1. At a practical level, it is unrealistic to assume that all technologies will benefit equally from the proposed legislation, as discussed in the response to 4.C1. It should be emphasised there is a range of fuels which can be used to supply CHP plant, both fossil and bio-based fuels.

4.C2.2. Whilst the EI supports investment in all energy technologies, the example of CHP does raise questions regarding the interaction of carbon price and EMR with other policies. CHP is an area in which policy uncertainty has, to date, stifled investment and targets have not been met.

4.C3: Do you agree that tax relief should be considered for power stations with CCS? If so, what are the practical issues in designing a relief; what operational standards should a CCS plant meet in order to be eligible; and how might these issues differ for demonstration projects?

4.C3.1. The introduction of a carbon price floor will remove mid-merit coal from the electricity generation mix. As there is currently a lot of mid-merit coal, with no plans for derogation from the carbon price the risk that this could lead to a security of supply issue needs to be considered. This is an area in which EI members wish to see further clarification of the interaction between reform proposals.

4.C3.2. With the addition of CCS to large coal-fired plants, there will still be, in large part, unabated coal plant. This begs the question of whether the carbon price floor be applied to the non-CCS enabled part of the plant and whether this also present a risk to supply security. When considering new fossil fuel plant that will be built with CCS, at some point this will also be run 'mid-merit'. Again, this is a big challenge for generators as even with a capacity payment there is still a lot of market risk.

4.C3.3. EI members see an opportunity to provide double credit for the combining of low-carbon technologies – for example a biomass CHP plant combined with CCS. This would be providing a negative net carbon emission. Consideration should be given to the extent that CCS should receive additional favourable treatment if there is already support provided to CHP.

5.B.1: What impact would you expect the carbon price support mechanism to have on investment in low-carbon electricity generation?

5.B1.1. Again the question is one of bankability and certainty. If the carbon price support mechanism is bankable and adds a level of certainty and predictability for investors, this will help encourage investment in low-carbon electricity generation.

5.B1.2. It is prudent to ensure a variety generation technologies are developed, at scale, in order to secure supply. A gradually rising carbon price floor will help to encourage the migration of investment from fossil fuels to low carbon generation, whilst ensuring the lights stay on.

5.B2: What other impacts would you expect carbon price support to have on investment decisions in the electricity market?

5.B2.1. Because it aims to achieve a low-carbon, secure and affordable UK electricity system, the reform proposals deal exclusively with that sector. The carbon price support has also been considered in relation to electricity. EI members feel there could be missed opportunities from not expanding its scope and remit to identify related issues, particularly to highlight areas of interaction with other Government policies, e.g. Green Deal, Renewable Heat Incentive, etc.

5.B2.2. EI members believe consideration needs to be given to the possible implications for grid interconnection with Europe, following the introduction of a carbon price floor.

Acknowledgements:

This submission was prepared by Gareth Parkes GradEI, Knowledge Manager, Energy Institute with contributions from EI members through various stakeholder events and briefings and a call for contributions. It was peer reviewed by Jo Evans, Lecturer in Economics, University of Surrey; Walt Patterson FEI, Independent Consultant; Paul Cuttill OBE FEI, Independent Consultant and Jeff Scott CEng FEI, Independent Consultant as well as members of the EI staff team.

[redacted]

Energy Intensive Users Group

British Ceramic Confederation
Chemical Industries Association
Mineral Products Association
Major Energy Users Council
UK Steel

British Glass Manufacturers Confederation
EnergyQuote JHA
Confederation of Paper Industries
Rio Tinto Alcan
BOC; Air Products

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11 February 2011

HMT Carbon Price Support Consultation:
Response from the Energy Intensive Users Group

General Comments

The Energy Intensive Users Group (EIUG) is an umbrella organisation that campaigns for secure, internationally competitive industrial energy supplies. Energy intensive manufacturing sectors include steel, chemicals, paper, cement and mineral products, glass ceramics, industrial gases and aluminium smelting. These industries have a critical role to play in a rebalanced UK economy, directly employing 225,000 workers and contributing over £15 billion to UK GDP. They are at the head of many supply chains covering such important manufacturing sectors as automotive, aerospace, and low carbon generation technologies. Energy intensive sectors are highly exposed to international competition and consequently at risk of 'carbon leakage' if UK industrial energy prices are driven to internationally uncompetitive levels as a result of carbon taxation and other unilaterally imposed decarbonisation costs.

Our members appreciate the need to maintain diversity in the provision of new baseload energy generation capacity and that some assurance of an acceptable return is required for those forms of generation with very high initial investment costs which must be recouped over a lengthy future period. Indeed, our members are themselves faced with similar long-term investment decisions.

Our response to this consultation takes place in the context of escalating energy costs arising from existing UK and EU climate policies that are already eroding the international competitiveness of intensive manufacturing and deterring investment in these sectors that is necessary to assure their future. EIUG drew attention to the unacceptable cumulative burden of these policies in a report jointly commissioned with the TUC from independent consultants Water Wye Associates, which was shared with government and published in June 2010. One of the conclusions of this report – which appeared to have been accepted by government – was that future climate policy consultations should include impact assessments for intensive industrial energy users specifically, both with regard to the marginal impact of proposals ***and*** the cumulative burden in the context of existing policies.

Our members were understandably shocked therefore to see that, contrary to earlier assurances, Treasury had failed to publish an impact assessment of the Carbon Price Support (CPS) proposals for intensive energy users, let alone one quantifying the cumulative competitive burden in conjunction with existing climate policies. The suspicion has naturally arisen that Treasury refused to publish such an assessment for fear of publicly acknowledging the detrimental impact of the CPS proposals on industrial competitiveness.

In the absence of an adequate impact assessment, EIUG has commissioned an update report from WWA on the impact of climate policies (including the CPS and Energy Market Reform proposals) on energy intensive businesses, which is appended to this response.

EIUG strongly disagrees with Treasury's assertion (for which, revealingly, no evidence has been presented) that industrial energy users are able to pass on the costs of unilateral energy price increases. As Treasury ought already to be well aware, manufacturing businesses operate in an international market, so with the price at which energy intensive products are sold being set internationally – unlike for power generators – there is no ability to pass such costs on. The effect of the CPS proposals would simply to be to erode profit margins for UK-based manufacturers and hence, over time, to encourage carbon leakage. This fact has already been acknowledged by the government for intensive sectors covered by Climate Change Agreements, and at the European level for trade exposed sectors whose process emissions are covered by the EU Emissions Trading Scheme, so it should not be necessary to debate this matter yet again.

The effect of the CPS proposals would be to guarantee a higher carbon price impact on UK power prices than for any other EU state, which has obvious implications for intra-EU trade in energy intensive products. It cannot be acceptable for Treasury to disadvantage UK-based manufacturing in this way, tipping the playing field in favour of our European competitors. We note that no other EU government is making similar proposals – indeed, with respect to their energy taxation and renewable subsidy policies, many EU governments have taken steps to ***reduce*** their impact on trade-exposed industries precisely to avoid this problem.

We are also surprised that the consultation document fails to give sufficient weight to the impact of unilateral energy price increases on UK GDP. Given the expectations on industry to lead the UK out of recession, especially in the area of export led manufacturing, and the government's apparent recognition of the importance of UK manufacturing in delivering the materials and products necessary for green infrastructure investment, this is strange. The consultation document is unbalanced in this respect, overly focussed on the demands of low carbon generators and suppliers and insufficiently concerned about the needs of consumers.

It is also regrettable that the CPS proposals, along with those for Electricity Market Reform, appear to overlap both with one another. For example, if the proposals for a Feed in Tariffs for low carbon generation go ahead, it is not clear why a CPS mechanism is needed. An opportunity has been missed for the simplification and improvement in economic efficiency of climate policies – instead, the energy industry and its consumers are facing even greater complexity and policy overlap.

Absent measures to mitigate the cumulative impact of climate policies on industrial electricity prices, EIUG cannot therefore support the CPS proposals as currently outlined.

Responses to Specific Consultation Questions

Investment

EIUG supports the need to retain nuclear power within a balanced, low carbon generating portfolio and hence the need to encourage new nuclear investment.

EIUG would support reform of the Climate Change Levy so that differential rates were applied to electricity relating to the carbon intensity of the individual generators (provided that the full impact of CCL on all energy intensive sectors continues to mitigated through climate

change agreements), but this proposal does not reform CCL – it merely imposes an additional tax.

Administration

The costs of the CPS mechanism, if it goes ahead, should be clear to consumers and an indication of its impact should be disclosed on their bills.

Imports and exports

The exposure of UK generators to additional carbon costs not faced by generators elsewhere in Europe will decrease the competitiveness of UK fossil-fuelled generation and (other factors being equal) tend to increase the UK's reliance on imported electricity.

Carbon price support mechanism

4.E1: How should the carbon price support rates be set in order to increase certainty for investors, in particular over the medium and long term?

The imposition of unilateral carbon costs passed on to electricity consumers will increase certainty in investors that the UK will be an increasingly unattractive place to site manufacturing businesses.

Future price of carbon

The carbon price target, should there be one, must be set at such a level that it does not materially disadvantage the competitiveness of the UK economy generally, and of trade exposed energy intensive manufacturing in particular.

Since new nuclear build cannot become operational until the end of the current decade, there is no reason for a CPS mechanism to take effect beforehand

Electricity price impacts

Individual EIUG members have shared information on their energy costs and purchasing strategy with Treasury in confidence. A copy of an update report from WWA on the potential impact of climate policies, including on profit margins, is appended to this response.

Details of Respondents

This is the consultation response of Energy Power Resources Limited ("EPRL"), a renewable energy company which owns and operates five biomass power stations (113MWs in total), two wind-farm joint ventures (16 MW in total) and is the UK's largest independent renewable energy generator from power stations dedicated to the combustion of biomass.

EPRL has a long history of the development and operation of biomass power projects, and associated biomass fuel procurement, with its five operating plants commissioned between 1992 and 2001 initially under the NFFO regime with power now sold under Renewables Obligation power purchase arrangements. In addition, EPRL is at the early stages of developing a new 40MW biomass fuelled power station, which was submitted for planning approval in November 2010.

This consultation response also reflects the views of CLP, a dedicated landfill gas company, operating from 26 sites across the UK providing around 65MWs of renewable generation capacity.

EPRL and CLP are separate operating entities but have common ownership and over-lap of management.

Summary Response

We are supportive of proposals for the introduction of a carbon price support mechanism to stimulate investment in low-carbon electricity generation. We intend to respond to the current Electricity Market Reform (EMR) consultation and agree that a package of measures as outlined in the EMR consultation is required to meet the challenges of delivering low-carbon, affordable and secure electricity supplies between now and 2050.

Detailed Response

Investment

3.A1: What are your expectations about the carbon price in 2020 and 2030? And how important a factor will it be when considering investment in low-carbon generation?

Given the current portfolio of generation capacity and the declining trajectory for EU-wide emissions from 2013 onwards we would expect to see increasing EU ETS carbon prices between now and 2030. This is an important factor in evaluating investment decisions as it has a direct impact upon wholesale electricity prices.

3.A2: If investors have greater certainty in the future long-term price of carbon, would this increase investment in low-carbon electricity generation in the UK? If so, please explain why.

The consultation document indicates that carbon prices accounts for around 20% of wholesale electricity prices. On this basis, greater certainty in the long-term price of carbon would in turn provide greater certainty on long-term wholesale electricity prices, thereby reducing an element of revenue risk and proving a fertile market for investment in low-carbon electricity generation.

3.A3: How much certainty would investors attribute to a carbon price support mechanism if it were delivered through the tax system?

This depends upon how such a measure was introduced. If support was set as a premium to the EU-ETS market price (in order to achieve an overall carbon price) then a fair degree of certainty would be attributed to it in the short term but any tax can be repealed or amended which depletes the attributed value.

Based upon the three FIT regimes considered under the EMR consultation, carbon price support would only have an impact upon low-carbon generating revenues under the Premium FIT (the regime we would prefer if the RO is to be removed). Under the Fixed FIT and FIT with CfD regimes, a low-carbon generator would not benefit from higher wholesale electricity prices, it would merely reduce the proportion of revenue derived from the FIT.

However, a carbon price support mechanism would send a clear signal to non low-carbon generators.

3.A4: In addition to carbon price support, is further reform of the electricity market necessary to decarbonise the power sector in the UK?

We agree with the EMR consultation, specifically that a package of reforms is required to meet the objectives of ensuring the supply of reliable, low-carbon and affordable electricity. We also agree broadly with the proposed elements of support; however we believe that a FIT with CfD is not the optimum mechanism (subject of course to the level that will apply) and we suggest that either the existing RO scheme or Premium FIT scheme would be preferable. This would be complemented by a carbon price support mechanism.

Administration

4.B1: What changes would you need to make to your procedures and accounting systems to ensure you correctly account for CCL on supplies to electricity generators?

Not applicable.

4.B2: How long would you need to make the necessary changes to your systems to account for CCL on supplies to electricity generators?

Not applicable.

4.B3: Please provide an estimate of how much the system changes would cost, both one-off and continuing?

Not applicable.

Types of generator

4.C1: Do you agree that all types of electricity generators should be treated equally under the proposed changes? If not, please explain why.

We agree that in introducing a carbon price support mechanism it is appropriate to treat all electricity generators equally. Such a system will be easier to implement and is consistent with the principle of 'polluter pays'.

4.C2: Is there a case for providing additional or more preferential treatment for CHP? If so, what is the best way of achieving this?

We agree with the Government's emphasis on simplicity, fairness and the principle of 'polluter pays' and do not believe there is a case for providing additional support for CHP.

4.C3: Do you agree that tax relief should be considered for power stations with CCS? If so, what are the practical issues in designing a relief; what operational standards should a CCS plant meet in order to be eligible; and how might these issues differ for demonstration projects?

