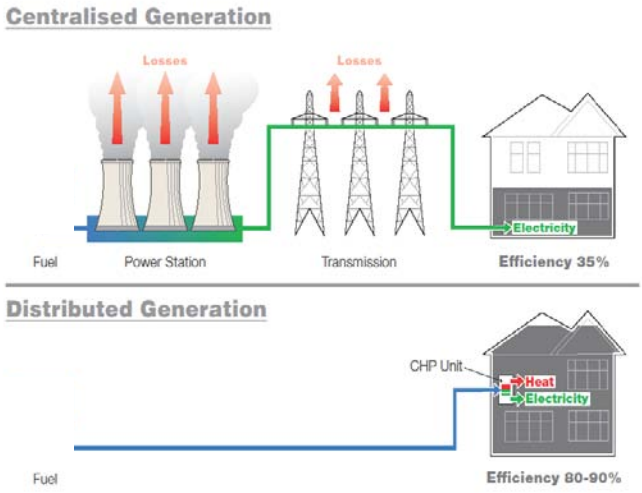
RESPONSE BY CALOR GAS LTD TO A CONSULTATION BY HMRC ON CARBON PRICE FLOOR - FEBRUARY 2011



Executive Summary

Calor believes that Combined Heat and Power (CHP) and micro-CHP (mCHP) enables hard-pressed rural communities, businesses and local authorities to have a reliable, low cost, low carbon and local supply of energy and associated heat. They will also significantly reduce the economic burden of trying to extend electrical heat to remote rural areas – a reduction which can be measured in hundreds of billions of pounds. This development will not happen if the Government proceeds with its intention to remove the CCL exemption from LPG-powered CHP and mCHP.

AS such HMRC should extend the current exemption for CHP from the CCL. This makes both economic and environmental sense.

The Government has an ambitious vision to decarbonise the UK's energy infrastructure and has expressed its belief that CHP and distributed generation could play an important role in achieving its vision. This has been reinforced by detailed and informed assessments from bodies such as the Climate Change Committee.

The ability for CHP to play this role will be completely undermined by HMRC's proposals to remove the existing exemptions from the Climate Change Levy (CCL). The current exemptions form an important element of any investment appraisal in to CHP by potential end users – industry, businesses, local authorities and district heating schemes. By levying the CCL on these sorts of projects HMRC will probably significantly reduce, if not destroy, the future viability of CHP in the UK.

This will have particularly severe consequences for Rural Britain. For over 75 years Calor has been supplying energy to those parts of the UK which have been difficult to reach with "conventional" energy such as natural gas. These same areas typically lack a robust and extensive electricity supply network – particularly in respect of 3 phase electricity. They also lack choice.

The current electricity market is still largely based around 6 vertically integrated utilities with a costly and complex regulatory overhead - with the consumer (B2C and B2B) as passive elements of this system. If the Government proceed with its EMR without a cost effective CHP sector customers will find it difficult to avoid dealing with one of the Big Six.

The Government wants to encourage localism as part of its Big Society agenda. CHP technology is the most direct way of empowering communities, businesses and individuals in terms of their energy supply. Customers need to be provided with choice, coupled with incentives and a freedom to act. However, taxing CHP via the CCL removes this choice and freedom in one fell swoop.

We would ask the Government to take another look at the treatment of CHP within the EMR, particularly in Rural Britain where the choice of energy options is already more restricted.

Who We Are

Calor Gas has been distributing LPG as a fuel for homes and businesses since 1935. It is mainly used as a fuel in rural areas; for urban areas natural gas would normally be the cheaper alternative. LPG is a low carbon emitting fuel available in rural areas, emitting 12% less CO_2 per kWh than oil, 34% less than anthracite and 58% less than electricity[1].

Climate Change and Calor's pledge

As the leading supplier of LPG in Britain Calor has a particularly strong role to play in helping to ensure that rural households and businesses minimises their contribution to climate change.

Calor wants rural property owners to have a strong voice in the energy efficiency debate and the opportunity to reduce their carbon emissions through cost effective energy solutions.

Calor fully supports the Government's efforts to tackle climate change, and is working proactively with politicians and local stakeholders to improve energy efficiency and lower carbon emissions in rural communities. Furthermore, Calor has pledged to assist households across Britain in tackling fuel poverty – a particularly acute issue in remote and rural areas of the country.

The nature of rural Britain

Population:

- Non mains gas Britain comprises approximately 2,000,000 properties and 4,600,000 people.
- This rural population contains around twice the percentage of retired people than the general population.
- The DCLG English House Condition Survey (updated Nov 2008) concluded that there are nearly three times as many households in fuel poverty in rural areas and that the numbers are increasing compared to urban areas.

Energy options for rural domestic buildings:

- The nature of the building stock, and the fuel options available in rural areas limit the range of low-carbon energy technologies that can be employed.
- Rural standing buildings tend to be older, often stone built with solid floors.
- The building of new properties in rural areas is relatively limited, therefore the reduction of carbon emissions is predominately about cutting carbon emissions from existing housing stock.
- Electrically-based low carbon energy options are limited by the high CO_2 emission levels and limited capacity of electricity in Britain. Much of the electricity in rural areas is only single phase, limiting the power available for electric powered heating systems such as heat pumps.

Rural Britain therefore needs efficient, affordable, cost effective low-carbon home energy systems based on a variety of solutions. In particular the quality of the electrical supply infrastructure to Rural Britain is not as comprehensive or robust as is available to most urban areas – especially in respect of the availability of 3 phase electricity and the grid in general.

DECC Minister's vision for local energy lifts level of ambition for CHP and district heating

Addressing Integrated Energy 2010, the Combined Heat and Power Association's annual conference on 25/11/10, Minister of State for Energy and Climate Change, Greg Barker MP, outlined a commitment to help unlock the potential of local, distributed energy, across the UK.

Greg Barker said: *"This Government wants to see distributed generation become the norm not the exception…That way we can literally bring power to the people, to communities, to local businesses."*

"We want market reform to create new opportunities to crowd in billions in new investment and an army of new players, participating in a dynamic new paradigm for the sector, just as we did with privatisation in the 1980s."

The Minister continued: *"We have to own this bold vision and have a clear strategy to deliver. Our vision of a decentralised energy economy must give confidence to the market."*

In response Graham Meeks, Director of sector trade association, CHPA, welcomed the vision and commitment outlined by Barker: *"This is not just a bold vision for the energy sector, but also a realistic and pragmatic one. It has the potential to unlock the enormous opportunity for CHP and district heating in homes, communities and industry across the country.*

"CHP is already turning many consumers into active stakeholders in the energy market – helping them to secure affordable, low-carbon energy supplies. But there is no question that the current electricity market has been more of a hindrance than a help, and we know that CHP and district heating have much more value to offer in the energy system of the future. "

"With electricity market reforms built upon Greg Barker's vision, we could be sharing an ambition with Government to double the capacity of CHP in the UK by the end of this decade."

"The Minister's vision places the industry at the heart of the Government's ambition for a Big Society and this is a very positive starting place. We look forward to working with the Government to turn the vision into reality."

CCC set out key role for CHP and district heating

The Climate Change Committee's (CCC), Fourth Carbon Budget report, published in December 2010 highlighted the significant role both district heating

and CHP can play in delivering a low-carbon energy system for the UK through the 2020s and beyond.

In presenting the report[2], Lord Turner cited district heating as one of the three key instruments for tackling emissions from buildings, alongside efficiency improvements and heat pumps. The report itself identified district heating as an option well suited for delivering low carbon heat in dense urban areas that heat pumps are unable to reach. The CCC give a 'cautious' estimate that 10% of future heat demand will be delivered through heat networks.

The report also confirmed 'near term opportunities for investment in conventional gas CHP as a cost effective means for reducing emissions'. Looking forward to the 2020s, when there will be increasing pressures to move away from fossil-fuels, the CCC claim 'cost-effective emissions reductions would be available from CHP using low carbon power generation', with estimated cost savings of over £200 for each tonne of CO2 saved by recovering heat from low-carbon generation plant. Investment would be needed in district heating infrastructure to bring this heat to market in industry and major centres of population, but even with this cost the combination of CHP and district heating would continue to deliver highly competitive cost savings estimated are £110 for each tonne of CO2 saved.

In response to findings of the report, Graham Meeks, Director of the Combined Heat and Power Association said: "In many situations opting for CHP and district heating is highly beneficial. CHP is one of the few low-carbon generation technologies that delivers not just the promise of cuts in CO2 tomorrow, but also guarantees savings today."

"The CCC recognise that natural gas will continue to be a feature of new generation investment in the period to 2020, and with CHP we have the capability to minimise the carbon emissions that this brings. With a raft of new gas power stations likely to be built over the coming decade, it is common sense to move forward with measures to encourage as much as possible to be developed as CHP."

"Innovative schemes are already being delivered across many parts of the UK. Looking beyond 2020, the experience of our European neighbours such as Sweden and Denmark also demonstrate the relevance of CHP and district heating in driving deep decarbonisation of the economy. This is an approach that

can also help deliver a more robust and flexible energy system overall, helping to balance a greater amount of intermittent renewable generation."

1. Table 12, Draft SAP, 2008

2. Climate Change Committee The Fourth Carbon Budget - Reducing emissions through the 2020s - 7 December 2010

11th February 2011

Carbon Capture and Storage Association Response to

HM Treasury Consultation *Carbon Floor Price: support and certainty for low-carbon investment December 2010*

The Carbon Capture and Storage Association welcomes this opportunity to respond to the HM Treasury Consultation on *Carbon Floor Price*.

The CCSA brings together a wide range of specialist companies across the spectrum of CCS technology, as well as a variety of support services to the energy sector. The Association exists to represent the interests of its members in promoting the business of Carbon Capture and Storage (CCS) and to assist policy developments in the UK and the EU towards a long term regulatory framework for CCS, as a means of abating carbon dioxide emissions.

In the context of this consultation the CCSA's focus is on low-carbon electricity generation using fossil fuels.

Introduction

This consultation is coincident with and complementary to a DECC consultation on Electricity Market Reform (EMR). The measures proposed cannot be viewed in isolation due to their interdependency and therefore it may be appropriate to begin with an overview of the CCSA position on the Government's proposals for EMR which will provide a context for the answers to the consultation questions. Consultation answers below also make reference to the combination and interaction with these other measures where it impacts on investment potential.

Feed in Tariffs (FITs) for low-carbon power: Low carbon-power is a higher value-added product than power generated with associated emissions and should command a premium price. In the longer term, almost all power will be expected to be generated as low-carbon in accordance with the recommendations of the Government's Climate Change Committee and the power market can be expected to be a low-carbon level playing field. In the meantime there will need to be supportive instruments to stimulate low-carbon technologies until they reach maturity. The CCSA supports the DECC

proposal to introduce FITs and regards this as the primary mechanism by which to stimulate low carbon investment although we will be drawing attention to its interaction with Carbon Floor Price.

Capacity Payments: Increasing penetration of inflexible as well as intermittent sources of low-carbon power in the generation mix will put an increasing emphasis on the need for flexible, low-carbon investment; a role that has traditionally been provided by fossil fuel generators. Operating at lower than full plant loading and unable to recover full revenue through the wholesale market or the additional FITs means that the business model for investors needs to be supplemented by a mechanism that rewards flexibility. Capacity payments, providing they are strictly related to availability, are a potential means of balancing the investment model and ensuring continuity of supply for consumers.

Carbon Floor Price: As a mechanism to stimulate investment in low carbon technology the EU ETS has not been at all successful and there is no guarantee that, in the future, it will fulfil that function. Market uncertainty has led to discounting of expected future allowance prices in business plans. A mechanism that brings certainty to the carbon price is therefore welcome in order to create efficiency in business planning leading to benefits in consumer pricing. However, the CCSA would like to point out that this measure will only indirectly stimulate low-carbon investment, by inhibiting high-carbon investment reflected in the wholesale electricity price. We would also like to express the opinion that any substantial variation from the EU ETS market would likely be unsustainable and would re-introduce uncertainty into the business model. Subject to this concern, the CCSA therefore regards the Carbon Floor Price mechanism as a welcome addition to the main low-carbon incentives in the EMR package of Feed-in Tariffs and Capacity Mechanism.

Emissions Performance Standards: It has been proposed to introduce an EPS on new plant construction. The CCSA is firmly of the view that, providing the measures above are put into place, any form of EPS is completely unnecessary and may bring unintended consequences. EPS will not provide an investment incentive; it will only be a disincentive to invest in higher carbon generation. Given the direction of policy in power generation in the UK and EU generators are not likely to commit large investment over long periods to high carbon generation.

Comments to the specific questions posed in the text of the consultation are on the following pages:

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?

Future carbon prices in the EU ETS will be dependent on international agreement and subsequent agreement on EU ETS cap. If there is none or there is a weak agreement and if there is no cap and trade elsewhere the resolve of EU to institute a tight cap is likely to weaken. Furthermore, recent history has shown that the price will also depend on the state of economy in EU as well as the relative prices of fuels. It will also be impacted by the success of other low carbon policies, e.g. renewable targets.

The basic structure if the EU ETS has always been "challenged". The provision of free EUAs to emitters coupled with the lack of long-term commitment to CO_2 markets (no long term price signals – i.e. 20years+) has resulted in an oversupplied and nervous investment community leading to underinvestment and low prices which do not capture/reflect the true marginal cost/value of CO_2.

In conclusion there is too much dependence on too many externalities to enable reliable prediction.

It should be an important factor for investment in low-carbon generation but price expectations are heavily discounted due to these factors.

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.

Yes, greater certainty over the long term price of carbon would increase confidence and therefore the likely investment in low-carbon electricity generation. Carbon price support, whilst not directly incentivising, low carbon investment, will contribute to a climate of improved investment confidence.

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. If the carbon price support mechanism was predetermined over an extended period then investors would attribute a high level of certainty and investment would be impacted accordingly (depending on how additional support mechanisms are introduced). However, taxation rates are always subject to uncertainty and change. What assurance will the Government be able to provide to investors that their long term investment will not be compromised by subsequent policy changes?

In practice, the level of the levy will likely need to be set in anticipation of the carbon price over the coming year at least and therefore leaves the investor open to short term market risk, a factor that would be costed into investment models.

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

It should be noted that the introduction of this tax will not stimulate low carbon investment directly; making conventional fossil generation more expensive is a way to give everything else a competitive advantage. It therefore does not directly incentivise low carbon generation. The primary incentive for low-carbon investment must come from a combination of FIT and capacity/availability payments included in the DECC EMR consultation.

The combination of EMR mechanisms should aim to take account of the particular issues that CCS plant will face particularly in relation to exposure to future fuel prices.

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 principle in relation to their Carbon Dioxide emissions. However, there may be a case for treating CCS demonstration projects in a different way. CCS demonstration, by its nature is quite different from a commercial operation and should be treated as such.

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 CCSA has no comment on preferential treatment for CHP except that 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?

Of course, tax relief should be granted for power stations with CCS since the goal of the CCL tax is to incentivise low carbon generation of power and CCS lowers carbon emissions. There needs to be no operational standards to be eligible for tax relief because relief can be abated according to the proportion of carbon actually emitted. This means that tax relief should be granted to all emitted carbon that is removed for storage and any residual plant emissions would still be subject to tax. This would be wholly consistent with the operation of the EU ETS for the installation and would only incur a small administrative penalty as the net emissions would be already accounted for.

Clearly, early demonstration plants would need to have more flexible treatment in anticipation of first-of-a kind operational issues, possibly resulting in lower emission abatement during the developmental period of this technology. The CCSA proposes that demonstration plants are granted full tax relief on the rated emissions capacity of the CCS plant over an agreed lifetime operating period of the project so that failure to achieve rated abatement during demonstration is not penalised.

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.

The CCSA is extremely concerned that the UK carbon price support rate is not allowed to increase substantially above the ETS market price of allowances. If it does so the CCSA believes eventually 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. With FITs being the leading incentivisation instrument the carbon price support mechanism should be designed to remain just ahead of the ETS allowance price. This would provide confidence in a smoothed price trajectory.

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

A rate escalator set years in advance will result in more carbon market exposure than annually adjusted rates. Rates set annually against a trajectory laid out in advance offers more certainty although there would remain short term carbon market risk.

Projects will have lifetimes considerably longer than the lifetime of a Parliament and therefore the CCSA is concerned that future governments may make material changes to the planned support price trajectory. This is a matter that will be incorporated into projects' risk profiles and thereby their costing.

Although rates should be set annually they will need to be set for each year four years in advance to ensure that the electricity market can factor in future carbon prices in forward sales. Revisions to the tax rates within a four-year window seriously disrupt market participants' ability to hedge carbon and power price risks efficiently, by making it difficult to lock in the total carbon cost (including tax) that will be reflected in power prices and by introducing additional and unnecessary uncertainty over likely output.

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 EU competetiveness, a future Government may be inclined to reduce the tax rate undermining the long term price signal.

The target price should reflect the best estimate of the ETS price in 2020 and in 2030 based on current ETS targets.

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 will be the FIT 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.

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

Carbon price support does not require introduction until new investment in low carbon technology requiring carbon price support comes forward. For CCS plant the first project is expected to be in 2015.

In accordance with 4.F2 the CPS should ideally be set at marginally above the prevailing ETS price and the trajectory should be linear towards the anticipated 2030 price.

Electricity investment

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

The primary mechanism for incentivising low-carbon investment will be the combination of the FIT and Carbon Price Support, although Carbon Price Support will have a marginal impact when compared to the FIT. It will have a much bigger impact on the operation of existing plants being inhibitory to the operation of higher carbon emitting generation plant such as unabated Coal fired plant and providing a benefit for existing low carbon generation.

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. The question that needs to be resolved is whether there are still good strategic reasons for the UK to maintain fuel diversity incorporating coal. If so, then these proposals run the risk of threatening UK energy security.

There is a risk that public money provided for the CCS demonstration programme will not be deemed good use of public funds if the policy regime after demonstration does not favour investment in the successfully demonstrated technologies.

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 only indirectly support investment in electricity generation by inhibiting investment in high-carbon emitting generation. Existing fossil /thermal power generation will pay the tax and will seek to recover costs through the wholesale electricity price. Existing low-carbon generators will receive a premium if a thermal plant will be setting the market (marginal) 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?

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 coal generators will be penalised by this measure. The Government needs to consider ways in which the tax could be progressively introduced on existing plant. Not to do so might risk early retirement of plant with consequential effects on supply diversity and security and potential lost opportunity to refit flexible fossil generation sites with low-carbon CCS.

Inevitably, this measure will feed through to increasing power prices. Existing renewable generators whose business model was predicated on wholesale price plus ROCs will receive a windfall. Similarly, existing nuclear generators will gain benefit from higher wholesale prices.

The most direct low-carbon support mechanism in the package will be the FIT and this should be the instrument that does the ‘heavy lifting’ for the benefit of the consumer.

It is impossible to consider the implications of carbon price support in isolation from the other EMR measures that will be introduced. For example, investment in new fossil capacity, especially coal, will be severely inhibited by introduction of the CCL on the excess emissions from demonstrators only partially equipped with carbon capture. There will need to be an assurance of some sort that the remainder of the plant can be retrofitted with a guaranteed level of FIT.

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?

The CCSA is a major UK resource in support of industry efforts to benefit from CCS business both at home and abroad. UK policies that positively support investment in CCS at home will also be enormously beneficial to the CCS business cluster as represented by the CCSA.

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

No comment

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

No comment

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

Taken together with the auction of EUAs this measure provides a predictable return of revenue to the public purse. The CCSA has long argued that such revenue should be ring-fenced to provide support for early stage demonstration CCS projects. This is a major opportunity to reinvest taxes accruing from fossil generation to enable that sector to quickly decarbonise. If the Government decides not to utilise the CCS Levy to incentivise demonstration and subsequent retrofit this policy provides the opportunity to support that investment with revenue accrued directly from fossil fuel power generation alone rather than from the whole power generation sector. Presentationally, it will be best for CCS demonstration projects, with their high level of first-of-a-kind costs to be funded from this revenue stream.

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. The CCSA believes that the modelling should test the impact at different price levels including zero as well as with or without EPS.

The views expressed in this paper cannot be taken to represent the views of all members of the CCSA. However, they do reflect a general consensus within the Association.

Response to the Electricity Market Reform and Carbon Price Support consultations

Summary

The CBI[1] has led the calls for electricity market reform in order to unlock the estimated £200 billion of private sector investment needed over the next 20 years to upgrade our energy infrastructure. Enabling this investment is a massive challenge but will enable the climate change targets to be met in a cost effective manner, will help secure energy supplies, is an opportunity to grow the manufacturing supply chain and thus support infrastructure investment as a route to economic growth.

Since July 2009, when the CBI published our major energy report *Decision Time: Driving the UK towards a sustainable energy future*[2], the CBI has consistently concluded that without reforms to the electricity market, energy security would be harder to achieve, our ability to meet climate change targets would be jeopardised and the UK could have some of the highest and most volatile electricity prices in Europe. We welcome the Government publishing Carbon Price Support and Electricity Market Reform consultations.

Recommendations

Based on our evaluation, **while there are positive elements about the carbon price support proposal, our members have serious reservations.** Policy changes should ideally be made at EU level but **if Carbon Price Support is introduced, it should start at a low level and build up towards the anticipated EU Emissions Trading Scheme price by the end of the decade**. **Carbon price support could only be accepted if industrial competitiveness and economics of Combined Head and Power and CCS are protected.** Our concerns would clearly be stronger if the higher carbon price support scenarios were implemented. Any Carbon Price Support should be set four years in advance on the basis of an agreed carbon price trajectory.

Both the Contract for Difference and Premium Feed-in Tariff proposals fare well against our criteria and could likely both work to encourage new investment and the details of the proposals should be further developed. It may be appropriate to have a different model for different types of technologies.

Enabling electricity system flexibility is a key risk for energy users in a future with a higher penetration of wind power, but **more work is needed to determine the best way to ensure sufficient capacity is in place.**

The proposal for an Emissions Performance Standard should be dropped as it is an unnecessary duplication of existing policy.

Evaluation criteria

In evaluating options for electricity market reform, the CBI is using the following criteria (a table summarising evaluation against these criteria is found on pages 14-18). Any changes to the existing market framework should build on the EU Emissions Trading Scheme and:

- **Remain market-oriented**
- **Remain technology neutral** (though support for key pre-commercial technologies may still be required)
- **Safeguard existing investments**
- **Be politically durable**
- **Minimise the cost impact on energy users**
- **Enable sufficient investment in low carbon power generation and supporting technologies** (although reforms might not need to 'go live' for some years)

[1] The CBI is the UK's leading business organisation, speaking for some 240,000 businesses that together employ around a third of the private sector workforce.

[2] http://climatechange.cbi.org.uk/reports/00283/

It is on the basis of our evaluation against these criteria that we recommend that:

#1 – The EU Emissions Trading Scheme (ETS) should be improved and setting a European post-2020 goal for power sector decarbonisation should be considered with appropriate changes made to EU ETS Phase 4.

#2 – Alongside an electricity decarbonisation roadmap, it is absolutely necessary to implement policies for maintaining the international competitiveness of energy intensive sectors. This should include maintaining the economics of Combined Heat and Power and CCS, using Climate Change Agreements to protect sectors 'most at risk' and clarifying how long-term contracts with users could be developed.

Low carbon Feed-in Tariff

#3 – The Contract for Difference (CfD) and Premium Feed-in Tariff could likely both work to encourage sufficient investment and should be further developed. It is essential that a liquid wholesale market is maintained. It may be appropriate to have different arrangements for different types of technologies.

#4 – If a CfD approach is adopted, lessons from Government procurement contracts, particularly in the defence and pharmaceutical areas, should be drawn upon. Officials involved in CfDs should have strong procurement and negotiation skills. Transparency in developing and negotiating CfDs is vital, while respecting commercial confidentiality.

Carbon Price Support

#5 – If a carbon floor mechanism is introduced it should start at a low level and build up towards the anticipated EU ETS price by the end of the decade. This will:

- **increase energy security**
- **maintain manufacturing competitiveness**
- **avoid unintended consequences for new and existing technologies like Combined Heat and Power and Carbon Capture and Storage**
- **avoid problems in the Irish electricity market**
- **avoid creating the perception of undermining the EU ETS.**

Capacity Mechanism

#6 – The case for a capacity mechanism is currently not uniformly accepted but enabling electricity system flexibility is a key risk on energy users for a generation mix with a higher penetration of wind power. A business-government 'task and finish' group should be formed to examine the case for a mechanism and develop other options to feed into the Government White paper. Policy options include:

- **reformed and sharper 'cash-out prices'**
- **actions to improve market liquidity and demand response**
- **a capacity supplier obligation**
- **potential flexibility mechanism**

#7 – System capacity and flexibility could be supported by developing demand response capability, creating policy certainty for bio-energy and waste to energy investments and re-examining the potential of innovative tidal power technologies for the 2020s.

Related aspects

#8 – Greater certainty is needed on the transition from the Renewables Obligation. The White Paper should provide clarity on how 'grandfathered support' is priced to avoid an investment hiatus.

#9 – It is essential that electricity policy changes are complemented by land use planning policy reforms and long-term energy efficiency policies.

#10 – The proposal for an Emissions Performance Standard should be dropped as it is an unnecessary duplication of existing policy. If an EPS is developed, it should only apply to new plants and avoid undermining energy security.

#1 – The EU ETS should be improved and setting a European post-2020 goal for power sector decarbonisation should be considered with appropriate changes made to EU ETS Phase 4

1. Part of the motivation for undertaking Electricity Market Reform is due to the currently low carbon price in the EU ETS and because the UK is aiming to deliver low carbon electricity investment at a faster pace. Reforms should ideally be made at a European level and thus CBI encourages Government to look at ways to improve the EU ETS[3]. In particular, recent events which have damaged confidence in the EU ETS (such as tax fraud and security breaches) need to be convincingly tackled.

2. The CBI's position paper on the EU 2020 emission targets states that at this stage raising the headline EU 2020 carbon reduction target is premature, without commensurate action from our competitors and without understanding the economic impact. The CBI has also stated that we need to move the policy debate beyond 2020, to establish a framework that delivers a clear long-term carbon price signal and supports low-carbon growth.

3. As part of Europe's "Roadmap for a low carbon economy by 2050", greater clarity is required about the long-term trajectory of carbon reductions. The EU could aim to set a post-2020 goal for power sector decarbonisation. A tightening of the EU ETS cap post-2020 in line with such a policy could then be envisaged to improve the certainty for investors. The Electricity Market Reforms would likely still be needed due to uncertainties regarding the future carbon and gas prices, due to the uncertainty about whether it is be possible to reach agreement on changes to the EU ETS either for Phase 3 or Phase 4 (post 2020).

#2 – Alongside an electricity decarbonisation roadmap, it is absolutely necessary to implement policies for maintaining the international competitiveness of energy intensive sectors. This should include maintaining the economics of Combined Heat and Power, using Climate Change Agreements to protect sectors 'most at risk' and clarifying how long-term contracts with energy users could be developed.

4. Just as the Electricity Market Reform is being undertaken to provide long-term certainty for power sector investment, manufacturing industry and other sectors of the economy also need longer-term investment certainty in a way that maintains competitiveness in the face of an unlevel global playing field. The competitiveness of energy intensive sectors must be maintained by addressing the cumulative energy policy impact on energy prices for sectors most at risk of carbon leakage.

5. A 'UK only' increase in electricity prices due to the Carbon Price Support would increase the risk that energy intensive manufacturing, business and investment will shift out of the UK to elsewhere in Europe. In addition there could be an increase in the risk of carbon leakage to other parts of the world, leading to loss of economic capacity and likely higher emissions. Carbon leakage risk may also relate to sectors such as data centres in addition to electricity intensive manufacturing industries. The contribution of these sectors to the economy and to UK tax revenues should be quantified as to the risk of carbon leakage on GDP and balance of payments if companies go out of business as a consequence.

[3] See also CBI. Dec 2009. *Trading Up: The future of emissions trading* http://climatechange.cbi.org.uk/uploaded/CBI_emissions_trading_Dec_09.pdf

6. Low carbon technologies require a vast array of components and raw materials that are energy intensive to produce. Examples of this are steel and cement used in all types of power stations and buildings; soda ash and other chemicals used in insulation, recyclable packaging and ingredients in cold laundry detergents; insulated glass; aluminium for light weight vehicles; insulating ceramics for factory furnaces; low rolling resistance tyres plus many others. These and other industries should be part of efforts to rebalance the economy but they continue to be at risk of carbon leakage. These sectors have continued to improve their energy efficiency and cut emissions but need the right framework for continuing to reduce emissions and maintain industrial production in the UK, rather than shifting investment overseas.

7. While free allocation of EU ETS allowances against benchmarks provides some protection from carbon leakage risk, free allocation does not address electricity price increases caused by the cost pass-through from auctioning 100% of allowances in the power sector or by other carbon and renewable incentives policies such as the Renewable Obligation and proposed Carbon Price Support and cost of the other Electricity Market Reform proposals. Some industries also have evidence that the ETS benchmarks have been defined quite ambitiously. According to the Annual Energy Statement, the EU ETS will only account for ~19% of the policy driven increase in an average medium-sized non-domestic user's electricity bill[4]. This assessment does not include the impact of the decision to convert the CRC into a tax or the Carbon Price Support and EMR proposals and does not reflect the situation faced by the largest energy users[5].

8. Business is also concerned about the limitations of statistics used in reports assessing carbon leakage risk as official statistics may have missing, incomplete or insufficiently detailed data. Much more effort is needed to improve the assessment of the Electricity Market Reform proposals and other climate policies on business competitiveness.

9. The Electricity Market Reform consultation also assumes a rapid increase in natural gas prices when there is increasing evidence (such as from the IEA) that gas prices may remain lower. While future gas supply is uncertain, the low gas price scenario shows that the cost on energy users would be higher. This could mean that the Carbon Price Support and Electricity Market Reform proposals will create even more policy driven increases in energy prices that companies' international competitors do not face.

10. While the Treasury's initial list of sectors most impacted by Carbon Price Support is a useful start, CBI members disagree that "*businesses are likely to pass on some of these costs to consumers and the effect on their profit margins might be smaller"* and that *"For those sectors where electricity costs are a significant proportion of total costs, all businesses in the sector have the same opportunities to reduce the impact of the proposal on their costs. The proposal should not therefore limit their ability to compete with each other."* Our members and the European Commission's

[4] Table E4 http://www.decc.gov.uk/assets/decc/What%20we%20do/UK%20energy%20supply/236-impacts-energy-climate-change-policies.pdf (not including energy bill impact from CCS or CCA policies or CRC; products policies are not included as there is an imperfect match with efficient products and the technologies used by the largest energy users).
[5] See in particular the Energy Intensive Users Group and Trade Union Congress report: http://www.eiug.org.uk/publics/WWA%20Impact%20of%20Climate%20Change%20Policies%20EIUG%20TUC%20201010723.pdf

research on carbon leakage has confirmed that many sectors are unable to pass on policy driven energy price cost increases due to the global market and international pricing in many energy intensive industries and that this would cause their profitability to decrease significantly.

11. Carbon Price Support represents a 4th price on carbon/energy paid by business on electricity use (EU ETS, Climate Change Levy, Carbon Reduction Commitment), in addition to the cost of the Renewables Obligation and micro-generation Feed-in Tariff being incorporated into electricity bills. All of these policies may lead to UK businesses paying the highest global price on carbon. This could negatively influence general investor views on UK as a place to invest and impede the economic recovery.

12. The Carbon Price Support proposal will increase UK electricity prices and when combined with a negative impact on the economics of CHP, is yet another factor reducing the international competitiveness of energy intensive sectors. While electricity prices do have to increase for investment in low carbon generation, the price increase needs to facilitate investment in a cost-effective way. Alongside any major policy proposal, Government should assess the energy price increases caused by the cumulative impact of energy policies. The Government's 'Energy Intensive Industries Initiative' should lead to policies that protect the competitiveness of energy intensive sectors most at risk of carbon leakage. CCAs and the derogation under the EU ETS Directive (State Aid) could be tools by which relief from the cumulative cost of energy policies is provided to those sectors most at risk of carbon leakage.

13. Another potential mechanism for protecting industrial competitiveness is consortia of energy users supporting low carbon generation investment with long term contracts. CBI's *Decision Time* report recommended that Government and Ofgem should publish a policy statement on the Competition Law implications of long term contracts and under what circumstances they would be permitted. As good quality CHP plants are a core component of many energy intensive processes, the economics of CHP should be maintained (see paragraph #28-30).

#3 – The Contract for Difference (CfD) and Premium Feed-in Tariff could both work to encourage sufficient investment and should be further developed while working to ensure a liquid wholesale market is maintained. It may be appropriate to have different arrangements for different types of technologies.

14. Both the CfD and Premium Feed-in Tariff appear to perform well against CBI's criteria (see page 18). Members have said that sufficient investment could likely be made under either the Premium or CfD. A CfD is likely to have a lower cost impact and could enable sufficient low carbon investment at a lower cost. However, a key concern is how market oriented the CfD proposal is and its impact on the wholesale market and this may make a Premium Feed-in Tariff preferable. The design of any low carbon Feed-in Tariff must ensure that a liquid wholesale market is maintained so as to ensure a robust reference price. It may be appropriate to have different arrangements for different types of technologies.

15. It may be suitable to use auctions to set some CfD Feed-in Tariffs where significant competition is likely. For 'first of a kind' power stations, CfD auctions would not be suitable and a negotiation is

likely appropriate. To ensure consumer value for money in CfDs, transparency in developing and negotiating CfD is vital, though relevant commercial confidentiality also needs to be respected.

#4 – If a Contract for Difference (CfD) approach is adopted, lessons from Government procurement contracts, particularly in the defence and pharmaceutical areas, should be drawn upon. Officials involved in CfDs should have strong procurement and negotiation skills. Transparency in developing and negotiating CfDs is vital, while respecting commercial confidentiality.

16. The creation of CfD Feed-in Tariffs has parallels with Government's public procurement contracts. A key difference is that the end product or investment for most government contracts is not part of a competitive market (for instance once a school is built, the school building is not in a competitive market). In comparison, a CfD Feed-in Tariff will support investment and construction of power stations that will then operate in the competitive electricity market for several decades. While differences do exist, lessons can and should be learned for CfDs from wider Government procurement contracts.

17. Government is currently working with the CBI and the defence industry body ADS to reform the rules that underpin contracts in the defence sector that are procured through single source procurement (the 'Yellow Book') due to confidential and National Security reasons. The review is aimed at reducing costs, increasing efficiency and simplifying the procurement process to allow more small and medium-sized enterprises to be involved. We expect the 'Yellow Book' review to examine parallels in the pharmaceutical industry which also have a significant number of single source procurement contracts. As the CfD Feed-in Tariff could include the CfD negotiation for 'first of a kind' power stations like retrofit to CCS demonstration projects, Round 3 offshore wind projects and nuclear, there are likely lessons to be learned in the 'Yellow Book' review as well as from the pharmaceutical industry.

18. The specific skills for achieving positive outcomes in public procurement also need attention. The National Audit Office[6] suggests that needs analysis, risk identification and management, market engagement and performance evaluation all need to be enhanced to prevent poor procurement from hampering value for money. Badly-run procurements increase bid costs and create delays in projects; this reduces competition over time by putting providers off bidding, which in turn reduces the value brought by competition.

19. Government could make better use of incentives to raise the performance of officials engaged on negotiating CfDs. Encouraging efficient decision-making over risk-aversion will save costs for low carbon power investors, government and energy users. A secondment programme between public and private sectors could be developed to increase commercial skills on both sides.

#5 – If a carbon floor mechanism is introduced it should start at a low level and build up towards the anticipated EU ETS price by the end of the decade. This will increase energy security and avoid undermining manufacturing competitiveness, investment in new and existing technologies and problems in the Irish electricity market.

[6] National Audit Office, 'Commercial skills for complex government projects,' Nov 2009

20. We agree with Government that a stronger carbon price signal could be generally positive for low carbon power stations post-2020. We also agree that other policies will also be required. Other policies are particularly needed as analysis in our *Decision Time*[7] report (see pages 22-23) demonstrated that uncertainty on gas prices has a much greater impact on the value of a nuclear power plant than uncertainty about the carbon price. Our report also demonstrated the risk that a large share of low marginal cost technologies in the electricity mix may drive low or negative electricity prices.

21. A stronger carbon price signal should ideally be set at a European level accounting for EU and global emission reduction goals. If a carbon floor mechanism is introduced it should start at a low level and build up towards the anticipated EU ETS price by the end of the decade. The price support rate should be set four years in advance on the basis of an agreed carbon price trajectory. The Government could seek cross-party support for Carbon Price Support. While this could provide a degree of investor certainty, there would be limitations, as one Parliament cannot bind future Parliaments on budget matters.

22. The Carbon Price Support (CPS) proposal would likely have the following investment decision impacts:
    - Companies may shift production and investment away from UK plants to other plants in Europe or outside of the EU, resulting in loss of jobs, higher emissions and lack of progress in rebalancing the UK economy and endangering economic growth
    - Plans for CHP facilities could be shelved
    - Companies may plan to convert existing CHP capacity to only generate power and to expand use of standard boilers to meet heat needs
    - Additional pressure would be put on the decision to invest in NO_X abatement on coal fired power stations, which could put pressure on security of supply
    - Plans for investment in electricity interconnectors could be accelerated, resulting in higher imports as domestic generation would have a higher cost burden
    - Existing fossil fueled plants may invest to improve their thermal efficiency
    - It may lead to increased investment in using biomass for electricity generation (depending on the details of how biomass would be supported and the ability to grandfather support levels through any RO or FIT support level review)

23. The proposal to start the CPS in 2013 creates additional energy security risks through additional pressure on the decision to invest in NO_X abatement on coal fired power stations. A third of the UK's power generation capacity is already set to close over the next 10 years due to plants reaching their end of life and EU air quality legislation (the Large Combustion Plant Directive – LCPD and Industrial Emissions Directive – IED). If a Carbon Price Support contributes to a decision to not invest in NO_X abatement, then plants will be forced to take the limited hours derogation which will severely limit operation and force closure around 2020. Some existing thermal power plants could receive investments to comply with the LCPD/IED and enable them to operate as standby, back-up and peaking stations that operate for a limited number of hours per year. Instead of having to rely

[7] http://climatechange.cbi.org.uk/reports/00283/

on capacity payments to bring forward new investment to provide back-up to the growing fleet of wind farms, existing power stations could be used to balance supply and demand at times when a large low pressure zone reduces the amount of wind generation at a time of high power demand. This would reduce the costs of renewable intermittency to the end user. If market signals of a capacity shortage were to emerge towards the end of this decade, it would not likely give sufficient lead time to support the decision to invest in NO_X abatement.

24. Some independent power generators without a supply business hedge have forward contracts (up to ~2016) for the sale of electricity. These companies would not be able to pass on the cost of a CPS that starts in 2013, putting further economic pressure for premature closure. The CPS also has the potential to introduce shifts in the economic value of forward power contracts as the CPS feeds through directly into marginal generation costs and prices. For example, introducing the CPS now for 2013 will increase the forward 2013 power price benefiting those who have already purchased, and disadvantaging those who have already sold, 2013 power. Contractual means to deal with the prospect of these shifts (for instance through change of law clauses) are insufficient to address these risks because the indirect means by which the CPS will influence power prices means that there will always be too widely divergent views (the buyer's and the seller's) on the precise impact of the change. Furthermore, the market will not be able to hedge uncertainty in the level of the CPS efficiently. HM Treasury is the only party that is "long" the tax (benefits when the tax rises), which forecloses an efficient "hedge" on future variability of the tax rate with the "short" generators who will have to pay it.

25. The prospect of retrospective shifts in the economic value of forward contracts in this way could undermine market confidence and liquidity in the entire UK wholesale market. Buy-sell spreads will likely increase to compensate for the increased risk and hence increase the cost of wholesale risk management to consumers. It is for this reason that we strongly recommend that tax rates are fixed four years ahead of time.

26. Combined cycle gas turbine plants, renewable electricity and other power plants currently under construction or in the planning permission process could well fill the gap of planned power station retirements through the 2010s. However no plant other than that under construction is obligated or guaranteed to be in place. These planned investments are being financed through the Renewables Obligation, the current EU ETS price carbon and low gas prices.

27. If the introduction of a tax (CPS) leads to UK electricity prices being significantly out of line with the rest of the EU there would be political pressure to reduce or remove tax and this creates additional uncertainty for investors.

Maintain the economic attractiveness of Combined Heat and Power (CHP)

28. Analysis by the Combined Heat and Power Association reveals that an unintended consequence of the carbon price support proposal would be the negative impact on the economics of CHP operation and investments. CHPA analysis has shown that the carbon price support proposal would reduce the internal rate of return (IRR) for a CHP unit by 0.8-6.2% depending on the scenario and size of the CHP unit. In comparison, separate electricity and heat production would receive an IRR

reduction of 0.5-3.3% depending on the scenario and size of the CHP unit. This shows that it would be more economic to not invest in CHP which would increase emissions.

29. A change to the carbon price support proposal is needed in order to maintain the status quo CHP investment attractiveness. Not doing so would likely freeze investment plans for new CHP and may cause current CHP operators to convert their CHP units to pure electricity generators and make increased use of boilers to meet hot water/steam needs. Many industrial facilities need high temperature heat that is best delivered through CHP and it is less efficient to revert to increased boiler usage. Many of our members have specifically invested in CHP to reduce their carbon footprint, and these sunk costs should not be retroactively affected by the carbon price support. Replacing CHP capacity with increased boiler usage would increase emissions, requiring more effort in other sectors in order to meet UK carbon reduction targets. Good quality CHP plants are a core component of energy intensive processes. Additionally, CBI is encouraging Government to develop a low-carbon heat strategy that includes encouragement to use surplus and waste industrial heat to support district heating (for instance in nearby residential areas)[8]. Negatively impacting CHP economics would make it even more difficult or even impossible to use surplus and waste heat as a way to decarbonise the UK's energy used for heating.

30. The Combined Heat and Power Association has suggested an administratively simple way that the CHP Quality Assurance program could be amended to provide an exemption from the carbon price support for the heat energy created by combusting fossil fuels. The CBI supports such an exemption being created in order to maintain the status quo economics of CHP. This would also be consistent with how heat is treated under Phase 3 of the EU ETS.

Do not undermine Carbon Capture and Storage (CCS) demonstration projects

31. As CCS facilities were given an exemption from the EU ETS as captured emissions are stored in geological formations, this should be reflected by providing relief from the carbon price support according to the amount of stored carbon emissions. As CCS plants use more fossil fuel to provide the energy to capture, compress and inject carbon into long-term storage, CCS plants could be further penalized by a carbon price support (even if an exemption for stored emissions is provided) compared to a power generator without CCS. If an exemption from the carbon price support is not received, then CCS demonstrations may require higher support from the proposed low carbon feed-in tariff.

***Avoid problems in the Irish Single Electricity Market*.**

32. Greater examination of the impact on Northern Ireland power generation and the Single Electricity Market (SEM) is required. If the Carbon Price Support is introduced, there is potentially a case for providing an exemption for generators in Northern Ireland. A carbon price support applied to fossil fuels used for power generation would reduce the competitiveness of thermal power plants in Northern Ireland. Northern Ireland thermal plants are part of the Single Electricity Market and are in direct competition with power plants in the Republic of Ireland. The introduction of the carbon price support would mean that Northern Ireland plants would be called upon to generate in the power pool less often, reducing their profitability.

[8] CBI. Sept 2010. *The heat is on: Delivering an integrated heat policy* http://climatechange.cbi.org.uk/reports/00423/

33. There is also a risk that Northern Ireland generators would not be permitted to include the carbon tax in their commercial offer bids into the Single Electricity Market. The Regulatory Authorities in Northern Ireland and the Republic of Ireland recently directed generators in the Republic of Ireland not to include a carbon levy in their bids into the market (the Electricity Regulation – Amendment - Carbon Revenue Levy Act 2010 claws back the value of free EUAs granted). Given this precedent, there is a risk they would similarly not permit the inclusion of the proposed carbon price support in generator bids. Failure to do so would result in Northern Ireland generators operating at a loss when they are the price setting plant/marginal plant in the SEM, or at lower margins when they are not the price setting/marginal plant. This would be both anti-competitive and unsustainable and in turn could lead to security of supply issues. It is also likely to skew investment decisions for new plant towards the Republic of Ireland. On the assumption that the carbon price support can be included in generator bids it will increase electricity prices for the whole of Ireland and therefore Irish consumers would indirectly pay some of the CPS, Irish consumers would indirectly pay some of the CPS. This could create some political tensions between Ireland and the UK.

#6 – The case for a capacity mechanism is currently not uniformly accepted but enabling electricity system flexibility is a key risk on energy users for a generation mix with a higher penetration of wind power. A business-government 'task and finish' group should be formed to examine the case for a mechanism and develop other options to feed into the Government White paper.

34. CBI's *Decision Time* report and analysis by Pöyry[9] have shown that a future electricity mix with a higher penetration of wind power would have much more volatile electricity prices and would require much higher levels of system flexibility to cope with periods of low wind power. Sufficient electricity capacity and flexibility is needed to reduce the risk of involuntary supply reductions ('unserved energy') and reduce the cost of excessive wholesale price volatility on energy users. The risks of not having sufficient generation capacity and flexibility are clear and plausible reasons and modelling can show why investment signals for sufficient capacity may not be strong enough. As well, the CPS proposal could negatively impact existing coal and gas power stations which could affect system capacity and flexibility (see paragraph #23).

35. However, the case for a capacity mechanism is currently not uniformly accepted by CBI members. This is due to concerns that:
    - a capacity mechanism would lead the market to become more administratively or centrally determined
    - a centrally targeted level of capacity risks under or over providing capacity, which either exposes energy users to unnecessary risk or creates unnecessary cost
    - a targeted capacity mechanism could be a 'slippery slope' and essentially become a market wide mechanism – though there is not agreement on the chance of this happening
    - a market wide capacity mechanism would arguably present greater risks of over or under provision of capacity
    - a poorly designed capacity mechanism risks distorting market decisions
    - a capacity mechanism undermines the role of the demand side at a time when suppliers are being asked to invest approximately £7bn in smart metering technology and there is increasing focus on interconnection, storage technologies and smart demand management

[9] Pöyry, 2009. 'Impact of variability, how wind energy could change the UK and Irish energy markets'.

36. For these reasons, we recommend a joint Government – business 'task and finish' group to jointly examine and develop proposals to feed into the electricity market White paper. The group should include diverse business representation and examine the costs and case for introducing a capacity mechanism at this stage as well as other options such as a reformed and sharper 'cash-out price', a capacity supplier obligation, a broader 'potential flexibility mechanism', and other actions to improve market liquidity, system flexibility and capacity. Ways to encourage the potential of demand side ('smart grid') solutions to capacity and flexibility should in particularly be examined.

37. One alternative to a market wide capacity mechanism is a supplier obligation. This would require suppliers to demonstrate they have sufficient physical generation (which could be via contracts) to meet their supply obligations. This would require a body to assess how suppliers are meeting their obligations and penalties for failure (e.g. a pseudo cost of new flexible capacity). The requirement to demonstrate a physical obligation may place a barrier to entry and favour vertical integration. The benefit however is that a supplier obligation would provide certainty and being a more market based approach would bring with it efficiencies.

38. Another option is a broader 'potential flexibility mechanism' that would be aimed at incentivising the provision of flexible capacity to the market with eligibility via an agreed set of flexibility criteria. Such a mechanism would broadly preserve the current role of the system operator in procuring reserve and response, and preserve the important role of the energy market in efficiently dispatching flexibility when it is required. The flexibility criteria would be technology neutral, and therefore open to demand-side capacity, storage technologies, as well as thermal and peaking plant but not technologies supported through the Feed-in Tariff mechanism.

39. The case for a capacity policy intervention at this time and different options should be examined by a joint Government – business 'task and finish' group to report into the electricity White paper.

#7 – System capacity and flexibility could be supported by developing demand response capability, creating policy certainty for bio-energy and waste to energy investments and re-examining the potential of innovative tidal power technologies for the 2020s.

40. Using waste and/or biomass to produce electricity provides important flexibility as such generation can respond quickly to help balance electricity supply and demand[10]. It has been shown with lifecycle assessments, that significant carbon savings are possible for a variety of types of biomass used for producing electricity. Energy from waste also potentially provides a stable, flexible and reliable base-load generation from a domestic fuel source which is also largely renewable. CBI's recent report on energy from waste[11] set out recommendations which could help energy from waste reach 6% of UK power generation by 2015.

41. The world's bio-resources are being put to an increasing number of energy end-users to help reduce carbon emissions and provide different types of energy and energy security that is most relevant to different countries and sectors. Bio-resources are also important raw materials for

[10] http://www.draxgroup.plc.uk/files/page/84635/Biomass___the_fourth_energy_source_FINAL.pdf

[11] CBI. Oct 2010. 'Going to waste: Making the case for energy from waste' *http://climatechange.cbi.org.uk/reports/00447/*

many different industries. With appropriate sustainability criteria, incentives for using bio-resources for different energy objectives can expand supply of bio-resources in an environmentally friendly manner as well as improving the technologies for converting biomass into energy[12]. In the UK, the Renewable Transport Fuel Obligation is encouraging investment in vehicle biofuel technologies, the Renewables Obligation is encouraging biomass electricity technologies, some companies are testing aviation biofuels, energy intensive industries are investing in biomass and waste to energy facilities[13], and the Renewable Heat Incentive will incentivise the use of renewable biomass for decarbonising our heat energy use.

42. An integrated bio-energy strategy needs to consider the pros and cons of all of these different energy end uses for our bio-resources as well as important uses of bio-resources as a business raw material. Within such a strategy, biomass use likely has a role to play in producing electricity to help balance supply and demand as well as in electro-intensive industries to support industrial competitiveness while reducing carbon emissions. Therefore, as DECC undertake a final 'banding review' of the Renewables Obligation and develops a low carbon feed-in tariff, policy certainty for bio-energy investments is needed.

Innovative tidal power

43. There is some evidence that Government may have been somewhat unduly pessimistic about the costs and post-2020 potential of innovative tidal technologies examined as part of the Severn Tidal Power Feasibility Study. Government concluded that "it does not see a strategic case to bring forward a tidal energy scheme in the Severn estuary at this time" and that the tidal bar and tidal fence Embryonic Technologies examined had "high risks and lower confidence levels on yields, costs and impacts" [14]. We do agree that these technologies require more work to improve their technical maturity. However, Government analysis underpinning the Severn Tidal Feasibility Study was perhaps too pessimistic in particular about the costs of the 'tidal bar' and did not account for its reduced environmental impact. As well, tidal power predictably and reliably produces electricity. This could reduce the challenge of sufficient power capacity and flexibility in the 2020s, and this should be further assessed. Appropriate levels of support for innovative tidal schemes are needed through the Renewables Obligation and new low carbon feed-in tariff in order to facilitate the development of these technologies.

#8 – Greater certainty is needed on the transition from the Renewables Obligation. The White Paper should provide clarity on how 'grandfathered support' is priced to avoid an investment hiatus.

44. The Electricity Market Reform consultation has a welcome focus on maintaining investor confidence during the transition to the new regime. As the Government has decided to end the Renewable Obligation (RO) in 2017 and as investors need to know how the 'grandfathered support' will actually operate after this point, providing certainty for how grandfathered support will be calculated should be a priority issue for the White Paper. Grandfathering provisions should include confirming the components of the RO scheme that investments are based against (including the indexed buyout price retained at current levels, the ROC multiples and the basis on which ROC values will be calculated). Clarity about the post-2017 framework needs to be provided on the

[12] IEA, 2009. 'Bioenergy – A sustainable and reliable energy source: Review of status and prospects

[13] CBI. Oct 2010. 'Going to waste: Making the case for energy from waste' *http://climatechange.cbi.org.uk/reports/00447/*

[14] http://www.decc.gov.uk/en/content/cms/what_we_do/uk_supply/energy_mix/renewable/severn_tidal_power/severn_tidal_power.aspx

same timescale as the current autumn banding review to ensure that a hiatus in project development is avoided.

45. Investors should be able to choose between the RO and the new scheme in the period from 2013 to 2017. This would allow projects currently being planned to go ahead under the RO, while some developers might want to develop experience of the new scheme.

#9 – It is essential that electricity policy changes are complemented by land use planning policy reforms and long-term energy efficiency policies.

46. A land use planning policy framework should enable timely planning permissions to be granted and policies that enable business to invest in energy saving technologies. For instance, the Localism Bill must maintain the right balance between significant local public consultation and timely decision making on planning applications. As well, a third party right of appeal must not be included in the Localism Bill, changes to the fast-track process for nationally significant infrastructure must be kept to a minimum and the duty to co-operate must be strong enough to ensure sub national, critical infrastructure is delivered where it is genuinely needed[15].

47. The need to reduce uncertainty to enable long-term investment is not confined to the power sector but extends to all aspects of business. In particular, policy uncertainty about Climate Change Agreements (CCA) and the Carbon Reduction Commitment continues. We encourage Government to press on with reforming these policies so that business can have the confidence to invest in long-term energy saving technologies. CCAs have been a very useful policy that has encouraged sectoral collaboration and reduced more emissions than originally anticipated. Government should clarify that CCAs will continue. CCAs could be the tool by which relief from the cumulative cost of energy policies is provided to sectors most at risk of carbon leakage. The revenue recycling of the Carbon Reduction Commitment should be returned (if public finances allow) or the scheme should be stopped and a simpler policy designed for promoting energy efficiency.

#10 – The proposal for an Emissions Performance Standard should be dropped as it is an unnecessary duplication of existing policy. If an EPS is developed, it should only apply to new plants and avoid undermining energy security.

48. It is clear that an Emissions Performance Standard (EPS) is an unnecessary duplication of existing policy which adds to investor uncertainty and creates no additional benefit. This is elaborated in CBI's evidence to the Energy and Climate Change Committee's inquiry into Emission Performance Standards[16]. If an EPS is put in place, it should only apply to new power stations and be grandfathered at consent. The EPS should avoid undermining energy security.

49. The EPS proposal, as framed in the consultation, could further deter investment in new high efficient gas CHP, unless emissions associated with heat production are removed from the EPS levels. Good Quality CHP (defined under EU legislation as upward of 75% electrical + heat efficient) could fail to meet even the higher proposed EPS level of 600g/kWh given its low electrical efficiency (between 16-30%, depending on heat load) relative to its overall efficiency. Unless heat associated emissions are stripped from the calculations, the EPS will serve to penalise larger heat loads, perversely incentivising new CHP plant to maximise its electrical efficiency potentially to the detriment of overall plant efficiency.

[15] http://www.publications.parliament.uk/pa/cm201011/cmpublic/localism/memo/loc29.htm

[16] http://www.publications.parliament.uk/pa/cm201011/cmselect/cmenergy/writev/523/eps28.htm

Criteria - Reforms should:	Evaluation	Criteria met?	Recommendation
Remain market oriented	**Carbon Price Support** • Creating an additional price on carbon emissions is a market oriented reform. • The Carbon Price Support would increase UK electricity prices and could cause electricity interconnectors to primarily flow into the UK rather than two-way. This creates a barrier to market coupling between Ireland and France and to growing a Regional Energy Market as a step towards EU energy market integration. • Could be seen as communicating lack of trust in EU ETS which could undermine market confidence and a harmonised EU approach to carbon reduction. • Proposal to levy Carbon Price Support on fossil fuel 'on delivery' creates difficulties for companies who buy natural gas for either onward sale to other companies, for customers' direct use, or in power generation. CPS may also affect decisions as to where coal supplies are stored.	Partially	CPS should start at a low level and build up towards the anticipated EU ETS price by 2020.
	Feed-in Tariff • CfD proposal could have the unintended consequence of forcing liquidity (particularly for intermittent generation) from the forward market to the spot market, as the CfD would have to be settled against the spot price. This creates a risk that there is not enough demand at particular points on the spot market and a significant amount of generation with a CfD would end up on the imbalance market. • Under the Premium FIT, generator would still participate in the balancing market and there would not be a direct impact on wholesale market liquidity.	CfD is somewhat less market oriented	Structure the CfD to match specific characteristics of the different technologies. Work to ensure that whatever FiT proposal is adopted, is as market oriented as possible.
	Capacity mechanism • Capacity mechanisms are used in other markets but a mechanism relies on an agency or regulator setting the target capacity level. This leads the market to become more administrative or centrally determined. • As the nature of the future generation mix is uncertain, the needed capacity is also uncertain. • A centrally determined target capacity level risks under or over providing capacity, which either exposes energy users to unnecessary risk or creates unnecessary cost.	Likely not	Create gov't-business 'task and finish' group to examine & develop capacity proposals for the White Paper.
Remain technology	**Carbon Price Support** • As the price support would be differentiated based on the carbon content of the fossil fuels, the price support would have higher impact on carbon intensive electricity production. All technologies would face the same carbon price	Yes	CPS should start at a low level and build up towards the

neutral	following the same principle as the EU ETS. • Existing low carbon generators would receive an unexpected increase in revenue.		anticipated EU ETS price by 2020.
	Feed-in Tariff • All low carbon technologies would be eligible for the CfD or Premium FiT. • CfD arrangements could be complex for smaller generators/investors.	Likely yes	Develop simplified approach for smaller scale technologies.
	Capacity mechanism • Targeted mechanism could be a 'slippery slope' and essentially become a market wide mechanism – though there is not agreement on the chance of this happening. • Incentives for supply side capacity could dampen interest in developing demand side solutions and interconnection.	Uncertain	Create gov't-business 'task and finish' group to examine & develop other proposals.
Safeguard existing investments	**Carbon Price Support** - The proposals create a series of unintended consequences: • Additional pressure could be put on the decision to invest in NOx abatement on coal plants, potentially impacting electricity supply security. • Combined Heat and Power capacity may be prematurely retired or might be converted to only generate electricity with increased utilisation of less efficient boilers. This would effectively increase emissions. • Thermal power plants in Northern Ireland would become less competitive than their competitors in the Republic of Ireland in the Single Electricity Market.	No	Adjust the CPS through key exemptions. CPS should start at a low level and build up towards the anticipated EU ETS price by 2020.
	Feed-in Tariff • As the policy is aimed at new investment, there would be negligible impact on existing investments. • Investment planned to come forward towards the planned end of the Renewables Obligation (2017) could be delayed without clarity on what "grandfathered support" actually means and as the FiT may only just be starting operation	Negligible impact	Provide clarity on how grandfathered RO support is priced.
	Capacity mechanism • Mechanism could be structured to reward existing generation capacity maintaining its availability (though this could reduce the incentive for demand side measures and new investment, though it may be more cost effective to utilise existing capacity as back-up plant rather than new investment). • If capacity revenue only focused on name-plate capacity or on energy delivery rather than its effectiveness in improving reliability and flexibility, there could be risks of distortions to decisions on power scheduling and consumption.	Potentially yes, but depends on mechanism details	Create gov't-business 'task and finish' group to examine & develop capacity proposals for the White Paper.
Be politically durable	**Carbon Price Support** • There are examples of politically durable taxes that have facilitated investment and which CBI supports: The steadily escalating Landfill Tax is encouraging waste reduction, recycling and waste to energy investments. • There are other examples of Government adjusting taxes in a way that changes previously published intentions. CBI is	Likely not	Focus on reform of the EU ETS and other electricity market reforms.

	opposed to arbitrary adjustment of taxes, which undermines investor certainty (such as changing the Carbon Reduction Commitment). • Due to concerns about the impact on existing investments and impact on energy users, there could be political pressure to adjust the CPS as the tax rate increases over time. • There could be negative perceptions of the additional revenue for existing low carbon generation and this could reduce support for the other proposed electricity market reforms.		CPS should start at a low level and build up towards the anticipated EU ETS price by 2020. Reform the EU ETS.
	Feed-in Tariff • A CfD is a contract, which would be a politically durable policy that gives investors certainty. • Premium FiT has similarities to a contract. Some EU countries have made retroactive decisions for FiTs, damaging investor confidence. • If there was a large difference between the CfD strike price and the wholesale price, then this could raise question about CfD durability, though this would only likely arise post-2020. • A Premium FiT could 'over-reward' new generation which could raise questions about its durability.	Likely that both CfD and Premium FiT could be politically durable.	Develop cross party support for the agreed reforms. Commit to avoiding retroactive changes.
	Capacity mechanism • Depends on the cost impact of the capacity mechanism compared to the actual improvement in security of supply and the overall cost of electricity.	Uncertain	Create gov't-business 'task and finish' group to examine & develop capacity proposals for the White Paper.
Minimise cost impact on energy users	**Carbon Price Support -** The carbon floor price proposal as currently drafted: • Increases the risk that energy intensive manufacturing, business and investment will shift out of the UK into Europe due to the higher electricity price. • Increases the risk of carbon leakage for energy intensive sectors shifting production and investment out of the UK to other parts of the world, leading to loss of economic capacity and likely higher emissions. • Assumes an optimistic rapid increase in natural gas prices when there is increasing evidence (such as from the IEA) that gas prices may remain lower. The low gas price scenario shows that the cost on energy users would be higher. • Represents a 4th price on carbon/energy paid by business on electricity use (EU Emissions Trading Scheme, Climate Change Levy, Carbon Reduction Commitment) in addition to the cost of the Renewables Obligation and micro-generation Feed-in Tariff being incorporated into electricity bills and may lead to UK businesses paying the highest global price on carbon. This could negatively influence general investor views on UK as a place to invest and impede the economic recovery.	No	CPS should start at a low level and build up towards the anticipated EU ETS price by 2020. Provide energy policy cost protection for sectors most at risk of carbon leakage to avoid off-shoring industry.

	Feed-in Tariff • Enabling low-carbon power investment ensures that decarbonisation of other sectors of the economy occurs on a time frame best suited to those sectors. Not enabling low-carbon power investment means that the UK carbon targets would be more expensive to achieve. • CfDs could reduce investment financing costs and this would reduce the cost of investment for users. • Premium FiT could 'over reward' new generation if wholesale prices are higher than expected which could increase costs for energy users (though this could be less likely to occur in a low gas price scenario).	Depends on details but CfD would likely have lower cost impacts	Further develop the CfD option. Provide energy policy cost protection for sectors most at risk of carbon leakage to avoid off-shoring industry.
	Capacity mechanism • Capacity mechanism could ensure sufficient flexibility and capacity to ensure security of supply and reduce the risk of spiking wholesale prices for energy users or involuntary supply reductions ('unserved energy') • Centrally determined capacity mechanism risks over investment in capacity or payments which would be an additional cost for energy users • DECC estimate market wide capacity mechanism has larger bill impact than targeted mechanism • Improvements to existing market will have costs but this would be less than the cost of introducing a capacity mechanism	Depends on details	Create gov't-business 'task and finish' group to examine & develop capacity proposals for the White Paper.
Enable sufficient low carbon investment and associated technologies	**Carbon Price Support** • By increasing the wholesale power price, a signal for investment is created. • The creation of a higher price on carbon would more accurately reflect the cost of investment in low carbon electricity and may encourage investment. • Higher UK electricity prices would also incentivise expansion and higher use of electricity interconnections, which would likely continually import power into the UK, potentially reducing the incentive to invest in UK power generation. • Un-captured emissions from CCS demonstrations would be subject to the tax, potentially undermining the economics of demonstration plants. • There is uncertainty about the need for the carbon tax as an additional policy to enable investment given the proposals for a Contract for Difference/Feed-in Tariff. • If the CPS is centrally set as the marginal cost of carbon reduction, it may correctly reflect the market driven marginal cost of carbon reduction and may lead to power prices that are needlessly high or not enough investment.	Potentially, but sufficient investment mostly depends on the other proposals for electricity market reform	Focus on reform of the EU ETS and developing the CfD FiT proposal.
	Feed-in Tariff • Stable, predictable returns are more likely under a contractual approach. • CfD arrangements could be complex for smaller generators/investors.	Likely yes, but depends on details	Further develop the CfD option. Develop a simple

	• CfD likely reduces the cost of investment ('hurdle rate') more than a premium FiT (though perhaps by not as much as DECC estimates). • There are questions about Government's ability to negotiate/auction CfD contracts given concerns expressed in CBI's work on procurement and public services • Premium FiT could potentially be seen as more of a 'subsidy' than the CfD.		mechanism for smaller scale technologies. Ensure CfD officials have strong procurement and negotiation skills. Learn lessons from Government procurement contracts.
	Capacity mechanism • Capacity mechanism could ensure sufficient flexibility and capacity is in place. • Capacity payments to supply side capacity may reduce the incentive to develop demand side 'smart grid' investments. • Member feedback from their experiences in other markets with capacity mechanisms suggest that the mechanism either delivers little new capacity (compared to ensuring existing capacity remains in place) or that the capacity mechanism causes market forces to reduce or stop delivery of investment.	Likely yes, but depends on details	Create gov't-business 'task and finish' group to examine & develop capacity proposals for the White Paper.

Summary of CBI's evaluation of Electricity Market Reform proposals

Criteria	Carbon Price Support	Contract for Difference Feed-in Tariff	Premium Feed-in Tariff	Capacity mechanism
Remain market oriented	Partially	Somewhat less market oriented	Somewhat more market oriented	Likely not
Remain technology neutral	Yes	Likely yes	Likely yes	Uncertain
Safeguard existing investments	No	Negligible impact	Negligible impact	Potentially yes, but depends on details
Be politically durable	Likely not	Likely yes	Likely yes	Uncertain
Minimise cost impact on energy users	No	Likely lower cost impacts compared to Premium FiT	Somewhat higher cost impacts compared to CfD	Depends on details
Enable sufficient low carbon investment and associated technologies	Potentially, but investment depends on the FiT proposals	Likely yes, but depends on details	Likely yes, but depends on details	Potentially yes, but depends on details

Via email to Mr Martin Shaw, Environmental Taxes HM Revenue and Customs
Environmentaltaxes.consultation@hmrc.gsi.gov.uk

CEMEX
CEMEX is a global building materials company that provides high-quality products and reliable service to customers and communities in more than 50 countries throughout the world

In the UK CEMEX employs 3,500 people nationwide. In additional to aggregates, cement and readymixed concrete, CEMEX UK also produces asphalt, and has a significant share of the roof tile, rail sleepers, concrete-block paving, and concrete-block segments.

CEMEX is the biggest Mexican investor in the UK with annual investments between £30 and £60 million. In the UK the company has a national supply network of 450 locations to ensure that quality building materials are available to customers locally. For more information, see www.CEMEX.co.uk or www.CEMEX.com

In the UK CEMEX consumes 0.01% of the country's electricity output, and 0.45% of all industrial use. Based on our substantial use, the impact of price increases is significant. For every £1 Megawatt Hour increase, the impact is £415,000 p.a.

CONSULTATION RESPONSE BY CEMEX UK TO HM TREASURY'S CONSULTATION ON CARBON PRICE SUPPORT
CEMEX sees it as a moral obligation to help bring about a low carbon economy, and we work closely with a range of different partners to deliver the UK Government's climate change agenda. Our vision is for a successful, sustainable CEMEX that makes a positive contribution to people and the environment. Conceptually, CEMEX is opposed to the proposed introduction of a carbon floor price support in the UK. While we understand the need to for investment in more sustainable power generation, this proposal is in effect a form of protectionism and gives an unfair advantage to generators by enabling them to pass on costs and lessen investment risk that other industries, such as ours cannot do.

CEMEX believes that the UK, through its participation of the EU Emissions Trading Scheme, already operates under a framework where the long-term price of carbon is set to increase through the progressive tightening of emissions allowances. Given that we operate in an industry with typically low profit margins, we are concerned that the added cost of the carbon support uplift, which is unlikely to be adopted beyond the UK, and which we calculate would increase electricity costs by 1-4% per annum over inflation by 2020, will make our UK operations uncompetitive compared to our European counterparts. Indeed, UK-based operators are faced with the prospect of a competitive disadvantage through paying for higher electricity prices for the next 15 years.

Furthermore, in what is a globally-consolidated cement industry, this rise in UK production costs increases the prospect of carbon leakage beyond the EU. *(Indeed, on this point, CEMEX has argued for a border adjustment mechanism to be established to ensure that non-EU based importers are subject to the same environmental demands that EU producers face, thereby creating a level playing field.)*

However, as a policy outlined in the Coalition's Programme for Government, we appreciate that the establishment of a carbon floor price is a clear priority for this Administration. In addition to this, CEMEX supports one of the fundamental objectives of the carbon price uplift – to ensure the UK's long-term energy security. We also believe that opportunities exist for the cement industry to help build low carbon energy generation infrastructure, such as offshore wind farms or new nuclear power stations.

Based on the Government's consultation, the carbon price support would be levied on the electricity generators when the EU ETS carbon price falls below a specified level. We appreciate the rationale behind this approach. However, we are clear that if the EU ETS price is at or above the objective level, and as such, the Government does not charge the electricity generators with uplift, the generators should not be allowed to pass added costs through to the consumer. The carbon price uplift should support a genuine floor price – a premium cost should not be applied when the EU ETS carbon price is at the specified level. Should this occur over time, the mechanism would take the form of a tax on electricity consumers and would not be operating as intended.

We would also suggest that, if a carbon floor price support mechanism is adopted, energy intensive industries, such as our cement business, is recognised as vulnerable to carbon leakage should therefore be protected from any cost pass through of the Climate Change Levy Carbon Price Support Rates.

CEMEX's cement business, which is vulnerable to carbon leakage, should also be provided with compensation for increased electricity prices. The UK Government should adopt the option given in the EU ETS directive Article 10a(6) that allows for increases in electricity prices due to EU ETS to be compensated.