We agree that there should be some form of relief for power stations with CCS. We would suggest that any relief be linked to the proportion of CO_2 abated. Given the proposed support afforded to demonstration projects (as set out in this and the EMR consultation) and in order for the scheme to be both simple and fair, we believe that all CCS schemes should be treated the same.

Imports and exports

4.D1: What impact would the Government's proposals have on electricity generators and suppliers that export or import electricity?

No comment.

4.D2: What impact might the proposals have on trading arrangements for electricity?

Without equivalent carbon price support mechanisms in the countries with which the UK has interconnections, there will be the opportunity for gaming in that electricity imports (from any technology) could gain access to higher wholesale electricity prices in the UK. This will encourage import electricity and potentially reduce wholesale electricity prices in the UK so that some of the intended positive consequences of the proposals in the UK would be diminished. Based upon the consultation document it would appear that the maximum import capacity by 2020 would be around 10%. We assume that any distortion would be minimal (given that there are presumably already price differences across the markets currently) and is worthwhile given the security of supply issues noted in the EMR consultation.

A further point of note; given that there is one electricity market across the UK, it is important that the carbon price support and electricity market reforms are applied consistently across England, Wales and Scotland to ensure an equitable market and not create an opportunity for gaming.

4.D3: What impact might the proposals have on electricity generation, trading and supply in the single electricity market in Northern Ireland and Ireland?

No comment.

Carbon price support mechanism

4.E1: How should the carbon price support rates be set in order to increase certainty for investors, in particular over the medium and long term?

Investors would value the provision of a medium (2020) to long term (2030) target carbon price and commitment to a support regime to deliver that target price (including the EU-ETS carbon price). Subsequently these target carbon prices could be used together with the average carbon content of each fossil fuel type to create the carbon price support rates on the fuels used to generate electricity and associated emissions.

4.E2: Which mechanism, or alternative approach, would you most support and why?

We would support annually adjusted CCL rates and fuel duty rebates, as this allows the support to reflect short term movements in the carbon market.

4.E3: What impact would the proposals have on your carbon trading arrangements?

Whilst there would be no change to our carbon trading arrangements, as a renewable energy generator which uses a modest amount of fossil fuel on start-ups, the proposed additional costs of the carbon price support mechanism would provide further incentive to reduce fossil fuel usage.

Future price of carbon

4.F1: Should the Government target a certain carbon price a) for 2020 and b) for 2030? If so, at what level?

The higher the target carbon price used the greater the incentive and likely deployment of low-carbon generation. Similarly, investment will likely be brought forward the greater the differential between the target price and the EU-ETS carbon price in the early years. Clearly setting a target price will have an impact upon wholesale electricity prices, consumers' bills and the relative competitiveness of some UK businesses. With this balance in mind, we believe that a target price for carbon for both 2020 and 2030 should be set based upon scenario two.

4.F2: What is the most appropriate carbon price for the UK to meet its emissions reduction targets in the power generation sector? How would this be affected by changes in the structure of the electricity market?

We have indicated that a target carbon price in line with scenario two is appropriate. The impact assessment provided details the impact of the carbon price support mechanism in isolation. As noted in the EMR consultation, the Government is considering a package of measures (of which carbon price support is one) to stimulate investment in low-carbon generation. Setting the target carbon price should be done on the basis of the finally agreed package of measures.

4.F3: When would be the most appropriate time for introducing a carbon price support mechanism and what would be the most appropriate level?

We agree with the proposed introduction date of April 2013 together with early clarification of this intention in the 2011 Finance Bill as this will send an immediate and clear signal to investors.

Electricity investment

5.B1: What impact would you expect the carbon price support mechanism to have on investment in low-carbon electricity generation?

The introduction of a carbon price support mechanism would increase investment (compared to the baseline) in low-carbon electricity generation by providing a more certain and enhanced revenue stream, subject to it being aligned to a continuation of the banded RO scheme or a replacement Premium FIT regime.

5.B2: What other impacts would you expect carbon price support to have on investment decisions in the electricity market?

The consultation document details the impacts we would expect to see from a carbon price support mechanism.

5.B3: How should carbon price support be structured to support investment in electricity generation whilst limiting impacts on the wholesale electricity price?

Please see earlier responses.

Existing low-carbon generators

5.C1: Can you provide an assessment of the impact of the proposals on your generation portfolio and overall profitability?

The initial impact of these proposals from April 2013 would be to reduce profitability, reflecting the lower fuel duty rebate and CCL charges in respect of the modest amount of fossil fuel our portfolio of biomass generation assets use on start-ups. This would be offset only when higher wholesale electricity prices were payable under our long term power purchase agreements. However, we would also assume that the overall EMR proposals would lead to a lower ROC recycle value than would be expected under the baseline scenario.

As a renewable generator using biomass fuel, based upon the carbon price support mechanism proposals and the complementary measures outlined in the EMR consultation, we would anticipate greater competition for fuel and resultant increased fuel prices which would likely offset a significant element of any electricity revenue benefit.

The greater competition for fuel would come from co-firing, new biomass generators and the cement industry.

5.C2: What would be the implications of supporting the carbon price for existing electricity generators and how should the Government take this into account?

There may be some adverse impact on existing generators where fixed price power purchase agreements are already in place beyond April 2013. Our preference is that if a mechanism is introduced it should be applied to all generators, subject to any evidence in support of the contrary.

Electricity price impacts

5.D1: How do you currently manage fluctuations in the wholesale electricity price?

We have a range of PPAs covering the portfolio of generating assets (biomass and landfill gas), including a few NFFO RPPAs which would not benefit from a carbon price support mechanism for a number of years. Currently the majority of the assets' output is sold under fixed price contracts ending over the next few years and migrating to floating prices fixed on a six or twelve monthly basis against the wholesale electricity price.

5.D2: What difference will supporting the carbon price make to your business?

See earlier response to 5.C1. In terms of managing fluctuations in the wholesale electricity price, the proposed carbon price support mechanism will not change our approach.

5.D3: As an electricity generator or supplier, how much of the cost of the carbon price support would you pass on to consumers?

Not applicable, our commercial relationship through PPAs is with suppliers. Additional direct costs (impact on biomass fuel costs and fossil fuel costs) would not be passed on. We would expect to receive higher electricity revenue net of the typical PPA "clip".

5.D4: As a business, how much of the cost of energy bills do you pass on to customers?

Not applicable

5.D5: How might your company or sector be affected and would be there any impact on your profit margins?

Whilst we would hope that this would increase profitability through higher wholesale electricity prices, this will likely be offset by higher biomass fuel prices, greater charges for fossil fuel and lower ROC recycle values. See 5.C1.

5.D6: Do you have any comments on the assessment of equality and other impacts in the evidence base of the Impact Assessment, included at Annex D?

Annex D appears to be a thorough assessment of overall impacts of the proposed policy.

Martin Shaw
Environmental Taxes
HM Revenue and Customs
3rd floor West
Ralli Quays
3 Stanley Street
Salford, M60 9LA.

Our ref:

Your ref:

Date: 10th February 2011

Dear Mr Shaw

Consultation: Carbon price floor: support and certainty for low-carbon investment

Thank you for the opportunity to comment on the above consultation.

It is clear we are going to need to move ahead rapidly with all the low carbon options – energy efficiency, renewable energy, carbon capture and storage and nuclear power – if the UK is to play its full part in avoiding the most extreme climate change scenarios. The carbon price under the EU ETS is not yet high enough, nor certain enough, to deliver the levels of low carbon investment needed. Therefore we welcome the principle of strengthening the carbon price to provide an additional stimulus to investment in low carbon energy generation.

However we have a number of observations to make on the proposals set out in the consultation and these are detailed below.

Our view is that combined heat and power (CHP) should form a significant part of the UK energy supply mix. Fossil fuel CHP is an existing technology with a lower carbon intensity than electricity-only fossil fuel plants. Given that fossil fuels will still have a major part to play in UK electricity supply for some decades to come, CHP offers the prospect of carbon savings particularly when combined with Carbon Capture & Storage (CCS). Furthermore, modest-sized CHP plants supplying nearby heat loads align well with the Government's drive for localism.

Subjecting the fossil fuel used in CHP plants to the same levy as that applied to fuel used in conventional combustion plant may disincentivise CHP. Indeed, for some operators such as refineries it may be more financially viable for them to produce heat and power separately resulting in higher emissions. Therefore we believe that there is a strong case for awarding a partial exemption from the Carbon Price Support mechanism to fossil fuel CHP in recognition of the heat and energy efficiency benefits it can deliver. This is in line with the requirements of the Co-Generation Directive which requires member states to promote CHP to increase energy efficiency and improve security of supply. It would also be useful to revisit wider support measures for CHP in the context of the Electricity Market Reform consultation.

It is proposed that, once CCS is proven and commercially available, there may be partial relief from the levy to reflect the CO_2 that is abated. In order to give CCS the best

possible chance of development it would be useful to clarify up front the level of exemption that would be available to plant if they are using Carbon Capture and Storage technology and extend this partial relief to the demonstration projects in line with the proportion of carbon dioxide emissions captured and stored.

We also note that with the additional levy on coal it is less likely that existing coal plant will upgrade their abatement equipment to meet the new Industrial Emissions Directive Emission Limit Values and, instead, will opt for limited life shut down

[redacted]

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The Environmental Industries Commission

Submission to the HM Treasury on the Carbon Floor Price

The Environmental Industry Commission submission on Carbon Floor Price

We the Environmental Industries Commission (EIC) and its 230 member companies are delighted to have the opportunity to submit our answers to the HM Treasury consultation on the Carbon Floor Price: Support and Certainty for a Low Carbon Investment.

The EIC believe that the UK needs a new approach and new thinking to create sustainable jobs and low carbon resource efficiency which will save the economy money and protect our environment.

Today we have an opportunity to shape a new economy that is driven by industrial processes which are low carbon and resource efficient, and protect our environment. The fundamental logic of this 'new economy' must be for ecological sustainability.

If we are to do this the government must reconcile the markets with the environment. We need above all a strong and robust economic-environmental policy framework that puts a cost on pollution, thereby encouraging finance and investment in low carbon resource efficient industrial operations and supply chains.

The EIC support the government's objective of decarbonising electricity production. We believe it will impose true cost accounting on the impact that carbon has on the environment and therefore drive innovation across the industrial sector. We believe it simplify the current market and reduce the myriad of current measures grants, feed in tariffs, renewable heat incentives, ROC's and the climate change levy. This simplification we hope will clear up the confusion for business so they will be in a better position to make the transition and de-carbonise.

It is obvious that the pricing and the escalator scenario will be the key to getting this right. The proposed starting rate of between £1 - £3 tCO_2 above the carbon market price, rising to £20 - £40 per tonne in 2020 and £70 tCO_2 by 2030 is an excellent step in the right direction though it still does not reflect fully the environmental costs associated with the use of fossil fuels.

We would like to thank the all the hard work that Martin Shaw and the Environmental Taxes team have put into this consultation. If there is any further help or information you would like from us or our members please do not hesitate in contacting us.

Yours Sincerely,

The Environmental Industries Commission

The Environmental Industries Commission (EIC) EIC was launched in 1995 to give the UK's environmental technology and services industry a strong and effective voice with Government. The EIC is at the forefront of the move towards a low-carbon and resource efficient environmentally focussed economy. We work to provide our sector with a strong and effective voice with government to ensure that UK companies are able to succeed in the rapidly growing global market place for green technologies.

With over 230 member companies EIC has grown to be the largest trade association in Europe for the environmental technology and services (ETS) industry. It enjoys the support of leading politicians from all three major parties, as well as industrialists, trade union leaders, environmentalists and academics.

The EIC and its members work to provide solutions to meet environmental standards set by government legislation. We ensure these standards are met through good practice and "after sales" service to clients. We work with government to strengthen the UKs policy framework. This work ensures that the Government's intentions to put environmental protection at the heart of its plans for economic growth. This framework ensures that the government's environmental targets are realised and the UK have cleaner air, water and land.

The EIC operates eleven membership policy subgroups which focus on: Business and Innovation, Scottish Group, Carbon& Environmental Management, Waste Resource Management, International Business, Industrial Air Pollution, Water Pollution Control, Contaminated land, Environmental Laboratories, Sustainable Buildings and Energy Efficiency and Transport Pollution Control.

While members support this publication and provided extensive input, individual recommendations cannot be attributed to any single member and the EIC takes full responsibility for the views expressed.

EIC Recommendations

The transition to a low carbon economy must be achieved in a way that energy costs are as transparent and as low as practicably possible, i.e. generation and distribution is as efficient as it can be.

The EIC also believe that careful planning, strong and consistent regulatory and policy framework and strong industrial project management are required to avoid the worst aspects presented in the 'lights going out scenario'. The tweaking and changing of Climate Change Levy (CCL) carbon price support rate and other incentive mechanisms will be important however there are some other issues that EIC thing are important:

- A proportion of the levy income must be used to fund development programmes to reduce the capital and operational costs of environmental programmes especially industrial scale energy efficiency. Some of the money must also be provided for large scale genuine renewable projects. If the planning, design, construction and operational in these projects is reduced we believe that the market will grow and attract more investment.

- Some of the finance from the levy income should be used to fund development of affordable large-scale energy storage technology. We believe it is important if we are generating more and more energy from renewable we do not want to be in a position where we have to take steps backwards on to high carbon generation.

- It is important that we consider the changes in the transport market and the shift to electric vehicles. The roll-out of a home charging and urban networks for electric cars presents a new storage scenario.

  It is estimated that a fleet of eight million electric vehicles could have a storage capacity of around 40GW. The government should take this into account when and look for mechanisms and ways to a. Increase the rollout of electric car charging in the UK and b. The transition from carbon powered vehicles to non or low carbon vehicles.

- If the government is going to build a green economy and make the transition then we need skilled workforces who understand the new technologies and the challenges. The levy should also help to stimulate the development of engineering skills to ensure that we're not caught out by having insufficient resource to cope with demand.