In summary; while CEMEX UK appreciates the intent behind the proposal, as well as the Government's ambition for a carbon support price, we nonetheless oppose its introduction and favour instead market-based solutions.

Centrica response to HM Treasury's Consultation on "Carbon price floor: support and certainty for low-carbon investment",

Summary of our response

We support the introduction of a carbon floor as early as possible with the steepest trajectory i.e. scenario 3

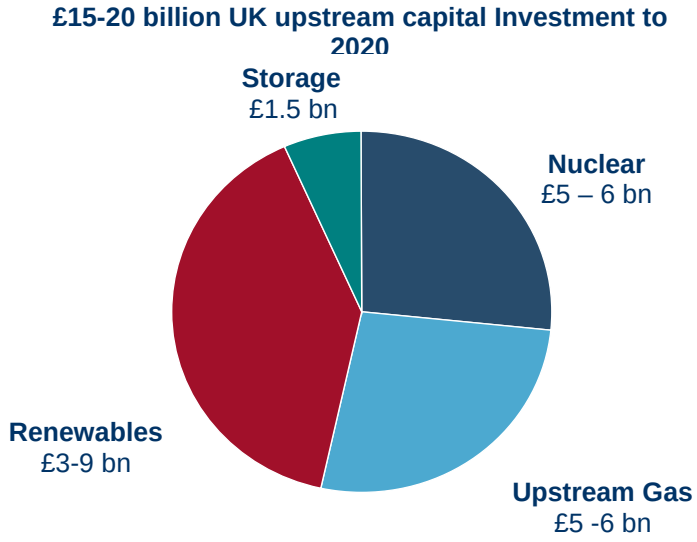
- We support the proposal outlined in the consultation for a Carbon Price Support (CPS) mechanism. It does have the potential to provide greater confidence in the long-term carbon price, and therefore to encourage low carbon investment, whilst also delivering carbon savings from the existing fleet.
- We support Scenario 3 in the consultation with a carbon price trajectory to £40/tCO_2 by 2020 and £70/tCO_2 by 2030. We believe this will deliver the most cost-effective carbon savings, give the clearest and strongest signal for new investment, and is consistent with broader public policy objectives such as polluter pays and better internalising the cost of carbon.
- We see CPS as complementary to other EMR proposals, adding to the investment signal and affecting incremental generation. We therefore agree with the Government's view that the CPS is a necessary but not sufficient component of broader electricity market reform.
- To lower administrative burdens, would recommend an exemption for microgeneration, for example any installation under 50kW

About Centrica

Centrica plc (Centrica) is the parent company of British Gas, the UK's largest energy supplier with around 16 million customer contacts in the domestic sector and around one million in the non-domestic sector. We also own upstream gas production and power generation assets to support our supply businesses. Specifically:

- We own 8 gas-fired power stations including Langage, one of Britain's newest and most efficient gas power stations;
- We are the largest UK supplier of offshore wind and recently won the rights to develop over 4GW of Round 3 offshore wind in the Irish sea;
- Through our Joint Venture with EDF Energy we own 20% of British Energy, the nuclear generator, and we also have the option to participate in the nuclear new build programme with EDF.

Our intention is to deliver significant capital investment over the next decade, with £15-£20 billion of potential projects in the pipeline (see diagram below).



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?

At the time of writing the forward curve of the EU ETS price at €15.5 in 2012, €16.5 in 2013 and at €17.3 in 2014.

When considering investment decisions in power generation we take a view of the future carbon price, based largely on the forward curve, and then build in our own internally calculated view. We then factor this into our wholesale price expectations. We will then take a view on the overall business case for the investment, compare it with other options for capital deployment (or non-deployment), and our Investment Sub-Committee and ultimately our Board will decide whether or not to proceed with the investment. It is therefore one of a range of factors, both external and internal to our company, that are taken into account when making investment decisions.

Within our carbon price expectations we do not factor in political calls by some member states to tighten the EU ETS cap to 30%. We have an internal, longer term carbon price forecast beyond 2020 for investment appraisal purposes, but recognise that the EU ETS regime is open to significant design uncertainties for this period.

As it currently stands, the EU ETS price, is a relatively small part of the forecast wholesale power price and well short of the long term value which society places on carbon abatement.

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.

Yes. A strong carbon price signal will help to encourage delivery of de-carbonisation in electricity generation.

Currently the only carbon price signal is delivered by the EU ETS, but this is intrinsically insufficient to deliver the low carbon investment the UK requires. The EU carbon price signal is weaker than that required for the UK's own carbon targets due to a less tight EU cap and a number of design features such as allowing international credits.

However, simply having a stronger spot carbon price alone would also be insufficient to deliver the required investment. This is because the EU ETS has historically been highly volatile due both to design issues (such as not allowing banking from Phase I to Phase II) and more structural issues (such as the impact of the recession). Low carbon investment tends to be capital intensive and very long term, and investors want to minimise and understand risks associated with that investment. They will therefore discount the impact of a short or even moderately sustained high EU ETS price delivered by the current market. A tighter EU cap may provide greater confidence in a sustained higher carbon price, but this is not yet the case and therefore is disregarded.

In addition, the EU ETS carbon price is only meaningful until 2020, since the EU ETS regime beyond then is insufficiently certain. Given the long life time of most low carbon assets, this further dilutes the impact of the carbon price signal. Furthermore, the EU ETS does not provide long dated forward price liquidity that would allow hedging for investors in low carbon generation.

Greater certainty in the future long-term carbon price target would address many of these issues and enable investors to factor it into investment decisions with greater confidence, such that it made a more material impact on the economics of those investments.

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

Any mechanism delivered through the tax system is subject to some degree political risk. Indeed *any* policy instrument introduced by Government is subject to some political risk.

Investors understand that successive Governments may take different views on a tax or tax rate, without the grandfathering principle that can apply to other policies. However, investors will take a view as to whether a policy is durable or not based on a range of factors. These include:

- whether there is cross-party consensus in support of the measure;
- whether the tax is consistent with the broader principles within the tax regime;
- whether there are significant, substantial and sudden impacts on the economy or a politically important section of the economy as a result of the measure, thereby increasing its political risk; and
- whether the Government needs the measure to support broader economic objectives e.g. raise revenue.

Considering the proposal in light of the above criteria, we believe that the carbon price support proposal does have the potential to be sufficiently robust and durable to make a meaningful impact on investment decisions.

The signals that Government sends out from now are important to whether this potential is realised. Demonstrating consistency by broadly adhering to the principles in the consultation, and maintaining momentum throughout implementation will be part of this. In addition, we believe the proposal to start the additional support to the carbon price at relatively low levels (£3/tCO_2), but then increasing on a linear trajectory towards the target level (£40t/CO_2) by 2020 will build confidence and avoid any risky step-changes in the price impact.

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. We agree with the Government's analysis that a carbon price support alone is insufficient to bring forward the full range of low-carbon technologies needed to meet the UK's highly demanding low-carbon agenda in an economically efficient manner. Nor will it support further investment in technology required to supplement intermittent wind power technology. We therefore welcome DECC's Electricity Market Reform consultation and are considering the options proposed within that.

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?

It is evident from the consultation document that the Government believes only a limited number of supply companies will be impacted by the proposed carbon price support mechanism. In actual fact, should the measures be implemented as proposed, the number of companies that will be required to register and account for CCL could be considerable as supplies by wholesale trading companies who supply relevant commodities to power stations will also be brought within scope. For most of these companies, the requirement to charge and account for CCL is currently not within their remit**.**

We believe that a more appropriate charging mechanism would be for generators of electricity to apply a self-supply charge in respect of the proposed tax, rather than requiring suppliers of fossil fuels to charge and account for the tax on supplies, especially as the supplier may not always be in a position to know at the point of delivery what those fuels will be used for.

These measures are likely to impact the Centrica group at three levels: upstream where the tax will be charged to our power stations on gas used as input fuel; midstream where relevant trading companies will be required to charge the tax (if the fuel is put to a relevant purpose); and downstream in respect of supplies of gas to combined heat and power plants/ other autogenerators.

1. Upstream

At an upstream level, contracts for input fuel purchases as well as output electricity generation will need to be reviewed and changes made (where possible) to allow for the CCL charge. Pricing will need to reflect the cost of the tax.

Supplies of gas to the power stations will need to be tracked to ensure all supplies are used for the purposes of power generation. With our own group structure and internal procurement channels, this should always be the case and should therefore not result in any change to current procedures.

2. Midstream

Our midstream operations are not geared up to charging and accounting for CCL, as there is currently no CCL chargeable on wholesale supplies of taxable commodities (as defined under CCL legislation). Provided the necessary evidence is in place regarding wholesale trade, it is currently of no consequence to the Seller if the gas traded is to be used for power generation or if it is to be traded on by the Buyer. It is important to note that at the point of entering into a trade, the Seller will not always be in a position to know to what purpose the commodity will be put. This is especially the case where trades are conducted with companies which may comprise both trading and generation arms (as opposed to the activities being carried out in separate companies).

Under the proposals, procedures will need to be in place which will enable our midstream operations to establish, at the point of entering into individual trades, what

the gas will be used for to ensure CCL is correctly charged and accounted for where applicable.

Currently, our wholesale trading systems are not configured to charge CCL. From an accounting perspective, these systems will need to be adapted to accommodate the charging of CCL. We understand as a supplier we are under no obligation to show CCL as a separate line item on invoices. However, as we will be a collector of the tax, it is important that we display the tax as a separate line on our invoices, none the least to support accounting entries and any necessary bad debt relief claims (should this arise). As a consequence, invoice lay out will need to be re-designed.

Intra-group accounting will also need to change. Currently we do not raise invoices for intra-group supplies of gas by our midstream operations to our power stations, as the companies are members of the same VAT group. As a result, there is no requirement for invoices to be raised. Under the proposals, in order to ensure there is a fully automated process for the charging and accounting of CCL, it will be necessary for the billing system to be adapted to recognise these supplies for CCL purposes, but to disregard them for VAT purposes.

3. Downstream

The billing systems operated by our downstream supply business (the utility) can accommodate the charging and accounting of CCL to business customers. Currently two rates are set up on the systems, one for gas and one for electricity (with respective discounts, exemptions and exclusions applied on an individual customer/site basis as applicable). The addition of a further CCL rate for input gas will require a change to the current systems' configuration. It is unlikely that this rate will be used for many customers billed off of the downstream billing systems, as it is expected that only supplies of gas used as an input fuel to Combined Heat and Power plants and autogenerators should be caught. However, it will be necessary for the business to be able to identify those customers affected, and for these customers to be correctly classified on the system to ensure the correct CCL rate is charged. We understand the onus in this regard will be on the customer to notify the supplier that any current full or partial exemption from CCL on gas supplies to their site will no longer be applicable, and that as the supplier we will only be required to cease applying a CCL exemption or reduction at the point we are notified by the customer.

At implementation, this additional CCL rate is likely to cause initial confusion amongst account managers. Current procedural guidance in respect of CCL will therefore need to be amended and additional training undertaken for all concerned.

It is unclear to us at this stage how the charging of the new rate of CCL will affect "Autogenerators", and if all commercial autogenerators (including businesses which have installed microgen technology) will be caught by the proposals. We would welcome further guidance in this area. To lower administrative burdens, would suggest an exemption for any installation under50kW.

It is also unclear to us how supplies of gas to production sites where the use is currently exempt from CCL will be impacted by the proposals. Should these supplies be chargeable with the new rate of CCL, as relating to the production/generation of electricity, or the existing rate for gas supplies for consumption?

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

Provided the introduction date for the carbon support price mechanism remains as 1 January 2013, we do not anticipate any particular systems' implementation issues.

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

As changes will be required to at least three different billing systems, our first estimates are of one off costs of a minimum £150,000, with on-going compliance costs of approximately a minimum of £10,000 per annum.

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. By equally we mean on a per unit carbon basis; paying per unit of carbon is consistent with the intent of reducing CO_2 emissions by increasing the cost of those emissions.

As highlighted in our response to 4.B1, we believe that microgenerators should be excluded from the CPS. This is because:

- It is impossible for domestic gas suppliers to identify which households are using gas for microgeneration as opposed to other purposes.
- Putting the obligation on the household or small business that owns the microgeneration is an additional regulatory burden and disincentive to take-up, at odds with broader Government policy encouraging microgeneration.
- Microgeneration receives subsidy through the Feed-in Tariff, so it would be at odds if the Government was simultaneously also increasing taxes that harmed the economics of microgeneration.

We therefore believe the autogenerators minimum threshold should be set to exclude microgeneration, and suggest that this should be at the 50kW level per premises.

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 plants emit CO_2 for electricity generation, then they should pay the same cost for those emissions as other power stations. Currently providers of many heat forms are not captured under similar carbon charging regimes, ie EU ETS, and whilst this situation persists, there may be good cause for ensuring CHP heat production is not disadvantaged.

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?

It would be consistent for CCS plants to only pay for actual CO_2 emissions i.e. total emissions net of CO_2 captured and stored. Any leakage during transportation or

storage should be added back into the actual emissions. The Monitoring, Reporting and Verifying processes being introduced for CCS in relation to the EU ETS should provide for a robust method of assessing the extent of sequestered, and therefore not emitted, carbon dioxide.

Imports and exports

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

The future pattern of electricity trade across interconnectors is likely to be driven by the relative level of wholesale market electricity prices in Great Britain and in those other countries (e.g. France, Netherlands, Ireland) with which the GB market is interconnected.

Much will therefore depend on whether and when the proposed carbon price support mechanism actually "bites", i.e. results in a GB wholesale electricity price which exceeds those prevailing in the neighbouring markets which (absent any similar policy intervention in those countries) can be expected to reflect the EU ETS carbon price.

To the extent that the proposed UK carbon price support mechanism does in fact "bite", it can be expected to raise the cost of non-abated thermal generation in the UK relative to that of comparable plant in neighbouring markets. The precise effect on wholesale electricity prices will then depend on which type of plant is operating "at the margin" in GB (e.g. coal, gas or, potentially, renewables at times of low demand and high wind in the future). If unabated thermal plant is on the margin, then the likely effect will be to make electricity exports less attractive and increase the incentive for imports. In that event, interconnectors will most probably be more heavily loaded in the import direction. However, it is unclear the extent to which the UK having a higher effective carbon price than France would have a material impact, given that there are already substantial import flows already.

As the consultation document (in paras 4.33 to 4.35) implies, the quantum of this effect will be limited by the fact that, even in a high case view, the combined capacity of all interconnectors in 2020 is unlikely to exceed around 10% of total UK generation capacity. When that capacity becomes constrained, GB wholesale electricity prices may remain above those in neighbouring markets even under a "market coupling" regime.

Overall therefore, the impact is likely to be modest and there are many others elements which determine wholesale power prices at either end of interconnectors.

Solutions to addressing concerns on the impact these proposals may have on significantly increasing levels of imported power, could include implementing some form of equivalent charging for carbon content of imported power, or adjustments to the charging regime for connection rights for interconnector capacity.

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

We do not see that the carbon price support proposals *per se* are likely to have a significant direct effect on electricity trading arrangements. However, within the wider Electricity Market Reform consultation, the choice between CfD and PFIT approaches to low carbon generation support may well be significant and we will cover that in our response to the parallel DECC consultation on this issue. As pointed out in our response to 4.B1 above, from a practical and administrative perspective, it will be necessary for reviews to be undertaken of trading agreements and of counterparty status to ensure the levy can be charged and is charged correctly.

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

We are not well placed to comment on this question since we are not involved in the "All-Island" power market. Following the logic of our response to question 4D1, the likely impact of these proposals will be to raise the cost of non-abated thermal generation in Northern Ireland somewhat, relative to that of similar plant in Ireland. The extent of the impact will be determined by the price gap between the UK cost of carbon and the EUA price, as well as the nature of the respective marginal plant.

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?

Ideally, the carbon price support rates should be set with reference to the traded EU ETS price over some period of time, bridging any gap between this traded price and the target carbon trajectory for that period. This would provide investors and operators with the certainty of future overall cost of emitting carbon.

To provide absolute certainty on achieving the targeted total carbon cost, the carbon price support rate would be best set retrospectively with reference to the outturn carbon price or with an element of reconciliation at the end of any period. However this is likely to be unworkable due to the budgetary and administrative complexities involved in setting tax rates in retrospect.

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

Given the difficulties involved in setting carbon price support rates retrospectively, we would support the option of setting the rate annually based on carbon market index derived from EUETS forward prices averaged over a specified period.

This option is most consistent with the objectives of the mechanism to provide long term certainty on the total level of carbon cost payable by emitters in the power generation sector.

Setting a rate escalator which only gives certainty on the level of additional carbon price support payable by generators would not provide the same certainty. In addition, the escalator is subject to greater political risk since any spike in the EUA price would result

in a higher than anticipated overall carbon price, impacting on the wholesale price and leading to political concerns.

In order to minimise the risk of gaming the reference traded carbon index and to allow for longer term hedging of both EU ETS and electricity, we would suggest the averaging period for determining the reference price from which the carbon support rate is determined should be derived from the average of EUA forward prices for a specific period averaged over an annual or biennial period.

There is a risk that following the setting of the carbon support rate the market price fluctuates due to unforeseen circumstances, however any sustained change will be reflected in the traded price for subsequent periods, thereby being taking into account when determining the reference price, and hence relevant carbon support rate, for future periods.

To test this model, we would recommend the Government examine how this model would have worked over the 2005-2010 period, which includes the 2008 fuel price spike. We would suggest ignoring the EUA collapse in 2008 as a non-repeating factor.

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

The existence of a carbon price support mechanism could impact upon generators hedging strategies depending on their risk appetite. Risk adverse generators would be likely to seek to hedge in line with the floor index arrangements such that they lock in a cost no higher than the target trajectory. However, more risk-taking generators might take opportunities during periods when they believe spot carbon prices are low to buy at prices that they believe will be lower than will be used in the index.

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?

Yes, the Government should target a certain carbon price for both 2020 & 2030 in order for the mechanism to be effective.

Setting out the long term target trajectory is an important element of the mechanism for providing certainty to operators and investors, and the more intermediate trajectory of 2020 is also valuable for certainty and indicating the anticipated path of travel.

Of the proposals outlined by HMT, we believe the high case (£40/t 2020 and £70/t 2030) provides the strongest signal for incentivising emission reductions in the generation sector and the clearest signal for low carbon investors.

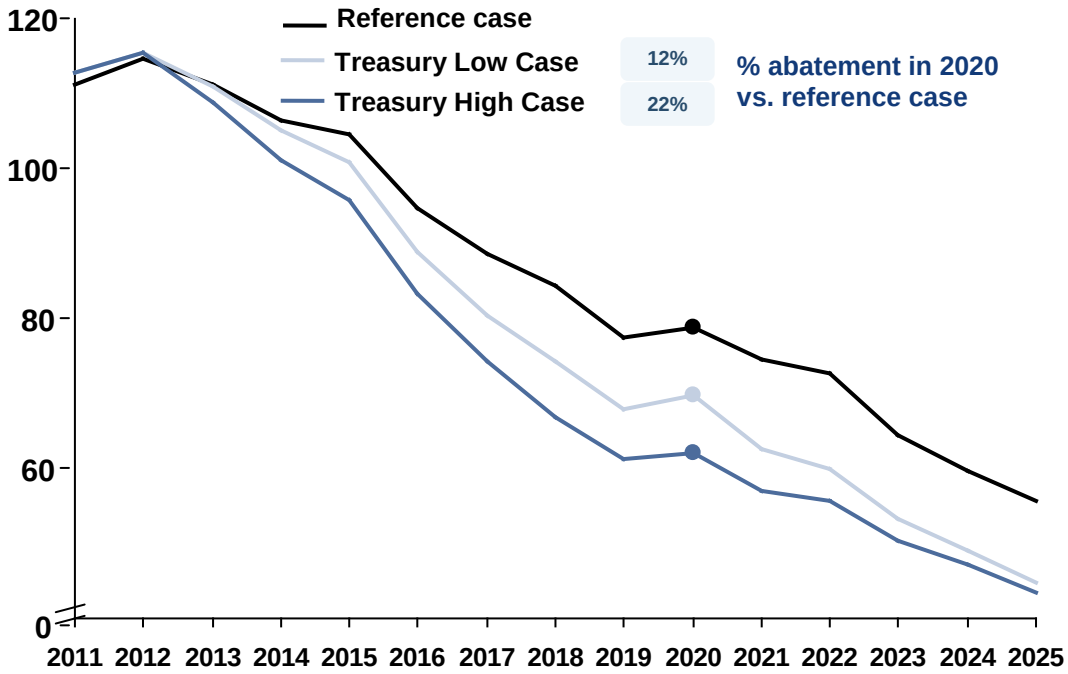
4.F2: What is the most appropriate carbon price for the UK to meet its emissions reduction targets in the power generation sector? How would this be affected by changes in the structure of the electricity market?

Of the proposals contained in the consultation we believe £40/tCO_2 is the most appropriate target carbon price in 2020.

We agree with the conclusion in the consultation that too high a carbon price would lead to significant additional power costs across the market, and be an inefficient way of encouraging low carbon generation if relying solely on this mechanism. However, any lower would dampen the strong and clear price signal resulting from the intervention, impacting on the economics of low carbon investment decisions and reducing carbon savings within the UK power sector.

Our analysis shows this level would have significant savings in UK emissions in the near and medium term as well as providing the strongest longer term signal. Under our analysis, higher carbon prices could reduce UK emissions by up to 22%pa by 2020 in the power sector from a coal-to-gas shift. As can be seen below, there is a marked difference between the Treasury low and high scenarios, particularly in the period up to 2020.

Estimated carbon emissions from the UK power sector for different scenarios, Mt CO_2



This carbon abatement is also highly cost-effective, relative to other abatement policies being pursued outside the traded sector. The reference case refers to our view of business as usual.

While we understand these emissions reductions do not directly contribute to the UK Carbon Budgets (since they are in the traded sector) they do have the potential to be converted into budget reductions. If the Government were to restrict free allocations (or not auction allowances) equivalent to the additional carbon saved in the previous year, then the Carbon Price Support mechanism could make a direct impact on meeting the

UK Carbon Budgets. Over the period 2013-2030 this would enable the UK to deliver more cost-effective emissions reductions than it otherwise would.

Carbon price support needs to be seen in the context of broader electricity market reform. We believe that while it is an important and strong step, it is on its own insufficient to deliver the scale of investment required to meet our carbon and energy security goals cost-effectively. Considering DECC's two proposed options for enhancing revenue for low carbon generation, we believe the carbon price floor would have an impact on both.

With the Premium Feed-in Tariff, an uplift in the carbon price would impact on the wholesale price, which would then be taken into account when determining the additional PFIT required to make low carbon investments economic. The higher the carbon price, the lower the PFIT required. Given that forthcoming wind investments are largely likely to continue within the RO, (a variant of a premium feed-in tariff) until 2017, the carbon price floor will act in this way for considerable amounts of low carbon investment. As such, it should be taken into account in the ROC rebanding review that is about to commence.

With the Contract for Difference Feed-in Tariff the impact is more subtle. While overall wholesale price risk exposure is likely to be minimised, there will still be incentives for existing and new plants to deliver efficient despatch. A carbon price support mechanism will encourage that despatch to also be lower carbon, ensuring lower emissions from the existing generation fleet. This impact alone is significant.

Conceptually too, the carbon price support means that the wholesale price better internalises the full costs of electricity generation, ie the externality associated with carbon emissions production. This also reduces the gap between the CfD strike price and the wholesale electricity price which reduces the quantum of payments flowing under the CfDs.

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 to build confidence in the carbon support mechanism, it will be important that it is seen to be implemented and having some effect, albeit small, in the near term. This would be seen as supportive for generators making investment decisions on new nuclear in the next few years.

We therefore support scenario three within the consultation, with the carbon price support starting at £3/tCO_2 on top of the prevailing EU ETS price in 2013.

We believe a linear trajectory towards the target level will then build confidence in the mechanism and ensure a sustained and increasing price 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 carbon price support mechanism would be expected to have a positive impact on low carbon investments.

Greater certainty in the future long-term carbon price would enable investors to factor it into investment decisions with greater confidence, such that it made a more material impact on the economics of those investments. Confidence and clarity about the carbon price going forward would make a tangible positive difference to the economics underlying investment decisions.

It would give investors greater confidence in the broader investment climate and in the Government's and cross-party support for decarbonisation. Currently the gap between Government targets for decarbonisation and the tangible economic signals to the market creates uncertainty about the political commitment. A clear carbon price support signal would help address that.

Given the carbon price floor will impact on existing market behaviour, such as encouraging greater coal to gas switching, it will inform our view of how new plants will operate within that market over time. It will also impact on investment decisions about which plant to invest in for refurbishment or life extension.

All of these factors underline the positive impact the carbon price support is likely to have on investment decisions in low carbon generation. While a carbon price is not sufficient on its own, it will be an important feature of the broader electricity market reforms.

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

As highlighted above, by enhancing the economics of all low carbon generation, a carbon price support mechanism is likely to impact on investment decisions about which plant to invest in for refurbishment or life extension.

We believe that any security of supply fears, for example relating to closure of coal generation capacity are likely to be overstated. Even at the highest target level, the carbon price support is reinforcing a signal that was expected within the EU ETS before the recession. It is therefore a correction in market signals rather than an entirely new one so should not lead to any fundamentally new market expectations/ dynamics.

Consistent with this, large amounts of coal closure is still likely to be driven by other environmental regulations (LCPD, and later IED), so the impact of carbon price support is likely to be marginal and impact timing more than scale.

This impact is further minimised with capacity margins being relatively high now and into the future as significant new CCGT capacity continues to come on line.

In addition, the EMR package as a whole (including a capacity mechanism), combined with existing market signals, should ensure that sufficient new low carbon investment continues to fill the gap created by the closure of old coal.

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

It is inherent in the nature of the instrument that a carbon price floor will impact upon the wholesale electricity price. Introducing the mechanism so that its impact is relatively low in its early years, with an increasing and linear trajectory over time will help to smooth the effects on the market. This will avoid one-off instabilities in the market, and smooth the effect for operators of existing generation.

A reasonably linear trajectory would build investor confidence in the mechanism and Government's commitment to the policy. A sharp step change at any point, for example to coincide with a certain amount of new low carbon capacity coming on line would carry with it significant political risk, discounting the impact of any mechanism at point of investment decision.

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 believe that when the carbon price support reaches material levels, it is likely to have a modest improvement to the economics of a fair proportion of our existing generation portfolio.

Centrica's generation portfolio has the second lowest carbon intensity of the six major generators. The composition of our generation mix is in part the result of a deliberate strategy by Centrica to pursue opportunities in the low carbon economy. In 2010, the average carbon intensity of our UK power generation was 275g CO_2/kWh, a significant reduction on 2009 which was 371g CO_2/kWh. The reduction was primarily due to the introduction of nuclear power into our portfolio. We have set a target to reduce the average carbon intensity of our UK power generation to 270g CO_2/kWh by 2012 and we have also set a target for a further reduction of the average carbon intensity of our UK power generation to 260g CO_2/kWh by 2020.

We are pursing this strategy as part of our broader commitment to corporate responsibility and tackling the challenges of climate change, and because we believe it is in the longer-term a more sustainable business model than investing in high carbon options. We took this view because we felt the weight of political momentum was more behind a polluter pays principle of tackling high carbon than not. We support policies which translate this political momentum into reality, and would anticipate some modest economic benefit as a result of the strategy we have pursued.

We do have an existing coal position, and are significant upstream gas developers so would be adversely impacted to some extent by these proposals. However, we believe that as a principle it is the right policy to pursue, and consistent with broader public objectives

Primarily however, we believe that the Carbon Price Support mechanism will enhance the economics of new low carbon investment decisions, resulting in more confidence in low carbon investment decisions and a further reduction in the carbon intensity of our portfolio.

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?

In basic terms, the carbon support price would have the desired implications on existing generators, with a modest shift towards lower carbon fossil fuels and greater incentives to maintain and upgrade lower carbon generation. Clearly other commodity prices will also impact on whether coal or gas is at the margin, and on the overall wholesale power price.

As was seen during the periods when the EU ETS price was in €20-€30tCO_2 range in 2005/06 and 2008, this did not result in any destabilising effects on existing generators, but simply sent a price signal through to the market making some plant more economic than others.

As mentioned in our answer to 5.B2, we believe that any security of supply fears, for example relating to closure of coal generation capacity are likely to be overstated.

Inevitably the policy intervention will have different impacts on different companies, plants and portfolios, as is the case with any intervention. However, it is best seen as reinforcing a broader principle of polluter pays, and properly internalising the cost of carbon rather than being inconsistent with the thrust of Government policy and intended price signals.

It should be noted that those most adversely impacted by the propsals are also those who benefited most from free EU allowances under the current and previous phases of ETS.

Electricity price impacts

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

Centrica seeks to manage wholesale electricity price fluctuations in two senses – as a generator and as a retail supplier. In respect of our gas-fired generation portfolio, Centrica Energy seeks to lock in clean spark spreads when it is attractive to do so by buying gas forward on the NBP market, buying carbon and selling electricity (normally OTC, as this is also continuously traded).

When British Gas sells electricity to retail customers, it normally does so on prices which are fixed until such point as notice is given to amend the level of its tariffs. Acting via Centrica Energy in terms of deal execution, British Gas seeks to buy market electricity at fixed prices as/when it considers it appropriate in order to hedge its exposure to wholesale power price volatility.

A significant minority of British Gas customers are on multi-annual fixed or capped pricing contracts and in this case British Gas seeks to enter into hedging arrangements at the time such contracts are entered into.

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

The primary impact of the proposed arrangements will be to support the case for further investment in low carbon generation (whether nuclear or renewable). However, it will not by itself be sufficient to warrant new nuclear investment and needs to be seen alongside other forms of EMR support for low carbon investment.

As regards our gas-fired power generation fleet, we would expect the level of support (as and when the carbon price mechanism actually "bites") to be broadly reflected in higher wholesale power prices and thus to have relatively little effect on clean spark spreads and generating margins when gas is at the margin and a beneficial impact when coal is at the margin.

As for the British Gas' retail business, we expect that the proposed basis for implementation (starting in 2013 and rising gradually thereafter) should normally give us sufficient time to adjust retail prices for any resulting increase in wholesale GB electricity price levels, to the extent that competitive conditions in the retail energy market allow us to do so.

There is one further potential impact of the proposals which we can foresee. One of our remaining long term legacy gas procurement contracts includes, in the gas price indexation arrangements, a published UK electricity price index. To the extent that this index is impacted by the carbon price support mechanism, it is thus likely to feed through into a higher cost of gas procured from this source.

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

The answer to this question is not clear-cut. As explained above, the first question is the extent to which the proposed carbon price support actually "bites" and the second is what the impact will be on GB wholesale power prices at any given time, depending on which generating plants are operating "on the margin".

Broadly speaking, we would expect all or most of any increase in wholesale electricity power prices to feed through into retail prices, over time, but this is by no means smooth or automatic and it will depend on the dynamics of retail energy market competition.

In the longer term, we expect that the carbon intensity of the marginal generator will fall and this should help to mitigate the impact of the carbon price mechanism on consumers' bills.

We understand there may be some concern from energy intensive industries exposed to international competition with the introduction of a carbon price support mechanism which results in higher electricity prices. Introduction of such a mechanism needs to be seen as just one of a number of tax levers the UK government holds. As such, the Government has the option to introduce limited recompense measures similar to those envisaged to address carbon leakage concerns under phase III of EU ETS should the effect on any particular industry or sector be deemed to be significant. The proposals also need to be viewed in conjunction with other taxation measures being introduced, eg the proposed reduction in corporation tax.

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

As mentioned above, we would over time expect retail electricity suppliers to pass on all or most of any increase in wholesale electricity prices to their customers. However, wholesale prices are constantly changing whilst retail prices are adjusted only periodically, so the answer to this question needs to be considered over a reasonable period of time. In addition, prices are set competitively in the market, not on a cost-plus basis, so any pass through would be subject to those competitive market dynamics.

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

The principal expected effects of the proposals have already been set out in answer to previous questions. We would not expect any fundamental impact on profit margins, but there could in practice be some effects at various points in time via the dynamics of the competitive market, the rate/extent of wholesale cost pass-through and the mentioned indirect impact on one of our legacy gas purchase contracts.

To the extent that we invest significant sums in response to this and other support mechanisms for low carbon generation – which is of course the primary intention behind the package of EMR proposals – then we would in time expect to see an increase in the total profits made by Centrica and other low carbon investors.

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 believe the analysis looks thorough and reasonable. We support the use of the same model and analysis as was carried out by DECC for other elements of the EMR package. These two are intrinsically linked. There will always be differing views from stakeholders about model input assumptions such as commodity cost forecasts, but we believe the priority is to ensure consistency and then focus on observing the impact of viable factors such as policy interventions.

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11/02/11

Dear Mr Shaw,

I am writing to respond to the 'Carbon Price Floor' consultation by HM Treasury and HM Revenues and Customs.

It is my understanding that none of the proposals within the consultation would directly impact micro Combined Heat and Power (micro-CHP)[1]. Assuming this is the case then I have no comments on the consultation except that the treatment of micro-CHP needs to be made explicit.

The consultation document is not categorical about whether or not micro-CHP would be included in changes to the Climate Change Levy (CCL) and the fuel duty described in the 'Lead Proposal' ('Option 1'). This uncertainty is potentially damaging for the micro-CHP industry, its partners and investors.

On January 6th we contacted Michael Stansfield of the Environment and Transport Tax team by e-mail asking for clarification on this issue and we were reassured by his response on the 10th that "It was our intention that micro CHP would not be affected and micro CHP considered as small with amounts less that 2KW is a sensible cut off point".

It would be very helpful for the micro-CHP industry if this intention could be made unambiguously in the government's response to this consultation.

[redacted]

[1] For consistency with the definitions DECC use for their Feed in Tariffs (FITs), micro-CHP could be defined a products with a maximum output no greater than 2kW electrical. This definition of micro-CHP is not dependent on where they are installed, but products with this power output will tend to be installed in domestic homes and in commercial premises with similar electrical and heat demands. For further details see:
'Feed-in Tariffs - Government's Response to the Summer 2009 Consultation', DECC, February 2010
http://www.decc.gov.uk/publications/basket.aspx?FilePath=Consultations%5cRenewable+Electricity+Financial+Incentives%5c1_20100204120204_e_%40%40_FITsconsultationresponseandGovdecisions.pdf&filetype=4

Chartered Institute of Taxation
Excellence in Taxation

Carbon price floor: support and certainty for low-carbon investment
HMT / HMRC consultation
Response by the Chartered Institute of Taxation

1 Introduction

1.1 The Environmental Taxes Working Group of the Chartered Institute of Taxation is pleased to be able to comment on the consultation entitled "Carbon price floor: support and certainty for low-carbon investment".

1.2 We note that the consultation is not seeking views on alternative options to the carbon price support mechanism (CPSM) but on the way it is to be introduced.

1.3 Many of the questions posed are industry specific and accordingly this response concentrates on the tax issues raised by the proposals.