- That expertise can also support UK plc by allowing British-based companies to compete for new energy development contracts around the world. The UK government and policymakers have an opportunity to change the way we do business, fuel our industry and build a 'new green economy' and take opportunity of a £3 trillion export market. We will need a joined up government thinking and funding for skills to achieve this goal.

- There should be supportive investment in energy efficiency and demand reduction measures in the built environment, for example low carbon retrofits; improving a building's fabric (insulation and air tightness) and services (lighting upgrades, controls, new boilers and chillers) and data collection for benchmarking purposes.

- The levy could 'top up' funding to the Green Investment Bank which could extend the Green Deal into other sectors. The current Green Deal is very residential focused and funding doesn't encourage investing in deep emissions reduction measures.

Carbon price floor: support and certainty for low-carbon investment

Response of the Environmental Services Association

ESA is the sectoral trade association for the UK's managers of waste and secondary resources, a sector with an annual turnover of around £9 billion. ESA's Members seek to align economic and environmental sustainability through delivering compliance with relevant EU waste and environmental law.

- ESA supports the principle of providing increased certainty for low-carbon investment and agrees that the Government should implement a carbon price support mechanism which targets traditional fossil fuel generation and is guaranteed in the longer term. A stable carbon price which is maintained in real terms would help to push up wholesale electricity prices and could provide some benefit to low carbon projects.
- For example, a guaranteed carbon price floor may enable municipal energy from waste projects to agree slightly more favourable power price assumptions with lenders when trying to attract project finance. Lenders currently require extremely conservative assumptions, which, when applied for the lifetime of a project, can impact upon public sector value for money and indirectly harm council tax payers.
- Energy from waste is exempt from the EU ETS as it forms part of a wider waste management and recycling sector which has already delivered a full contribution towards the UK's European greenhouse gas reduction commitments and is subject to a stringent regulatory framework which will continue to deliver further savings into the future. Energy from waste helps to deliver significant greenhouse gas emission savings through diverting material from landfill, as well as making an increasingly significant contribution towards the UK's renewable energy targets.
- It should also be noted that, in the absence of a practical methodology for determining accurately the bioenergy content of waste-derived fuels, energy from waste projects have been unable to claim the full ROCs to which they are theoretically entitled. ESA hopes that this issue might finally be resolved as part of Decc's forthcoming electricity market reforms.
- In this context, it is ESA's strong view that energy from waste, as part of the green economy, should remain exempt from carbon price support proposals.
- ESA also hopes that the forthcoming Green Investment Bank will help to bridge the financing gap faced by low-carbon projects in general, and residual waste projects in particular, in the current risk-averse lending climate.

Carbon price floor: support and certainty for low-carbon investment

Consultation by HM Treasury and HM Revenue and Customs

Response by E.ON

SUMMARY

- E.ON supports a harmonised EU approach to delivering climate change objectives, consistent with the operation of the EU internal energy market, and national interventions should be kept to a minimum and aim to be consistent with EU policies, particularly the EU ETS, although we recognise that the UK has specific climate change targets and investment needs which may require additional intervention;
- The carbon price support (CPS)mechanism will distort the operation of the EU ETS and trade between Member States. Given that EU ETS total emissions are capped, higher carbon prices in the UK will also not deliver lower emissions across the EU as a whole as reductions from UK generating plants covered by the EU ETS will be offset by higher emissions elsewhere in the EU;
- The CPS mechanism has a limited role in incentivising low carbon investment given the Government's preferred option of driving this through FITs/CfDs, although we recognise it will affect net payments under CfDs;
- It could have a number of negative domestic effects on the UK economy: on consumer prices, industrial competitiveness, and on existing power generation including coal plant still needed to maintain secure supplies, relative profitability of generators; it will also attract increased imports from outside the UK which will be from fossil-fired generation when this is at the margin on the French and Dutch systems;
- Given all these adverse consequences, introduction of the CPS should be deferred until it becomes relevant to CfDs (say 2018). If introduced earlier it should be at a nominal rate and it should not be raised until it is relevant to the CfD reference price;
- If its objective is to provide certainty about the EU ETS price, the CPS should aim to target a combined ETS + CPS price in 2020 equivalent to current central assumptions about future ETS prices to ensure the two prices do not diverge too much. £20/tCO_2 is reasonable (the lower of the HMT trajectories) for 2020;
- The actual rate needs to be set three full years ahead to maintain liquidity in the forward power market; on this basis, the tax should not come into effect until 2014/15 at the earliest;
- CHP plants should not be subject to the CPS in respect of fuel used for heat, consistent with the EU ETS in Phase 3;
- Small generating plants under 5MW should not be subject to the CPS as the administrative burden on suppliers would be disproportionate;
- The legislation needs to provide for the supply of biomethane for power generation to be exempt from the CPS.

INVESTMENT

3.A1: What are your expectations about the carbon price in 2020 and 2030? And how important a factor will it be when considering investment in low-carbon generation?

1 We develop a number of scenarios over the period to 2035 which make different assumptions about the level of economic growth and the extent to which markets are driven by climate change objectives. These scenarios generate a range of different carbon price outcomes.

2 Carbon price expectations from around the end of this decade are an important factor in evaluating new low carbon investments in that they are a significant determinant of wholesale power prices and thus investment income. They are, however, not as significant as fossil fuel prices, particularly gas prices, in assessing expected income levels. The carbon price may become less significant over time as low or zero carbon investment (which has low or no CO_2 emission costs) such as nuclear or renewables becomes the marginal plant on the system and sets the wholesale power price for an increasing proportion of the year.

3.A2: If investors have greater certainty in the future long-term price of carbon, would this increase investment in low-carbon electricity generation in the UK? If so, please explain why.

3 In principle measures which provide greater carbon price certainty (by which we primarily mean reduced volatility in the price level from year to year) could increase investment as it would reduce project risks. Investors might then be willing to apply lower hurdle rates and thus accept lower returns. There are, however, many other factors which investors will consider.

4 The proposed carbon price support mechanism (CPS), however, is unlikely to provide additional certainty as discussed in our answer to Q3.A3, given uncertainty about its future rate and the ability of the Government to set and vary its rate each year. Furthermore, as discussed below, higher carbon prices in the UK will not lead to lower overall EU CO_2 emissions and will tend to reduce incentives to invest in low carbon plant elsewhere in the EU. For example reduced UK coal burn will reduce the demand for EUAs which will have a downward effect on EU ETS prices.

3.A3: How much certainty would investors attribute to a carbon price support mechanism if it were delivered through the tax system?

5 Tax rates can be subject to annual adjustment and taxes can be discontinued, for example, following a change in Government. Factors which might affect rates could include impacts on consumers when coupled with other factors increasing retail prices, as has occurred when oil prices have led to higher motor fuel prices and pressure to reduce excise duties. Predicting what the tax rates would be over timescales relevant to new investments, say from 2020 onwards for a new nuclear project, would be particularly difficult and investors might need to develop a number of scenarios looking at different outcomes. There could be more impact on shorter term investment decisions including those affecting existing gas and coal-fired plants.

6 The future tax rate would be made somewhat more predictable if primary legislation set out a mechanism to determine how the tax rate is set, for example, if the combined EU ETS + CPS price trajectory were set up front and the tax was rebatable. Investors might also attach more significance to a tax over time if it became apparent that it was a permanent feature of the tax system and the tax rate was being set in a predictable way by successive Governments.

3.A4: In addition to carbon price support, is further reform of the electricity market necessary to decarbonise the power sector in the UK?

7 Yes, because a tax measure alone is not a reliable basis for making investment decisions, particularly those involving long lead times before investments begin to pay back, and very high levels of capital expenditure, as discussed in response to question 3.A3. Redpoint suggest that carbon support rates could be set at a higher rate to compensate for the reduced policy certainty which would arise from reliance on a tax alone but such a high rate seems even more prone to political uncertainty and adjustment given its impact on consumers.

8 We will comment on the Government's wider market reform proposals separately but the role of CPS in incentivising new low carbon investment appears to be of limited significance given that the feed in tariff/CfD proposed as the preferred option in the DECC/HMT EMR consultation will be guaranteeing a large proportion of project income. We recognise that the CPS will affect the reference price which may be helpful in ensuring that payments under the CfD follow a more predictable path or in providing some sort of benchmark on which to assess support levels under CfDs for alternative technologies. However in other respects the investor will be largely indifferent to the effect of the CPS on the wholesale power price until the term of the contract has come to an end. Indeed, Redpoint Energy, modelling for the Government, said in its analysis document that adding carbon price support (£30/tCO_2 by 2020) to fixed payments or CfDs "makes little difference in terms of the amount of low-carbon investment projected by the model."[1] It will therefore raise costs for UK consumers without driving new low carbon investment. It would be helpful if Government could explain what its role really is.

9 Improved investment certainty would also be provided more effectively than the CPS by reform of the EU ETS with a much reduced impact on the competitiveness of UK industrial consumers. The period of its operation should be extended to 2030 or later and a cap for 2030 defined consistent with the EU's obligations under international climate change agreements. If a floor were required, this should be introduced at EU level. This would avoid damaging the interests of UK consumers and help ensure that increased investment and lower emissions in the UK were not offset by less investment and higher emissions in the rest of the EU within the EU ETS cap.

10 It is important to recognise that lower CO_2 emissions as a result of the CPS in the UK from power stations covered by the EUETS[2] will be entirely offset by higher emissions elsewhere in the EU

[1] Redpoint Energy: Electricity Market Reform – Analysis of policy options, page 10

[2] Combustion installations with a rated thermal input exceeding 20MW

because total emissions are capped by the EUETS. Thus the total emissions savings from the measure at the EU level are likely to be virtually zero.

ADMINISTRATION

4.B1: What changes would you need to make to your procedures and accounting systems to ensure you correctly account for CCL on supplies to electricity generators?

11 Our preference is for generators to account directly for payment of the tax by reference to fossil fuel consumed at the point of electricity generation. This will avoid complexities which arise, for example, when gas is purchased by E.ON and other companies for both power generation and for onward sale to commercial/residential customers but the actual use of the gas is not known at the point of delivery as it will depend on market conditions in the generation and retail markets. Indeed gas will be traded many times between the time of original purchase and eventual consumption.

12 There can be scenarios where market participants will restrict gas fired generation and divert such supplies to satisfy retail customer demand at short notice. It is not clear to us how we as a generator would seek a refund on the CPS overpaid.

13 This approach would also allow the taxation of coal and gas imported from other EU Member States and from outside the EU to be treated on the same basis, without the need to register for CCL in this country as we note that generators would be able to account for the levy through their CCL return (if registered for CCL) for fuels imported from outside the EU. This lends itself to the changes in the VAT place of supply rules where cross-border trades are not subject to VAT but the VAT is self-accounted. This will also continue to encourage the free movement of goods within the European Community without the need to register for CCL in the UK for non-UK based suppliers.

4.B2: How long would you need to make the necessary changes to your systems to account for CCL on supplies to electricity generators?

14 If our trading business is required to make changes to its accounting system then this could take a significant period and the costs will increase substantially. This is because trading systems tend to be bespoke and require significant testing in all areas to ensure there are no adverse impacts on the rest of the trading systems.

15 Where the retail business supplies small generators or CHP plants it is geared up to deal with CCL. However, there would be significant additional costs were the CPS to be applied to small CHP generators and to microCHP plants. This is covered further in answer to question 4.C1.

4.B3: Please provide an estimate of how much the system changes would cost, both one-off and continuing?

16 If we as the generator have responsibility to account for the tax then no system changes will be needed. All we will need is the volume of gas and coal consumed for power generation. In this

case, no one-off costs and on a continuous basis the cost of about 0.5 day of a tax team member per month will be incurred.

TYPES OF GENERATOR

4.C1: Do you agree that all types of electricity generators should be treated equally under the proposed changes? If not, please explain why.

17 No. We do not see how it can work in practice for gas supplied to smaller scale generating plants (typically small CHP or microCHP plants). There are two main issues: firstly in many cases gas is not separately metered for power generation. This would mean that it would not be possible to define the volume of gas which should be taxed at a different rate, without requiring installation of metering which would be costly. Secondly, the administrative cost on suppliers and on customers would be high, in terms of accounting retrospectively for their exact tax liability at different CCL rates for gas consumption of different types. These costs outweigh any benefits from applying the tax to smaller generators. We propose that the CPS should not apply to the sale of gas for power generation to customers whose plant has an output of less than 5MW[3] (and we recommend a full impact assessment of the administrative burden of this threshold is carried out; a 20 MW or higher limit may be more appropriate).

18 In addition we are concerned that proposed changes could act as a disincentive for investment in small-scale CHP (which has considerable CO_2 emission reduction potential) where gas is one of the more electrically efficient fuels.

<u>The treatment of Biogas and Biomethane</u>

19 Injected biomethane produced by anaerobic digestion and gasification is specifically supported by the Renewable Heat Incentive and is considered a renewable and non-fossil fuel source in CCL legislation. We are concerned that the current CPS proposal does not recognise this green gas which would discourage its use in electricity generation relative to other renewable technologies. The legislation to introduce the CPS should provide an exemption for biomethane used to generate electricity. Otherwise, RHI support would need to be increased to compensate for the higher costs of biomethane production.

20 We understand that bio-gas produced via anaerobic digestion and gasification is exempt from CCL legislation and hence the proposed CPS mechanism. As part of this consultation response we would like this exemption to be confirmed.

21 We also believe that particular provisions are required for good quality CHP generation as set out in response to question 4.C2.

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[3] Operators of plants with outputs above 5MW require a different connection agreement (ER G75/1) from smaller plant. Distribution businesses will be able to notify such customers of the requirement to inform their gas supplier of the potential different rate of CCL.

4.C2: Is there a case for providing additional or more preferential treatment for CHP? If so, what is the best way of achieving this?