1.4 It is noted that the June 2010 budget advised that the consultation on reform of Climate Change Levy (CCL) would be published in the autumn. Whilst clearly the matter is complex it is unfortunate that the consultation was not released until just before the Christmas/New Year break which effectively reduced the time available for consideration and response.

1.5 The CPSM is linked into three other measures reforming the energy market designed to create an overall package of reform. It is noted that consultation on these other proposals is not due to conclude until next month. At this stage we do not propose to comment specifically on these measures.

1.6 We note that the draft legislation has now been released and, other than setting the rate of the CPSM, at first sight appears to meet the amendments required to CCL primary legislation to introduce the CPSM.

2 Executive Summary

2.1 We have concerns over the rationale of the CPSM given the uncertainty of data used in determining its operation and intended impact.

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2.2 The EU Emissions Trading Scheme (EUETS) is seen as unreliable in setting the required carbon price to encourage investment going forward. We believe it is important that the CPSM is flexible enough to deal with fluctuations in the EUETS and indeed may not be required if the EUETS system is tightened as intended and the carbon price is raised accordingly. We consider that the CPSM should not be a tax in its own right regardless of the carbon price set by the EUETS.

2.3 We believe that business and the general public may consider the CPSM as merely another stealth tax, especially as the projected relative price reductions arising from greater renewable source in the energy mix is long-term estimation and must therefore be unreliable. One potential remedy would be to ring-fence revenue from the CPSM towards, say, the "Green Investment Bank".

2.4 We are concerned that the introduction of CPSM amounts to double taxation and therefore undermines one of the basic principles of taxation. Its introduction is also in an area where other regulatory costs around carbon emissions are already in force and exacerbate the double-taxation effect.

2.5 We believe that failing to apply the CPSM to imported electricity would create an imbalance in the market over time and increase the risk of overseas competition affecting UK producers.

2.6 If CCL is to be reformed then we believe this now would be a suitable point in time for existing anomalies in CCL to be examined and included in the overall reforms planned.

3 **Commentary**

3.1 We are concerned that the CPSM is being introduced on the basis of uncertain forecasting. One aim is stated to provide certainty, yet as highlighted in the Impact Assessment virtually every key assumption, sensitivity and risk is based on "uncertain" data. This is caused to a considerable extent by the aims of CPSM being cast over a 17 year period not due to start for a further two years. Accordingly it is difficult to see how any certainty for renewable source/nuclear investors can be concluded from the introduction of the CPSM.

3.2 There is the presumption that the EUETS is too volatile and unpredictable to give rise to the desired carbon price targets by 2020 or 2030. The paper refers to problems encountered with operation of the EUETS across member states. However we consider that it is important that the relationship between the carbon price derived from the EUETS and the CPSM rate is clear. There may be a desired trajectory of the carbon price, and the CPSM is aimed at ensuring that occurs, however should the EUETS prove more effective in setting that carbon price trajectory then there needs to be a flexibility in the CPSM to allow for a "nil" or even negative rates.

3.3 The impact of the CPSM is a short – medium term rise in both business and domestic energy charges whilst the mix of electricity supply changes to an increased element of nuclear or renewable source power. The forecast of such prices being reduced in relative terms in the longer term appears to rely on uncertain projections, and the flexibility of energy pricing by suppliers. There is the real danger of the CPSM being seen as a stealth tax causing price rises given it is incurred during the electricity production process rather than levied directly on the business end-user as is currently the case. The paper itself does not refer in its main body to the increased tax take that will arise, being couched in terms purely of encouraging "desirable" energy investment. This may be seen by business and the public at large as somewhat disingenuous. The paper refers at para 1.4 to the intention to finalise the policy design of the Green Investment Bank in spring 2011. It would be open to the government within that process to ring-fence CPSM revenues towards the GIB. As the intention of the CPSM is stated as encouraging investment in low-carbon generation then that would appear to be a neat fit.

3.4 One of the basic principles of taxation is that it should not give rise to double taxation. The proposals clearly recognise that the CPSM will amount to double taxation, and indeed the draft legislation amends the existing Finance Act 2000 Schedule 6 by inserting a new para 21(2)(A) which removes the CPSM from such consideration. It is clear that fossil fuel electricity generation will be subject to double taxation from the CPSM rate of CCL in its production and then CCL at main rate in the supply to the business end-user. Allied to this, the costs of the EUETS and/or CRC schemes to energy-intensive producers/users could be seen as an unnecessary burden – essentially three carbon taxes and one energy tax for the same unit of fossil fuel-generated electricity. Although it is recognised that separately proposed changes to the electricity market may add impetus to investment in desirable energy source, nevertheless it is suggested that additional carrots aimed directly at such investment may be more effective than sticks being used on existing fossil fuel powered generation.

3.5 Although the paper indicates that the majority of imported electricity is derived from French nuclear production the decision not to impose CPSM on imported electricity does not represent a level playing field with UK generators from fossil fuels. The interconnector capacity is expected to more than double by 2020 and the source of imported power may not be as clear as is currently the case with new players drawn to the UK importing market by a potential competitive advantage created by CPSM. The paper concludes that any impact will be marginal but we do consider that by further increasing tax on UK generating capacity there would be an enhanced risk of international competition over time.

We also consider that international competitiveness could be adversely affected for business through CPSM. Where the cost feeds into the provision of goods and services that are in competition with overseas providers, eg car industry, it means that UK suppliers have yet another barrier to overcome over the position of suppliers in overseas jurisdictions that do not have a similar tax.

3.6 There are a number of anomalies in the CCL legislation that could have been addressed at the same time. These include CCL- treatment of nuclear power, carbon capture and larger hydro projects, simplifying the Levy Exemption Certificate process through interchangeable CHP and renewable source certification, and indeed consideration of significant increase in CCL rates and scope, similar to those being seen as successful in targeting landfill tax objectives. Further comments on these are included at appendix 1.

4 Question-specific responses

4.1 *Box 3.A Questions on investment*

- The questions are industry or investor-specific. However it would appear to make sense for certainty in carbon price, allied to other measures to reform the electricity market in favour of low-carbon generation to have a positive influence over time. As suggested above whether price certainty can, or even should be delivered by the tax system in the way proposed by the CPSM is debateable.

4.2 *Box 4.B Questions on administration*

- We do not propose to comment as these are industry-specific.

4.3 *Box 4.C Questions on types of generator*

- **4.C1 –** it is agreed that all types of electricity generators should be treated equally under the proposed changes. It is however necessarily apparent that this is the case under the proposals, eg imported electricity.

- **4.C2 –** current CCL policy promotes CHP as an efficient way to generate electricity given the heat benefits arising. Imposing the CPSM on CHP fossil-fuel inputs would appear to move partly away from that policy, although it may drive the industry towards other forms of CHP such as biomass or incineration (although these also have environmental issues). One way to encourage CHP in parallel with renewable source may be to equalise the treatment of levy exemption certificates between the two – see Appendix 1 para C(3).

- **4.C3 – Carbon Capture and Storage (**CCS) is also mentioned in appendix 1 (A(3)). We consider that as CCS develops then an exemption from CCL should be phased in, (main rate and CPSM), to reflect the carbon abatement environmental benefits and security of supply derived from maintaining a flexible gas or coal-powered generation without the carbon emissions. It is noted that other measures proposed would force any new coal powered generation to have CCS.

4.4 *Box 4.D Questions on imports and exports*

- We do not have any other comments than those made at 2.5 and 3.5 above.

4.5 *Box 4.E Questions on carbon price support mechanism*

- Please see our comments at 2.2 and 3.2 above. The preferred "rate escalator" appears to go against the concept of a credit mechanism when the carbon floor price was first suggested pre-election 2010. This top-up system would be imposed at the end of a "compliance period", eg annually, taking a pre-set aimed carbon price and compare with payments made for EUETS permits in the same period. The carbon price would be clear, as would the position for those businesses involved. That assumes of course that a CPSM mechanism is desirable in the first place and that should the EUETS system produce carbon prices exceeding expectations that refunds would be available.

4.6 ***Box 4.F Questions on the future price of carbon***

- This is outwith our experience, however we refer to the point made at 3.1 above.

4.7 ***Box 5.B Questions on electricity investment***

- Again this is not within our remit but from the data available in the paper and Impact Assessment we consider that there appear to be too many unknowns involved to be able to predict what impact, if any, the CPSM will have on investment decisions.

4.8 ***Box 5.C Questions on existing low-carbon generators***

- We do not propose to comment as these are industry-specific.

4.9 ***Box 5.D Questions on electricity price impacts***

- Again these are industry-specific. Comments on the evidence base used in the Impact Assessment are made at 3.1 above.

5 The Chartered Institute of Taxation

The Chartered Institute of Taxation (CIOT) is a charity and the leading professional body in the United Kingdom concerned solely with taxation. The CIOT"s primary purpose is to promote education and study of the administration and practice of taxation. One of the key aims is to create a better, more efficient tax system for all affected by it – taxpayers, advisors and the authorities.

The CIOT"s comments and recommendations on tax issues are made solely in order to achieve its primary purpose: it is politically neutral in its work. The CIOT will seek to draw on its members" experience in private practice, Government, commerce and industry and academia to argue and explain how public policy objectives (to the extent that these are clearly stated or can be discerned) can most effectively be achieved.

The CIOT"s 15,000 members have the practising title of „Chartered Tax Adviser" and the designatory letters „CTA"

Chartered institute of Taxation
14 February 2011

Appendix 1 Legislative Anomalies in CCL

A Scope of CCL

CCL is a tax on fuel consumption rather than emissions. There are some areas where the CCL treatment of fuel is inconsistent with the level of emissions associated with that fuel. For example:

1 As domestic/charitable consumption is excluded from CCL there is no CCL incentive for these users to become more energy efficient or to switch to cleaner sources of fuel. Such use may be wholly or partly exempted under the Energy Products Directive (2003/96/EC) but this is not prescriptive.

2 There is no CCL exemption for nuclear power. As nuclear power generation is carbon-efficient its lack of contribution to climate change would suggest that it should benefit from CCL exemption. Derogation from the Energy Products Directive would be needed for this, however this would also be a positive encouragement to investment in this area and would reflect the intention not to impose the CPSM on uranium fuel.

3 CCL legislation needs to keep up with new technology. The purpose of Carbon Capture Storage technology is to allow the generation of power from traditional coal and gas fuel sources without the corresponding carbon emissions. Power generated in this way should be exempt from CCL to encourage investment in such technology. At present, no relief is provided in the CCL legislation. It is recognised that the potential for CCS to have some relief built in to the CPSM is included in the paper but this does not address the carbon-friendly supply that would ultimately arise from this new technology.

4 Power generated by „large-scale" hydro generation stations is not exempt from CCL whereas power generated from „small-scale" hydro generation stations is exempt (Reg 47 SI 2001/838). Whilst the aim has been to encourage development of smaller hydro power given that major hydro developments are already mature, the rationale behind this distinction is not clear. The EPD also makes no distinction.

Some anomalies in scope are currently being addressed, such as the phased removal of the exemption for gas burned in Northern Ireland and therefore there seems to be no reason to defer action on other areas.

The design of the CCL regime appears to have been influenced by a range of political, social and practical concerns rather than just environmental objectives. This has led to tax outcomes that appear irrational from an environmental perspective, and arguably make CCL more difficult to understand and administer. CCL would be more logical from an environmental point of view if its pure focus was to tax emitting activities whilst relieving clean activities. This may mean that other measures (eg fuel allowances, planning regulations) would be required to tackle social/political concerns.

B Rates of CCL

1 CCL was predicted to reduce CO2 emission levels by 2.3 per cent in 2010. However, the Institute for Fiscal Studies reports that the rate of tax has not kept pace with inflation. There is a question as to whether a higher rate of CCL would be more effective at combating climate change.

2 Energy intensive businesses that sign up to CCAs receive an 80% reduction in their CCL bills provided they meet certain emissions reductions and/or energy efficiency targets. This is being reduced to 65% from 1 April 2011. The CCA reduction provides an incentive to businesses to make energy efficiency improvements which they might not otherwise make. We wonder whether this intervention is required because the existing rate of CCL is too low to drive the desired changes in energy efficiency.

3 There are other problems associated with CCAs: for example, not every industry that uses high quantities of power benefits from a CCA. If the rate of CCL was higher then this in itself may encourage any type of business to make energy savings without the need for a complex system of agreements and certificates. Of course, a higher rate of CCL would be an extra cost to business and would not be popular with taxpayers so the Government may need to provide additional support to businesses in some other way.

From the above we believe that therefore there is a case for raising the main CCL rates rather than introduce double-taxation through the CPSM.

C Over-complications

1 A supply of gas or power may be liable to CCL if it is made by a utility and if it is made to a non-utility or is self-supplied by the utility. „Utility" is defined by the Electricity Act 1989 and the Gas Act 1986 although suppliers can also be utilities if directed by HMRC. The reliance on the definition of „utility" seems to over-complicate the decision as to whether CCL is due on a supply. It seems that anyone who supplies power or gas to a consumer could be liable to register for CCL and it should be possible to convey this in the legislation without relying on other legislation and on whether HMRC have made a direction. (Items 5, 6, 150, 151 FA 2000 Sch 6.)

2 Supplies of power between power utilities and gas between gas utilities are not subject to the levy and no certification is required. Supplies of coal between coal traders or supplies of gas and coal to a power utility are exempt from CCL under Items 11 and 14 FA 2000 Sch 6 provided the recipient delivers a certificate to the supplier in the prescribed format. (Reg 34 SI 2001/838.) It is not clear why advance certification is required to exempt some wholesale transactions and not others, although some of the complexities may be caused by reliance on the „utility" definition. The extra paperwork places an additional burden on coal traders and the legislation should be amended such that no wholesale fuel transactions are liable to CCL. This should not impact on the CPSM as the coal is supplied to an end-user.

3 Renewable source LECs (Reg 48 SI 2001/838) cannot be used interchangeably with CHP LECs (Reg 51B SI 2001/838). Suppliers are required to perform two separate averaging period calculations under Items 20 and 20B FA 2000 Sch 6. This means that if an electricity supplier contracts to supply renewable power, but the source of renewable power falls through, the supplier cannot procure CHP power and apply those LECs to the supplies instead. A company who has enough LECs overall to exempt its supplies but who does not have enough of the right kind of LECs (eg because it has amalgamated its LEC calculations) will trigger a charge to CCL at the end of the averaging period even although this goes against the spirit of the legislation. HMRC interpret the legislation very literally in this area even although this could discourage trading in and supplying renewable and CHP power.

CHEMICAL INDUSTRIES
ASSOCIATION

Carbon price floor: support and certainty for low-carbon investment
CIA response to HM Treasury Consultation

Main comments

We welcome the government's stated intention to rebalance the economy towards manufacturing, and support the objective of moving to a low carbon baseload generation mix. However, while appreciating that the Government's carbon price support (CPS) proposals are designed to bring long term certainty to investors in new nuclear generating capacity, we are concerned that our members in the chemical sector should enjoy a similar level of certainty to support their long term business decisions on UK investments up to 2020.

We continue to ask government to push ahead with a strategy for growth and manufacturing as outlined in the CIA's Manufacturing Strategy. This needs to be addressed at the earliest opportunity to allay energy intensive companies' increasing concerns about UK competitiveness trends. This should be informed by BIS and DECC progressing their assessment of the cumulative impact of energy and climate change policies on energy intensive industries together with proposals for mitigating this impact. CIA would be keen to make constructive inputs to assist the development of such a strategy.

In terms of the current consultation we have received an almost unprecedented level of feedback from our members who are deeply concerned that the EU already has the highest energy costs in the world and that proposals for unilateral CPS could push the UK's further ahead; more so when combined with the Government's "Contract for Difference" (CfD) proposals which are also aimed at incentivising low carbon generation.

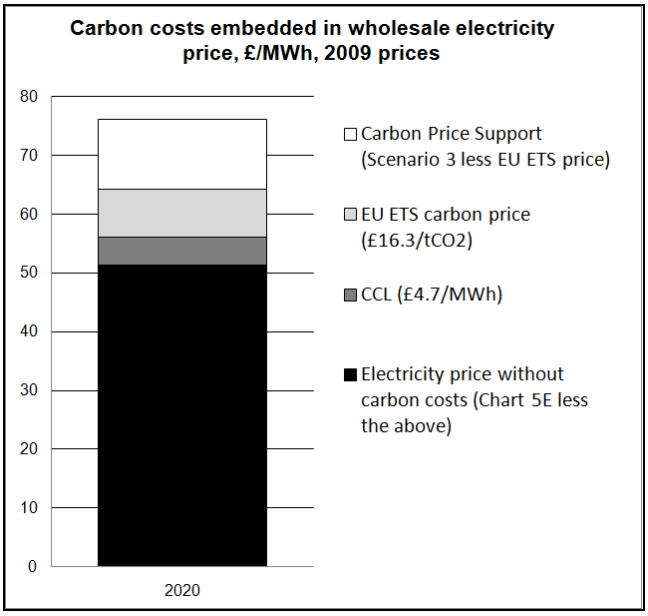
Its vital that we ensure a sustainable business environment for energy intensive sectors like chemicals who have a contribution to make both to rebalancing and greening the economy. We therefore find it difficult to support the Government's CPS proposals in the absence of measures to fully mitigate the cumulative impact of the UK and EU's climate change and energy policies on our energy costs.

Our key concerns and proposals are:

Either CPS or CfD could drive low carbon investment - we cannot see the need for both a carbon price support (CPS) tax and "contract for a difference" to drive a low carbon

generation mix. Unfortunately, the short timescale for the CPS consultation relative to the Electricity Market Reform (EMR) consultation means we have had limited time to compare these proposals but we will comment further soon.

CPS will add considerably to the cumulative cost of policy – we are concerned that CPS tax rates for generators would add over 20% to electricity prices in 2020. Under scenario 3, the combined carbon "tax" from CPS, the EU Emissions Trading Scheme (EU ETS) and Climate Change Levy (CCL), could push power prices up by 50%. See the chart below which assumes £1/tCO2 = £0.50/MWh.:



We look forward to Government's full assessment of cumulative costs and a plan for mitigating its impact on energy intensive sectors – last summer's independent study by WatersWye for the Energy Intensive User's Group and TUC showed that the cumulative costs of unilateral UK and EU energy and climate change policies could see our UK energy and carbon costs double by 2020. Further factors include the Renewables Obligation (RO) and Feed In Tariffs (FITs) and projected increases in energy market prices which are particularly due to the Renewable Energy Strategy. We welcome the Chancellor's earlier decision, in the Comprehensive Spending Review, to fund the Renewable Heat Incentive (RHI) from general taxation rather than by a specific levy on energy consumers. However, WatersWye have now updated their study and this shows that CPS and EMR effectively undo the cost savings for energy intensive sectors from not pursuing an RHI levy – for further information see the EIUG response. This underlines the need for a plan to mitigate the cumulative impacts on energy intensive sectors.

Unfortunately, the current regulatory impact assessment (RIA) for the CPS proposal doesn't adequately evaluate the effects on energy intensive sectors - in the absence of a full cumulative assessment the RIA's generalised statements about impacts on profits and

competition cannot be taken to reflect the impacts on energy intensive sectors. Its important to recognise that, under EU ETS alone, the whole chemical sector is deemed to be at risk of carbon leakage based on the combined direct and indirect carbon costs under the scheme. Prior to the introduction of EU ETS, the whole chemical sector was also recognised as exposed when the Climate Change Agreements (CCAs) were set up - and global competitive pressures have increased since then.

CHP exemptions need to be maintained to preserve and increase the emissions savings from this efficient technology – We are concerned that taxing all fossil fuel inputs to CHP would make many existing CHP schemes, from which we source one third of our electricity, uneconomic compared to the current alternative of sourcing power from the grid and heat from on-site boilers. Its important to recognise that the CHP solution is at least 10% more efficient than the alternative and can be up to 20% more efficient. CPS should not be applied to inputs for CHP heat as this is inequitable compared to the treatment of heat from boilers. There also is a strong case for CHP power to continue to receive preferential treatment – this would be consistent with the UK's previously established CHP target and the Government's current provision of incentives for domestic CHP. It would also align with the European Union's continued support for CHP and would avoid stranded assets.

We need early long term certainty over the future of the Climate Change Agreements and participants entitlement to relief from downstream CCL - The CPS proposals for an upstream CPS rate of CCL for generators comes at a time when manufacturing industry faces continued uncertainty over the full scale of the costs from energy and climate change policies. The last Government imposed a larger than needed reduction in relief on the downstream rates of relief for CCA participants, and we are currently engaged in an extended debate about the future of the CCAs.

About the chemical industry

With an annual turnover of £60 billion, chemical businesses in the UK are a key contributor to the economy. Every working day, our sector adds £30 million to our country's balance of trade. The jobs of 600,000 workers in the UK depend on chemical businesses. Workers in chemical businesses earn on average 40% more than other parts of manufacturing.

The UK chemical industry is exposed to the risk of carbon leakage. We are highly energy intensive, accounting for 22% of total UK industrial consumption. We are also highly exposed to international competition in terms of both trade in our products and attracting investment. This is because our businesses compete in global markets and pricing of basic chemicals is very similar across Asia, North America and Europe. In addition, about 70% of sites are headquartered outside the UK ($^2/_3$rds of these outside the EU).

The UK chemical industry already has a excellent track record for reducing our own emissions, having improved our energy efficiency by 35%, and will continue to make

improvements. But we are also enablers of climate change solutions in a wide range of applications across sectors of the economy including: households, transport, energy and agriculture. Examples of solutions include: building insulation, PVC and soda ash for double glazing, fertilisers and crop protection (to reduce land use), lightweight components for cars and planes, low temperature detergents, biofuels and materials for wind turbines. An independent study has confirmed that the global chemical sector currently delivers 2 tonnes of greenhouse gas savings for every tonne we emit in our production processes and that, with the right policy framework, this could rise to more than 4 tonnes by 2030. These results are summarised in CIA's low carbon brochure which also includes case studies to demonstrate that many of these solutions are already produced in the UK.

Responses to relevant consultation 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?

It is difficult to form firm expectations about the carbon price in 2020 and 2030 because there is no certain carbon reduction pathway set as far as 2030, and businesses currently face considerable policy uncertainty over the carbon reduction pathway to 2020. In particular EU ETS only sets a certain carbon reduction pathway to 2020 and there is continued debate about whether the EU should increase its unilateral 20% emissions reduction target (when a move to 30% is supposed to be conditional on a new international agreement).

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.

Possibly, but we are concerned that our members in the chemical sector should enjoy a similar level of certainty to support their long term business decisions on UK investments up to 2020. CPS as currently proposed will disincentivise investment by manufacturer's in the UK.

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 cannot see the need for both a carbon price support (CPS) tax and "contract for a difference" to drive a low carbon generation mix. Unfortunately, the relatively short timescale for the CPS consultation relative to the Electricity Market Reform (EMR) consultation means we have had limited time to compare these proposals but we will comment further soon.

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?

We are concerned that it will be difficult for suppliers of natural gas to anticipate the extent to which supplies to industrial consumers are attributable to CHP generators and that this will add complexity. Chemical sites often have their own CHP or an adjacent, third party CHP which are supplied through sub-meters from deliveries to the chemical site through the fiscal meter. Complexity will be highest where CHP utilises bi-products through we question the legality of removing CHP and autogenerator exemptions under the provisions laid out in the current Energy Products Directive, Council Directive 2003/96/EC.

If CPS is to be administered through the existing system of PP11 Supplier Certificates, then sites with CHP will need to issue more PP11s upfront to cater for the specific CCL carbon price support rate and more adjustments made when initial payments are reviewed against actual consumption. Exempting inputs to heat would not add to administrative burdens and maintaining the exemption for all inputs would reduce burdens for both operators and HMR&C.

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 are concerned that the treatment of CHP is inequitable in compared to other generators. This is because the Government appears to be proposing the taxation of all inputs including those to heat. Yet good quality CHP is currently at least 10% more energy efficient than importing power from the grid and raising heat in on-site boilers and often 20% more efficient. This seems to go against the UK's previously established CHP target and the Government's current provision of incentives for domestic CHP. It would also align with the European Union's continued support for CHP and would avoid stranded assets.

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?

Yes.

In the first instance the treatment of CHP should at least be equitable with that of other generators. It is therefore important that rather than taxing <u>all</u> inputs to CHP, as proposed, inputs for heat produced by good quality CHP should continue to qualify for exemption from CCL.

There is also a strong case for CHP to continue to receive preferential treatment in relation to the inputs for power generation. This is because:

- Good quality CHP is at least 10% more energy efficient than importing power from the grid and raising heat in on-site boilers and often 20% more efficient. Therefore production of power by CHP is preferable to the production of power in centralised gas fired generators which will remain part of the fuel mix in 2030.
- The economics of existing CHP were based on full exemption on CCL. CHP have a high capital cost and these investments could be placed in jeopardy if the exemption is withdrawn. As one CIA member has put it:

  "Given high UK energy prices and the significant cost impact of current and potential future legislation like the CPS, we are constantly having to re-evaluate the economics of continuing to maintain and run the existing gas based CHP vs buying power from the grid and using gas in boilers to raise steam - even though this would increase the site carbon emissions"

- The energy intensive industries which largely host existing CHP installation are exposed to international competition. They will be less able to pass on the cost of CPS to power generated for own use to global product markets than the main generators will when selling power to the UK electricity market.
- Removing CCL exemptions would be inconsistent with the UK's practice, until now, of maintaining a national CHP target and the Government's current practice of offering large subsidies to encourage domestic CHP installations. It would also be inconsistent with the European Union's continued support for CHP

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?

We are concerned that our members in the chemical sector should enjoy a similar level of certainty to support their long term business decisions on UK investments up to 2020. CPS as currently proposed will disincentivise investment by manufacturers in the UK. We therefore find it difficult to support the Government's CPS proposals in the absence of measures to fully mitigate the cumulative impact of the UK and EU's climate change and energy policies on our energy costs.

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

We believe the second of the three proposals in paragraph 4.39, annually adjusted CCL rates, best meets the objective of accurately steadying the carbon price while maintaining some flexibility to react to external circumstances. We least favour a rates escalator as this sounds

an inflexible approach which would not deliver a target carbon price as accurately and could produce a higher combined price than intended (if the price of EU allowances is higher than expected).

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?

We are concerned that a unilateral increase in the UK carbon price risks heightened impacts on energy intensive industries' competitiveness. We cannot see the need for both a carbon price support (CPS) tax and "contract for a difference" to drive a low carbon generation mix.

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 find it difficult to support the Government's CPS proposals in the absence of measures to fully mitigate the cumulative impact of the UK and EU's climate change and energy policies on our energy costs.

Electricity investment

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

As written, the proposals will reduce investment in new CHP because taxing all inputs, including those to heat, mean it will be inequitably treated compared to other forms of gas generation (see also answers to 4.C1 and 4.C2).

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 concerned that a unilateral increase in the UK carbon price risks heightened impacts on energy intensive industries' competitiveness. We cannot see the need for both a carbon price support (CPS) tax and "contract for a difference" to drive a low carbon generation mix.

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 written, the proposals will risk closures to incumbent CHP because taxing all inputs, including those to heat, mean it will be inequitably treated compared to other forms of gas generation. (see also answers to 4.C1 and 4.C2).

Electricity price impacts

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

We are concerned that a unilateral increase in the UK carbon price risks heightened impacts on energy intensive industries' competitiveness as power generators will see to pass on the full cost.

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

Most chemicals produced in the UK, and all of those produced in bulk by energy intensive processes, are sold at prices determined by global markets. Most are exported, but even those sold domestically are subject to similar price constraints. This means there is little scope to pass on higher costs imposed unilaterally in the UK. Local assets are generally owned by multinationals with production capacity in many countries and, except in periods of peak demand when all capacity is being used, have the ability to move production away from the UK at relatively short notice. In the longer term and in the context of the existing cumulative impacts of policies, including the CPS proposals, on our energy costs there is a high risk that UK assets will be starved of refurbishment spending and will wither on the vine.

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

UK chemical sectors use large volumes of electricity and/or depend on CHP for both heat and power (a third of our power comes from CHP). So there could be a significant impact on margins from the CPS proposals. CPS impacts also need to be taken in the context of the cumulative impact from the UK and EU's energy and climate change policies rather than individually. These are exemplified by last summer's independent study by WatersWye for the Energy Intensive User's Group (EIUG) and TUC which shows that the cumulative costs of UK and EU's unilateral climate change policies could see UK energy and carbon costs double by 2020 – for the latest WatersWye assessment, see the EIUG response

Electricity is a significant cost to all our energy intensive sites. As an example, the most electrically intensive activity is chlor-alkali production for which electricity is the main production cost. Chlor-alkali production is the beginning of many varied supply chains for internationally traded products from PVC to pharmaceuticals. The manufacture of industrial gases is also one of the most electrically intensive.

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 are concerned that in the absence of a full cumulative assessment the RIA's generalised statements about impacts on profits and competition cannot be taken to reflect the impacts on energy intensive sectors. In relying on evidence on the costs of EU ETS alone the RIA suggests that CPS is a significant issue for a limited number of sectors and lists *Chemicals-industrial gases, fertilisers,* which DECC have clarified includes basic inorganic chemicals. However, its important to recognise that, under EU ETS, the whole chemical sector is deemed to be at risk of carbon leakage based on the combined direct and indirect carbon costs under the scheme. Prior to the introduction of EU ETS, the whole chemical sector was also recognised as exposed when the Climate Change Agreements (CCAs) were set up - and global competitive pressures have increased since then.

Distributional impacts – business - Para 78 – "*the average medium-sized non-domestic user's annual electricity bill is estimated to increase by between 1 per cent and 2 per cent in 2013, moving to between 1 per cent and 6 per cent in 2020"*. Bills for medium-sized users are not representative of electricity costs for large users because wholesale electricity prices represent a much larger part of the delivered cost.

Carbon leakage and competitiveness - Para 80 – "*The published evidence on carbon leakage for the costs of the EU ETS suggests that it is a significant issue for a limited number of sectors"*. In the absence of a properly considered assessment of the contribution to the cumulative impact on the energy costs of energy intensive industries, it is not possible to reach such a conclusion. In addition, most of the studies cited are EU level; only the 2007 Climate Strategies study looks specifically at the UK and considers both intra-EU and extra-EU competitive impacts.

Sectoral impacts

- Para 83 – *"Based on initial analysis of energy and trade intensity, the Government considers that the sectors most impacted by carbon price support, taking into account the existing CCL, are as follows:... chemicals-industrial gases, fertilisers;..."* DECC have since clarified that this includes basic inorganic chemicals. This fails to recognise that the whole chemical sector is deemed to be at risk of carbon leakage based on the Commission's assessment of its combined direct + indirect carbon costs and trade exposure in Phase 3 of the EU ETS. A further failure of all EU ETS carbon leakage studies is that they "slice and dice" the chemical industry and consider each subsector in isolation: this ignores the integration and interdependence between plants and between sites, eg: chlorine (basic inorganic chemicals) is an intermediate for PVC (plastics in primary forms) but both are produced on the same UK site. We have also been concerned that analyses at the aggregate level of NACE headings can serve to dilute the impacts on energy intensive sites as they also cover a rage of non-EU ETS operators. This is one of

the reasons why the authors of the 2007 Climate Strategies study recognised that they needed to do further work to understand the impacts on the chemicals sector.

- Para 84 - *There might be a reduction in profit margins for these sectors, assuming businesses cannot pass on the extra electricity costs they face and have to absorb them entirely. In reality, businesses are likely to pass on some of these costs to consumers and the effect on their profit margins might be smaller.* Bulk chemicals are commodities which are traded at global market prices so it is unlikely that there can be any pass-through. To the extent that there might be pass through our competing sites outside the UK would also benefit and their greater profitability would attract internationally mobile investment to the detriment of the UK sites.

Competition assessment – para 106 - *For those sectors where electricity costs are a significant proportion of total costs, all businesses in the sector have the same opportunities to reduce the impact of the proposal on their costs. The proposal should not therefore limit their ability to compete with each other.* This ignores the fact that carbon price support is a unilateral UK measure and that businesses are exposed to international competition. The chemical sector competes in EU and global markets and official statistics show that we export around 90% of our production. One CIA member has expressed their EU competitors reaction as follows:

> *"This action would put us at additional risk because it is only applicable to UK...even in Europe, our competition appear not to believe their luck that such a mneasure is being considered"*

chpa

Bringing Energy Together

Combined Heat & Power
Sustainable Energy Services
District Heating & Cooling

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

A response from the Combined Heat and Power Association

chpa

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Bringing Energy Together

CHPA response to: The Consultation on a Carbon Price Floor

Executive Summary

The Government has committed to support the carbon price with the aim of increasing certainty for investors in low carbon electricity generation. It is proposed to provide this support through reform of the Climate Change Levy (CCL). This reform is particularly significant for combined heat and power (CHP) as it undermines the existing regime of exemptions from the CCL that offers the key support for CHP plant. These exemptions provide a sustaining level of subsidy that facilitates the continued operation of CHP plants and some limited growth in installed CHP capacity. The UK, however, missed its 2010 target for 10 GW_e CHP by 4.4 GW_e and it appears unlikely that projections of 12.7 GW CHP by 2020 will be met under this regime.

The value of CHP

CHP is among the best available carbon abatement options for energy intensive users and is a highly cost effective solution for community and commercial scale energy schemes. **CHP operating in the UK saves between 9 and 13.5 $MTCO_2$ per annum.** These benefits have been recognised explicitly by Government, as noted by HM Revenue and Customs:

> *'CHP provides one of the most cost-effective approaches for reducing CO_2 emissions and plays a crucial role in the UK Climate Change Programme.'*
> HMRC Notice CCL1/2 (July 2010)

Impact of the Government's proposals

The Government's proposals introduce a new carbon price support (CPS) CCL liability for power generators, based upon the fossil fuel consumed for power generation. A CHP plant, which consumes fuel for the production of both power and heat, will similarly face a CPS liability on the total fuel consumed. This approach takes no account of the additional costs facing a CHP plant or of the efficiency and carbon-saving benefits it delivers. As a consequence it presents a punitive and disproportionate impact on such plant:

1. CHP plant will face an 'effective' CPS rate of up twice the rate of an equivalent power station
2. Existing CHP plant will increasingly cease operating in CHP mode
3. New investment in CHP will be halted
4. CHP plant will declassify from the CHP Quality Assurance Programme (CHPQA).

The consequence would be an increase in actual and reported CO_2 emissions from CHP sectors across the UK.

A simple solution

To ensure that CHP operations and investment are not harmed by the reform of the CCL, there are two possible options:

1. In **recognition of the value of CHP and the need to increase uptake** in line with the Government's climate change and energy security agenda, **CHP could be fully exempted from the CPS tax**. This would provide additional material benefit and accelerate progress towards realising the full national potential for CHP
2. As a minimum, the **input fuel used to generate heat in CHP should be exempted** from the CPS tax. This would retain the status quo for operators and investors.

It is vital the any exemption is simple and does not create administrative burdens for Government. The CHPQA programme is used to verify that CHP plant save fuel and emissions. A very **simple no-cost modification to CHPQA procedures** could be made to calculate either a full or limited exemption from the CPS tax for CHP plants.

Introduction

The Government has committed to introducing support for the carbon price and has indicated that it intends to achieve this through reform of the Climate Change Levy (CCL). The stated aim of CCL reform is to provide a stable carbon price signal on electricity generation to increase support and certainty for investors in low carbon electricity generation. The intention is that the carbon support price will be introduced from 2013 and the development work has been strongly based on the polluter pays principle.

The wealth of future energy scenarios that have been published all indicate that fossil fuels will continue to form a central plank of energy provision in a decarbonised economy both through carbon capture and providing flexible output in a generation mix that is increasingly unresponsive to demand. Good quality CHP represents the most optimal use of thermally derived power generation and might, therefore, expect to feature strongly in future development of the generation mix. The practical effect of the carbon price floor is, however, to penalise CHP operations; more broadly the Electricity Market Reform consultation contains no clear proposals to support growth of either fossil or renewable CHP.

The value of CHP

CHP represents the most optimal use of any input fuel when creating thermally derived electricity and heat. The carbon savings it provides are due to this high fuel use efficiency. As a result CHP also addresses energy security and affordability issues. Many of the benefits of CHP do not accrue to the user of the plant and, therefore, without Government support the installation of a far cheaper heat-only boiler combined with the purchase of grid electricity is the more attractive option for potential users of CHP.

In 2009, CHP saved the UK economy between 9 and 13.5 $MTCO_2$. Much of these savings accrued in industrial sectors at risk of carbon leakage[1] (Fig. 1)

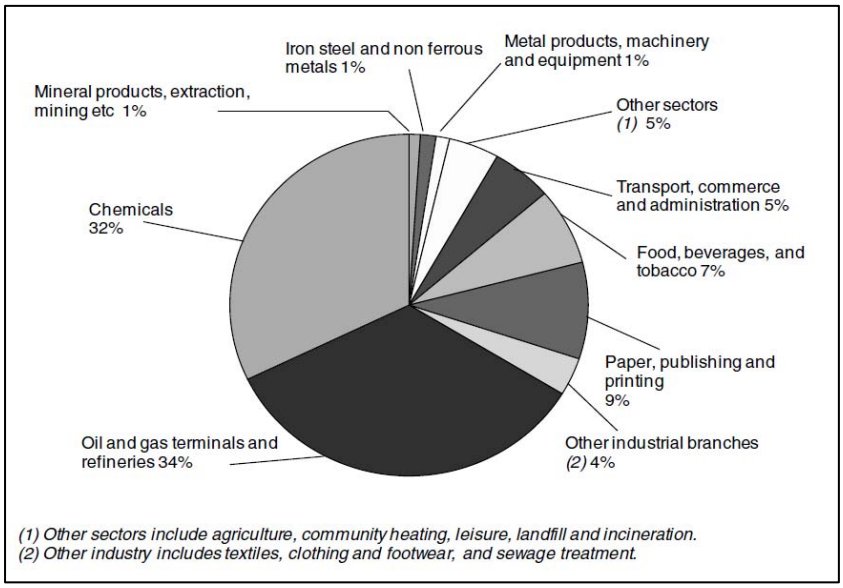

Figure 1: CHP uptake across sectors of the UK economy. Over 50% comes from the refining and chemical sectors which are at risk of carbon leakage.

The current exemptions regime for CHP

Currently, electricity generators and oil refineries are exempt from paying CCL on their input fuels. Good quality CHP operators are also exempt from CCL on both input fuel and exported electricity (LECs). The effect of the current exemptions regime has been to:

1. Ensure that many existing CHP plants continue to operate as CHP, through a variable output incentive that encourages CHP to operate at high load factors.

[1] Digest of UK Energy Statistics, *Department for Energy and Climate Change,* 2010

2. Improve the investment case for an important, if limited, increase in CHP installed capacity
3. Contribute a saving of 14 $MTCO_2$ at a cost to government of only £40/tonne CO_2 abated.

It is important to note that the current CCL exemption regime (along with other existing support for CHP) has been to provide a sustaining level of subsidy; it has proved insufficient to support the level of CHP investment and operation needed to meet the UK government's 2010 target for 10 GW of CHP by about 4.4 GW. DECC currently project installed capacity of 12.7 GW_e by 2020 – compared to 5.6 GW_e in 2009 and under the current support scheme, this would appear unlikely to be achieved.

The Governments proposals for reforming the CCL and impact on CHP operation

The Government's consultation proposes the removal of the existing exemption from CCL on input fuels for electricity generators. For CHP plant, the proposal is that all the input fuel for CHP (including that used to generate heat) will be subject to the new tax; the Carbon Price Support (CPS) Tax. By placing the CPS tax on all input fuels, CHP plant will pay up to twice as much tax per kWh of electricity produced than a typical gas power station.

The CHPA has modelled the proposed impacts of the new CPS tax by comparing it with the tax liability for an equivalent combination of a power-only combined cycle gas turbine (CCGT) power station and a stand alone boiler delivering the same amount of heat and power. The modeling does not include the cost of the European Union Emissions Trading Scheme (EUETS). The modeling presented below represents only the new tax regime under the CPS as it affects CHP and separate generation technologies. Wherever possible, Government data or projections have been used (e.g. EUA price, gas and electricity price etc).

The modeling indicates that CHP operators will suffer a significant additional cost burden as a result of the proposed changes which could result in generators paying Government for CHP derived emissions savings. The impact on CHP operations is more pronounced with a greater CPS price (Figs 2 and 3).

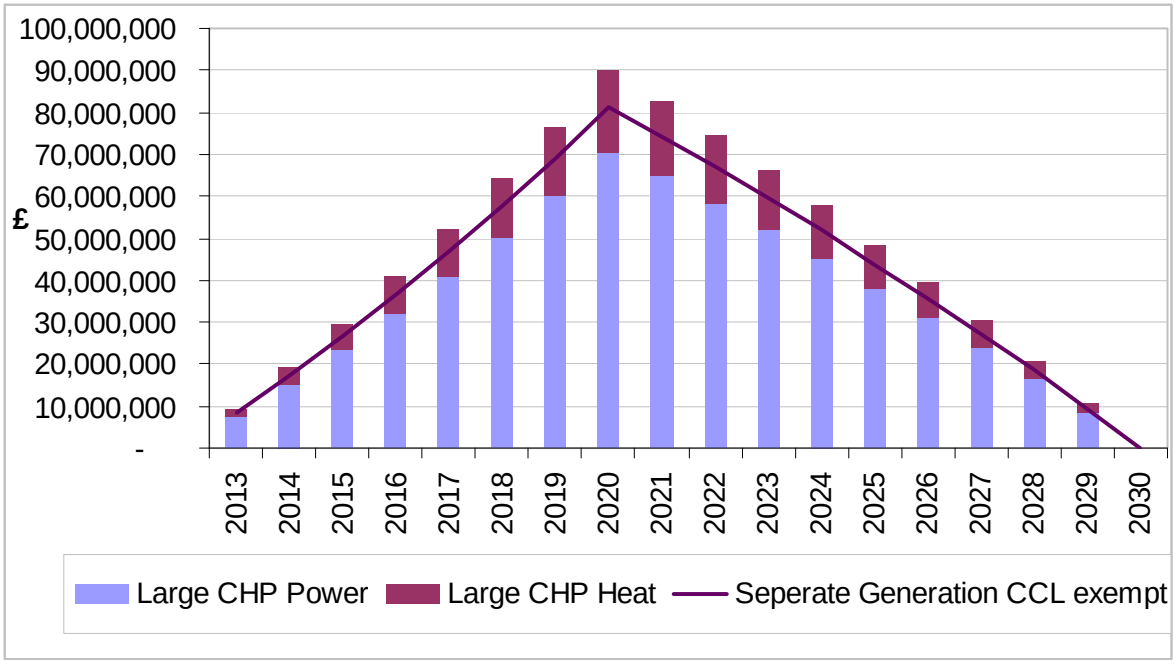

Fig 2: CPS tax cost impact on CHP (bars) versus the cumulative impact on CCGT and boilers for large scale (refinery based) CHP plant. Where the bars are higher than the line CHP plant would be paying a premium to Government for each tonne of carbon saved.

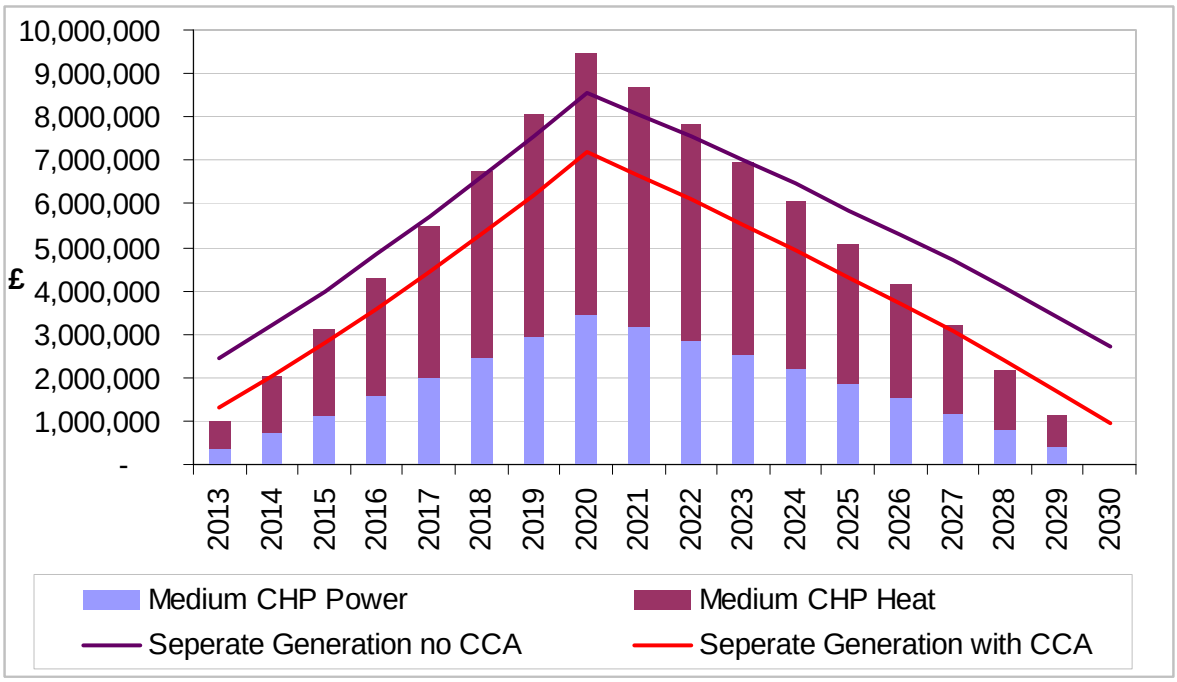

Fig 3: CPS tax cost impact on CHP (bars) versus the cumulative impact on CCGT and boilers for medium scale CHP plant where the heat customer has a Climate Change Agreement (CCA; red line) or no CCA.

Under Carbon Price Support Scenario 1 (the lowest carbon price proposal)

- For a small scale CHP plant, the total impact of the CPS tax in 2013 would be £5,339 of which £3,528 is attributable to the heat. In 2020 the liability would rise to £25,330, £16,738 would be applied to the heat portion.

- For a medium scale CHP plant, the total impact of the CPS tax in 2013 would be £331,666 of which £210,936 is attributable to the heat. In 2020 the liability would rise to £1,573,402, £1,000,667 would be applied to the heat portion.

- For a large scale CHP plant, the total impact of the CPS tax in 2013 would be £3,151,386 of which £680,439 is attributable to the heat. In 2020 the liability would rise to £14,949,960, £3,227,957 would be applied to the heat portion.

Impact on investment in CHP plant

As long as new gas fired power stations and boilers continue to be consented and installed, investment in new gas-fired CHP plant will yield emissions savings over its entire life compared to those boilers and power stations. **Investment in new CHP plant is, therefore, a valuable tool for government in reducing UK emissions.**

The projected impact on investment in new CHP plant (expressed as the Internal Rate of Return {IRR}) was modelled using Government projections and included additional benefits that CHP plant receives such as CCL Levy Exemption certificates (until 2023) and Enhanced Capital Allowances (not available to all CHP investors but included anyway).

For an investment to be made in a CHP plant, that investment will need to demonstrate that:

a) the investment delivers an IRR better than, or commensurate with, other calls on the capital of that investor; and
b) the investment delivers a superior IRR than the alternative investment in a boiler plant and CCGT. Typically an investor will seek a 3 to 4 percentage points premium in the IRR of a CHP plant to reflect the greater risk profile and transaction costs of the CHP plant

when compared to the alternative investment. For smaller plant this risk premium will tend to be greater to reflect poor economies of scale and a weaker ability for the investor or host site to manage their energy market risk.

The results of the modeling are illustrated in Table 1.

This analysis indicates that under the baseline conditions:

- For medium and large plant the baseline conditions indicate that the case for investment is CHP plant is already marginal today. These conditions will not preclude CHP investment but suggest that CHP investment will only occur where site-specific circumstances, such as regulatory pressures or wider investments on the site, impact upon commercial decision.

- For smaller plant there is a positive case for investment.

These modeling outputs reflect the empirical evidence of the marketplace, with a low general level of activity in the medium and large sector and more buoyant conditions for smaller plant.

Under the various scenarios following the introduction of the CPS element of the CCL:

- For all CHP there is a major deterioration of the absolute IRR from the baseline conditions. The impact is greatest under Scenario 3, where the deterioration ranges from 4.5 percentage points for the large CHP to 6.2 percentage points for the medium CHP.

- For all CHP there is a significant deterioration in the relative IRR as compared to the alternative investment in CCGT and boilers. Impacts are again greatest under Scenario 3, where for a large CHP the CHP investment is weaker than the alternative by 1.7 percentage points, this differential rising to 2.5 percentage points for the medium-sized plant. Whilst the small plant continues to show a positive differential under Scenario 3, this has fallen by 2.1 percentage points from the baseline case.

For all CHP, under all circumstances, the analysis demonstrates a major deterioration of the investment conditions for CHP as a result of the introduction of the CPS tax. It is recognised that the equivalent investment in CCGT and boilers is also impacted by the changes, as would be expected from a tax of this nature. However the relative impact on CHP is much greater, with the consequences that:

a) the tax has a greater negative impact upon the lower-carbon CHP investment; and

b) CCGT and boilers will become relatively more attractive as an investment option.

Summary of Impacts

The result of the proposals will undermine the case for both new investment in, and continued operation of, CHP plant across the UK.

The impact for the CHP industry would be:

1. A halt in new CHP investment. Manufacturers and installers of CHP plant would lose orders for new CHP plant with associated economic impacts
2. Existing CHP plant (possibly not written down) becoming uneconomic. Plant not written down would be come a cost burden to the owner
3. Supply of heat to customers may become uneconomic; CHP plant may switch to operating as a power plant losing revenue from heat sales.

The impacts for the UK may include:

1. Economic harm to the CHP manufacturing industry
2. A loss of inward investment in new CHP
3. An increase in CO_2 emissions from CHP plant as a result of declassification of CHP

4. A reduction in the recording of emissions savings (irrespective of whether they exist) through declassification from the CHPQA programme
5. Carbon leakage as a result of business moving away from the UK
6. Direct harm to the competitiveness of UK manufacturing sectors that utilise CHP, through increased costs.

Table 1: Effects on CHP plant and separate generation IRRs under the three proposed carbon price scenarios and the current (baseline) case.

Comparative IRR		CPS on all fuel inputs		
Plant Type	Baseline	Scenario 1	Scenario 2	Scenario 3
Large CHP	15.6%	14.8%	12.9%	11.1%
Large CCGT + Boiler (CCL exempt)	16.0%	15.4%	14.1%	12.8%
Delta (Positive = CHP Advantage)	-0.4%	-0.7%	-1.2%	-1.7%
Medium CHP	14.9%	13.8%	11.2%	8.7%
Medium CCGT + Boiler (with CCA)	14.1%	13.6%	12.4%	11.2%
Delta (Positive = CHP Advantage)	0.7%	0.2%	-1.2%	-2.5%
Small CHP	20.7%	19.9%	17.8%	15.8%
Small CCGT + Boiler	13.9%	13.4%	12.2%	11.0%
Delta (Positive = CHP Advantage)	6.8%	6.5%	5.6%	4.7%

A simple effective solution

The CHPA considers that fossil CHP merits additional support above that which it currently receives for as long as new investment can be expected to deliver emissions reductions. The UK Government missed its 2010 target, for 10 GWe of CHP, by 4.4 GW and installed capacity is not growing significantly. The Government's own projections for CHP of 12.7 GW by 2020 do not look like they will be achieved without an increase in support for CHP plant. A failure to secure additional savings from CHP plant will require additional savings to be sought from other, higher cost, CO_2 abatement options.

If the Government wishes to meet its own projections for CHP installations, the **CPS mechanism could be used to support 'good quality' gas-fired CHP through a complete exemption on all input fuel**. A complete exemption from the CPS tax would provide a material benefit to good quality CHP and drive industry growth by a) maintaining existing absolute levels of IRRs for CHP and, crucially, b) improving the level of IRR relative to the competing investment in CCGT and boiler plant (Table 2). The effect of the limited exemption applying the CPS tax liability to the fuel used for power generation only will be to leave the position of CHP broadly unchanged: a) absolute levels of IRR will fall but b) IRR levels relative to the competing investment will remain in line with current differentials (table 3).

Should Government not wish to use the CPS mechanism to provide additional support for CHP, CHP should, as a minimum, be treated as other power generators i.e. be liable to pay CPS only on that portion of the fuel used for power generation. Fuel consumed for the production of heat, which is not subsequently used for power generation, should not be subject to the CPS tax. Charging an electricity tax on fuel used to generate heat will lead to a disproportionate penalty on CHP plant compared to separate heat and power generation and significantly impair both the case for continued operation in CHP mode for existing plant and for investment in new CHP (see appendix I; Table 3).

Table 2: Impact on the investment case for CHP (IRR) versus separate generation if all input fuel were to be exempted from the CPS tax

Comparative IRR		CPS on fuel inputs (CHP exempted)		
Plant Type	Baseline	Scenario 1	Scenario 2	Scenario 3
Large CHP	15.6%	15.6%	15.6%	15.6%
Large CCGT + Boiler (CCL exempt)	16.0%	15.4%	14.1%	12.8%
Delta (Positive = CHP Advantage)	-0.4%	0.2%	1.5%	2.8%
Medium CHP	14.9%	14.9%	14.9%	14.9%
Medium CCGT + Boiler (with CCA)	14.1%	13.6%	12.4%	11.2%
Delta (Positive = CHP Advantage)	0.7%	1.3%	2.4%	3.6%
Small CHP	20.7%	20.7%	20.7%	20.7%
Small CCGT + Boiler	13.9%	13.4%	12.2%	11.0%
Delta (Positive = CHP Advantage)	6.8%	7.4%	8.5%	9.7%

Table 3: Impact on the investment case for CHP (IRR) versus separate generation if all input fuel used to generate heat were to be exempted from the CPS tax

Comparative IRR		CPS on fuel inputs (heat exempted)		
Plant Type	Baseline	Scenario 1	Scenario 2	Scenario 3
Large CHP	15.6%	14.9%	13.5%	12.0%
Large CCGT + Boiler (CCL exempt)	16.0%	15.4%	14.1%	12.8%
Delta (Positive = CHP Advantage)	-0.4%	-0.5%	-0.6%	-0.8%
Medium CHP	14.9%	14.4%	13.5%	12.5%
Medium CCGT + Boiler (with CCA)	14.1%	13.6%	12.4%	11.2%
Delta (Positive = CHP Advantage)	0.7%	0.8%	1.0%	1.2%
Small CHP	20.7%	20.4%	19.7%	19.0%
Small CCGT + Boiler	13.9%	13.4%	12.2%	11.0%
Delta (Positive = CHP Advantage)	6.8%	7.1%	7.5%	7.9%

Administrative simplicity

Implementing these changes needs to be achieved in the simplest possible way to minimize the burden for Government and industry. The CHP Quality Assurance (CHPQA) programme is a well established mechanism which could be easily adapted at no cost to Government to determine the amount of fuel used for electricity generation. This would easily facilitate either approach to exemption, a) for CPS for all fuel consumed by a CHP or b) an exemption from CPS for fuels used in heat generation, without creating an additional burden for wither industry or Government. An example of how this could work is given in appendix II.

Responses to Consultation Questions

3.A1: What are your expectations about the carbon price in 2020 and 2030?

Predicting the carbon price out to 2020 or 2030 is highly challenging particularly given the fundamental changes to the Emissions Trading Scheme that will commence in 2013. The Government's data indicates a price of £70 tonne in 2030 which does appear high compared to historical levels. If this were to be the case, the level of the carbon price floor (if it is operated in direct relation to the EUA price), may well be higher than indicated in the model proposed in the consultation.

In the context of this consultation, the CHPA is concerned that, once in place, there may be a tendency to raise the CPS tax rate under potential future administrations. Whilst the initial proposals are for a carbon price relative to the EUA price, there is no guarantee for the mechanism to continue in this way. This potential for change in the future will impact the risk analysis for investors. For CHP operators, both the absolute cost of the measure combined with the future CPS price risk will act as a powerful disincentive to invest.

And how important a factor will it be when considering investment in low-carbon generation?

For gas-fired CHP plant the CPS tax will be a strong factor against investing in CHP plant as they will face an increased cost and risk compared separate generation of heat and power. For a power-only generator, the full costs can be passed through to the wholesale market mitigating the CPS tax price risk. A heat generator may be subject to all or part of the existing CCL tax whose increase over time is broadly predictable. For a CHP plant, the tax on the fuel used for heat generation cannot be passed on to the wholesale power market hence increasing the risks compared to a boiler.

The CPS tax may also become more expensive than the CCL boiler rate soon after the policy is implemented; the tax burden for heat delivered from CHP would become greater than the tax burden on heat delivered from a boiler. This cost increase will be exaggerated if the boiler operator has a Climate Change Agreement or were fully exempted from the CCL for boiler fuels.

For other low carbon generation (nuclear, renewables and CCS), generators are expected to operate under the proposed CfD FiT. Operators receiving the CfD FiT will be far less sensitive to price signals under the CPS as the CfD will guarantee the value of their power. Only if the CPS raised the power price above that under a CfD would it impact the operator but, given the costs of developing new low carbon generation and the proposed scenarios for the CPS price, such a situation appears unlikely to materialise. Furthermore, the CPS mechanism will only impact the wholesale price when fossil fuel generation operates at the margin. According to the Redpoint analysis, fossil fuelled plant will operate at the margin for less than 50% of the time by 2025[2]. For long term investment (such as low carbon generation plant) the impact of the carbon price support will be of diminishing significance over time. As much of the significant new plant investment is anticipated to occur post 2023, the impact of the CPS on these investments appears to be very limited.

The Carbon Price support may provide a very significant windfall to existing low carbon generators but such a windfall will not affect the investment case for new plant. The CHPA is concerned about the possibility for a windfall to plant which have already been written down or which are in current receipt of Government subsidies (both direct and indirect)

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.

[2] Electricity market reform: analysis of policy options. Redpoint Energy, December 2011

Whilst long-term certainty in the carbon price could facilitate new investment in low carbon generation, the price would need to be punitively high for such a mechanism to achieve such investment on its own [3]. The Government, through its Electricity Market Reform consultation, recognises this and proposes other mechanisms, principally the CfD FiT for supporting new renewables, CCS and nuclear plant. The combination of the reducing level of carbon pass through and the CfD mechanism causes the CHPA to question whether the CPS proposal will, on its own, bring forward new low carbon investment. Finally, the ability of future Governments to alter the CPS tax rate may cause investors to discount the value of the CPS for future low carbon investment.

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

As mentioned in Q3.A2, the ability of subsequent administrations to alter the CPS mechanism and rate may cause investors to discount significantly the value of the mechanism from the end of this Parliament.

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

Government analysis indicates that carbon price support is not the most cost effective mechanism for delivering a low carbon electricity system. There is wide acceptance that there is a need for reform of the market with the lack of liquidity being a key issue hampering new entrants.

There is a need for a clear narrative from Government as to the direction of the electricity market and its interaction with power demand including heat. In particular, the Government needs to determine a clear unified message on the future role for gas. Currently, there is a mix of messages from government with some arms and agencies indicating that there is almost no role for gas in the future whereas other areas of government have determined that new gas is vital for meeting energy security requirements. The CHPA would encourage Government to ensure that gas-fired CHP plant development is actively supported whilst new gas-fired power stations and gas-fired boilers continue to be approved and commissioned; CHP will emit fewer emissions than these forms of separate generation thus improving both security and affordability of energy supply.

The CHPA is concerned that the Governments proposals in the EMR and the Carbon Price Support consultation may not work in harmony and that their introduction in parallel will simply serve to add cost and administrative burden for no additional low carbon generation.

Whilst the EMR has a focus on power generation, the decarbonisation of industry, especially those with demand for high grade uninterrupted heat supplies, remains a difficult area to tackle. Currently gas-firedCHP represents the best compliance option delivering tangible emissions savings. Harming the viability of CHP may lead to an increase in emissions in those sectors where it is currently being used as a cost effective carbon abatement technology.

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?

The proposals may require significant changes to procedures for CHP operators. CHP plant are often part of a wider heat provision arrangement involving stand alone boilers. Due to the way the CHPQA programme operates, some or all stand-alone boilers may be included as part of the CHPQA compliance for a site. The tax changes may mean that CHP plant will need to re-register with the CHPQA programme based on the costs of the CCL for boiler input fuel and the CPS for generators. For many sites the gas fiscal meter is at the site boundary with sub (non-fiscal)

[3] Electricity market reform: analysis of policy options. Redpoint Energy, December 2011

meters at the CHP plant (which may be owned and operated by a third party). A requirement for a new fiscal meter at the CHP plant may create a significant administrative and cost burden for a CHP operator to comply with the CPS. By using the CHPQA system to levy the CPS tax only on fuel used for power, the need for such meters and complexity would be avoided.

For all sites which consume fossil fuels for a power generation (an potentially other uses), the introduction of the CPS will establish a requirement for administrative processes for determining the proportions of the fuel used in power generation (including the fuel requirement to generate electricity for the purpose of electricity generation) Some calculation will need to be devised for determining the proportion off generation used in power generation. In respect of this CHP plant are similar to power plant and it will be necessary to determine these proportions too. Such a mechanism will require the use of CHPQA as some of the fuel is not used for power generation at all. The CHPQA system is an extant audited and verified system for CHP plant and meets the requirements of the Cogeneration Directive. The ongoing use of the CHPQA and calculation of equitable treatment of CHP through this mechanism offers an administratively simple and cost effective option to Government whilst ensuring that the benefit of new and existing CHP continue to accrue to the UK economy.

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

If the CHPQA system is not to be used then it is difficult to quantify the impact of the CPS on systems for CHP plant operators but it is likely to be significant due to the administrative changes that will be required.

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

See answer to Q4.B2

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.

The CHPA considers that fossil CHP merits additional support above that which it currently receives for as long as new investment can be expected to deliver emissions reductions. The UK Government missed its 2010 target, for 10 GW_e of CHP, by 4.4 GW_e and installed capacity is not growing significantly. The Government's own projections for CHP of 12.7 GW_e by 2020 do not look like they will be achieved without an increase in support for CHP plant. CHP represents one of the lowest costs of carbon abatement to Government and is a well established technology. A failure to secure additional savings from CHP plant will require additional savings to be sought from other, higher cost, CO_2 abatement options and will eliminate one of the most practicable low-cost abatement options for industry.

If the Government wishes to meet its own projections for CHP installations, the CPS mechanism could be used to support 'good quality' gas-fired CHP through a complete exemption on all input fuel. **A complete exemption from the CPS tax would provide a material benefit to good quality CHP and drive industry growth.**

Should Government not wish to use the CPS mechanism to provide additional support for CHP, CHP should, as a minimum, be treated as other power generators i.e. all fossil fuelled electricity generators should be charged for fuel used for the generation of electricity. Fuel consumed for the production of heat, which is not for subsequently used for power generation, should not be subject to the CPS tax. Charging an electricity tax on fuel used to generate heat will lead to a disproportionate penalty on CHP plant compared to separate heat and power generation and significantly impair both the case for continued operation in CHP mode for existing plant and for investment in new CHP (see appendix I).

Commercial Analysis of CHP

For an investment to be made in a CHP plant, that investment will need to demonstrate that:

a) *the investment delivers an IRR better than, or commensurate with, other calls on the capital of that investor; and*

b) *the investment delivers a superior IRR than the alternative investment in a boiler plant and CCGT. Typically an investor will seek a 3 to 4 percentage points premium in the IRR of a CHP plant to reflect the greater risk profile and transaction costs of the CHP plant when compared to the alternative investment. For smaller plant this risk premium will tend to be greater to reflect poor economies of scale and a weaker ability for the investor or host site to manage their energy market risk.*

The projected impact on investment in new CHP plant (expressed as the Internal rate of return {IRR}) was modelled using Government projections and included additional benefits that CHP plant receives such as CCL Levy Exemption certificates (until 2023) and enhanced capital allowances (not available to all CHP investors but included anyway).

Table 4: Effects on CHP plant and separate generation IRRs under the three proposed carbon price scenarios and the current (baseline) case.

Comparative IRR		CPS on all fuel inputs		
Plant Type	Baseline	Scenario 1	Scenario 2	Scenario 3
Large CHP	15.6%	14.8%	12.9%	11.1%
Large CCGT + Boiler (CCL exempt)	16.0%	15.4%	14.1%	12.8%
Delta (Positive = CHP Advantage)	-0.4%	-0.7%	-1.2%	-1.7%
Medium CHP	14.9%	13.8%	11.2%	8.7%
Medium CCGT + Boiler (with CCA)	14.1%	13.6%	12.4%	11.2%
Delta (Positive = CHP Advantage)	0.7%	0.2%	-1.2%	-2.5%
Small CHP	20.7%	19.9%	17.8%	15.8%
Small CCGT + Boiler	13.9%	13.4%	12.2%	11.0%
Delta (Positive = CHP Advantage)	6.8%	6.5%	5.6%	4.7%

The results of the modeling are illustrated in Table 4. This analysis indicates that under the baseline conditions:

- *For medium and large plant the baseline conditions indicate that the case for investment is CHP plant is already marginal today. These conditions will not preclude CHP investment but suggest that CHP investment will only occur where site-specific circumstances, such*

as regulatory pressures or wider investments on the site, impact upon commercial decision.

- *For smaller plant there is a positive case for investment.*

These modeling outputs reflect the empirical evidence of the marketplace, with a low general level of activity in the medium and large sector and more buoyant conditions for smaller plant.

Under the various scenarios following the introduction of the CPS element of the CCL:

- *For all CHP there is a major deterioration of the absolute IRR from the baseline conditions. The impact is greatest under Scenario 3, where the deterioration ranges from 4.5 percentage points for the large CHP to 6.2 percentage points for the medium CHP.*

- *For all CHP there is a significant deterioration in the relative IRR as compared to the alternative investment in CCGT and boilers. Impacts are again greatest under Scenario 3, where for a large CHP the CHP investment is weaker than the alternative by 1.7 percentage points, this differential rising to 2.5 percentage points for the medium-sized plant. Whilst the small plant continues to show a positive differential under Scenario 3, this has fallen by 2.1 percentage points from the baseline case.*

For all CHP, under all circumstances, the analysis demonstrates a major deterioration of the investment and operating conditions for CHP as a result of the introduction of the CPS tax. It is recognised that the equivalent investment in CCGT and boilers is also impacted by the changes, as would be expected from a tax of this nature. However the relative impact on CHP is much greater, with the consequences that:

a) the tax has a greater negative impact upon the lower-carbon CHP investment; and

b) CCGT and boilers will become relatively more attractive as an investment option.

Table 5 Impact on investment case (absolute IRR) for CHP compared to separate generation under all three carbon price scenarios when CHP is fully exempted from the CPS tax

Comparative IRR		CPS on fuel inputs (CHP exempted)		
Plant Type	Baseline	Scenario 1	Scenario 2	Scenario 3
Large CHP	15.6%	15.6%	15.6%	15.6%
Large CCGT + Boiler (CCL exempt)	16.0%	15.4%	14.1%	12.8%
Delta (Positive = CHP Advantage)	-0.4%	0.2%	1.5%	2.8%
Medium CHP	14.9%	14.9%	14.9%	14.9%
Medium CCGT + Boiler (with CCA)	14.1%	13.6%	12.4%	11.2%
Delta (Positive = CHP Advantage)	0.7%	1.3%	2.4%	3.6%
Small CHP	20.7%	20.7%	20.7%	20.7%
Small CCGT + Boiler	13.9%	13.4%	12.2%	11.0%
Delta (Positive = CHP Advantage)	6.8%	7.4%	8.5%	9.7%

Table 5 illustrates the effect of providing a complete exemption from the CPS tax. This analysis demonstrates that:

- *All CHP retains the positive IRR at the level of the baseline scenario.*

- *There is a progressive improvement in the relative IRR as compared to the alternative investment in CCGT and boilers as the CPS rate of CCL increases. Under Scenario 1 (low CPS rate) there is a modest improvement in the advantage for all scales of CHP of 0.6 percentage points. At higher rates of CPS the advantage for CHP increases, and under Scenario 3 is in the region of the 3 to 4% percentage points advantage in IRR that is typically sought for this scale of plant. For smaller plant the situation is similarly improved.*

Table 6 Impact on investment case (IRR: percentage point change) for CHP compared to separate generation under all three carbon price scenarios when fuel used for heat from CHP is exempted from the CPS tax

Comparative IRR		CPS on fuel inputs (heat exempted)		
Plant Type	Baseline	Scenario 1	Scenario 2	Scenario 3
Large CHP	15.6%	-0.7%	-2.1%	-3.6%
Large CCGT + Boiler (CCL exempt)	16.0%	-0.6%	-1.9%	-3.3%
Delta (Positive = CHP Advantage)	-0.4%	-0.1%	-0.2%	-0.3%
Medium CHP	14.9%	-0.4%	-1.4%	-2.4%
Medium CCGT + Boiler (with CCA)	14.1%	-0.5%	-1.7%	-2.9%
Delta (Positive = CHP Advantage)	0.7%	0.1%	0.3%	0.5%
Small CHP	20.7%	-0.3%	-1.0%	-1.7%
Small CCGT + Boiler	13.9%	-0.5%	-1.7%	-2.9%
Delta (Positive = CHP Advantage)	6.8%	0.3%	0.7%	1.1%

Table 6 illustrates the effect where the fuel consumed for the production of heat is exempted from the CPS tax. This analysis demonstrates that:

- *The IRR for all CHP deteriorates with the introduction of the CPS tax, with the greatest impact demonstrated at the highest rate of CPS under Scenario 3. The rate of deterioration for CHP is consistent with the rate of deterioration for the equivalent investment in CCGT and boiler plant.*

- *For all CHP under all scenarios there is minimal change in the relative IRR as compared to the alternative investment in CCGT and boilers as the CPS rate of CCL increases. There is a small deterioration in the situation for the largest plant, with the disadvantage for CHP rising from 0.4 percentage points under the baseline to 0.7 percentage points under Scenario 3. For the medium plant the advantage improves from 0.7 percentage points to 1.2 under Scenario 3, and for the smaller plant the advantage increases by 1.1 percentage points over the same range.*

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 CHPA is concerned that the structure of this question implies that the Government's proposals provide additional of more preferential treatment for CHP. As a result there is a risk that other stakeholders responding to the consultation are likely to respond 'no' to this question due to the manner in which it is framed. The proposals will penalise CHP compared to the status quo and create the perverse outcome that CHP operators may pay government for each tonne of carbon saved!