22 As a general principle we believe that, as a carbon price support mechanism, the CPS should be levied in a way which mirrors the approach taken by the EU ETS as closely as possible. We believe that good quality CHP plants should be able to claim a rebate or be subject to a zero rate in respect of fuel supplied for the proportion of their energy output accounted for by the supply of heat. This would be consistent with the free allocation of EUAs for heat supplied by CHP schemes under the EU ETS Phase 3[4] and would ensure that CHP is not disadvantaged compared to standalone boilers whose fossil fuel is not covered by the CPS.

23 Charging CHPs CPS on the fuel used to generate heat would mean that CHP projects will be disadvantaged in comparison to the separate production of power and heat. The vast majority of hosts have Climate Change Levy Agreements (hence are 65% exempt from CCL) or are in exempt sectors such as refining and would therefore not be subject to the CCL for the production of heat in standalone boilers. The CCL with CPS as currently proposed would mean that a site that reduces CO_2 emissions by CHP investment (as CHP emits less CO_2 than the separate production of power and heat), would be paying more CCL than a site that imports power and has standalone boilers. There is also very limited relief from this incremental cost since many contracts do not allow pass through to a heat customer. Even where contracts with provision for pass through exist this could be extremely challenging. This has the impact of disincentivising CHP investment and may ultimately even push some existing CHP facilities to change their operating regime and switch from CHP mode (shutting down their gas turbine) to importing power and using standalone boilers to generate heat. This not only affects how existing facilities are run in the future but also acts as a disincentive to investment in new CHP. This has the potential to reduce CHP operation resulting in an increase in CO_2 emissions. For industries that require very stable steam at a high pressure, CHP provides the most efficient method of doing so.

24 Good quality CHP plants should continue to benefit from Levy Exemption Certificates which will continue to provide an incentive for investment. Their value relies on the current CCL mechanism chargeable on non-domestic supplies of electricity. Changes to the CCL mechanism on electricity supplied would have a major impact on the viability of new and existing CHP plants.

4.C3: Do you agree that tax relief should be considered for power stations with CCS? If so, what are the practical issues in designing a relief; what operational standards should a CCS plant meet in order to be eligible; and how might these issues differ for demonstration projects?

25 The relief should be aligned with the volume of CO_2 abated/sequestered as determined through the Monitoring Reporting and Verification requirements of the EU ETS. Thus a power plant with full CCS which abated 90% of its CO_2 emissions would secure relief equal to 90% of its tax

[4] Directive 2003/87/EC (as amended by Directive 2009/29/EC) Article 10 (4)

liability. If such tax relief were not to be available, then the CPS could act as a significant barrier to the introduction of CCS to the UK market.

IMPORTS AND EXPORTS

4.D1: What impact would the Government's proposals have on electricity generators and suppliers that export or import electricity?

26 Given that imports of power are not taxed and that UK electricity generation will be taxed, there will be increased incentives for imports to the UK market, when UK wholesale prices reflect the higher cost of CO_2 emissions (most of the time). This would be reflected in trading between markets on either side of the interconnectors between the UK and France and the UK and the Netherlands. Higher demand on power systems in France and the Netherlands will lead to a higher utilisation of more expensive, fossil-based, generation so lower CO_2 emissions in the UK will be offset by higher emissions in adjoining Member States. UK power plants will operate at lower load factors and may close if they become unable to recover their costs. This could lead to the UK becoming more reliant on interconnections for its security of power supplies.

27 There is limited interconnection between the UK and other countries at present but additional interconnections are planned, for example with Norway, Belgium, France and Ireland, so the UK will become increasingly integrated into the EU energy markets where tax differences will have more pronounced effects on trade. In the longer term higher carbon prices in the UK could be one factor incentivising additional interconnection, if investors became convinced this was a long-term characteristic of the UK system, although the effect of the carbon price on UK wholesale prices will diminish somewhat once the majority of remaining UK coal plant has closed by the end of 2023 (the date at which coal plant opted out of the Industrial Emissions Directive has to close by).

4.D2: What impact might the proposals have on trading arrangements for electricity?

28 We do not envisage any effects on the trading arrangements, if this question relates to the various codes and other obligations governing the operation of the UK power market. However, see also our response to Q4. E1 below.

4.D3: What impact might the proposals have on electricity generation, trading and supply in the single electricity market in Northern Ireland and Ireland?

29 The effect will be similar to that described in our answer to Q4.D1. Within the Single Electricity Market, the all-island electricity market for Northern Ireland and the Republic of Ireland, it will tend to increase generation from untaxed plant in the Republic of Ireland and reduce generation in Northern Ireland, subject to the ability of the interconnections between the two jurisdictions to accommodate the change in power flows.

CARBON PRICE SUPPORT MECHANISM

4.E1: How should the carbon price support rates be set in order to increase certainty for investors, in particular over the medium and long term?

30 The aim should be to increase certainty that the combined effect of the EU ETS price and the CPS will deliver a more predictable overall price for carbon (in real terms and in sterling) over both the short and long term, reducing volatility in carbon prices over time. However, unless the same approach is adopted as put forward in the Conservative Policy Green Paper 'Rebuilding Security' (where generators are able to offset their actual cost of purchasing EUAs against their tax liability), the CPS rate will always be chasing the EU ETS price as the actual ETS price will not be known until after the tax rate is set.

31 Nevertheless, the objective should be to set out a trajectory for the combined rate of the CPS and the EU ETS price. Annual rates for the CPS should then be set in relation to the forecast EU ETS price for the year in question to deliver the price for that year in the agreed trajectory. If the EU ETS price rises more than expected, the CPS rate should fall to compensate and fall to zero if the EU ETS price rises above the intended overall trajectory.

32 However, market participants need to be able to hedge their future requirements in the forward power and carbon markets and this takes place over periods up to three years in advance. If the CPS rate is not known (or is subject to a significant risk of change) until say only one year before it comes into force, this will severely limit forward trading over longer timescales and traders will defer trading power until the rate is known. This would be very damaging to market liquidity, and limit our ability to offer customers stable long term prices. The CPS rate should therefore be set definitively for three full years ahead of the current year (i.e. by March 2011 for the 2014/15 tax year).

33 The alternative approach of applying a clear predictable formula in legislation to determine the combined EU ETS + CPS price level in the budget before the year in question is better than setting the rate on a more random basis but it still creates difficulties for forward trading. A fuller explanation is set out in Annex 1.

4.E2: Which mechanism (outlined above), or alternative approach, would you most support and why?

34 We would prefer an approach which aimed at setting the CPS rate at a level which delivered a defined agreed total EUETS + CPS price trajectory over the short and long term with actual rates set annually based on a forward carbon market index for three years ahead. On this basis the 2014/15 rate would be set in March 2011 in relation to the December 2014 ECX EUA Futures price, possibly averaged over a period of time to avoid the effect of unusual price movements (as has occurred recently following the suspension of the EUA spot market).

4.E3: What impact would the proposals have on your carbon trading arrangements?

35 The main impact of carbon trading will be the effect of the CPS rate on the operating regime of our fossil-fired plant and therefore on our requirements to purchase allowances. As the operating regime will be affected by both the EUETS price and the CPS it is desirable that the combined effect of the two mechanisms is predictable on timescales longer than the three years over which the tax would be set.

FUTURE PRICE OF CARBON

4.F1: Should the Government target a certain carbon price a) for 2020 and b) for 2030? If so, at what level?

36 Yes. The key objective is that the market should have confidence that government will maintain a consistent policy. Defining a target carbon price (reflecting the combination of the price of EUAs under the EU ETS and the CPS rate) for 2020 and for the intervening period will help build confidence and will help decision-making particularly in relation to investment decisions not supported by the Government's CfD proposal. We suggest below (4.F2) that this price should reflect the expected carbon price arising from the EU ETS. As for 2030, it would in principle be desirable to target a certain price but this should await the setting of an EU ETS cap for 2030 underwritten by an EU agreement to reduce greenhouse gas emissions for that date so that the CPS can be based on a reliable trajectory for the ETS price.

4.F2: What is the most appropriate carbon price for the UK to meet its emissions reduction targets in the power generation sector? How would this be affected by changes in the structure of the electricity market?

37 The relevance of the carbon price reflected in the wholesale power price in incentivising investments in new low carbon plant will be limited given the government's preferred option of incentivising investment through CfDs. If the Government adopts the CfD route, our primary interest will be in the strike price not the level of the reference price as affected by the CPS.

38 If the carbon price were the only driver, the level of carbon price required would depend on a range of factors including fossil fuel prices and the technology mix of capacity required to deliver CO_2 reductions, given that some technologies are more expensive than others.

39 Given that we understand the purpose of the CPS is to provide greater certainty about the carbon price and not to raise its absolute level, the Government should from 2020 onwards seek to target a carbon price which would anyway be delivered by the EU ETS on central assumptions. A carbon price of £20CO_2t in 2020 (in real 2011 money) would be reasonable on this basis. The primary objective should be to reduce volatility and ensure that the targeted carbon price including the CPS and the actual ETS price do not diverge substantially.

40 This would limit the impacts on UK consumers and reduce distortions which would arise from setting the price at a higher rate. This would help set a CfD reference price against reasonable assumptions about the ETS, with any additional costs needed to support specific technologies covered in the difference between the CfD strike and reference price.

4.F3: When would be the most appropriate time for introducing a carbon price support mechanism and what would be the most appropriate level?

41 We would prefer the CPS not to take effect until the date it becomes relevant to CfDs which for the first nuclear project is scheduled to be 2018. If earlier it should be introduced no earlier than 2014/15 given the need to set the rate three full years in advance with the rate set in the March 2011 Budget. It should start at a nominal rate (£1/tCO_2 or less) and remain low until it becomes relevant in relation to the reference price set in CfDs at the end of this decade.

42 This would limit the impact on consumers, the effect on UK industrial competitiveness and give time for companies to adjust to the effects of the CPS. It will also limit windfall gains for existing low carbon generators. The effect on global CO_2 emissions of deferring introduction of the CPS on generating plants covered by the EU ETS would be zero given that lower UK emissions would be offset by higher emissions elsewhere in the EU within the EU ETS cap.

ELECTRICITY INVESTMENT

5.B1: What impact would you expect the carbon price support mechanism to have on investment in low-carbon electricity generation?

43 As discussed above (Q3.A3), we believe that a tax mechanism per se has limited value in incentivising new high capital cost low carbon investments because of the uncertainties surrounding its future rate. Also, the role of CPS will be more limited if the Government implements its preferred option of incentivising investment through CfDs. It will have more effect on investments which will pay back over shorter timescales, principally decisions on existing plant.

5.B2: What other impacts would you expect carbon price support to have on investment decisions in the electricity market?

44 The proposals will affect the relative economics of coal, gas and oil plant in the power market as it will change their relative fuel costs, and incentivise additional imports from outside the UK. The precise effects will depend on the CPS rate, the EU ETS price and the relative cost of gas and coal but higher carbon prices will tend to lead to more gas-fired generation and higher revenues for gas-fired plants provided coal plant is setting the market price. As coal plant is withdrawn from the system this effect will progressively become less significant. The CPS will therefore affect decisions on whether to invest or not in existing plants including decisions on the life extension of existing gas-fired CCGTs built in the 1990s and decisions whether or not to invest in or maintain existing coal plants. It will also affect the economics of investments in new CCGTs and other plant. We would not expect

changes in the fuel duty regime to have significant effects on the economics of large oil-fired plants which are scheduled to close by the end of 2015 in any case.

45 It is important that the combined EU ETS +CPS price is not at a level which leads to the accelerated closure of coal plant which has a continuing important role to play in maintaining security of supply but at reducing load factors. We expect coal-fired plants to run after gas-fired CCGTs in general but at times of particularly high gas prices coal may run first. The CPS could reduce these events and the consequent reduction in profitability could curtail plant operating lives, creating security of supply difficulties if new build is not forthcoming. If the CPS punishes existing capacity required to maintain security of supply, payments under the Government's proposed capacity mechanism may need to be higher. Existing coal-fired plants will in any event be progressively displaced from the power market through the construction of new low carbon capacity. We believe this should be the main factor driving their eventual closure.

46 Government should also consider the impact on investments that were made in the past on the assumption that the Government regarded the EU ETS as the main low carbon investment driver. These investments (such as the upgrading of coal plant to meet the requirements of the Large Combustion Plants Directive or IED) may be undermined if the CPS is introduced too early and is raised prematurely.

47 The CPS rate will also have major effects on the relative profitability of existing generators in the market if it raises the overall price of carbon. Some large low carbon generators are likely to see substantial increases in profits while companies exclusively operating coal plant will be disadvantaged. This will affect the relative ability of these companies to invest in the market including, for those companies with higher carbon assets, their ability to invest to reduce the carbon intensity of their operations. The tax rate should be set to avoid windfall gains and avoid undermining existing investments made on other assumptions about Government policy.

5.B3: How should carbon price support be structured to support investment in electricity generation whilst limiting impacts on the wholesale electricity price?

48 The effect on wholesale electricity prices can only be minimised by ensuring that the carbon support rate is not higher than required to deliver its objective of providing more certainty about the expected trajectory of the EU ETS price, and that it does not become material until it becomes relevant to new low carbon investment at the end of this decade. This will also give companies time to adjust to the new tax regime and to invest in measures to mitigate its effects.

EXISTING LOW CARBON GENERATORS

5.C1: Can you provide an assessment of the impact of the proposals on your generation portfolio and overall profitability?

49 Broadly speaking the effect of a higher overall carbon price delivered through the CPS would be to reduce the profitability of our coal-fired station at Ratcliffe while improving the profitability of

our gas-fired plants. There will also be some marginal improvements to the profitability of our existing renewable assets.

5.C2: What would be the implications of supporting the carbon price for existing electricity generators and how should the Government take this into account?