As stated in Q4.C1, the CHPA believes that CHP merits additional support and that this could be provide through a full exemption from the CPS for all good quality CHP plant. **As an absolute minimum CHP should not be penalised compared to the current situation and this outcome is achieved by exempting the fuel used for heat generation from the CPS tax.** Such an exemption will ensure that CHP is not disadvantaged through the new mechanism.

If the CPS tax were levied on all input fuel the result would be to halt new investment in CHP. Existing CHP may stop operating and declassify as CHP. Declassifiaction would arise as there would be no advantage to operate as a good quality CHP rather than an autogenerator. In these circumstances, CHP operators may stop registering for the CHPQA (to save administrative costs) as it will yield little or no benefit. As a result, the emissions savings delivered by those CHP plant could no longer be counted by Government and reported emissions for the UK may rise as a result. The recorded installed capacity for CHP plant in the UK would also fall.

Working with members, the CHPA has carried out extensive fiscal analysis of the impacts of the CPS on CHP plant. Headline details of this analysis are presented in Annex 1.

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?

The CHPA advocates that CCS power stations should be exempted from the CPS tax relief based on the amount of carbon they abate. For CCS with CHP, the additional carbon abatement from supplying carbon free heat should be included within the calculation to ensure that CCS CHP is treated equitably within the mechanism. The CHPQA may be used to achieve this.

Imports and exports

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

For power imports and exports, the proposals will create an unfair competitive advantage to power inputs irrespective of the carbon intensity of the source. There will be an unfair disadvantage to fossil fuel generated power exported from the UK.

As generation in Northern Ireland operates in the All Ireland market it is unclear how the CPS will interact with this market, but costs for power in Eire may increase as a result.

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

Nil response

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

Carbon price support mechanism

See Q4. D1

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 CPS rates will provide little or no certainty for investors as its impact and will diminish in an unpredictable way over time (due to increasing low carbon penetration starting from as early as 2018). As the carbon price pass-through is expected to start to diminish 5 years after the introduction of the policy, the potential for it providing a medium to long term signal seems very limited.

For CHP operators it is not the carbon price but mechanism that will provide uncertainty. The risk of future changes in the CPS rate or mechanism by subsequent Parliaments remains a very significant risk for the CPS policy.

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

As stated Q3.A1 it is unclear as to what value the CPS brings in delivering low-carbon generation within the context of the wider reforms proposed. In the interest of simplification for both Government and the industry the CHPA would prefer for all low carbon generation incentives to be explicit through one mechanism which could also ensure transparency.

The CfD FiT alone could deliver low carbon generation and the CfD mechanism costs consumers only on delivery of new low carbon generation. **The CPS, however, adds in consumer cost but provides no guarantee of delivery of new low carbon generation** particularly during a time of fragile economic recovery. Consumers are required to pay a premium for power but that premium may not achieve any new investment. The proposal, therefore, represents a high risk for consumers and it is questionable whether it is a good use of their money.

If CPS were to be implemented, it should only be on fossil fuels used for power generation not on fossil fuel used for heat generation.

The most appropriate mechanism is a rate set based on a carbon market index over a specific period. Once set the legislation should prohibit future government intervention in the tax-inclusive EUA price.

The stated intent of the proposal is to provide greater stability and certainty over the carbon price. The only method of achieving this is through a mechanism which explicitly links the support rate and the emissions price achieved in the market. By setting the rate over an annual index the Government would avoid setting a rate in a manner which lacks transparency or which is tied to the price at one point in time. Rather than allowing different companies to hedge using a timing of their choice, any mechanism will force a large number of buyers onto the market at a known time and could potentially distort the market. Although this will be a natural consequence of any support mechanism linked to the market price, the longer the time period over which the index is set the less the market will be impacted.

Ideally the rate should be tied to an emissions price at or close to the time of delivery. This avoids tying up capital holding EUAs for long periods of time and closer matches the EUAs purchased at the index to the number of EUAs required by a generator. One method could be setting the support rate monthly, based on the average index for the previous month. We assume that the UK EUA auctions will be the index used to set the reference price. As such

auctions should be held on a regular (e.g. weekly) basis rather than the current irregular sales of large volumes so as to tie purchases closer to time of delivery of power.

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

The proposal will significantly impact hedging strategies for all companies impacted by the carbon price support rate. As the support rate is relative to a defined EU ETS price, to maintain certainty over carbon price achieved it will be necessary to source credits at the time the price is defined. To source credits at any time before or after the price is defined would create uncertainty over the total price achieved, as the total carbon price will be EUA price plus carbon support price.

Additionally, the price support mechanism may impact the instruments used to hedge carbon, adding extra cost to generators. Generators may need to use options or similar to hedge the risk from shifts in the carbon price from below to above the support price level (or vice versa).

For example, where a power producer hedges power and fuel three years forward they would assume a total carbon price at the level defined in legislation rather than at current market rates (where this is lower) and not enter into carbon hedges. To keep the hedged revenue certain carbon credits would then be purchased at the time the reference price for the legislation is set, and any deviation in price achieved in the market from the reference price would be an additional cost or revenue to the company. However, if the reference carbon price was above the support level set in legislation, but the forward price at the time of the forward power sales hedging was below this support level, the spark or dark spread locked in will be lower than expected and potentially negative unless the generator had used options to hedge this risk.

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?

For CHP operators the target price is less relevant than the difference between the EUA price and the target price as this represents CPS tax. As the future EUA price is unknown and difficult to forecast, the target price is irrelevant. The reason the absolute CPS tax value is important to CHP operators is that it is this value that will be used to compare with the counterfactual investment cost - i.e. the CCL liabilities of a boiler and generation from the grid. The risk of the EUA price being low and, therefore, the CPS price being higher than forecast, creates a significant investment risk for CHP and will discourage investment in CHP. As noted earlier, this risk can be avoided through exempting the fossil fuel used for the generation in a CHP plant from the CPS tax.

The low level of carbon pass-through anticipated in 2030 will limit the impact of any carbon price on the wholesale electricity market in 2030.

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?

See Q4. F1

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

The introduction of the CPS tax before new low carbon investment can be generating represents a windfall to existing generators. It is not anticipated that significant new nuclear will be in place before 2020 hence the proposals risk a windfall to existing plant supported under the renewables obligation and existing nuclear. If the CPS were applied from 2018, however, when new low

carbon generation may come on stream, then impacts of the CPS will be diminished due to decreasing periods when fossil fuel generation operates at the margin

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 the CPS tax before new low carbon investment can be generating represents a windfall to existing generators. It is not anticipated that significant new nuclear will be in place before 2020 hence the proposals risk a windfall to existing plant supported under the renewables obligation and existing nuclear. If the CPS were applied from 2018, however, when new low carbon generation may come on stream, then impacts of the CPS will be diminished due to decreasing periods when fossil fuel generation operates at the margin

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

The proposals will halt investment in CHP and will incentivise CHP to consider declassifying as CHP as well as increasing the use of gas fired boilers thus increasing CO_2 emissions.

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

The aim of carbon price support is to increase the cost of wholesale power generated through fossil fired generation. If the CPS fails to raise the wholesale price the policy cannot provide value to potential investors in new low carbon generation and, therefore, would not be working.

As noted earlier, the CHPA is not persuaded that the proposals will, on their own, bring forward any new low carbon generation (nuclear, CCS, renewables) and that with the CFD FiT in place, the CPS will have no impact on these investment decisions either.

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 reform of the carbon price floor as proposed will create a punitive and disproportionate impact on CHP plant as all the fuel (not only fuel used to generate power) will be subject to the new carbon price support tax. Under these conditions the effective level of tax per unit of power generated could be up to twice that paid by the equivalent gas-fired power station despite the CHP plant saving carbon. The impact of the proposals would be to cause:

1. existing CHP plant to stop operating in CHP mode
2. CHP plant to declassify from the CHP Quality Assurance Programme (CHPQA)
3. a halt new investment in CHP

The result would be an increase in actual and reported CO_2 emissions from CHP sectors across the UK

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 proposals will provide a significant windfall to existing low carbon generators - the Government has not published the costs of this but it appears to be a poor use of consumers' money.

Using DECC projections from 2013 for existing nuclear output, which reflects plant closures going forwards and the level of Renewable output achieved in 2013 going forwards, it was assumed that the marginal plant is a 50% CCGT to derive the value of CPS passed through to existing Low

Carbon generation. No impacts from interconnectors have been included (hence with these assumptions this is an underestimation)

The estimated impact from CPS to existing Renewable and Nuclear generators in 2020 cumulative first 10 yr impact of CPS, assuming full pass-through of CPS is set out below:

- Under Scenario 1: in 2020 - £150MM. The cumulative impact - £0.9BN (2013-22)
- Under Scenario 2: in 2020 - £500MM. The cumulative impact - £3.0BN (2013-22)
- Under Scenario 3: in 2020 - £850MM. The cumulative impact - £5.4BN (2013-22)

Electricity price impacts

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

The CHPA cannot comment of the trading strategies of CHP operators.

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

The CHP industry will suffer significant harm as a result of these proposals as CHP will become significantly less attractive when compared to separate generation of heat and power. The CHPA is not opposed to a mechanism to support the carbon price but the one proposed will harm the CHP manufacturing, installation and maintenance industries. Furthermore, the industries that are served by CHP plant, many of which are in carbon leakage sectors, will also suffer directly as a result of the proposals. If, as proposed, CHP operators will pay the CPS tax on fuel used for heat production this will increase the heat cost and, for industry, costs of production. Much of the UK's industry that is subject to carbon leakage is currently supplied by CHP plant and the increase in costs will make these UK industries less competitive compared to EU and international counterparts. This cost increase will be particularly pronounced in sectors with CCAs and in CCL exempt sectors.

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

CHP plant large enough to access the wholesale market should be able to pass-through the carbon price to the power market but only on the power they generate at the rate paid by a power only generator. As the proposal is to include fuel used for heat generation, CHP plants will, in effect, pay about twice the tax per unit of power generated and, therefore, will be unable to pass the full cost of the tax onto the electricity market. The cost of CHP heat will increase as a result and, at the point that this additional costs makes a CHP more costly to operate than a boiler the operator will cease running the CHP plant with a consequential increase in emissions as a result.

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

CHP plant large enough to access the wholesale market should be able to pass-through the carbon price to the power market but only on the power they generate at the rate paid by a power only generator. As the proposal is to include fuel used for heat generation, CHP plants will, in effect, pay about twice the tax per unit of power generated and, therefore, will be unable to pass the full cost of the tax onto the electricity market. The cost of CHP heat will increase as a result and, at the point that this additional costs makes a CHP more costly to operate than a boiler the operator will cease running the CHP plant with a consequential increase in emissions as a result.

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

The reform of the carbon price floor as proposed will create a punitive and disproportionate impact on CHP plant as all the fuel (not only fuel used to generate power) will be subject to the new carbon price support tax. Under these conditions the effective level of tax per unit of power generated could be up to twice that paid by the equivalent gas-fired power station despite the CHP plant saving carbon. The impact of the proposals would be to cause:

1. existing CHP plant to stop operating in CHP mode
2. CHP plant to declassify from the CHP Quality Assurance Programme (CHPQA)
3. a halt new investment in CHP

The result would be an increase in actual and reported CO_2 emissions from CHP sectors across the UK

As long as new gas fired power stations and boilers continue to be consented and installed, investment in new gas-fired CHP plant will yield emissions savings over its entire life compared to those boilers and power stations. **Investment in new CHP plant is, therefore, a valuable tool for government in reducing UK emissions.**

The projected impact on investment in new CHP plant (expressed as the Internal Rate of Return {IRR}) was modelled using Government projections and included additional benefits that CHP plant receives such as CCL Levy Exemption certificates (until 2023) and Enhanced Capital Allowances (not available to all CHP investors but included anyway).

For an investment to be made in a CHP plant, that investment will need to demonstrate that:

a) the investment delivers an IRR better than, or commensurate with, other calls on the capital of that investor; and
b) the investment delivers a superior IRR than the alternative investment in a boiler plant and CCGT. Typically an investor will seek a 3 to 4 percentage points premium in the IRR of a CHP plant to reflect the greater risk profile and transaction costs of the CHP plant when compared to the alternative investment. For smaller plant this risk premium will tend to be greater to reflect poor economies of scale and a weaker ability for the investor or host site to manage their energy market risk.

The results of the modeling are illustrated in Table 7.

This analysis indicates that under the baseline conditions:

- For medium and large plant the baseline conditions indicate that the case for investment is CHP plant is already marginal today. These conditions will not preclude CHP investment but suggest that CHP investment will only occur where site-specific circumstances, such as regulatory pressures or wider investments on the site, impact upon commercial decision.

- For smaller plant there is a positive case for investment.

These modeling outputs reflect the empirical evidence of the marketplace, with a low general level of activity in the medium and large sector and more buoyant conditions for smaller plant.

Under the various scenarios following the introduction of the CPS element of the CCL:

- For all CHP there is a major deterioration of the absolute IRR from the baseline conditions. The impact is greatest under Scenario 3, where the deterioration ranges from 4.5 percentage points for the large CHP to 6.2 percentage points for the medium CHP.

- For all CHP there is a significant deterioration in the relative IRR as compared to the alternative investment in CCGT and boilers. Impacts are again greatest under Scenario 3, where for a large CHP the CHP investment is weaker than the alternative by 1.7

percentage points, this differential rising to 2.5 percentage points for the medium-sized plant. Whilst the small plant continues to show a positive differential under Scenario 3, this has fallen by 2.1 percentage points from the baseline case.

For all CHP, under all circumstances, the analysis demonstrates a major deterioration of the investment conditions for CHP as a result of the introduction of the CPS tax. It is recognised that the equivalent investment in CCGT and boilers is also impacted by the changes, as would be expected from a tax of this nature. However the relative impact on CHP is much greater, with the consequences that:

c) the tax has a greater negative impact upon the lower-carbon CHP investment; and

d) CCGT and boilers will become relatively more attractive as an investment option.

Table 7: Effects on CHP plant and separate generation IRRs under the three proposed carbon price scenarios and the current (baseline) case.

Comparative IRR		CPS on all fuel inputs		
Plant Type	Baseline	Scenario 1	Scenario 2	Scenario 3
Large CHP	15.6%	14.8%	12.9%	11.1%
Large CCGT + Boiler (CCL exempt)	16.0%	15.4%	14.1%	12.8%
Delta (Positive = CHP Advantage)	-0.4%	-0.7%	-1.2%	-1.7%
Medium CHP	14.9%	13.8%	11.2%	8.7%
Medium CCGT + Boiler (with CCA)	14.1%	13.6%	12.4%	11.2%
Delta (Positive = CHP Advantage)	0.7%	0.2%	-1.2%	-2.5%
Small CHP	20.7%	19.9%	17.8%	15.8%
Small CCGT + Boiler	13.9%	13.4%	12.2%	11.0%
Delta (Positive = CHP Advantage)	6.8%	6.5%	5.6%	4.7%

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?

Due to the short timetable for the consultation (effectively 6 weeks dues to the Christmas and New Year period), the CHPA has not had sufficient time to investigate the impact assessment in sufficient detail to comment. We are concerned that the impact assessment appears to contain no mention of CHP. Given that our modelling using Government projections indicates significant harm to CHP operators; this appears to be a significant omission by the Government.

Appendix I

The analysis modelled the impact of the proposed CPS on 3 sample types of CHP plant versus the comparative investment decision of separate generation of Power and Heat:

Large CHP generating 830MW of Power, supplying 300 teph of Steam to a Refinery
Medium CHP generating 66MW of Power, supplying 95 teph of Steam to a user with a CCLA
Small embedded CHP generating 1MW of Power and 2 teph of Steam.

The following charts highlight the increased liability faced by CHP versus separate generation and demonstrate that the statement made in *"Fossil fuel based CHP would still face a significantly lower CCL liability relative to the separate generation of heat and power"* is incorrect. The charts below indicate that under CPS the generation of heat in a CHP will face a greater liability than that from comparative generation in a standalone boiler.

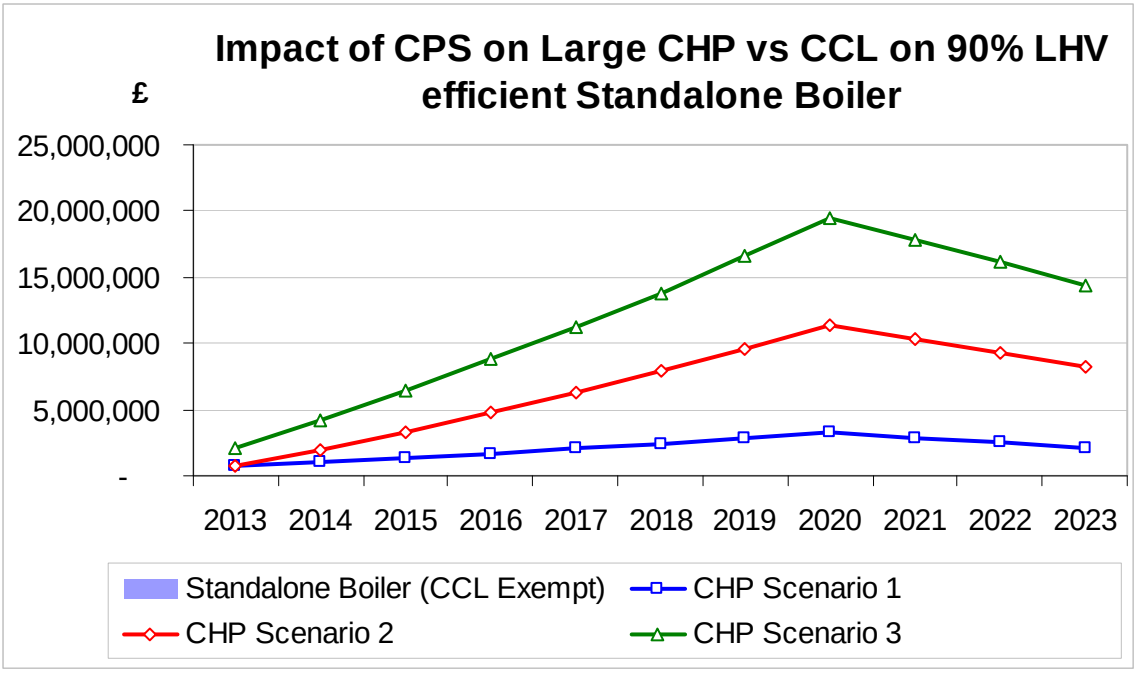

Figure 1 – The impact of the CPS is that a large CHP supplying heat to a refinery will face a greater liability than that of a boiler which faces a zero liability.

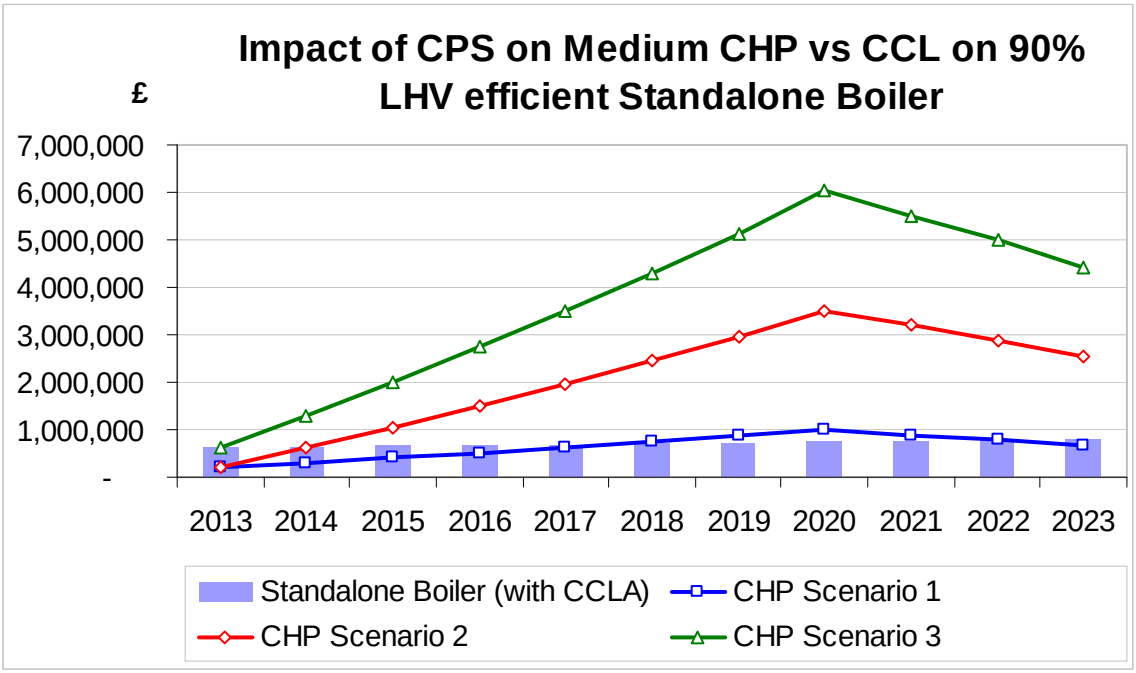

Figure 2 – The impact of the CPS is that a Medium sized CHP supplying heat to a user with a CCLA will face a greater liability than that of a boiler which receives a 65% CCL discount under most scenarios.

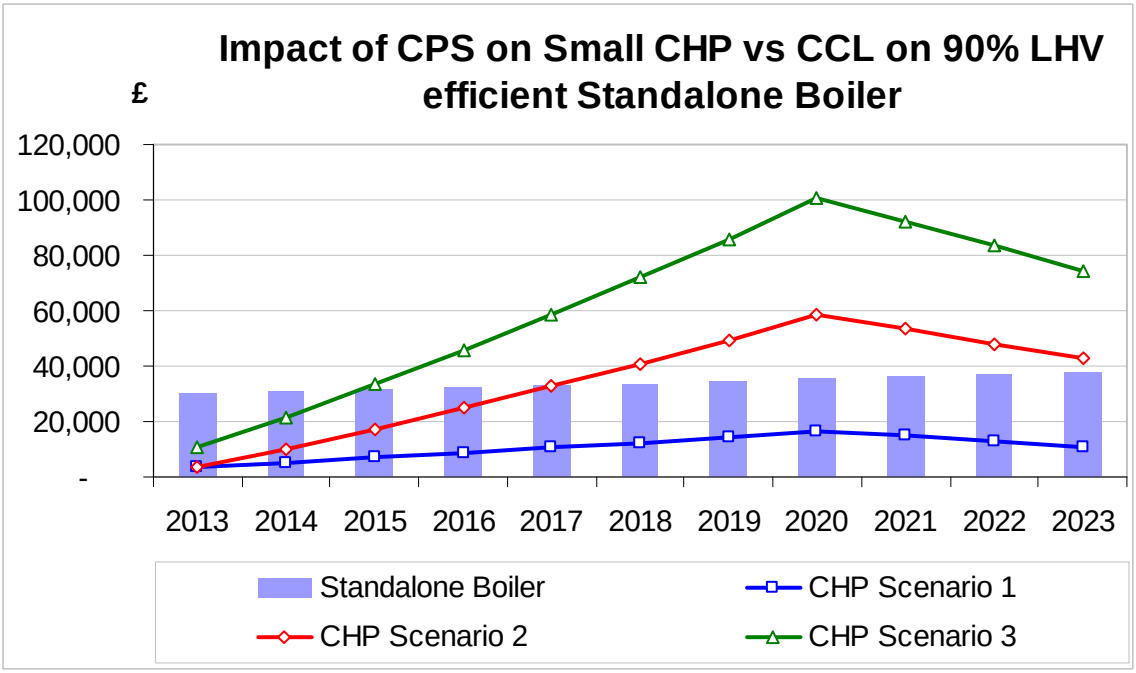

Figure 3 – The impact of the CPS is that a Small sized CHP supplying heat to a user will face a greater liability than that of a boiler under Scenarios 2 and 3 for most of the time

The subsequent three charts indicate that, when the lines cross above the zero point on the y-axis, the total liability to CHP is greater than that of separate generation and result in CHP paying government for saving emissions.

For the Large CHP this occurs under all scenarios from implementation, For Medium CHP this occurs under scenario 2 from 2016 and under scenario 3 from 2014. For the Small CHP this occurs only under scenario 3 from 2018.

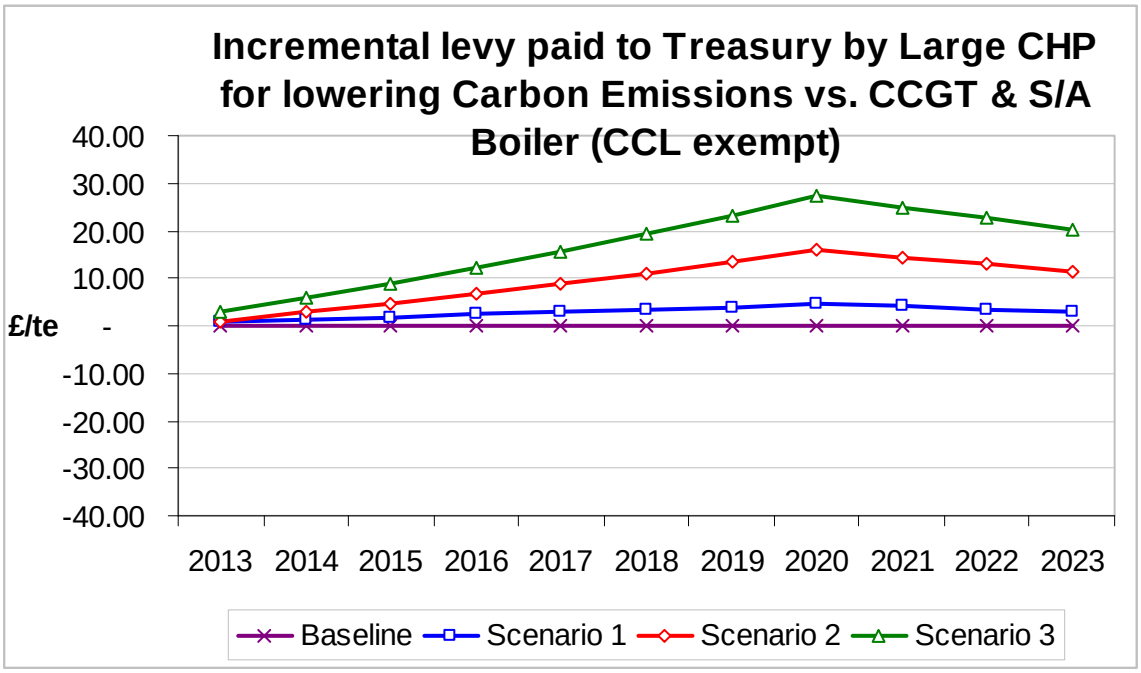

Figure 4 Incremental levy paid by large CHP for lowering carbon emissions compared to separate generation

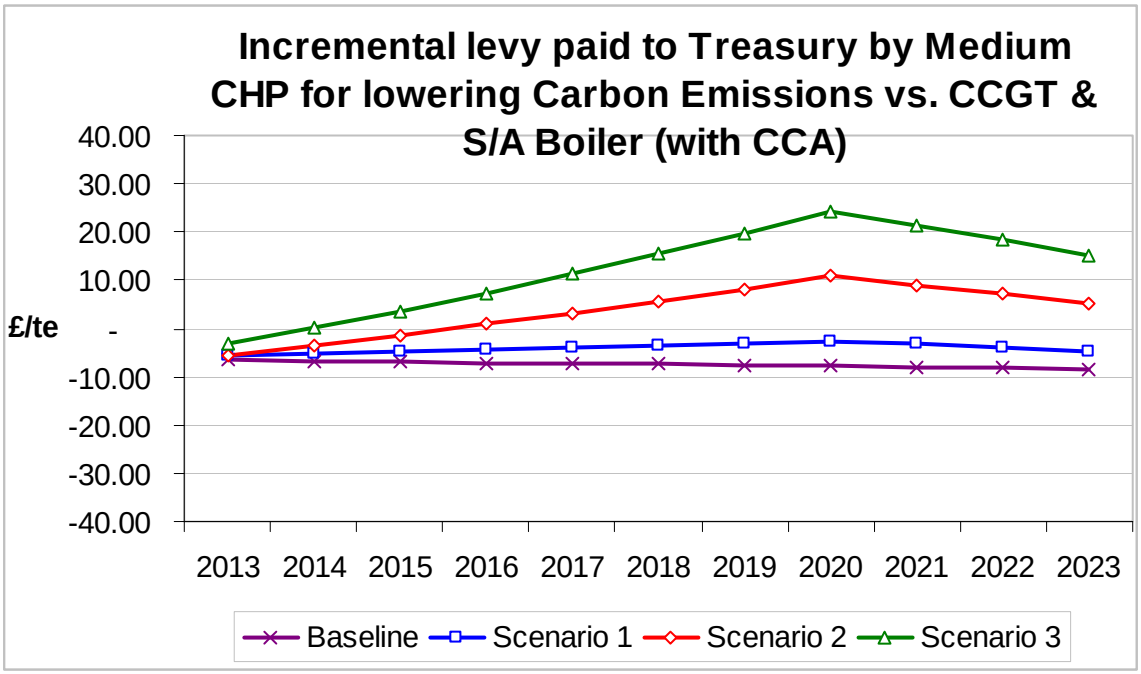

Figure 5 Incremental levy paid by medium CHP for lowering carbon emissions compared to separate generation

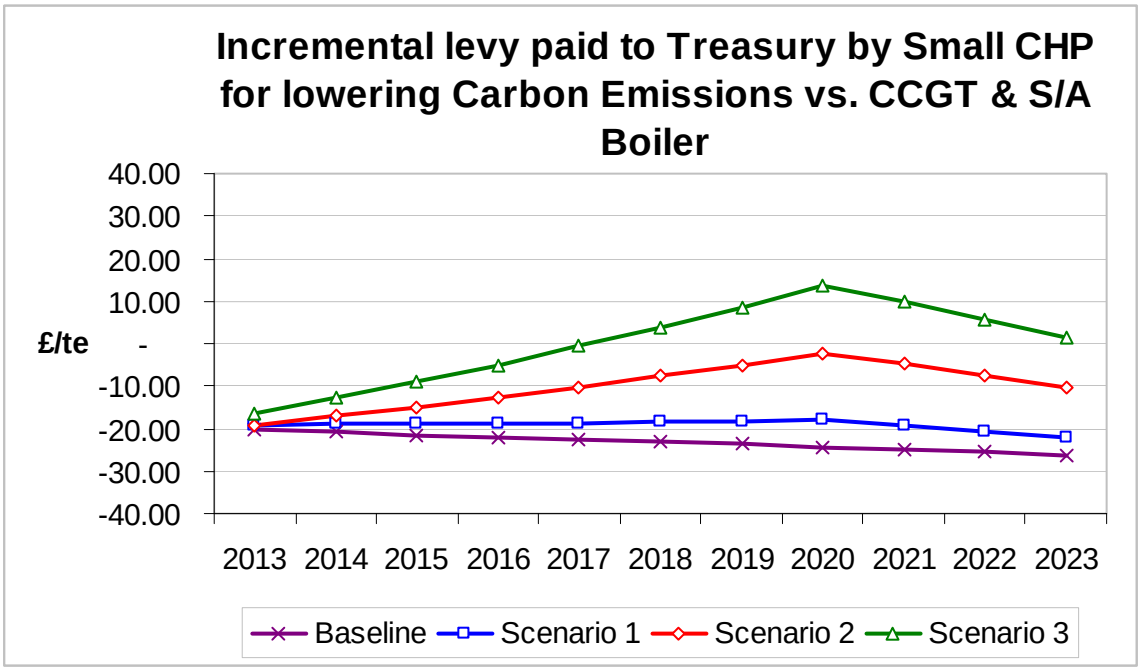

Figure 6

Tables 8 and 9 below highlight the impact on IRR from CPS to CHP and its competition (Fig.7) and that by exempting heat CHP can move back to a position of equilibrium (Fig 8), annex III proposes how this could by achieved simply.

Table 8

IRR Impact vs. Baseline	CPS on all fuel inputs		
Plant Type	Scenario 1	Scenario 2	Scenario 3
Large CHP	-0.8%	-2.7%	-4.5%
Large CCGT + Boiler (CCL exempt)	-0.6%	-1.9%	-3.3%
Medium CHP	-1.1%	-3.6%	-6.2%
Medium CCGT + Boiler (with CCA)	-0.5%	-1.7%	-2.9%
Small CHP	-0.8%	-2.9%	-5.0%
Small CCGT + Boiler	-0.5%	-1.7%	-2.9%

Table 9

IRR Impact vs. Baseline	CPS on fuel inputs (heat exempted)		
Plant Type	Scenario 1	Scenario 2	Scenario 3
Large CHP	-0.7%	-2.1%	-3.6%
Large CCGT + Boiler (CCL exempt)	-0.6%	-1.9%	-3.3%
Medium CHP	-0.4%	-1.4%	-2.4%
Medium CCGT + Boiler (with CCA)	-0.5%	-1.7%	-2.9%
Small CHP	-0.3%	-1.0%	-1.7%
Small CCGT + Boiler	-0.5%	-1.7%	-2.9%

Appendix II

As a minimum the CHPA believe that CHP should be exempted from the fuel it uses to generate heat so as to retain its current competitive position versus the separate generation of heat and power. This can be achieved by a simple calculation using the existing CHPQA process building on a process that is already in place and familiar to suppliers, with no additional material cost or administrative burden to both government and industry.