50 See the answer to 5.B2 and 5.C1. The key issue for Government is not to set the CPS rate at a level which could accelerate the closure of existing generating capacity needed to maintain security of supply. The CPS rate should start low and only become material at the end of this decade.

ELECTRICITY PRICE IMPACTS

5.D1: How do you currently manage fluctuations in the wholesale electricity price?

51 As an electricity supplier we contract ahead for wholesale power over varying timescales up to around three years in advance to meet the requirements of all customer sectors. This allows us to manage price volatility and limit the impact on our customers. We purchase power ahead for sales to larger consumers to match the contract length, which is predominantly one year in length. As a generator, we also manage the variability in our generation income by forward selling the majority of the output we expect to produce.

5.D2: What difference will supporting the carbon price make to your business?

52 We assume this question is primarily directed at consumers.

53 For our sales business there are potentially three effects:

- any uncertainty in the long term carbon price that impacts liquidity will reduce our ability to offer longer term contracts to customers, or increase any risk premia we have to charge;
- higher electricity prices may drive more energy intensive users to move activity to other countries, reducing sales;
- higher electricity prices without a corresponding mechanism to include a carbon price in other fuels such as gas could distort the market for heat pumps (and other CO_2 emission saving measures where electricity is a cost). As the electricity system decarbonises, the tax system needs to reflect the relative CO_2 emissions arising upstream and downstream from the consumption of electricity and gas.

5.D3: As an electricity generator or supplier, how much of the cost of the carbon price support would you pass on to consumers?

54 In principle all the cost will be passed through, although the exact level will be determined by the market dynamics and price elasticity of both the wholesale and retail sectors.

55 As a generator we will sell at the wholesale price at the point in time when we choose to sell. How much of the CPS is passed through will be determined by the market. In general if coal-fired plant is the marginal plant on the system and is setting the wholesale power price, the CPS rate for coal will be reflected in the power price in the same way as the EU ETS price is currently. It should not be assumed that generators would cross-subsidise their retail businesses if they are making higher profits upstream from a higher carbon price, or vice versa.

5.D4: As a business, how much of the cost of energy bills do you pass on to customers?
5.D5: How might your company or sector be affected and would there be any impact on your profit margins?

56 We assume these questions are primarily directed at consumers, but see 5.D2.

5.D6: Do you have any comments on the assessment of equality and other impacts in the evidence base of the Impact Assessment, included at Annex D?

57 There are a number of aspects of the Impact Assessment that we do not agree with. These include:

- The Impact Assessment has been undertaken in isolation from the other policy measures proposed as part of electricity market reform and has thus significantly overstated its benefits. It would have been much more accurate to have assessed its impact in relation to the other measures and to determine what value it has, assuming the other measures are implemented.
- The IA is confined to the UK. Given that the EU ETS caps total CO_2 emissions, the additional CO_2 savings in the UK from plants within the EU ETS will be entirely offset by higher CO_2 emissions in the rest of the EU. Higher carbon prices in the UK will also reduce EU ETS prices to some extent.
- Additional taxation of electricity will tend to increase the relative cost of electricity in relation to the cost of gas used for heating purposes which is not subject to taxation in relation to its CO_2 emissions. This may reduce the rate at which renewable heating systems using electricity, such as ground source heat pumps, are taken up.
- With respect to the equality assessment, any increase in electricity prices could have an adverse effect on fuel poverty both from the direct impact on electric heating costs and from any weakening of the economics of heat pumps and other measures to alleviate fuel poverty, which should be recognised in the design of other programmes, such as the RHI and the Energy Company Obligation.
- The administrative costs of applying the CPS to small scale generators, including micro CHP plants operated by residential customers, have not been properly assessed.
- The assumptions in the baseline case that investors in generation assume that the carbon price flat lines at its current level (para B1), or, in the other scenarios, would factor the carbon price support into five year appraisals but revert to the current level thereafter are not correct. We use a scenario approach as described in the answer to question 3.A1. In the case of the CPS we would be likely to develop a scenario which adopted the envisaged

targeted carbon price trajectory but would look at alternative scenarios where the tax was varied or removed entirely.

- The Impact Assessment should be aware that, for all new generation investments, the period up to five years out from the investment decision is of limited relevance as most generation investments will not begin to pay back until the end of that period and not until after that period in the case of nuclear.
- The absence of any sensitivity analysis around different relative fossil fuel price or carbon price trajectories and excessive reliance on DECC central forecasts.

E.ON
February 2011

Annex 1

The CPS and Forward Power Markets

In the wholesale electricity market, large power generators and suppliers, including E.ON in both roles, sell and buy power for a given point in time (for example in 2014) some time before that point is reached (e.g. 2011 to 2013) in the forward power generation market. This process, known as hedging, allows generators to reduce their risk around achieving an income and suppliers to offer stable prices to consumers. At present, generators are able to sell power in the market at low risk by simultaneously buying the fuel they need in order to generate (for future delivery) and the correct number of Emission Unit Allowances (EUAs) to cover the emissions that their generation will produce.

The CPS has the potential to disrupt this process significantly by introducing the additional, and potentially unpredictable, cost of paying tax on the fuel consumed. In principle there are three potential ways in which market participants could deal with this issue:

Option 1: Wait until the level of tax is known for certain before trading. This option adds no risk to the trade and could be attractive to many market participants; if this proves to be the case market liquidity would drop significantly until the level of tax is set.

Option 2: Trade forward as before (by buying fuel and EUAs when selling power), but ensure that the price of power sold is sufficiently high to cover the anticipated cost of the tax. This option may be preferred by some market participants and would be the simplest way to trade power before the level of the tax is set. However, as it is quite possible that the total carbon price (EUA + CPS) would change significantly between the point of the trade and the point at which the level of tax was known, this introduces a significant risk to trading. In order to take this risk rather than take option 1 generators would need to add a risk premium to the price of power. Such a risk premium would be related to the volatility in the carbon price, the likely level of taxation and the uncertainty in the method by which the level of taxation would be set (from a known target total carbon price and the EUA price).

Option3: Trade forward by buying fuel and selling power, but, if the forward EUA price is below the targeted EUA + CPS price, defer buying an EUA but instead ensure that the price of power sold is high enough to cover the expected additional cost of the EUA + CPS. If the forward EUA price for the year in question then exceeds the level of the floor before the level of tax is set, then an EUA would need to be bought in order to maintain a hedge. This appears to be risk free and give a true hedge. However, this is before considering the point at which the CPS rate is set. Unless the level of taxation is not totally predictable, generators would not know for sure when to buy an EUA in order to be sure that the total sum of money spent on the EUA and CPS was equal to the value of the targeted EUA + CPS price. As a result, there would be an additional risk to generators at the point at which the tax was set and a risk premium would need to be charged when selling power (as with option 2). This issue could be mitigated to an extent through using an absolutely predictable method of setting the taxation level from the EUA price (i.e. a method such that generators could calculate the value of the

tax before it was announced) as this would allow generators to attempt to buy an EUA at the right point in time to avoid additional risk. However, this EUA purchase could never be perfect and an additional risk premium would still be necessary.

It is also worth noting that should the level of taxation be based on the targeted total carbon price minus the EUA price at a single point in time or averaged over a very short period then a large proportion of the UK generation market could attempt to buy power during or very close to this period. The market pressure of buying EUAs for a large proportion of the UK's annual power generation at once would be likely to mean that prices would rise sharply and the EU ETS market would be de-stabilised. This would both damage the EU ETS and increase the risk to generators of forward selling and so further decrease the liquidity of the power market.

As a result of the above and of the likelihood that buyers will be unwilling to pay a significant premium in order to buy power before the CPS level is set, it is clear that any CPS introduced through the CCL risks a significant decrease in the liquidity of the wholesale power market. Such a decrease would affect the market forward of the point in time when the level of the CPS is set. Accordingly, E.ON's preference would be for the level of the CPS for any given year to be set at least three years before the beginning of that year. We also believe that the mechanism by which the CPS is set should be completely transparent in order to encourage some trading forward more than three years from the point of delivery.

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The CPS has the potential to disrupt this process significantly by introducing the additional, and potentially unpredictable, cost of paying tax on the fuel consumed. In principle there are three potential ways in which market participants could deal with this issue:

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Option3: Trade forward by buying fuel and selling power, but, if the forward EUA price is below the targeted EUA + CPS price, defer buying an EUA but instead ensure that the price of power sold is high enough to cover the expected additional cost of the EUA + CPS. If the forward EUA price for the year in question then exceeds the level of the floor before the level of tax is set, then an EUA would need to be bought in order to maintain a hedge. This appears to be risk free and give a true hedge. However, this is before considering the point at which the CPS rate is set. Unless the level of taxation is not totally predictable, generators would not know for sure when to buy an EUA in order to be sure that the total sum of money spent on the EUA and CPS was equal to the value of the targeted EUA + CPS price. As a result, there would be an additional risk to generators at the point at which the tax was set and a risk premium would need to be charged when selling power (as with option 2). This issue could be mitigated to an extent through using an absolutely predictable method of setting the taxation level from the EUA price (i.e. a method such that generators could calculate the value of the tax before it was announced) as this would allow generators to attempt to buy an EUA at the right

point in time to avoid additional risk. However, this EUA purchase could never be perfect and an additional risk premium would still be necessary.

It is also worth noting that should the level of taxation be based on the targeted total carbon price minus the EUA price at a single point in time or averaged over a very short period then a large proportion of the UK generation market could attempt to buy power during or very close to this period. The market pressure of buying EUAs for a large proportion of the UK's annual power generation at once would be likely to mean that prices would rise sharply and the EU ETS market would be de-stabilised. This would both damage the EU ETS and increase the risk to generators of forward selling and so further decrease the liquidity of the power market.

As a result of the above and of the likelihood that buyers will be unwilling to pay a significant premium in order to buy power before the CPS level is set, it is clear that any CPS introduced through the CCL risks a significant decrease in the liquidity of the wholesale power market. Such a decrease would affect the market forward of the point in time when the level of the CPS is set. Accordingly, E.ON's preference would be for the level of the CPS for any given year to be set at least three years before the beginning of that year. We also believe that the mechanism by which the CPS is set should be completely transparent in order to encourage some trading forward more than three years from the point of delivery.

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11 February 2011

Dear Martin

Carbon price floor: support and certainty for low carbon investment

ESB International welcomes the opportunity to respond to HM Treasury's consultation on its proposals for changing the Climate Change Levy (CCL) to provide more certainty to the price of carbon. As an independent developer and operator of electricity generation in the UK, the proposals will have fundamental impacts for our business.

This response provides an introduction to ESB International and a summary of our views on the principles within the consultation. Finally, we provide responses to the detailed questions posed in the consultation.

ESB International

ESBI has been a developer and operator of independent Combined Cycle Gas Turbine (CCGT) generation projects in the GB market for over fifteen years. We currently have interests in Corby power station and in the 850MW development at Marchwood, which was commissioned late in 2009. We are also at an advanced stage with our latest 860MW development at Carrington which is intended to become operational in 2014. Additionally, we own and operate the 406MW Coolkeeragh plant in Northern Ireland. We are also developing further large-scale CCGT developments at other locations across GB.

In addition to increasing our conventional generation fleet, we continue to grow our position in the UK wind market. We operate the 24MW West Durham Wind Farm in Northern England, as well as the 20MW Hunters Hill and 15MW Crockagarron projects in Northern Ireland. We are currently also constructing what will be England's largest on-shore wind farm, at 66MW, at Fullabrook in Devon. Further, we expect to start construction of our 38MW Mynydd y Betws Wind Farm in South Wales later this year. We are also active in the ocean energy sector.

ESB International
ESBI Energy Innovation

Summary of views

In general, ESBI agrees that increased certainty over the future value of carbon will encourage the development of lower carbon forms of generation and that the proposed mechanism could deliver this. While the EU ETS has created a dynamic, market-based mechanism for placing a value on the cost of carbon and thereby encouraging the reduction of carbon emissions across Europe, it is subject to significant volatility which takes away from its value in investment appraisal. For example, at present, reduced electricity demand as a result of the recession coupled with a low gas price have combined to create a prolonged depression in the value of carbon, thereby reducing market incentives for industry participants to develop low-carbon generation. Outturns such as this undermine the EU ETS price as a signal for long-term investment.

Below is a summary of our main points in response to HM Treasury's consultation:

- **Clarity of objectives –** We submit that HM Treasury must be explicit in the objectives it is seeking to achieve with its carbon price support proposals.
- **Coordinated approach** – We seek that any carbon price support mechanism is consistent and complimentary to other market reform proposals being developed elsewhere in Government.
- **Energy policy focus** – In choosing to use fiscal policy to implement energy policy, we are concerned that environmental objectives could be clouded. To provide improved certainty, we recommend for HM Treasury to provide a trajectory based on carbon price and not revenue effects.
- **Trajectory –** It is critical that HM Treasury provides clarity on the chosen carbon price trajectory as soon as possible. Our preference is for Scenario 3 to be implemented.
- **Treatment within the mechanism** - All generation subject to the proposed carbon tax should be treated equally, but provisions must be made to ensure appropriate development signals are maintained for CCS.

[redacted]

nd Generation – As proposed, the carbon price support act Northern Irish generation and have consequent impacts on and. We submit that Northern Irish generation to be exempted eration fuels.

- **Timing –** The mechanism should be introduced on 1 April 2013, as proposed in HM Treasury's consultation.

Responses to specific questions

This section provides ESBI's views on selected questions raised by HM Treasury in its consultation.

Investment

3.A2: If investors have greater certainty in the long-term price of carbon, would this increase investment in low-carbon electricity generation in the UK? If so, please explain why.

If the proposals provide greater certainty in the future value of carbon and make higher-emitting generation less competitive, then on first principals there would be greater incentive to invest in lower-carbon technologies. It could, for example, advance investment decisions for CCS whilst encouraging thermal generators to use more efficient turbines for both new and existing plants.

3.A3. How much certainty would investors attribute to a carbon price support mechanism if it were delivered through the tax system?

Investor certainty depends on the surety they attach to the commitment given around the support mechanism and in particular whether it will be enduring. Investor certainty will depend on the way in which the proposals are written into legislation. Government has chosen to implement energy policy using a fiscal instrument. We are of the view that there is therefore a risk that future fiscal policy requirements may cloud the environmental objectives of the proposals. If this leads to the levels of taxation frequently changing over forthcoming years, we are concerned that this may negate the primary objective of incentivising lower-carbon generation and result in unintended consequences. Wherever possible, we would seek that HM Treasury enshrine as much as possible in primary legislation, in particular a specific long-term price trajectory.

[redacted]*ort, is further reform of the electricity market necessary to*

play a role in decarbonisation but that it should be adopted in
lthough the proposals will provide additional support to new
posure to the carbon markets, coupled with other investment

support mechanisms, renewable technologies will see little net impact from the proposed carbon taxation measures. Other reforms are therefore needed to better promote significant increases in renewable generation investment. In addition, measures will be required to ensure sufficient flexible generation is built and maintained to provide support for the inherently inflexible low-carbon generation.

Types of generation

4.C1. Do you agree that all types of electricity generators should be treated equally under the proposed changes?

Yes, all carbon-burning generation technologies should be treated equally, in that the tax should be applied consistently; however we agree that the level of taxation should be commensurate with the carbon intensity of the fuel being burned.

4.C2. Is there a case for providing additional or more preferential treatment for CHP? If so, what is the best way of achieving this?

We are of the view that the treatment of CHP should not lead to more favourable treatment than it receives with its support in the current market arrangements. We recognise the benefits that CHP brings in some instances and therefore we would are of the view that its current status should not be worsened as a result of HM Treasury's proposals.

4.C3. Do you agree that the tax should be considered for power stations with CCS? If so, what are the practical issues in designing a relief; what operational standards should a CCS plant meet in order to be eligible; and how might these issues differ for demonstration projects?

We agree that there should be some form of tax relief or rebate for power stations with CCS, as it must play a role in the future generation mix and should therefore be supported. CCS could receive support [redacted] in particular through a FiT, and it is crucial that these signals are [redacted] ote, however that there are implementation issues which require [redacted] e, only a proportion of a plant's emissions will be captured and [redacted] t proportion of the emissions are not subject to CCS. As such, it [redacted] ent based on the actual amount of carbon sequestrated, rather [redacted] ons captured for the purposes of a relief mechanism. This would [redacted] lopment efforts for effective CCS.

Imports and exports

4.D1. What impact would the Government's proposals have on electricity generators and suppliers that export or import electricity?

The proposals will have the effect of making electricity generated by UK thermal generation more expensive than directly equivalent generation in other EU countries. Further, due to this generation being the marginal price-setting plant, the wholesale price will rise. This will lead to UK interconnection being predominately import-based as UK suppliers and foreign generation take advantage of the price arbitrage opportunities that may arise. The competitive outlook for UK-based generators would also be expected to worsen as markets converge across Europe.

4.D3. What impact might the proposals have on electricity generation, trading and supply in the single electricity market in Northern Ireland and Ireland?

The proposed tax would have significant impacts for fossil-fuelled generation in Northern Ireland. Further, they could have implications on the operation and prices of the Single Electricity Market (SEM).

For most other UK thermal generation, the impacts of the tax will be (to varying extent) mitigated by increased wholesale prices which take account of the increased cost of the marginal fuel. Northern Irish plant, however, does not operate and trade within the GB market; instead it operates in the SEM competing against generation in the Republic of Ireland. As a result of the carbon tax, more expensive Northern Irish plant would be expected to fall down the merit order and be called upon less than it currently is, irrespective of whether it is more efficient or less emitting. This would therefore place it at a distinct competitive disadvantage to all other generation plant in its market. Additionally, because some of the additional cost of carbon may be permitted to be bid in to the SEM capacity payment, there may be a resultant increase in the cost of electricity for Irish consumers.

[redacted]easures would threaten the ongoing commercial viability of [redacted]erwise be profitable. We therefore seek for HM Treasury to [redacted] tax.

Carbon price support mechanism

4.E1. How should the carbon price support rates be set in order to increase certainty for investors, in particular over the medium and long term?

In order that the investment signals intended by the proposals are realised, the carbon price support rates should provide clarity for generators within investment timescales. Therefore, HM Treasury must ensure the carbon reduction trajectory against which it is determining the level of tax should be explicit and wherever possible enshrined within legislation. This could reduce the possibility that future administrations may use the tax not as an environmental policy but purely as a revenue generator.

The tax should also take account of the prevailing value of EU ETS allowances. If this is to be done, we would urge HM Treasury to ensure the indexation is against a robustly traded, transparent market.

Future price of carbon

4.F1. Should the Government target a certain carbon price a) for 2020 and b) for 2030? If so, at what level?

In order that investment is promoted, we are of the view that the Government should provide carbon price certainty at least until 2020. This should be at a level which delivers generation carbon reduction consistent with the legally binding carbon reduction trajectory.

Carbon price certainty to 2030 would provide signals to developers to invest in a generation mix which delivered secure, lower carbon generation consistent with Government targets. However, due to the current high degree of uncertainty around carbon reduction to 2030, we are unsure that it is possible to establish a robust carbon price that is able to be maintained through to 2030 without significant influence from future environmental policy.

[redacted]*n price for the UK to meet its emissions reduction targets in the*
is be affected by changes in the structure of the electricity

consultation, we are of the view that scenario 3 would best
mbitious carbon reduction targets, particularly in the period to

2020. Whilst it is the most ambitious of the trajectories, we believe that it would provide the strongest signals for cleaner generation to be built and the highest emitting plant to close. We do not believe that it would result in security of supply issues as there are a number of developers, such as ESBI, willing and able to deliver flexible, cleaner generation within the timescales required.

We would seek to ensure that the signals inherent in the carbon support mechanism are consistent and complimentary to those proposed as part of DECC's Electricity Market Reform.

4.F3. When would be the most appropriate time for introducing a carbon price support mechanism and what would be the most appropriate level?

To best meet Government's environmental targets, the most appropriate time to introduce the tax would be as proposed by HM Treasury, 1 April 2013.

Electricity Investment

5.B1. What impact would you expect the carbon price support mechanism to have on investment in low-carbon electricity generation?

We would expect the carbon price support mechanism, in conjunction with DECC's market reform proposals, to provide significantly greater investment signals for less carbon intensive forms of generation. We see large amounts of the most polluting conventional generation being replaced by cleaner flexible forms of thermal generation.

5.B2. What other impacts would you expect carbon price support to have on investment decisions in the electricity market?

[redacted]th the amount and types of low carbon generation that would be [redacted] would expect to see a material amount of investment in the [redacted]ate the increase in more diverse forms of generation. This [redacted]nificant and should be considered as part of HM Treasury's

5.B3. How should carbon price support be structured to support investment in electricity generation whilst limiting impacts on the wholesale electricity price?

We are of the view that the carbon price support mechanism will have inevitable effects on the wholesale markets. We strongly support maintaining a liquid bilateral wholesale market and would not wish to see further changes to those arrangements as a result of these proposals.

Existing low-carbon generators

5.C1. Can you provide an assessment of the impact of the proposals on your generation portfolio and overall profitability?

We are currently undertaking market and portfolio analysis to understand the full effects of the various proposals. We would be happy to discuss this bilaterally with HM Treasury during the further development of its proposals.

Electricity price impacts

Due to the commercial nature of these questions, we would be happy to discuss these questions bilaterally with HM Treasury.

I hope you find the points and issues raised in this response of value. Should you wish to discuss any of them further in your development of the carbon price support proposals, please do not hesitate to contact me.

Yours sincerely,

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Response to the Consultation on the Carbon Price Floor

European Forest Resources (Scotland)

European Forest Resources (Scotland) LP (EFRS) is grateful for the opportunity to comment on the Treasury's Consultation on the Carbon Price Floor. EFRS would like our response to be publicly available but ask that it remain anonymous.

EFRS has been established to invest in renewable energy production and distribution, and sustainable forestry in Scotland. EFRS will produce heat and electricity from renewable energy plants by using its forests as renewable energy platforms. Currently, EFRS is working on the development of two large-scale Section 36 onshore wind farms in Scotland, both of which are at the pre-planning stage.

Main message for Treasury

EFRS supports the Government's intention to design a carbon price floor mechanism.

The current carbon price as delivered by the Emissions Trading System (ETS) provides investor with a weak and uncertain price signal, which is not a primary driver in investment decisions. Government's proposal to introduce a clear and long-term carbon price floor have the potential to drive investment decisions and provide the necessary support to increase renewable energy capacity.

In order to provide a valuable signal for investors, the carbon price floor mechanism should:
- Be implemented rapidly,
- Provide investors with a clear path towards a 2030 target.

The only point of concern for EFR is the very low level at which the carbon price floor will start in 2013. At a level of £1/t or £3/t, the carbon price will not make a visible difference to the economics of low-carbon assets.

Consultation Response

3.A1: What are your expectations about the carbon price in 2020 and 2030 and how important a factor will it be when considering investment in low-carbon generation?

Since 2005, the carbon price, which is set by the ETS, has been very volatile which has impacted its credibility.
Post-2012, the carbon price can reasonably be expected to increase as a result of the end of free allocation of carbon credits to power producers. However, as the ETS has not delivered a carbon price which is high enough to have an impact on investment decisions, we remain cautious and assume that the carbon price will remain in the area of €15/t.

At the moment the level of the carbon price is too low to be a primary driver for our investment decisions.

3.A2: If investors have greater certainty in the long-term price of carbon, would this increase investment in low-carbon electricity generation in the UK? If so, please explain why?

A higher carbon price will lead to an increase in the power price, meaning that the sale of one unit of electricity from onshore wind plants is more likely to make a profit. Wind plants, which have very low marginal costs, are price takers in the wholesale electricity market in which the power price is set by conventional thermal plants.

A stable and predictable long-term price of carbon will increase the returns of low-carbon projects over the course of their lifetimes, which will make them more attractive to investors.

3.A4: In addition to carbon price support, is further reform of the electricity market necessary to decarbonise the power sector in the UK?

At the moment, renewable electricity is not granted priority access into the grid in the UK, meaning that zero-carbon electricity may not be dispatched when it is available. Production from renewable plants must be granted priority access into the grid to allow producers to recover their investment and to allow the UK to benefit from the zero-carbon installed capacity which is already available.
This would be in keeping with the instructions of the 2009 EU Directive on Renewable Energy (2009/28/EC).

4.E1: How should the carbon price support rates be set in order to increase certainty for investors, in particular over the long and medium term.

A renewable energy plant has a lifetime of 25 years. To unlock investment in low-carbon technologies, it is essential that the carbon price mechanism be:

- Set at a level which places renewable energy at an advantage compared with conventional generating technologies as early as possible,
- Predictable from the start: investors need to be able to know what the carbon price floor will be each year from the start of the mechanism until 2030, at the earliest.

4.E2: Which mechanism, or alternative approach, would you support and why?

As investors, knowing how the carbon price will evolve out to 2030 has great value. Ideally, we would like Government to set the total value of the carbon price on an annual basis for the coming 30 years.

We support the Government's preferred option which is to introduce carbon price rates and increase them incrementally until the price is consistent with the Government's target price trajectory. We would like to stress the importance of delivering a clear price trajectory upfront and keeping that trajectory in the long-term.

4.F1: Should the Government target a certain carbon price a) for 2020 and b) for 2030? If so, at what level?

Setting a clear target in the shorter term (2020) and in the longer term (2030) will give investors the confidence that the carbon price floor will be lasting instrument.

The only point in the Consultation which is of concern for EFRS is the path of the indicative carbon price support scenarios. The Consultation suggests three scenarios in which carbon price support starts at £1/t or £3/t in 2013, increasing to £20/t in scenario 1, £30/t in scenario 2 or £40/t in scenario 3 in 2020, before increasing significantly in all scenarios in 2030. EFRS is concerned that the proposed level of increase in scenarios 1 and 2 will not provide a strong signal for investors from 2020 to 2030. However, EFRS supports the 2030 carbon price floor target of £70/t.

4.F3: When would be the most appropriate time for introducing a carbon price support mechanism and what would be the most appropriate level?

A carbon price support mechanism should be introduced as soon as possible. We support Government's aim to introduce the carbon price floor in April 2013.
It is essential that the carbon floor mechanism be defined and introduced as soon as possible. Delay in introducing a carbon price floor will create unnecessary regulatory uncertainty.

5.B1: What effect would you expect the carbon price support mechanism to have on investment in low-carbon electricity generation?

As a result of a carbon price floor mechanism the stability of the returns of a low-carbon asset will increase. This will make the investments in low-carbon assets easier and cheaper to finance.

5.B2: What other impacts would you expect carbon price support to have on investment decisions in the electricity market?

A carbon price floor mechanism will make fossil fuel plants less attractive to investors, as the cost of producing electricity increases, reducing the potential load factor and return of these plants.

5.C1: Can you provide an assessment of the impact of the proposals on your generation portfolio and profitability?

EFRS is currently developing two large scale onshore wind farms in Scotland. The returns of these projects are difficult to assess precisely because they are dependant on a large number of drivers.

The return of an onshore wind farm project is largely dependant upon costs which are likely to vary greatly, including:

- The cost of the obtaining planning permission which includes:
  - The cost of submitting a planning application,
  - The risk of a lengthy approval process,
  - The need for approved projects to recover the planning costs of unsuccessful projects,
- The exchange rate between the Euro and the Pound,
- The cost of grid connection,
- The ability to effectively despatch on the grid electricity produced from the wind farm,

Revenues for an operational wind farm include:

- The price of electricity,
- The price of the ROCs which is based on the supply and demand balance in the Renewable Obligation.