The CHPQA calculation already identifies Qualifying Heat Output (QHO), Total Fuel Inputs (TFI) and Qualifying Fuel Inputs (QFI). Assuming that the operator qualifies as 100% Good Quality CHP, QFI and TFI are the same number. Taking QHO and dividing by the efficiency delivered from a standalone boiler would give Fuel used in the generation of heat, which would then be deducted from QFI to ascertain the fuel inputs subject to CPS. See the worked examples below:

Example 1

TFI	100MW
QFI	100MW
QHO	30MW

Fuel used in the generation of Heat (HFI) = QHO / Standalone Boiler Efficincy

HFI = 30 / 0.85
HFI = 35MW

TFI subject to CPS	= QFI – HFI
TFI subject to CPS	= 100 – 35
TFI subject to CPS	= 65MW

If the CHP operator is partially qualified then QFI would be lower than TFI the calculation would be as per example II below

Example 2

TFI	100MW
QFI	80MW
QHO	20MW

HFI = 20 / 0.85
HFI = 24MW

TFI subject to CPS	= QFI – HFI + TFI – QFI
TFI subject to CPS	= 80 – 24 + 100 - 80
TFI subject to CPS	= 76MW

A simple amendment to the CHPQA certificate could identify the volume calculated above and the PP11 CCL exemption form could be amended to provide the supplier with the proportion of input fuel subject to CPS.

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10th February 2011,

For the Attention of:
Martin Shaw
Environmental Team Taxes
HM Revenue and Customs (HMRC)

And:
Michael Stansfield
Environment and Transport Tax team
HM Treasury

From
[redacted]

Subject: Carbon Price Floor Consultation

Dear Sirs,

Climate Change Capital would welcome the opportunity to participate in any further workshops you may be holding to discuss stakeholder views.

There are two questions in the Carbon Price Floor consultation which we would like to address:

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

The HMT/HMRC Carbon Price Floor consultation document and the DECC Electricity Market Reform consultation document are both correct in stating that investors are likely to discount to some extent the durability of a mechanism delivered in this way. Despite all the advantages of putting a price on the externality, the government's own modelling assumes that the investor cost of capital might be higher with this approach than under, for example, a Feed-in Tariff contractual arrangement. Experience with the 'fuel price escalator,' introduced in 1993 but abandoned in 1999 due to political pressure, is a commonly cited example of the risk of a tax mechanism not being durable.

The extent to which a mechanism delivered through the tax system is discounted by investors will be a function of the credibility of the overall Carbon Floor Price targeted, as well as its method of delivery.

Because of the arbitrage conditions created by the ability to bank and borrow in the EU ETS, and the Emissions Trading Scheme Directive's commitment to a post 2020 phase 4, the prices quoted in the market today for EUA spot and futures contracts reflect future price expectations in the market in 2030 of around €30.
The DECC scenarios assume a price of £70 in 2030 for EUAs plus carbon price support. Even taking account of the fact that market participants may be behaving inefficiently, or perhaps discounting the long-term viability of the EU ETS, there is no indication that the European-wide market foresees EUA prices at anything like the levels assumed for the Carbon Floor Price in the DECC scenarios in 2030. Investors, committing to 20 year investments, will be very concerned that beyond 2020 the UK will be unlikely to commit firmly to carbon price support levels under any mechanism of as much as £30-50/tCO_2e. In this light, the fact of annual parliamentary voting on the Finance Bill makes a tax seem especially vulnerable.

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

It will never be possible to design the absolutely perfect system for creating assets and liabilities in the real economy which drive the desired decarbonisation outcome at the lowest cost of investor capital and cost to the economy.

Climate Change Capital considers that there is much to admire in governments' proposals. Taken together the HMT/HMRC and DECC documents are, in principal, finding a reasonable balance between UK and EU policies given the UK's desire to lead by example. The adoption by the EU of a 30% emission reduction target by 2020 would clearly improve the balance.

They also strike a reasonable balance between a 'quantity' based system (the EU ETS) and a 'price' based system (the Carbon Price Floor) creating a value for the externality on the one hand, with the 'technology-push' and 'winner-picking' in the form of additional support (FiTs/CfDs) for the high incremental costs of renewable energy infrastructure on the other.

And revenues raised from a tax mechanism, as from auctioning of EUAs, can reduce the distortionary impact of taxes elsewhere in the economy, including those raised to subsidise renewable energy and clean technology.

Carbon price support could carry a heavy burden in creating a sufficiently high carbon price. How then can the advantages of the proposed tax mechanism and overall combination of policies be maintained?

To be successful the central role of the Carbon Floor Price must be credible. In some of the government's own modelling scenarios, carbon price support leads to a higher cost of capital for investors due to assumed fears about durability.

However, we believe that the mechanism could be designed to create significantly greater investor certainty, if HMT underwrote the value of the carbon price support (the difference between the Carbon Price Floor and the EUA allowance price) for fixed 'expiry' dates in the future. Depending on how carbon price support was determined these fixed expiry dates might, for example, be at every 5 years for 20 years into the future, with the 20 year commitment rolled forward every 5 years. Investors could, in effect, own a **contractual** 'put' option on the difference between Carbon Floor Price and the EUA (the latter can be hedged in the EUA forward market) for as long as 20 years.
From an investor perspective the government needs to take on a **contractual** obligation if investors are to account properly for real economy carbon liabilities in their balance sheets and investment committee spreadsheets.

Such an underwriting mechanism would create a liability for the Treasury. But as the consultation paper points out: "carbon price uncertainty is predominantly driven by wider regulatory uncertainties and the Government might therefore be better placed to manage some carbon price risk." **If government is unwilling to take on the liability implied by the value of the 'put option', then it cannot expect investors to do so.** But if it does, the prize is great. By reducing uncertainty, an underwriting mechanism would reduce the time value of a 'wait and see' approach on the part of investors, accelerating investment and allowing for a lower overall Carbon Floor Price trajectory. It would ensure that the cost of capital in investment spreadsheets was as low as possible. This would in turn allow the government's modelling to assume lower overall costs to the economy and would preclude the need for a series of further policy interventions designed to reassure investors.

The consultation paper states that "uncertainties could to some extent be mitigated through a cross-party commitment to target a carbon price over the longer term." The Climate Change

Bill and the Climate Change Committee could allow the government to take on a contractual liability which mirrors the use of this tax mechanism by underwriting carbon price support.

Yours faithfully,

Rupert Edwards

CLIMATE STRATEGIES RESPONSE TO HM TREASURY AND HM REVENUE AND CUSTOMS CONSULTATION ON CARBON PRICE FLOOR

BASED ON ANALYSIS PRESENTED IN THE JOINT CLIMATE STRATEGIES AND CLIMATE POLICY INITIATIVE PROJECT 'CARBON PRICING FOR LOW CARBON INVESTMENT'

[redacted]

[redacted]

CLIMATE POLICY INITIATIVE
BERLIN

11 February 2010

Climate Strategies aims to assist government in solving the collective action problem of climate change. A "not for profit" membership organisation, Companies House Number 05796323. Funders include governments and foundations. All our research is published in the public domain.

Climate Strategies
www.climatestrategies.org

Climate Strategies Response to HM Treasury and HM Revenue and Customs Consultation on Carbon Price Floor

Based on Analysis Presented in the Joint Climate Strategies and Climate Policy Initiative Project 'Carbon Pricing for Low Carbon Investment'

1. Introduction

The following comments on the UK proposal for a carbon price floor to support and create certainty for low-carbon investments are based on a the study "Carbon pricing for low-carbon investment" that was jointly pursued by Climate Strategies and Climate Policy Initiative with partners across Europe and is available together with the contributions from various partner organisations on www.climatepolicyinitiative.org and www.climatestrategies.org.

The proposal is in line with the objective to advance the low-carbon development agenda in the UK, which is widely acknowledged for the clarity it offers, the consistency it provides across sectors and time to support low-carbon investments, and the opportunities it creates for innovative products and services from the UK.

The comments provided for this consultation are based on the analysis that emerged from workshops across European countries, and interviews with companies in the UK as well as several other European countries. As such, the comments focus on the aspects that are emerging from the European perspective, so as to complement the sophisticated discussions in the UK. The European perspectives can be of relevance for the UK because:

- Many companies expected to invest in the UK power sector are active across many European countries.
- The economic benefits of a UK low-carbon development will increase prospects for innovative products and services in the common European market
- Actions pursued at the European scale will have impacts on emissions and visibility in other regions of the world.

In the joint Climate Strategies and Climate Policy Initiative study we find that the European Emission Trading Scheme impacts on three aspects of the decision process for low-carbon investments:

1. **Capturing Companies' Attention** - the policy framework must capture the attention of the relevant decision makers in an organization and results in an appropriate prioritization of climate objectives.
2. **Providing Clarity for Decision Making -** by defining an emission trajectory beyond 2020, the EU ETS provides guidance for the assessment of low-carbon opportunities.

3. **Creating Enabling Environment for Low-Carbon Investment-** The carbon price created with the EU ETS contributes to the financial viability of low-carbon projects; however, further components are often required to enable their implementation.

We use these three aspects of low-carbon decisions to assess the proposal by the UK government to implement a carbon price floor for UK power generation by increasing taxes on fossil fuels based on their carbon content so that the combination of fuel duty and EU ETS deliver the target carbon price.

Before discussing these aspects in detail, we would like to introduce three objectives a price floor can aim to deliver, which in turn impact the design of its implementation:

i. **To protect auction results:** Technical failures or unforeseen events could result in unexpected low participation at the auction and could potentially result in very low carbon prices. This can be avoided if a reserve price for the auction is set, usually relative to quoted carbon prices during previous days. This is rather uncontroversial and a technical question.

ii. **To avoid the risk of very low carbon prices:** Policy change or unforeseen developments in the financial markets impacting the ability of market participants to bank CO2 allowances could result in significant drops of the carbon prices, e.g. below 10 Euro/t CO2. While analysts would attribute very low probabilities to such events, it might be more difficult to quantify these probabilities for banks when issuing low-risk bonds. The credible commitment to a reserve price in allowance auctions across Europe, or the issuance of put options on future allowances could increase the confidence that very low-carbon prices are avoided. It is unclear, how high the financial sector considers the risk of very low-carbon prices to be: EU ETS carbon prices now have a strong track record of maintaining a stable price throughout the financial crisis.

iii. **To increase and supplement the carbon price above the current level:** The carbon price emerging from the EU ETS is currently too low to facilitate the investment in many of the low-carbon generation technologies. A carbon price support mechanism as outlined in the consultation supplements the total carbon price which power generators are exposed to, so as to increase the viability of low-carbon investment choices.

Objective (i) has already been implemented in the UK EU ETS auctions. The current proposal aims to deliver both objectives (ii) and (iii). There is a significant body of work assessing potential mechanisms to avoid the risk of very low carbon prices (objective ii). Such mechanism can offer benefits for the implementation and financing of individual projects and could be interpreted as an insurance approach. Potential interactions with the concept of the overall scheme are likely to be confined. As pointed out above, we have not pursued the detailed assessment to see how important the implementation of such a mechanism to avoid the risk of very low-carbon prices is, after the EU ETS price has maintained a steady performance throughout the financial crisis.

The comments in this discussion focus on objective (iii) - to increase and supplement the current and future carbon price level above the current level - as this is the main dimension for which the studies offer additional insights.

The remainder of the document discusses the impact of a supplementary UK carbon price on the attention and prioritization investors attribute to climate policy in their decisions (section 2), on the clarity to support low-carbon investment choices (section 3) and on the implementation of low-carbon power projects in the UK (section 4).

2. Will a supplementary UK carbon price maintain the attention and prioritization of climate policy for decision making?

In a survey with continental European power generators, we found that for low-carbon investment and innovation activities, the relevance attributed to long-term climate policy targets and to EU ETS is highly correlated, suggesting that they are mutually reinforcing (based on a survey of power generators by ISI-Fraunhofer/ETH).

Many of the utilities investing in the UK are active across several European countries, and are thus likely to take the emission trajectory and the carbon price emerging from the European Emission Trading Scheme as main input for strategic choices on their overall portfolio. Not least, because these utilities in turn have to explain their corporate strategy to their international shareholders and bond holders.

At this level it might be difficult to explain the national specific supplementary carbon price that is not aligned with the relevant EU framework formulated in the EU ETS Directive. Hence a UK specific carbon price supplement might be less relevant in attracting attention for strategic portfolio choices of utilities and their investors and the stringency of EU ETS will determine what level of attention and prioritisation will be dedicated to climate policy objectives. (Answer to question 5.B.1)

The current emission trajectory formulated in the EU climate package only achieves 51% emission reductions by 2050 – falling short of the commitment by heads of state to 2C that translates to 80-95% emission reduction. This inconsistency and sign of insufficient stringency might well reflect on the attention and prioritization that companies attribute to climate policy objectives, and does thus argue for a European move to strengthen the emission reduction targets which in turn would result in higher carbon price. (Answer to question 3.A.1 and 4.E.2).

3. Will a supplementary UK carbon price contribute to clarity to support low-carbon investment choices?

Climate policy is one of many factors that investors need to consider. Hence it is important that the climate policy framework is clearly and consistently formulated so as to allow for appropriate representation in strategic assessments (e.g. scenario analysis).

The consistency of a supplementary carbon price with the overall policy frameworks depends on the perspective of investors:

(i) UK Perspective

From a UK perspective, a higher carbon price is aligned with the UK emission objectives as formulated in the climate change act.

The question therefore relates to the robustness attributed to the supplementary carbon price. It can only be effective, if it is considered to be robust - otherwise strategic investors will discount or ignore it in their investment analysis. The example of the UK fuel price inflator illustrates the risk of tax based policies. The increments were abandoned with the fuel protests in 2000.

The attraction of EU ETS is the regulatory commitment introduced with the sign up by all European governments and European Parliament. Thus it is difficult to revoke the scheme on short notice or by individual countries, enhancing regulatory stability.

A UK only approach creates distortions to power and gas trading (both to continental Europe, and to Ireland) and concerns about competitive distortions with regard to electricity-intensive production in neighbouring European countries. We did not quantify these impacts. The experience from the discussions on free allowance allocation under EU ETS suggests that even where economic and environmental impacts might be small, the politics are complicated and carry inherent risks for the

implementation process. As a result, announcements of high future carbon taxes for fossil fuels used in UK power generation are likely to be discounted in investment assessments.

(ii) European perspective

The carbon prices for fossil power stations in the UK will be in the short-term higher than implied by the future EU emission targets. This introduces an inconsistency that undermines clarity, if there is no clear process to also strengthen the EU emission target.

- It breaks the link between current UK carbon price and the emission trajectory formulated under EU ETS.
- It breaks the link between the UK carbon price and the carbon price pursued in European/non-UK strategic choices and investment appraisals.

Companies might choose to ignore the particular UK policy 'detail' or might attempt to include the additional complexity in their investment choices. Aspects that are complex are difficult to represent, difficult to understand, and difficult to verify, and thus risk receiving less weight in the final decision

The discussion shows the value both from the perspective of UK investors and European investors, of increasing the carbon price in a joined-up European approach by strengthening EU ETS emission targets (Answer to Question 3.A.3).

Political dynamic

With a supplementary carbon price, UK power installations would be, in the short-term, exposed to higher carbon prices than implied by the future EU emission targets. This could be interpreted positively or negatively:

(i) Initiating momentum towards increasing stringency of EU emission reduction targets

The UK price would be interpreted as a first signal of a move to higher carbon price at EU level – contributing to a political momentum for more stringent Emission reduction targets.

The UK action could accelerate initiatives of EU Commission and Parliament to pursue a joined-up approach to protect the consistency of EU climate policy and the common European market.

European momentum, framework, scale and visibility will be important to attract and accelerate low-carbon innovation and investment.

(ii) Undermining joint approach to low-carbon development in Europe

The unilateral UK approach could be interpreted as a sign that the UK might reduce the previously very successful efforts to contribute to EU climate policy agenda including a shift of EU ETS targets beyond 20%.

This could in turn encourage other countries to pursue unilateral approaches to pursue carbon price support scheme. If increasing shares of emissions covered by the EU ETS would be subject to additional carbon taxes based on a national supplementary carbon price, then these emissions would no longer be responsive to the EU ETS carbon price (in the UK proposal, lower EU ETS carbon prices are compensated in the power sector by national taxes). With less responsive and lower demand for CO2 allowances, the price of EU ETS allowances declines and becomes more volatile.

The two scenarios illustrate the importance of embedding a UK policy to support the carbon price in a strategy to strengthen the EU emission reduction targets.

4. Will a supplementary UK carbon price support the implementation of low-carbon power projects in the UK?

The decarbonisation of the European power sector requires large investment volumes that exceed by far the balance sheets of European utilities. Thus they will have to leverage their balance sheets with additional debt. Parties that acquire debt and parties that hold equity are sensitive to investment risks: thus both will carefully assess the additional risk(s) associated with investing in new low-carbon in an environment including a supplementary carbon price. What are the implications for the UK carbon price support mechanism (answer to question 5.B.1)?

(1) Renewables

Renewable investments are financed against long-term price guarantees provided by the UK ROC that is gradually converging to a feed-in tariff. For investment in renewable generation capacity therefore the question is, whether the political viability of the renewable support schemes increases or declines with a supplementary carbon price. Higher carbon prices reduce the need for renewable subsidies and can thus reduce the policy risk associated with the renewable support schemes. Likewise, a more stringent European EU ETS cap would achieve the same objective with the additional benefit of higher visibility, consistency of short-term policies with long-term objectives, and the added momentum and regulatory stability inherent in a European framework.

(2) Coal and gas power stations with Carbon Capture and Sequestration (CCS)

CCS is at the demonstration phase and currently receives dedicated support. This dedicated support is likely to be the main determinant impacting on investment choices for the demonstration plants (NER 300 funding at EU level and national complementing policies). However, utilities will only dedicate their full attention to CCS, if they anticipate a large scale application beyond initial demonstration projects. The necessary scale can only be achieved by the European power market, not based on individual member states. Thus any strategic choice of companies to dedicate their resources to CCS will likely be based on the credibility and stringency of EU ETS.

(3) Nuclear power

Nuclear power stations are not viable at the current carbon price level in the EU. Would a higher carbon price implemented with a carbon price supplement ensure their commercial viability in the UK? This depends on whether European companies would take the risk of investing in nuclear power station in the UK, if the commercial viability of the power stations depends on a UK carbon tax imposed on fossil power stations. As outlined in the previous sections, it is difficult to assess the robustness of such a tax scheme for an investment horizon of more than 20 years. Once investments in a set of nuclear power stations has been sunk, any changes to the carbon tax scheme could have dramatic impacts on balance sheets of investors and the ability to repay loans. A more stringent EU ES target would reduce this exposure to the national tax instrument. Long-term contracts issued by the governments or various types of credit guarantees could shift the risk of changes to the carbon tax from the investors to consumers or the public.

The discussion illustrates the close interactions of different policy instruments in the UK, and the opportunity the EU ETS offers to strengthen the long-term credibility of a UK policy framework for investors in low-carbon projects.

5. Summary

This submission focuses on the objective of a carbon price support mechanism to increase and supplement the current and future carbon price level above the current level. This is the main dimension for which the joint study by Climate Strategies and Climate Policy Initiative offers additional insights to complement the

advanced discussion in the UK. The assessment of the EU ETS shows that the close inter-linkages between UK and European energy and climate policy can offer several benefits:

- Visibility and clarity a common European framework offers to guide corporate strategic choices.
- Regulatory stability through the multiple governance levels that ensure continuity
- The scale of the European market for low-carbon technologies, contributing to their viability.

This shows the value of a strong carbon price mechanism at the European level, using the existing policy instrument EU ETS.

A survey pursued as part of this study revealed that with the current stringency of the EU ETS, about 40% of European manufacturing companies continue to operate and invest along their business as usual trajectory, and only 4% expect fundamental changes to their operations and investment (LSE/Imperial/Carlos III). This confirms the concern formulated in the consultation document that current stringency of EU ETS and the resulting carbon prices are not high enough for many of the low-carbon investment options. If the policy objective is to realize such low-carbon investment opportunities, then our analysis suggests that increasing the stringency of EU ETS can be an important aspect. (Answer to question 4.E.2)

A joined-up European approach to increase the stringency of EU ETS carries the added benefit of high international visibility so as to demonstrate European commitment to and pursuit of low-carbon development.

Carbon Markets & Investors Association

11th February 2011

Carbon Price Support consultation response

The Carbon Markets & Investors Association (CMIA), is an international trade association representing firms that finance, invest in, and provide enabling support to activities that reduce greenhouse gas emissions across five continents. CMIA's international membership accounts for an estimated 75 per cent of the global carbon market, valued at USD 130 billion.

CMIA was created to ensure that the progressive business voice is heard, and to promote market-friendly climate change policy. Our members provide highly-skilled jobs and add value to the economy through services to, and capital injections into, the growing global carbon market.

CMIA distinguishes itself from other trade associations by providing a unique for an industry grouping that solely represents organisations providing services to and investing in the environmental sector.

Our membership does not include any entities with compliance obligations under cap-and-trade schemes. This results in a unique and harmonious advocacy platform with emphasis on the environmental integrity of market mechanisms and climate change policies.

CMIA's membership comprises close to 60 companies including financial institutions, asset managers, investment and carbon funds, project developers, lawyers, accountants, verifiers, emissions brokers, and IT firms.

Summary

We have reviewed the HM Treasury consultation document 'Carbon price floor: support and certainty for low-carbon investment' dated December 2010. Our response to the specific questions posed in the document is set out below; however, we have first made a number of high-level comments regarding the proposals and their impact upon the carbon markets.

In general, the Carbon Markets and Investors Association (CMIA) is opposed to any instrument, tax or otherwise, that seeks to artificially manipulate the price of Emissions Union Allowances (EUAs) instead of leaving the price to be determined by the open market. Such an instrument, as the reformed Climate Change Levy (CCL) would be, would, and will, have an adverse effect on the carbon market for a number of key reasons.

Firstly, it will reduce the efficiency of the market. Secondly, it will reduce confidence in the EU Emissions Trading Scheme (ETS) as the primary mechanism for combating climate change within the EU. Thirdly, it may decrease certainty in market, as it will feed the suspicion that Member States will interfere in the market if it is not operating to their liking. Finally, it undermines the notion of the EU ETS being a single, uniform market.

CMIA does agree with the motives behind the proposal. In order to drive low-carbon investment in the UK, and in particular in the electricity sector, a stronger, more consistent, price signal is required.

We believe the solution to this should be found through developing the EU ETS, not through the introduction of new instruments. CMIA believes that reform of, and improvements to, the EU ETS, should be the UK Government's policy. In particular, increasing the 2020 emissions reduction target to 30%, with the resultant lowering of the EU-wide emissions cap, would likely raise free market EUA prices comfortably above the proposed price floor level whilst also reducing emissions across the EU.

Considering in detail the impact of the price floor on the EU ETS, we are concerned about the impact of the floor on the EUA demand-supply balance. It is our view that, if implemented, the price floor would reduce demand for EUAs in the UK, since a heightened EUA price would lead lower-emissions technologies to become economically viable. Similarly, emissions will be more likely to occur overseas as emissions will occur where they can be made at the lowest cost. Therefore, without amending the UK's National Allocation Plan (NAP) UK EUAs will simply flow t the EU carbon market, depressing the EUA price outside the UK. Regardless of the UK NAP position, an effect of this UK-only measure will be simply to shift emissions to other EU Member States.

In addition, we have concerns regarding the impact of the price floor on the UK's Assigned Amount Unit (AAU) holding. If the floor price has the desired impact, the UK's annual greenhouse gas emissions will be reduced. This will in turn free up a proportion of the UK's AAUs which it could in turn sell. The sale of AAUs would again mean that the UK's reduced emissions had simply been exported to whichever Member State purchased them.

CMIA response to consultation 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?*

Based on Point Carbon estimates, we expect a carbon price in 2020 of €36.

The current and anticipated future price of carbon will be a factor when considering investment in low-carbon generation. However, we would expect energy commodity prices to continue to have a much larger impact on investment in low-carbon energy.

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.*

Players in EU energy markets are used to dealing with the risks of price movements, and this has not, of itself, curtailed investment. Price movements are specifically useful as a signal. So price certainty/stability is not a good goal for its own sake.

However the carbon market is unique in as much as supply/demand is controlled by regulation not by economics.

If outcomes in terms of low carbon investment are not yet sufficiently high, then

A) Confidence in the long term certainty over the regulatory framework needs to be addressed, and hopefully will be by the forthcoming EU roadmap to 2050, and that determining the appropriate regulatory framework for the market to operate within, rather than price intervention in the market, is the proper role of government

B), If the overall average price level is deemed to be too low this can already be addressed within the current regulatory framework, by adopting a unilateral Europeam move to a 30% emissions reduction target by 2020.

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

That depends on the country (commitment) since a tax risk is political. This depends on the price support mechanism rate determination chosen. However, of the three mechanisms chosen, the longest term of price

certainty is five years (the term of a Parliament). A price signal of this duration would not be sufficient to affect investor behaviour.

A further key general problem with attempting to indirectly address emissions via a tax rather than directly via the level of the EU ETS cap, is that whilst the cap will produce a predictable reduction in greenhouse gas emissions, which is after all the goal of EU and UK climate policy, a tax will produce a reliable income for the Government with no reliable environmental outcome.

In order to maintain public confidence it is crucial that efforts against climate change are seen as exactly that, rather than as revenue raising exercises. From this perspective a unilateral UK tax designed to interfere with the operation of the EU ETS and one that will potentially undermine the EUA price that mainland Europe faces would seem to be highly undesirable.

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, direct technology support (FIT) is more effective and could also be efficient if designed properly. The carbon floor price alone is unlikely to make large-scale deployment of low-carbon electricity generator technologies sufficiently viable and attractive. We would anticipate that further Government intervention would be required to create and maintain momentum in decarbonising the UK energy sector.

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 carbon price increases the costs for the whole economy. In addition, it increases competition between thermal technologies (including nuclear) and not necessarily between renewables and thermal. The carbon price support rates should be linked to specific technologies and specific dates (for example £60/tonne for CCS by 2020). That would justify the cost increase for the economy and also deliver results in terms of low carbon technology adoption. In order to provide certainty, predictability of the price floor level must be as high as possible. Therefore, the rate escalator will increase certainty for the longest period (the length of a Parliament) out of the three options listed. However, none of the options proposed provide significant long term certainty. In order to do so, a clear long-term price target (e.g. a 2030 price target) needs to be announced by the Government.

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

Directed technical change through FIT and improvement of the ETS. That would increase effectiveness (goals achievement) and efficiency (economy wide costs). Our preferred approach would be for the Government to pursue amendments to the EU ETS, in particular a reduction in the level of the cap for Phase 3. Of the options outlined in the consultation, we would most support a mechanism based upon the carbon market index, which would therefore ensure that trends in the carbon market, and the wider economy, are reflected in the rates. However, this would need to be paired with some form of signal of what the long term emissions cap is, in order for the Government to meet it's goal of providing certainty for investors.

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?*

This is the wrong question. The carbon price simply reflects the ease or difficulty with which the emissions cap is being met. If the government feels that insufficeint abatement is being achieved through the eu ets the solution is to tighten the cap, via for example the EU moving to a 30% cap.

A great benefit of the EU ETS is it does not discriminate between decarbonising the power sector vs other sectors of the economy. First priority must be to reduce greenhouse gas emissions overall by allowing economically rational behaviour to dictate where emissions reductions take place.

By allowing this, the cost of emissions reductions are minimised and therefore the ambition of the emissions reductions that society can economically afford is deepened. In order to further widen the range of abatement options available to the EU ETS, in addition to tightening the cap we would advocate the inclusion of new sectors into the EU ETS such as the transport sector.

COAL FORUM

Response by the Coal Forum to the consultation by HM Treasury
'Carbon price floor: support and certainty for low-carbon investment'
December 2010

- **The government recognises the important future role of coal-fired electricity production, but, a carbon price floor could threaten this**
- **Low carbon generation has to be achieved through transition in electricity production, without which security of supply may be threatened**
- **Development of carbon capture and storage depends on maintaining coal-fired electricity production and its infrastructure**
- **Insensitive application of a price floor could have perverse outcomes, including the import to the UK of high-carbon electricity and a threat to investment in carbon capture and storage**
- **A high price could mean that incremental investment in existing coal-fired plant might be displaced by investments with higher capital costs, resulting in higher bills for customers**
- **The proposal would not reduce overall emissions in the EU and the government will have to assure itself that it is in tune with EU market integration**
- **The proposal has to be considered in the context of the consultation on Electricity Market Reform, where it appears that other low carbon incentives could render it superfluous**
- **The government should review the impact assessment for this proposal to assure itself that it takes full account of its impact on coal production, employment and tax revenue**

Background – coal-fired electricity production

1. The Coal Forum was convened by government in 2006 to facilitate dialogue with and within the energy industry and since that time it has sought to fulfil its remit 'to work to ensure that we have the right framework, consistent with (the government's) energy policy goals, to secure the long term contribution of coal fired power generation and optimise the use of economical coal reserves in the UK'.

2. The UK electricity generating industry wants to retain coal-fired production in the generating mix, for the diversity that it offers, the flexibility that it provides and the need to retain continuity in the supply chain, in the hope and expectation that it will serve Carbon Capture and Storage (CCS) in the longer term. The Coal Forum is pleased to note, in the consultation on Electricity Market Reform, that the government recognises the important role that coal-fired generation can play.

The government's proposals

3. The Coal Forum acknowledges the huge level of investment required to achieve the transition to a low carbon electricity generating industry. It further recognises that whereas the EU Emissions Trading Scheme (EUETS) will achieve the reduction in emissions which is proposed for the EU, it does not offer sufficient visibility beyond 2020 to bring forward the diverse low carbon investment required to meet the more challenging reductions adopted unilaterally by the UK government. Those more challenging reductions are related to the government's intention that the UK should take a leading role, globally, in reducing carbon emissions. We should point out, however, that additional emission reductions in the UK will be offset by lower reductions elsewhere in the EU within the EUETS cap. If the government remains confident that it should continue to adopt this position, then we recognise the reason for proposing major reform of the electricity market and we see the proposal for a price floor for carbon emissions as a part of that, albeit we are concerned about its impact.

4. In essence, the government's proposals are put forward as a means of mitigating one of the risks faced by low carbon generating technologies, particularly new nuclear power. The Forum is not anti-nuclear power, or, anti any particular generating technology, but, for the reasons outlined in paragraph 2, above, it is concerned to see that coal-fired power generation has the opportunity to play its part in the diverse energy mix which the government seeks for the UK. With that in mind, we have concerns about the proposal for a carbon price floor.

The Coal Forum's concerns

5. We note that there was an impact assessment for this proposal, but, are not clear how exhaustive this was. The government should assure itself that this has been sufficiently thorough to take account of the impact on coal production, employment and tax revenue. It might also consider the impact on customers' bills from carbon prices prompting the abandonment of comparatively low-cost incremental investment in existing coal-fired plant, in favour of alternatives with much higher capital costs.

6. Our concerns are partly on behalf of existing coal-fired electricity production, the supporting infrastructure for which has to be maintained if future 'clean coal' generation is to be a reality, but, also in the proposal for a carbon price floor, we see a threat to investment in carbon capture and storage (CCS).

7. Unless sufficient of the current coal-fired production is maintained, clean coal technology with carbon capture and storage (CCS) will be much harder to develop, because, by the time that CCS is available at large scale, there is a risk that the UK's infrastructure and expertise, upon which it depends, will have disappeared.

8. The proposal may also threaten investment in mining of the indigenous sources of coal, which are still abundant. With that in mind, the government should note carefully that new

investment in deep mined coal is a long-term commitment (with lengthy lead times) which depends on confidence in the power generation market. The government's proposals will affect the investment decisions of the electricity generating industry which, through the effect on the market for coal, has a major impact on the investment decisions of the UK coal industry and associated infrastructure.

9. An ill-timed introduction of a price floor at too high a level could jeopardise the viability of coal-fired power stations which will make an important contribution to security of supply, until there is sufficient, reliable low-carbon production to maintain that security. This could give rise to a greater risk of security of supply problems – perhaps a 'cliff edge' situation, instead of a more manageable transition. The government should take careful note of this in the context of investment decisions facing coal-fired power stations which are subject to the requirements of the Industrial Emissions Directive in the period after 2015.

10. The particular risk to CCS investment lies in the threat that a new demonstration coal plant with, for example, 25 per cent of its capacity running CCS, would have to face the carbon price floor costs on the remaining 75 per cent of its production. A carbon price floor which was 'too high, too soon' could have a seriously detrimental effect on the economics of the CCS demonstration.

11. It is, therefore, most important that, if a price floor for carbon is introduced, it is set at a level which does not disadvantage coal-fired electricity production so much that it is no longer commercially viable. Furthermore, the price floor should not be raised until it becomes relevant to incentivizing necessary new investment. In the longer term, the Coal Forum recognises that a robust carbon price is necessary to support CCS development and implementation. Indeed, the inclusion of CCS plants in the UK supply mix would ensure the continuing relevance of a carbon price to the UK electricity market, in the absence of other policies to drive low carbon investment.

12. We note, however, that, in the government's consultation on Electricity Market Reform, there is a proposal for a 'Feed-in Tariff' with a 'contract for differences' (CfD). The government should assure itself that the carbon price would remain an influence. It appears possible that a long-term CfD would make generation economics indifferent to the carbon floor price.

13. The government should also take account of the risk of introducing a UK carbon price which so influences electricity wholesale prices that it could result in some of the UK's electricity production being displaced via the interconnectors by imports of electricity which are derived from fossil fuels, potentially as high in their carbon content. It will also wish to bear in mind that proposals for an EU-wide carbon tax are likely to be put forward this year. The proposal needs to be looked at very carefully in the European context – it is hard to see how it would reduce overall emissions in the EU and it does not appear to be in tune with EU market integration. It should also be examined for the potentially greater risk that it applies to electricity companies' ability to trade power and hedge positions in the wholesale market.

14. If the other components of the EMR package are operating effectively, the carbon price floor will not operate as a significant incentive, rather as a means of providing some medium term confidence to the value of carbon. If the price floor is set too high, then UK electricity-intensive industries may become uncompetitive in the EU. This would clearly be unsustainable and may lead to a future government having to implement a policy reversal, which would discredit the value of the mechanism.

15. If a price floor is introduced, the carbon price support rates should be set to provide:

- certainty for operators in the electricity market e.g. by giving visibility of their introduction three years ahead;
- an indication of the direction of travel in the longer term;
- a link with the existing carbon market e.g. via reference to a traded index and
- rates which are set annually, based on a carbon market index averaged over a specific annual or biennial period to reflect future carbon prices.

Future Generation Sub Group of the Coal Forum
On behalf of the Coal Forum
11 February 2011

CoalImp
Association of
UK Coal Importers

Eltham Lodge
154 Millhouses Lane
Sheffield
S7 2HE

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

11th February 2011

Dear Mr Shaw,

Carbon Price Floor: Support and Certainty for Low-Carbon Investment
Consultation Response by CoalImp – Association of UK Coal Importers

I am pleased to respond to the Carbon Price Floor consultation on behalf of CoalImp – the Association of UK Coal Importers. This consultation has major implications for our members and for the country. It risks, on the one hand, damaging the diversity and security of UK electricity supplies in the short to medium term whilst, on the other hand, failing to support the demonstration of coal with carbon capture and storage (CCS) – one of the key planks of the UK's decarbonisation agenda.