⇨ A carbon price floor would provide developers with an increasingly stable revenue source to counter the potential variations in cost.

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Michael Stansfield,
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11 February 2011

Dear Mr Stansfield,

Consultation on Carbon Price Floor

Thank you for the opportunity to comment on the Government's proposals for reforms to the climate change levy (CCL) and, where oil is used for electricity generation, fuel duty.

This letter forms part of our response and is sent on behalf of a number of ExxonMobil entities active in the United Kingdom. The interests of these entities include the oil refining interests of Esso Petroleum Company, Limited (including the UK's largest oil refinery at Fawley in Hampshire), the oil and gas exploration, production and natural gas processing activities of Mobil North Sea LLC, the oil and gas exploration, production and natural gas processing activities operated by others on behalf of Esso Exploration and Production UK Limited and the chemical manufacturing activities of ExxonMobil Chemical Limited.

ExxonMobil has a major business presence in the UK. We have invested some £31 billion in the UK offshore oil and gas industry since first exploration in 1964 and remain the third largest producer in the North Sea. We contribute around 25-30% of the physical gas first sold on the GB market. As part of our global gas and power marketing organisation we source gas supplies in the UK and globally. Gas is delivered to a number of UK entry points both through pipelines and regasification facilities at Liquefied Natural Gas (LNG) terminals, including at the South Hook LNG site at Milford Haven where ExxonMobil is a joint venture partner together with Qatar Petroleum and Total. Our refinery at Fawley on Southampton Water is the largest in the country, and we market Esso and Mobil-branded products to around 1 million customers a day through a network of nearly 900 service stations. We are also a significant manufacturer of petrochemicals with integrated production units at the Fawley refinery and an ethylene production facility in Fife. We are a global industry leader in combined heat and power (CHP) applications with interests in over 100 cogeneration facilities in more than 30 locations worldwide, including at Fawley.

Our contribution to the UK economy is significant. We provide direct jobs for over 9,200 employees and contractors. Within the supply chain, over 9,000 companies provide goods and services to those ExxonMobil entities active in the UK. These suppliers benefited from our £3.3 billion UK operating and capital expenditure last year. In total our

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direct and indirect tax contribution to the UK economy was over £5 billion in 2009, equivalent to approximately 1% of total government tax revenue.

Society currently faces, and will continue to face, two major, global energy-related challenges. The first is to maintain and expand energy supplies to meet growing global demand. The second challenge is to address the societal and ecological risks posed by rising greenhouse gas (GHG) emissions. ExxonMobil believes that the risks posed by rising greenhouse gas emissions to society and ecosystems are serious enough to warrant action – by individuals, businesses and by governments.

This will require an integrated set of solutions, and for ExxonMobil, this includes increasing efficiency, advancing lower-carbon energy technologies, and supporting effective national and international policies. Our efforts aim not only to reduce emissions from our operations, but also to reduce emissions by end users of energy.

We believe there is room for competition between all sources of energy. ExxonMobil's experience is that where governments intervene directly to alter the balance of competitive forces in energy markets, there are unintended or unforeseen negative consequences which can be significant and hard to unwind. It is our belief that effective public policy should avoid picking winners and losers. Policies which foster innovation and open competition on a level playing field, and provide a broad, reliable and unbiased market framework will best serve the broad interests of investors, business, suppliers, consumers, and local communities. On this basis we would suggest that the UK should set a transparent carbon price and let the market drive the most cost effective solutions to delivering investment in low-carbon, secure energy, rather than introducing multiple, complicated, layered policy mechanisms which would be difficult to unwind in the future. We continue to believe that a carbon tax is the optimum means of accommodating these key criteria.

ExxonMobil remains concerned that the complexity and lack of transparency created by the large number of overlapping UK carbon abatement and emissions reduction policies, both existing and planned, are not conducive to investment environment stability. The present Government's understandable desire to end this uncertainty has led to the framework proposed in the recent EMR consultation, but we are concerned that the efforts to meet the GHG targets will produce unintended high costs to consumers and discourage investment in cost effective energy supply options, including natural gas.

The possibility of carbon price support rates being amended annually and a lack of clarity about how the rate will be reconciled with the ETS price will **increase investor uncertainty**. It is our view that the level of carbon price support should be based on average annual CO2 emissions and average annual EU ETS carbon prices, and that the timeframe for changing the carbon price support rate should be lengthened from annually to a longer timeframe (say 5 years).

Refineries and petrochemical plants, including our site at Fawley, operate between two global markets, the crude market and the refined product market. ExxonMobil remains concerned about the imposition of European regulations and taxes not faced by international competitors, and by UK specific taxes and regulations not faced by either European or international competitors.

ExxonMobil

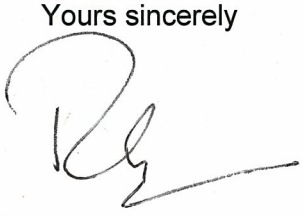
This overlapping regulatory burden is being placed on an industry sector already recognised as being exposed to carbon leakage. These regulatory and fiscal trends undermine the confidence that global companies have in the UK as a viable place to maintain operations, with consequential loss of investment and ultimately plant closures. Due to the cost of infrastructure, new plants are unlikely to be opened in the UK, with any closures leading to fewer jobs, lower tax revenues, import substitution and dependency, damage to UK energy supply security, and a leakage of the associated CO2 emissions from these sectors to other countries which may generate greater emissions than would be the case had that activity remained in the UK.

With CHP, we produce electricity to power our operations while also capturing heat to make steam to transform raw materials into consumer products. This provides a more efficient power source than purchasing from a local utility, in some cases up to 50 per cent more efficient. We believe that policy proposals outlined in the consultation document and published draft legislation relating to CHP will create the perverse effect that the use of CHP in the UK will be disincentivized. ExxonMobil would recommend that the Treasury and Department of Energy and Climate Change consider providing an exemption to carbon price support for gas used to generate heat as part of a CHP operation.

To conclude, it is our hope that Government will consider how it may positively encourage gas in its energy policies as a clean burning fuel that can make real and cost effective contributions to lower carbon emissions and show that it has considered, given the existence of a strong global market for natural gas, how gas can continue to flow to the UK in the future. We remain keen to work with Government to ensure practical, feasible and affordable solutions for energy and climate policy objectives. However, we believe that the proposals for reform of the climate change levy and in particular for CHP need further consideration. They will impose cost burdens on industry which contribute to diminishing UK refinery competitiveness against others in Europe and elsewhere, along with creating a significant risk of carbon leakage.

Alongside this letter we are submitting two further documents; responses to selected questions contained in the main consultation paper and an annex addressing perspectives on gas in the context of the current consultation.

Yours sincerely



Robert Lanyon
Regional Director Public & Government Affairs

HM Treasury Consultation on Carbon Price Floor
ExxonMobil Response

Investment

3.A2: If investors have greater certainty in the future long-term price of carbon, would this increase investment in low-carbon electricity generation in the UK? If so, please explain why.

Directionally yes, in so far as the more certain price of carbon has a direct bearing on the relative competitiveness of a particular low carbon generation project. However an investment decision in any power generation technology has to consider a range of risks. Greater certainty in relation to carbon price alone may not be enough to guarantee an investment on low-carbon electricity generation.

Moreover carbon price certainty will not increase investment where other risks in a particular project are considered too great, such as planning, public acceptance, stable regulatory regime and market (revenue) risk. Furthermore, for investors with global reach when it comes to investing capital, there may be investment opportunities outside the UK which deliver more acceptable risk profiles and/or improved returns on investment compared with those available in the UK.

3.A3: How much certainty would investors attribute to a carbon price support mechanism if it were delivered through the tax system?

Whilst carbon price support may be viewed as a positive mechanism aimed at encouraging investment in low-carbon generation, the fact that CPS levels will be subject to the budgetary cycle will dilute the capability of the mechanism to engender investor confidence. For large scale energy projects investors would typically consider investment dynamics over a period of decades, not shorter.

There may be an opportunity for Government to set the level of carbon price support (for example) for the life of a Parliament. Five years may prove insufficient for some investors to make capital commitments on the scale which appears to be required in the UK, but Government should seek to maximise the level of certainty for carbon price support.

3.A4: In addition to carbon price support, is further reform of the electricity market necessary to decarbonise the power sector in the UK?

While we do not participate directly in the UK power generation market, we understand and can see that there are liquidity issues. Restructuring the market to improve market liquidity seems to us to be the reform most urgently needed. Such reform is most likely means of encouraging new project developers (not necessarily one of the existing Big 6 players) to enter the market. A desire to decarbonise the power market may suggest the need for carbon price support at a certain level but there is also a need for confidence that planning, construction and operating risks are all manageable, along with guaranteed access to the market. An important question for any investor is that of market price risk, and this risk can be reduced where there is a predictable and stable regulatory regime and confidence in a long term liquid market.

Types of generator

4.C1: Do you agree that all types of electricity generators should be treated equally under the proposed changes? If not, please explain why.

Yes, all types of electricity generators should be treated equally under the proposed changes. It is our belief that effective public policy should avoid picking winners and losers. Policies which foster innovation and open competition on a level playing field, and provide a broad, reliable and unbiased market framework will best serve the broad interests of investors, business, suppliers, consumers, and local communities.

4.C2: Is there a case for providing additional or more preferential treatment for CHP? If so, what is the best way of achieving this?

In our view the current proposal will have the effect of discriminating against existing fossil fuel CHP plant and, perhaps more significantly, will introduce a disincentive and unquantified risks to new CHP investment – a proven energy and CO2 saving technology - within refinery and chemical plants in the UK.

ExxonMobil is committed to further improve environmental performance at our facilities in the UK and worldwide through increased energy efficiency efforts, reducing emissions including greenhouse gases. CHP is a good example of this commitment and we now have interests in more than 100 installations worldwide representing 4.9GW installed and a further 2GW in development. Since good quality CHP represents the optimal means of thermally derived power generation, we are disappointed and surprised to see firstly that the carbon price support mechanism seeks to remove existing exemptions for fossil fuel qualified CHP operations and secondly that the electricity market reform consultation contains no proposals to support growth of fossil fuel CHP capacity.

ExxonMobil owns and operates the UK's largest oil refinery at Fawley in Hampshire which includes a high quality integrated CHP unit that is registered under the widely recognised CHPQA scheme. Large scale industrial heat at refinery and chemical plants in the UK is extremely difficult to completely decarbonise and the best means of reducing the carbon footprint of these facilities is by installing good quality CHP.

The changes proposed to CCL mean that we will be subject to increased cost for operating our utilities plant due to their current CCL exemption. The proposal will increase operating costs associated with the production of steam, the primary product of CHP plants at refinery and chemical sites, and thus undermine the competitive position of these facilities in relation to international competitors. According to the Government's own assumptions we believe that the proposed changes may result in CHP operators such as ExxonMobil paying the Government for emissions savings.

We are sure that the intent of this package was not to disincentivise the use of CHP and we recommend that the Government addresses this issue as a matter of urgency to ensure that existing CHP plant does not receive unfair treatment. It had been our understanding that the UK Government was keen to promote broader development of CHP. To ensure a level playing field we would propose that the Government exempt good quality CHP from the carbon price support levy on fuel used to generate heat. This step would simply maintain the status quo for CHP although it would not improve the case for investment in new CHP. Such a mechanism would dovetail well with existing arrangements for CHP operators under the CCL and would therefore appear to sit well with the Government's simplification agenda.

In addition, care will need to be taken to ensure that any changes made to the CCL in introducing a carbon price floor are compliant with the requirements of Article 21(3) of the Taxation of Energy Products and Electricity Directive (2003/96/EC).

4.C3: Do you agree that tax relief should be considered for power stations with CCS? If so, what are the practical issues in designing a relief; what operational standards should a CCS plant meet in order to be eligible; and how might these issues differ for demonstration projects?

Tax should only be levied on the carbon emitted from commercial CCS plants. This would not seem to present any practical issues with design of the relief.

The commercial viability of CCS may remain uncertain well into the 2020s or even later. Poyry[1] have indicated that two phases of demonstration are likely to be required in the interim period. Substantial additional support is likely to be required to incentivise demonstrations.

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[1] POYRY ENERGY CONSULTING, Milestones for CCS deployment in the UK, October 2009

Carbon price support mechanism

4.E1: How should the carbon price support rates be set in order to increase certainty for investors, in particular over the medium and long term?

Any decision on the target level of support for the carbon price should not be taken until a decision has been made at EU level about whether or not to increase the EU target for GHG emission reductions from 20% below 1990 levels by 2020 to 30%. Clearly the level of support for the carbon price at an EU level will affect the impact of UK measures on UK competitiveness, and the Government should take this into account in setting the level of support provided at the UK level.

As a starting point Government should outline how carbon price support will be indexed and expand on the parameters and boundaries anticipated for the mechanism.

Extended periods between changes to carbon price support level, such as 5 years, will likely to provide greater encouragement to investment. Changes which are too frequent are likely to create uncertainty and discourage investment.

4.E2: Which mechanism, or alternative approach, would you most support and why?

Assessing policy options to reduce emissions requires an understanding of their likely effectiveness, scale and cost, as well as their implications for economic growth and quality of life around the world. While the final determination and timing of policy is a matter for governments, ExxonMobil is and will continue to be a constructive participant in discussions on these important matters.

When considering policy options to address emissions, policymakers should carefully assess which approach:

- better ensures a uniform and predictable cost of carbon across the economy;
- maximizes transparency to companies and consumers;
- reduces administrative complexity;
- better promotes global participation;
- is more easily adjusted to future developments in climate science and the economic impacts of climate policies.

In our view, a carbon tax is better able to accommodate these key criteria than alternatives such as cap and trade. Properly designed it is a more efficient means of reflecting the cost of carbon in all economic decisions and is therefore more transparent; more easily lends itself to global application; avoids the complexity of building a new market for carbon securities; can be implemented through the existing tax infrastructure; and may be better suited for setting a uniform standard to hold all nations accountable.

Importantly, a carbon tax should be made revenue neutral via tax offsets in other areas.

Combined with further advances in energy efficiency and new technologies spurred by market innovation, a well-designed carbon tax could play a significant role in addressing the challenge of rising emissions.

The creation of a carbon price support mechanism operating within the framework of the existing EU Emissions Trading System (EU ETS) may contribute to addressing some of the longstanding concerns over carbon price volatility and investment certainty. However, any broader discussion of EU ETS should include not only a carbon price floor but a carbon price ceiling.

Future price of carbon

4.F2: What is the most appropriate carbon price for the UK to meet its emissions reduction targets in the power generation sector? How would this be affected by changes in the structure of the electricity market?

We would prefer to see carbon prices that enable a reliable evolution (rather than revolution) in the low carbon sector that does not place any part of the sector under undue cost pressure (i.e. one that for example that allows infant supply chains time to react and to build expertise and capability to meet demand more efficiently).

It is important that a transparent methodology is developed so that price evolution is clear.

4.F3: When would be the most appropriate time for introducing a carbon price support mechanism and what would be the most appropriate level?

Government is proposing 2013 for introduction of the carbon price support mechanism; this would afford a sufficient lead time for businesses affected by it to make efficient and reliable preparations for its introduction and we welcome that. It may however make sense to delay the introduction of the UK carbon price support mechanism until 2014 or 2015 when a better assessment can be made of the recovery of energy demand in Europe and of the price volatility in Phase 3 of the EU-ETS market which commences in 2013.

A 2015 start would allow sufficient time for the EU to consider the relative merits of an EU wide carbon support price mechanism, consult and implement this. It would also enable any EU decision on the target level of support for the carbon price to be considered in deciding the appropriate level for the UK carbon price support mechanism.

See also answer to question 5B3.

Electricity investment

5.B3: How should carbon price support be structured to support investment in electricity generation whilst limiting impacts on the wholesale electricity price?

It would be important to legislate for CCS relief for all fuels at the same time as making other changes to the CCL legislation – even if implementation of the relief is the subject of clearance by the EU under State Aid rules. Locking relief in will provide greater certainty and potentially help spur the development of proven CCS technology – leaving legislation as a later bolt on would reduce certainty and raise questions about the level of government support for CCS, and impact on end consumer prices and industrial competitiveness.

Existing low-carbon generators

5.C1: Can you provide an assessment of the impact of the proposals on your generation portfolio and overall profitability?

ExxonMobil's key onshore operated generation facilities are the CHPQA approved CHP units at Fawley refinery in Hampshire and electricity generation capacity at Fife Ethylene Plant in Mossmorran which is routinely used to meet on site demand.

As expressed in our response to question 4C2, the current proposals will have the effect of discriminating against existing fossil fuel CHP plant as well as introducing a disincentive to new CHP investment within refinery and chemical plants in the UK. This would negatively impact competitiveness and profitability of these facilities.

5.C2: What would be the implications of supporting the carbon price for existing electricity generators and how should the Government take this into account?

The proposal will increase operating costs associated with the production of steam, the primary product of CHP plants at refinery and chemical sites, and thus undermine the competitive position of these facilities in relation to international competitors.

We anticipate that the carbon price support level will to flow directly into the electricity wholesale price thereby creating an advantage for existing low-carbon generators. It is extremely important that the Government takes this into account and ensures that the costs to the UK economy are minimised.

Electricity price impacts

5.D5: How might your company or sector be affected and would be there any impact on your profit margins?

Costs will be increased and profit margins will be reduced.

Measures such as carbon price support add to the burden of operating costs on energy intensive industries, such as refining and chemicals, located in the UK which are recognised as being vulnerable to carbon leakage under the EU ETS. An industry such as refining, whose products – for example transport fuels – compete in inland UK markets with products imported from overseas operators not subject to these costs, is placed in an increasingly difficult competitive position. The same is true for these same operators when goods produced in the UK are exported to overseas markets. In both scenarios the UK produced goods are competing with products whose manufacturers have not been subject to multilateral, overlapping measures many of which occupy broadly the same policy space.

Energy intensive UK industry does not have the opportunity to recover in the marketplace the cost of carbon price support (or other UK-derived measures). Attempting to recover the carbon price support costs would make these products uncompetitive both against imports entering the UK inland market and not subject to the cost of carbon price support, and also as exports. Operators therefore have no option but to absorb the cost of carbon price support within any margin, challenging the profitability of energy intensive business and threatening their long term survival in the UK. We would ask that a comprehensive analysis is undertaken of the cumulative cost burden on energy intensive industry in the UK and that the Government also examine the aggregate cost to consumers of carbon price support along with the electricity market reform proposals.

ExxonMobil
"NATURAL GAS PERSPECTIVES" On HM Treasury Carbon Price consultation

Background

ExxonMobil Gas Marketing Europe Limited ("EMGME") contributes around 25-30% of the physical gas first sold on the GB wholesale market. EMGME as part of ExxonMobil's global gas and power marketing organization sources its gas supplies in the UK and globally with deliveries to a number of UK entry points from pipelines and regasified LNG.

ExxonMobil has been an active participant in the UK market for two decades developing its gas marketing business over that time in a belief that the UK was amongst the most attractive locations in which to sell gas for two principal reasons:

(i) the support shown by successive Governments and independent economic energy regulators for the principles of a competitive energy market and;
(ii) the successful development and operation of a functioning liquid gas wholesale market.

ExxonMobil believes firmly that natural gas has a long term future as a destination fuel in Europe, including the UK, for a variety of reasons including the abundance[1] and diversity of global gas resource accessible by Europe and the significantly lower carbon content of natural gas relative to other fossil fuels. Whilst we believe that with increasing demand for energy there is room for competition between all sources of energy, ExxonMobil's experience is that where governments intervene directly to alter the balance of competitive forces in energy markets, there are often significant unintended or unforeseen negative consequences

In this section we address ExxonMobil's natural gas perspectives on the wider Electricity Market Reform (EMR) framework proposals to provide a context for our views on the Carbon Price Support element that is the subject of this consultation.

The Future for Gas in UK

Over the last few years Government has been grappling with the question of whether or not it could continue to fully support competitive energy markets when faced with the low carbon investment challenges arising from its own carbon emissions budgets and the separate EU renewables obligations it is under. The present Government's understandable desire to end this long period of uncertainty has led to the framework proposed in the recent EMR consultation, but we are concerned that the efforts to meet the GHG targets will produce unintended high costs to consumers and damage the functioning and liquidity of the wholesale energy markets, particularly the wholesale gas market.

The various proposals (Carbon Price Support, Feed In Tariffs, Capacity Payment Mechanism and Emission Performance Standard) together represent a significant potential threat to the long term attractiveness of UK as a place to market natural gas. Competitive forces unleashed by 'smart regulation' and Government initiatives of the past have made the UK wholesale gas market one of the most liquid and respected markets in the world. Whilst we do not participate directly in the power generation market, we can see that EMR (depending on the extent to which, or manner in which, each of the four interventions is implemented) will impact the gas market. We remain concerned that the descriptions of UK energy markets listed below could be the outcome of EMR implementation.

- energy regulation that becomes increasingly administrative and centralised, undermining existing market mechanisms and efficiency, with government in perpetual negotiation, with investors seeking ever more robust state guarantees, and with the price of "success" being one of rapidly escalating wholesale and consumer prices;

[1] IEA 2009 states 250 years at current production levels

- a power market where gas demand is increasingly intermittent and unpredictable (due the intermittent nature of power supplied by wind) adds new logistical complexity to the matching of UK energy supply and demand with the prospect of sharply higher costs in order to maintain reliable supplies of gas to end consumers, and an increased risk to security of supply;

- rising volatility in power prices as intermittent sources of power increase – the short notice and highly variable nature of wind power may be expected to translate into increased volatility of the balancing gas price causing a negative public and political reaction;

- the potential for legal challenge by existing generators adversely affected by new market rules that favour new generation and put existing generators at a competitive disadvantage;

- industrial demand for higher load factor gas is eroded as refining and manufacturing is forced to close under environmental cost burdens that are unique to UK;

- premature abandonment of gas network facilities as regulated network owners come under pressure to reduce costs in line with Government projections of lower gas demand based on stretch targets on energy efficiency and decarbonisation.

These potential market outcomes help to convey that the UK's power sector is going to remain integrated with the natural gas market in many ways over the coming years and energy policies should be exhaustively tested to ensure that in all key respects the UK gas market can continue to be a viable contributor to UK energy supplies. Government has more recently started to talk up the role of gas, and that is very encouraging. However, current gas policy remains uncertain, if not absent, and gas fuelled power investment seems only to be welcome when required to plug gaps as favoured investments are delayed.

So it is our hope that Government will:

(i) consider how it may positively encourage gas in its energy policies as a clean burning fuel that can make real and cost effective contributions to lower UK carbon emissions;
(ii) seek out the value preservation of a liquid functioning gas market and compare that with, for instance, any costs of delay in achievement of renewable goals;
(iii) show that it has considered, given the existence of a strong global market for natural gas, how gas supply can continue to be available to UK in the market circumstances characterised above, and if not what the implications of that might be for power consumers.

Evolution Better than Revolution

Any threat to the wholesale gas market and the potential implications for long term gas availability to the UK is only a potential threat as the EMR framework is not yet included in UK legislation, and will in any event only be included as a framework before detailed rules are developed. Setting of the levels of Carbon Price Support, Feed In Tariffs, Capacity Payment Mechanisms and Emissions Performance Standards could still be left to evolve at a pace and in a way that balances environmental objectives with:

(i) wider macro-economic conditions including the costs (direct and indirect) to domestic and business consumers, overall impacts on manufacturing, growth, jobs; and
(ii) the conditions necessary to ensure security of gas supply to the gas and power markets.

Stable, predictable (and transparent) energy legislation remains important for gas and power market stability and investors in those markets. Lower levels of intervention mean greater stability and less complexity; it is important for Government to consider whether similar

outcomes on low carbon investment could be achieved by relying just on the Carbon Price Support mechanism without additional intervention. Focussing change through this mechanism alone may also allow the phasing out of existing policy complexities such as the Renewables Obligation and Carbon Reduction Commitment. This simple transparent approach would allow all technologies to continue to compete on a level playing field, with some future certainty whilst diversity in the energy mix will come naturally through a power generator's need to balance commercial risk within its portfolio. Such an approach contrasts with the belt and braces approach proposed in the consultation that sees the simultaneous introduction of four levels of market intervention and which increases risk of future market failure.

We hope that Government can use this period of consultation to reflect on ways of achieving the diversity and carbon characteristics it seeks in the UK power sector with the minimum possible intervention.

Gas CCS Treatment in the Framework

The power market decarbonisation pathways articulated in DECC's 2050 Pathways and further detailed in the recent carbon budget proposals of the Climate Change Committee suggest that unabated natural gas use in power generation must end during the 2030s. As already mentioned, ExxonMobil believes all forms of energy will be needed in the future and the premature setting of targets now, which are reliant on technology that remains commercially unproven, represents a big risk to future security of energy supply. Gas has significant cost benefits, is efficient and has up to 60% lower emissions than coal when used for power generation. We believe that in a market allowed to function efficiently gas has a long term future as a destination fuel, not just as a bridging or flexibility fuel to address renewable intermittency.

Gas CCS is cheaper[2] than coal CCS under a range of scenarios, however the technology is not currently economic and it remains unclear what appetite exists to build demonstration plants. Investment in gas CCS will depend on establishing a level playing field for gas CCS compared to other low carbon schemes (not least because non price[3] challenges surrounding the success of CCS are yet to be addressed).

In the executive summary of the EMR consultation document Government notes the following two points:

"current arrangements need to be reformed to allow equal access to the electricity market for a wider range of technologies such as: "....new fossil fuel power stations equipped with carbon capture and storage (CCS) technology....".

"Ofgems' review into the liquidity of the electricity wholesale market is an essential complement to these reforms, to safeguard the competitiveness of the market, and the ability for new firms to enter and compete alongside incumbents".

Whilst these remarks suggest that the Government is willing to heavily tilt the playing field to pull forward investment in low carbon generation, it is at least looking to establish a basis for competition in this new and relevant market and we welcome that commitment.

HM Treasury notes in Section 4.31 of the Carbon Price Floor consultation document that:

"....there are good environmental grounds for introducing a partial relief from CCL for fossil fuels used in CCS plants to reflect the proportion of CO_2 abated and for making a commensurate adjustment to the amount of fuel duty that can be reclaimed on oil used in CCS plants"

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[2] Mott MacDonald, UK Electricity Generation Cost Update, June 2010

[3] Non price challenges include construction, planning, public acceptance, stable regulatory regime, long term liabilities for sequestered carbon.

We would support the proportionality principle proposed.

European Considerations

In Section 4.31 HM Treasury notes:

> "*Subject to State Aid approval by the European Commission, the Government proposes to legislate for such a partial relief* (for fossil fuels used in CC plant*) once the technology has been proven and is available commercially*".

Concluding a clear position with the EU on the State Aid rules is important – basing UK arguments on an objective of providing a competitive market for all low carbon sources (with carbon price support based on emitted carbon) increases the chances of a favourable outcome.

The implementation of the carbon price support mechanism is planned via the existing Climate Change Levy legislation. We agree with comments referenced at Section 2.11, that whatever changes to the CCL are made, these will need to comply with the Energy Products Directive[4].

The more significant issue concerning the EU will be whether or not the introduction of a carbon floor price for the electricity sector in UK (albeit through the existing CCL legislation) will distort the EU carbon and energy markets. Government legislation, presumably, will make implementation subject to resolving these various matters with the EU.

We address these natural gas perspectives in a little more detail through our answers to the consultation questions in the Appendix.

[4] Directive 2003/96/EC, Article 21(3).