CoalImp represents major coal users (including virtually all of the coal-fired generators in the UK), rail companies, ports and other infrastructure operators in the coal supply chain. The twenty members (listed in the attached Appendix) account for the handling, transportation and use of the majority of imported supplies into the country, in turn accounting for over half of the UK's coal-fired electricity.

Individual CoalImp members will be submitting detailed responses to the Consultation, answering the complete list of questions posed. This response concentrates just on those key questions of major concern across our membership. Responses to the individual questions are, by their very nature, somewhat repetitive, so the major points are brought together in this covering letter.

Background – Coal-Fired Electricity Production

The UK electricity generating industry wishes to retain coal-fired production in the generating mix, for the diversity that it offers, the flexibility that it provides and the need to retain continuity in the supply chain, in the hope and expectation that it will serve CCS in the longer term. CoalImp is also pleased to note, in the consultation on Electricity Market Reform, that the Government recognises the important role that coal-fired generation can play.

The Government's Proposals

CoalImp acknowledges the huge level of investment required to achieve the transition to a low carbon electricity generating industry. It further recognises that, whereas the EU Emissions Trading Scheme (EUETS) will achieve the reduction in emissions which is proposed for the EU, it does not offer sufficient visibility beyond 2020 to bring forward the diverse low carbon investment required to meet the more challenging reductions adopted unilaterally by the UK Government. Those more challenging reductions are related to the Government's intention that the UK should take a leading role, globally, in reducing carbon emissions, although additional emission reductions in the UK will be offset by lower reductions elsewhere in the EU within the EU ETS cap. If the Government remains confident that it should continue to adopt this position, then we recognise the reason for proposing major reform of the electricity market and we see the proposal for a price floor for carbon emissions as a part of that, but we are concerned about its impact.

In essence, the Government's proposals are put forward as a means of mitigating one of the risks faced by low carbon generating technologies, particularly new nuclear power. CoalImp is not anti-nuclear power, or, anti any particular generating technology, but, for the reasons outlined above, it is concerned to see that coal-fired power generation has the opportunity to play its part in the diverse energy mix which the Government seeks for the UK. With that in mind, we have concerns about the proposal for a carbon price floor.

We note that there was an impact assessment for this proposal, but, are not clear how exhaustive this has been. The Government should assure itself that this has been sufficiently thorough to take account of the impact on employment and tax revenue associated with the coal supply chain, including ports and railways.

CoalImp's Concerns

Our concerns are partly on behalf of existing coal-fired electricity production, the supporting infrastructure for which has to be maintained if future 'clean coal' generation is to be a reality. But we also see a threat to investment in CCS.

Unless sufficient of the current coal-fired production is maintained, clean coal technology with CCS will be much harder to develop, because, by the time CCS is available at large scale, there is a risk that the UK's infrastructure and expertise, upon which it depends, will have disappeared.

The Government's proposals will affect the investment decisions of the electricity generating industry which, through the effect on the market for coal, has a major impact on the investment decisions of those in the coal supply chain including ports and railways. Although indigenous coal supply is often cited as a key element in security of supply, it should be noted that coal imports complement this security in a number of ways:

- Indigenous coal output is, by its very nature, inflexible. By supplying the balance between indigenous production and overall market demand, imports provide this flexibility. This has been clearly demonstrated in 2010

where the downturn in coal demand from generators fell entirely on imported steam coal supplies which are likely to be down by around 50% on the previous year. Indigenous production could not respond to this level of flex.

- The lower sulphur content of most imported coals will enable generators to manage the supply mix to meet the requirements of the Industrial Emissions Directive. Even in the case of opted-in plant with flue gas desulphurisation, some would struggle to meet the relevant emission limit values from 2016 with a pure diet of high-sulphur indigenous coals.
- A similar consideration is likely to arise in respect of NOx limits, although the relationship between coal quality and NOx emissions is less clearly defined than in the case of sulphur.
- Geographical considerations and generators' concerns to maintain supply diversity are likely in any event to keep an element of imports in the mix, even at lower levels of overall demand.

An ill-timed introduction of a price floor at too high a level could jeopardise the viability of coal-fired power stations, which will make an important contribution to security of supply until there is sufficient, reliable low-carbon production to maintain that security. This could give rise to a greater risk of security of supply problems – perhaps a 'cliff edge' situation, instead of a more manageable transition. The Government should take careful note of this in the context of investment decisions facing coal-fired power stations which are subject to the requirements of the Industrial Emissions Directive in the period after 2015.

The particular risk to CCS investment lies in the threat that a new demonstration coal plant with, for example, 25 per cent of its capacity running CCS, would have to face the carbon price floor costs on the remaining 75 per cent of its production. A carbon price floor which was 'too high, too soon' could have a seriously detrimental effect on the economics of the CCS demonstration.

It is, therefore, most important that, if a price floor for carbon is introduced, it is set at a level which does not disadvantage coal-fired electricity production so much that it is no longer commercially viable. Furthermore, the price floor should not be raised until it becomes relevant to incentivising necessary new investment. In the longer term, CoalImp recognizes that a robust carbon price is important to support CCS development and implementation. Indeed, the inclusion of CCS plants in the UK supply mix would ensure the continuing relevance of a carbon price to the UK electricity market, in the absence of other policies to drive low carbon investment.

We note, however, that in the Government's consultation on Electricity Market Reform, there is a proposal for a Feed-in Tariff (FiT) with a contract for differences (CFD). The Government should assure itself that the carbon price would remain an influence. It appears possible that a long-term CFD would make generation economics indifferent to the carbon floor price.

The Government should also take account of the risk of introducing a UK carbon price which so influences electricity wholesale prices that it could result in some of the UK's electricity production being displaced by imports via the

interconnectors – which are fuelled by fossil fuels, potentially as high in their carbon content. It will also wish to bear in mind that proposals for an EU-wide carbon tax are likely to be put forward this year.

If a price floor is introduced, the carbon price support rates should be set to provide:

- certainty for operators in the electricity market e.g. by giving visibility of their introduction three years ahead;
- an indication of the direction of travel in the longer term;
- a link with the existing carbon market e.g. via reference to a traded index
- rates which are set annually, based on a carbon market index averaged over a specific annual or biennial period to reflect future carbon prices.

Summary

- The Government recognises the important future role of coal-fired electricity production but a carbon price floor could threaten this
- Low carbon generation has to be achieved through transition in electricity production, without which security of supply may be threatened
- Development of carbon capture and storage depends on maintaining coal-fired electricity production and its infrastructure
- Insensitive application of a price floor could have perverse outcomes, including the import to the UK of high-carbon electricity and a threat to investment in carbon capture and storage
- The proposal has to be considered in the context of the consultation on Electricity Market Reform, where it appears that other low carbon incentives could render it superfluous
- The Government should review the impact assessment for this proposal to assure itself that it took full account of the impact on the coal supply chain in the UK.

[redacted]

Responses to Individual 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?

The carbon price will be fundamentally influenced by decisions at a European level on whether to go further than is presently planned under the EU ETS to 2020 (i.e. whether to aim for a 30% rather than a 20% reduction in carbon emissions) and on the post 2020 regime.

To the extent that the UK takes unilateral action through the introduction of a carbon price support mechanism, this will allow emissions to increase in the rest of Europe, within the overall European CO_2 cap. This will cause 'carbon leakage' from the UK to the rest of Europe and will make the EU ETS price lower than it would otherwise have been.

In the Government's consultation on Electricity Market Reform (EMR), there is a proposal for a Feed-in Tariff (FiT) with a contract for differences (CFD). The Government should assure itself that the carbon price would remain an influence. It appears possible that a long-term CFD would make economics of low-carbon generation indifferent to the carbon price.

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.

CoalImp recognizes that a robust carbon price is important to support carbon capture and storage (CCS) investment once demonstration is complete, and in the longer term. Indeed, the inclusion of CCS plants in the UK supply mix would ensure the continuing relevance of a carbon price to the UK electricity market, in the absence of other policies to drive low carbon investment.

However, there is a particular risk to investment in CCS demonstration coal plant with, for example, 25 per cent of capacity running CCS, where operators would have to face the carbon price floor costs on the remaining 75 per cent of its production. A carbon price floor which was 'too high, too soon' could have a seriously detrimental effect on the economics of CCS demonstration.

The price floor should therefore not be introduced or raised until it becomes relevant to incentivising necessary new investment.

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 question is posed the wrong way round. It is the other elements of the EMR package, which will mainly drive the decarbonisation of the power sector. The Government should assure itself that the carbon price would remain an influence

when considered alongside FiTs. It appears possible that a long-term CFD would make economics of low-carbon generation indifferent to the carbon floor price.

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.

Given that the other elements of the EMR package, specifically FITs, do not, by their very nature, treat different types of generation equally, this question is redundant. The main consequence of the carbon price floor will be to offer a significant advantage for gas-fired compared to coal-fired generators and lead to large-scale fuel switching.

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. Potential investors in CCS projects need clarity now when projects are being developed that they will have full relief from the Climate Change Levy (CCL) for all CO_2 stored, both at the demonstration stage and at the retrofit stage when CCS is extended to the full power plant. It is not sufficient to leave this for further future legislation. If an exemption from the carbon tax is not received, then CCS demonstrations will require much higher support through the FiT/CFD mechanisms under the EMR proposals.

The particular risk to CCS investment lies in the threat that a new demonstration coal plant with, for example, 25 per cent of its capacity running CCS, would have to face the carbon price floor costs on the remaining 75 per cent of its production. A carbon price floor which was 'too high, too soon' could have a seriously detrimental effect on the economics of the CCS demonstration.

It is, therefore, most important that, if a price floor for carbon is introduced, it is set at a level which does not disadvantage coal-fired electricity production so much that it is no longer commercially viable. Furthermore, the price floor should not be raised until it becomes relevant to incentivising necessary new investment.

Imports and Exports

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

The carbon tax would increase electricity prices above average prices in France so that the current connector would likely continually import electricity into the UK rather than the current two-way trade. The higher UK prices could also

accelerate plans for building electricity interconnectors as a possibly less expensive and faster way to provide electricity to the UK instead of building generation capacity in the UK. The Government should also take account of the risk of introducing a UK carbon price which so influences electricity wholesale prices that it could result in some of the UK's electricity production being displaced by imports via the interconnectors – which are fuelled by fossil fuels, potentially as high in their carbon content.

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 to long term?

A stronger carbon price signal need not begin until 2017 to coincide with the first new nuclear plant coming online. Starting a carbon tax in 2013 does not necessarily increase investor certainty that the tax would continue to be in place and be of sufficient strength to support low carbon investment that operates beyond 2020. The Government could seek cross-party support for a carbon tax on fossil fuels for power generation that starts in 2017. Whilst this could provide a degree of investor certainty, there would be limitations, as one Parliament cannot bind future Parliaments on budget matters.

Our reservations related to the premature closure of existing power stations are partly due to the consultation's proposal to start the carbon tax in 2013. A third of the UK's power generation capacity is already set to close over the next 10 years due to plants reaching their end of life and LCPD/IED requirements. Some power plants have forward contracts (up to ~2016) for the sale of electricity. These companies would not be able to pass on the cost of a tax that starts in 2013, putting further economic pressure for premature closure. Some thermal power plants could receive investments in the future to enable them to operate as standby, back-up and peaking stations that operate for a limited number of hours per year. Instead of relying on capacity payments to bring forward new investment to provide back-up to the growing fleet of wind farms, existing power stations could be used to balance supply and demand at times when a large low pressure zone reduces the amount of wind generation at a time of high power demand.

Combined cycle gas turbine plants, renewable electricity and other power plants currently under construction or in the planning permission process will fill the gap of planned power station retirements through the 2010s. These planned investments are being financed through the Renewables Obligation, the current EU ETS price on carbon and low commodity gas prices. Starting the Carbon Price Support in 2013 will not necessarily accelerate low carbon investment.

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?

If a price floor for carbon is introduced, it must be set at a level which does not disadvantage coal-fired electricity production so much that it is no longer commercially viable. Furthermore, the price floor should not be raised until it becomes relevant to incentivising necessary new investment. CoalImp recognizes that a robust carbon price is important to support CCS investment once demonstration is complete, and in the longer term. Indeed, the inclusion of CCS plants in the UK supply mix would ensure the continuing relevance of a carbon price to the UK electricity market, in the absence of other policies to drive low carbon investment.

If a price floor is introduced, the carbon price support rates should be set to provide:

- certainty for operators in the electricity market e.g. by giving visibility of their introduction three years ahead;
- an indication of the direction of travel in the longer term;
- a link with the existing carbon market e.g. via reference to a traded index
- rates which are set annually, based on a carbon market index averaged over a specific annual or biennial period to reflect future carbon prices.

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 stronger carbon price signal need not begin until 2017 to coincide with the first new nuclear plant coming online – see the answer to 4.E1 above.

Electricity Investment

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

CoalImp recognizes that a robust carbon price is important to support CCS investment once demonstration is complete, and in the longer term. However, there is a particular risk to investment in CCS demonstration coal plant with, for example, 25 per cent of capacity running CCS, where operators would have to face the carbon price floor costs on the remaining 75 per cent of its production. A carbon price floor which was 'too high, too soon' could have a seriously detrimental effect on the economics of CCS demonstration.

The price floor should therefore not be introduced or raised until it becomes relevant to incentivising necessary new investment.

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

An ill-timed introduction of a price floor at too high a level could jeopardise the viability of coal-fired power stations which will make an important contribution to security of supply, until there is sufficient, reliable low-carbon production to maintain that security. This could give rise to a greater risk of security of supply

problems – perhaps a 'cliff edge' situation, instead of a more manageable transition. The Government should take careful note of this in the context of investment decisions facing coal-fired power stations which are subject to the requirements of the Industrial Emissions Directive in the period after 2015.

Instead of investing to convert existing coal stations to run as back-up or peaking plants, companies may prematurely retire existing generation capacity. Plans for investment in electricity interconnectors would likely be accelerated.

Unless sufficient of the current coal-fired production is maintained, clean coal technology with CCS will be much harder to develop, because, by the time CCS is available at large scale, there is a risk that the UK's infrastructure and expertise, upon which it depends, will have disappeared.

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?

The impact assessment does not take account of the impact on employment and tax revenue associated with the coal supply chain, including ports and railways.

The Government's proposals will affect the investment decisions of the electricity generating industry which, through the effect on the market for coal, has a major impact on the investment decisions of those in the coal supply chain including ports and railways. Although indigenous coal supply is often cited as a key element in security of supply, it should be noted that coal imports complement this security in a number of ways:

- Indigenous coal output is, by its very nature, inflexible. By supplying the balance between indigenous production and overall market demand, imports provide this flexibility. This has been clearly demonstrated in 2010 where the downturn in coal demand from generators fell entirely on imported steam coal supplies which are likely to be down by around 50% on the previous year. Indigenous production could not respond to this level of flex.

- The lower sulphur content of most imported coals will enable generators to manage the supply mix to meet the requirements of the Industrial Emissions Directive. Even in the case of opted-in plant with flue gas desulphurisation, some would struggle to meet the relevant emission limit values from 2016 with a pure diet of high-sulphur indigenous coals.

- A similar consideration is likely to arise in respect of NOx limits, although the relationship between coal quality and NOx emissions is less clearly defined than in the case of sulphur.

- Geographical considerations and generators' concerns to maintain supply diversity are likely in any event to keep an element of imports in the mix, even at lower levels of overall demand.

APPENDIX

CoalImp Membership

Associated British Ports
Clydeport
DB Schenker
Drax Power
EDF Energy
E.ON Energy Trading
Fergusson Group
Freightliner Heavy Haul
GB Railfreight
Hargreaves Services
International Power
Network Rail
Oxbow Coal
Port of Tyne Authority
Rio Tinto Alcan
Rudrum Holdings
RWE Trading
Scottish Coal
Scottish Power Energy Management
SSE Energy Supply

Martin Shaw
Environmental Taxes
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Carbon price floor: support and certainty for low-carbon investment – consultation

The Confederation of UK Coal Producers (CoalPro) represents member companies who produce over 90% of UK coal output. CoalPro is not opposed to the development of any form of energy. CoalPro is pro-coal.

CoalPro will be pleased if this response were to be treated as confidential. Some of the information herein is sensitive in a general sense, and price-sensitive in particular given that some coal producers are publicly-quoted companies.

Answers to the individual questions in the consultation document are set out later in this response. They are prefaced by some general remarks.

Effect on Coal Production

Coal production is a growth industry. Output has increased by some 8% over the last three years with a commensurate increase in employment and investment. The introduction of carbon-price support will bring this growth to a halt, and then reverse it, perhaps dramatically so. Investment will largely cease. It will lead to premature closures, loss of jobs and loss of other economic benefits. UK produced coal will be replaced by imported gas (or imported coal). These impacts are set out in more detail at 5.D5 and5.D6 below where the rationale is explained in full.

Relationship with other EMR Proposals

Whilst this is a separate consultation, it cannot be considered independently of the Government's other proposals for Electricity Market Reform (EMR) set out in the DECC consultation.

CoalPro cannot see how carbon-price support can provide any greater certainty for investment in low-carbon generation than the proposed introduction of FITs elsewhere in the EMR package. Carbon-price support can only be either (a) a revenue-raising measure or (b) designed specifically to encourage a switch from coal to gas-fired generation.

Effect on Investment in Fossil Fuel Generation

Carbon-price support will initiate a renewed dash for unabated gas. This may result in earlier carbon reductions but will emphatically not lead to a decarbonised electricity supply. On the contrary, it will lead to long-term carbon lock-in with a

large volume of unabated gas-fired plant being available in 2030 and for many years beyond.

At the same time, carbon-price support will act as a major disincentive to investment in existing coal-fired generation plant to meet the requirements of the Industrial Emissions Directive (IED). As a result, this plant is likely either to have closed by the early 2020s or to be operating on very low load factors.

Effect on CCS Demonstration Programme

Carbon-price support will also act as a major disincentive to the participation of coal-fired plant in the CCS demonstration programme. Relief from CCL in respect of carbon abated at such plants (and any subsequent CCS plants) is essential. However, continuing to charge CCL on the unabated proportion of such plants will be a major disincentive for the participation of coal-fired plant in the demonstration programme. CoalPro can see no reason for any generator to construct a partially abated coal-fired CCS demonstration plant in these circumstances. The lower cost option will always be to construct unabated gas-fired plant.

The consultation states at para 4.30 that "the carbon price support mechanism will not become a barrier to investment in such demonstrations" but does not explain how this is to be achieved for coal-fired plant. CoalPro cannot see why any electricity generator should wish to invest in a partially abated coal-fired CCS demonstration plant (other than the now uncontested competition for the first such plant) without relief not only for the carbon abated but also in respect of the unabated proportion of such plant.

Overdependence on Gas

The consequence of minimal investment in either existing or new coal-fired plants is a very low level of coal burn from the early 2020s onwards. This will have two effects. First, there will be the potentially dramatic effect on coal production and investment in coal production set out above. Second, there is a risk of a very high level of dependence on gas at that time.

CoalPro considers that the Government should carefully consider the security of supply implications of this in a period of peak demand on a cold, still winter day in the mid 2020s, the sort of weather conditions that typically occur two or three times every year. At that time, new nuclear plant is unlikely to have provided any more capacity in total; it will merely have replaced closing nuclear capacity. Whilst nuclear generation provides some 18% of total electricity supply, it is inflexible and will provide only some 12% to 13% of peak demand. Wind generation, however great the capacity, will be effectively zero. Pumped storage will supply 1% to 2%. In freezing conditions, hydro generation will be minimal. There may be a small contribution from some other, very expensive, renewables and dedicated biomass and landfill gas generation. It follows that dependence on fossil-fuel plant may well exceed 80%. If there is then very little coal-fired capacity, dependence on gas will be extremely high, at a time when residential and commercial gas demand is also at its highest.

CoalPro considers that this, by no means unlikely scenario poses unacceptable security of supply and/or price risks.

Imports of Electricity – Market Distortion

CoalPro considers that the proposal to apply CCL to electricity exports but not to imports will lead to severe market distortion given the probable increase in interconnector capacity with perverse outcomes. Whilst interconnector capacity may still be relatively small compared with overall UK generation capacity, it will be much greater in relation to coal-fired capacity and generation in the mid-2020s.

Interconnectors are likely to be used more at peak periods, precisely the periods at which coal-fired generation, in the UK or Europe, will be providing marginal supply. Imported electricity, including electricity generated from coal, will thus displace UK electricity generated from UK coal production. Imports of electricity from high carbon sources would effectively be subsidised. This represents a perverse effect with significant competition implications.

Accounting for CCL

CoalPro considers that the proposal that fuel suppliers account for CCL on fuel inputs is unnecessarily administratively complex, at least in the case of coal supplies. The electricity generators themselves will have to account for CCL on imported coal, at present more than 50% of supplies. It makes sense, therefore, that they should account for CCL on all coal supplies, including those from UK producers. CoalPro has explored this with the industry's electricity generator customers and believe that they, too, would prefer this approach.

CoalPro also considers that CCL should be accounted for, by the generators, when the coal is consumed, not when it is purchased. Coal-fired generators hold high stock levels which represent a national strategic reserve which is vital for security of supply in periods of prolonged severe weather. These stocks increase during summer and are then drawn down during winter. Accounting for carbon price support on purchases will add significantly to the working capital cost of such stockholding. There will be a significant incentive to reduce stocks and to move towards a regime of purchasing only when needed, i.e. seasonally. This will have major implications for coal producers who cannot vary their output seasonally and for the whole supply chain which does not have the capacity to handle such seasonal supply variations. Coal suppliers simply do not have the physical space to carry large coal stocks.

Accounting for CCL on purchases also represents a further benefit for gas over coal as gas is supplied to generators by pipeline with no stockholding implications.

The practical issues associated with CCL relief in respect of the abated carbon at CCS stations would be far more easily dealt with by adopting this alternative approach. It would be an administrative nightmare for generators and UK coal suppliers to have to agree between themselves (bearing in mind that several UK coal suppliers may be involved) what portion of the relief should apply to coal imports (to be accounted for by the generators) and what portion should apply to UK produced coal (to be accounted for by coal producers having first been apportioned between them).

There also needs to be some adjustment to take account of supplies of low-calorific, low-value coals, such as slurries. These are often produced in conjunction with reclamation schemes which are financed in whole or in part by the recovery of such low value coals. Applying a factor based on weight will discriminate against such coals and make their recovery uneconomic. Apart from the fact that they would be replaced by imports, there will be an adverse impact on reclamation projects which would then be likely to require public funding, or higher levels of public funding.

Wider Effects

From a wider perspective, CoalPro has concerns on the effect of carbon-price support on the competitiveness of UK industry as a whole both directly and cumulatively in conjunction with CRC and CCL on electricity supplies. This double taxation will give rise to risks of carbon leakage on a wide scale.

This too will impact on coal producers who are themselves electricity consumers. Such parts of the UK coal industry as remain given the other impacts of carbon price support will be further disadvantaged compared to coal imports by this cumulative impact.

Responses to Individual 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?

CoalPro does not have the expertise to express a view on the carbon price in 2020 and 2030. However, it is clear that it will be fundamentally influenced by decisions at a European level on whether to go further than is presently planned under the EU ETS to 2020 (i.e. whether to aim for a 30% rather than a 20% reduction in carbon emissions) and on the post 2020 regime.

It should also be noted that, to the extent that the UK takes unilateral action through the introduction of a carbon price support mechanism, this will reduce overall European emissions (subject to carbon leakage from the UK) and thus make the EU ETS price lower than it would otherwise have been. The difference between European and UK carbon prices will offer considerable carbon arbitrage opportunities with potentially large unintentional consequences.

If the EMR package introduces FITs for low-carbon generation, this will be the investment driver and the wider carbon price will have no influence.

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.

Yes, but only in the absence of other measures. If FITs are introduced, it is these that will provide the certainty. No additional certainty would be provided by any greater knowledge of the future long-term price of carbon.

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

There must always be concerns that measures introduced through the tax system would be subject to change as a result of wider government policy objectives and macro-economic considerations. In any event, the introduction of FITs via the other EMR proposals would provide much greater certainty. The carbon price support mechanism is unnecessary and irrelevant in this context.

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 question is posed the wrong way round. It is the other elements of the EMR package, specifically the introduction of FITs, that will ensure the decarbonisation of the power sector. If these are introduced, then carbon price support is wholly unnecessary.

Against this background, carbon price support can only have two purposes: - (a) to raise revenue; (b) to promote fuel-switching from coal to gas. The latter might result in earlier carbon reductions, but will emphatically not lead to decarbonisation. On the contrary, it is likely to result in a dash for unabated gas which will lead to long-term carbon lock-in beyond 2030.

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?

CoalPro cannot comment. This information can only be provided by individual coal producers. It should be noted that there are a number of coal producers who are relatively small. They may prefer to account for CCL manually.

In any event, there is a far better solution. The electricity generating companies themselves will have to account for CCL on imported coal, at present more than 50% of supplies. It makes sense, therefore, that they should account for CCL on all coal supplies, including those from UK producers. We have explored this alternative with our electricity generator customers and believe that they, too, would prefer this approach.

This alternative approach would make it much easier to apply the tax relief for CCS power stations – see 4.C3 below.

CoalPro also considers that CCL should be accounted for, by the generators, when the coal is consumed, not when it is purchased. Coal-fired generators hold high stock levels which represent a national strategic reserve which is vital for security of supply in periods of prolonged severe weather. These stocks increase during summer and are then drawn down during winter. Accounting for carbon price support on purchases will add significantly to the working capital cost of such stockholding. There will be a significant incentive to reduce stocks and to move towards a regime of purchasing only when needed, i.e. seasonally. This will have major implications for coal producers who cannot vary their output seasonally and for the whole supply chain which does not have the capacity to handle such seasonal supply variations. Coal suppliers simply do not have the physical space to carry large coal stocks.

Accounting for CCL on purchases also represents a further benefit for gas over coal as gas is supplied to generators by pipeline with no stockholding implications.

There also needs to be some adjustment to take account of supplies of low-calorific, low-value coals, such as slurries. These are often produced in conjunction with reclamation schemes which are financed in whole or in part by the recovery of such low value coals. Applying a factor based on weight will discriminate against such coals and make their recovery uneconomic. Apart from the fact that they would be replaced by imports, there will be an adverse impact on reclamation projects which would then be likely to require public funding, or higher levels of public funding.

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

CoalPro cannot comment. This information can only be provided by individual coal producers, but see the alternative proposal set out at 4.B1 above. The electricity generators will have to make the necessary changes in any event to account for CCL on coal imports and overall administrative costs will be reduced if UK coal suppliers do not have to do so.

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

CoalPro cannot comment. This information can only be provided by individual coal producers, but for small producers there could be a significant continuing cost. The alternative approach set out at 4.B1 above represents a far better solution. It is likely that both one-off and continuing costs would be lower as electricity generators will have to incur these in any event to account for coal imports.

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, but under the existing proposals, they are not. The proposals will offer a significant advantage for gas-fired compared to coal-fired generators and lead to large-scale fuel switching and a renewed dash for gas. The impact of this is dealt with more fully in the preamble to this response but will result in a very high dependency on gas in the mid 2020s, will be a major disincentive to investment in existing coal plant and in the CCS demonstration programme on coal-fired plant, and will lead to long-term carbon lock-in beyond 2030 at unabated gas plant.

Given the other elements of the EMR package, specifically FITs, the carbon price support mechanism is unnecessary. If, however, government wishes to pursue it, a single rate should be applied to all fossil fuels.

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?

No.

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?

This is absolutely essential if CCS is to proceed, including the demonstration programme. Without such relief, there will be absolutely no economic case for any investment in coal-fired CCS plant.

The practical issues would be far more easily dealt with if electricity generators were to account for CCL on all coal supplies, not just imports. It would be an administrative nightmare for generators and coal suppliers to have to agree between themselves what portion of the relief for carbon abated should apply to coal imports (to be accounted for by the generators) and what portion should apply to UK produced coal (to be accounted for by coal producers). The UK portion would have to be further apportioned between individual suppliers.

The demonstration programme will establish criteria for operational standards and these should apply to all CCS plants. There should be no difference, at least until the technology has been proven and is commercially available, between demonstration and subsequent plants.

There are, however, wider implications for the CCS demonstration programme (see also the preamble above). The consultation document baldly states that "the carbon price support mechanism will not become a barrier to investment in such demonstrations" (para. 4.30) without any explanation as to how and

why this should be so. If there is no relief for carbon emissions from the unabated proportions of CCS demonstration plants, this would be certain to act as a major disincentive to the demonstration programme. At the very least, any demonstration plant (other, perhaps than the winner of the, now uncontested, competition for the first plant) would now almost certainly be gas. No other coal-fired demonstration plant would be likely to proceed if there were no relief for the solid fuel CCL on the unabated portion of such a plant compared with the CCL for gas.

Imports and exports

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

The proposal to apply CCL to electricity exports but not to imports is perverse and will lead to severe market distortion given the probable increase in interconnector capacity. Whilst this might still be relatively small compared to overall UK generation, it is likely to be much larger in relation to coal-fired capacity and generation in the mid 2020s.

Interconnectors are likely to be used more at peak periods, precisely the periods at which coal-fired generation, in the UK or Europe, will be providing marginal supply. Imported electricity, including electricity generated from coal, will thus displace UK generated electricity from UK coal production. This even applies to France. Whilst the actual electricity imported from France may be generated by nuclear stations, this is only possible due to substitution within France by coal-fired generation at peak periods. Imports of electricity from high carbon sources would be effectively subsidised. This represents a perverse effect with significant competition implications.

CoalPro recognises that applying CCL to electricity imports would be complex, but this is no excuse for allowing a severe market distortion and a perverse outcome.

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

CoalPro cannot comment on the effect on the trading arrangements themselves but the overall impact will be to drive fossil fuel generation from coal to gas with all the effects set out elsewhere in this response.

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 effect will inevitably be to result in higher imports from Ireland or lower exports to Ireland.

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 to long term?

The proposal in the EMR package for FITs will provide all the certainty required for low-carbon generation. Carbon price support rates, at whatever level and over whatever time scale, cannot add to that certainty.

However, carbon price support rates at any level will massively increase the uncertainty for coal-fired generators in making their investment decisions on how to comply with the IED. The higher the rates, the greater the uncertainty. The apparent requirement for CCS demonstration plant to pay the CCL levy on the unabated portion of their plants will massively, perhaps fatally, increase uncertainty for the participation of coal-fired plant in that programme.

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

FITs, as proposed in the EMR package, represent a far more certain option to which carbon price support will add nothing. An alternative is a low-carbon obligation.

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

CoalPro does not participate in carbon trading.

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 is irrelevant and unnecessary to support the move to a decarbonised electricity system if FITs are introduced.

If a carbon price support mechanism is introduced, for other reasons, the target price should be maintained at low levels in both 2020 and 2030 if large-scale fuel switching from coal to gas, an excessive overdependence on gas, the premature closure of UK coal mining capacity, and long-term carbon lock-in at unabated gas plants are to be avoided (see elsewhere in this response).

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?

If FITs are introduced as part of the EMR package, these alone will be sufficient to meet emissions reductions targets. The carbon price support mechanism may result in lower emissions in the short-term but are likely to result in longer-term carbon lock-in by promoting the large-scale construction

of unabated gas-fired plant. Achieving longer term emission reductions targets from the late 2020s through to 2050 will become much more difficult.

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 is both irrelevant and inappropriate if FITs are introduced as part of the EMR package. If, for other reasons, a carbon price support mechanism is introduced, then the timing and the level at which it is introduced, should be designed to avoid an excessive switch from coal to gas with all the implications that entails (see elsewhere in this response).

Electricity Investment

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

None. FITs will be sufficient.

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

There will be minimal investment at coal-fired plant to meet the requirements of the IED with consequent closures and low load-factor operation. There must be a question as to whether sufficient coal-fired generation capacity will remain to ensure security of supply objectives can be met. This in turn has major implications for UK coal producers with the likelihood that there will be minimal investment in, and premature closure of mining capacity.

The carbon price support mechanism will stimulate a dash for gas and large-scale investment in unabated gas-fired plant.

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

It is essential to ensure fuel diversity of supply if security of supply objectives are to be met. If it is still felt necessary to introduce carbon price support, it should be structured in such a way as to not make it totally uneconomic for investment in existing coal-fired plant to meet the requirements of the IED such that a reasonable amount of such capacity remains in the mid-2020s. At the same time, it should be structured to avoid an excessive level of investment in unabated gas-fired plant and thus avoid an excessive overdependence on such plant in the mid 2020s (and long-term carbon lock-in). Only by ensuring a diversity of fuel sources can potentially very high and volatile wholesale electricity prices at peak periods be avoided.

CoalPro suggests that the Government gives very careful consideration to the potential situation in a period of peak demand on a cold, still winter day in the mid 2020s, the sort of weather conditions that occur two or three times every

year. At that time, new nuclear plant is unlikely to have provided any more capacity in total; it will merely have replaced closing nuclear capacity. Whilst nuclear generation provides some 18% of total electricity supply, it is inflexible and will provide only some 12% to 13% of peak demand. Wind generation will be effectively zero (ten or twenty times zero is still zero). Pumped storage can supply 1% to 2% but hydro output may be near zero in freezing conditions. There may be a small contribution from some other, very expensive, renewables and dedicated biomass and landfill gas plant. It follows that the dependence on fossil-fuel plant may well exceed 80%. If there is then very little coal-fired capacity, existing or new, (bearing in mind that the main source of biomass generation is coal-fired capacity), dependence on gas will be enormous, at a time when residential and commercial gas demand is also at its highest.

Existing low-carbon generators

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

CoalPro has 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?

Assuming that this generation applies only to low-carbon plant, CoalPro has no comment.

Electricity price impacts

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

CoalPro has no comment.

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

See response to 5.D5 below.

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

CoalPro is not an electricity generator or supplier, but would expect the full cost of carbon price support to be passed on to consumers.

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

Coal prices are wholly determined by the international market. Coal producers are therefore unable to pass on any cost increase, from whatever

source, that is not also incurred by our international competitors. Higher electricity prices as a result of carbon price support could not therefore be passed on to customers.

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

The effect on UK coal production will be dramatic. UK coal production comes from two sources:-

(a) Deep mines, characterised by high inflexible levels of output, high fixed costs (80% plus), and major periodic investment requirements to access new reserves with long lead times. Investment cannot be delayed beyond the point at which it needs to commence if new areas of reserves are to be accessed before existing reserves are exhausted. There is a point of no return beyond which there is no way back and closure is inevitable.

(b) Surface mines, characterised by short lives (typically four years), generally lower levels of output, inherently more flexible, comparatively low levels of fixed costs and comparatively lower investment requirements with generally shorter lead times. Nevertheless, surface coal mine producers will have a portfolio of sites at various stages of development. From initial identification of a potential reserve to eventual production through a demanding and time consuming planning system might typically take ten years.

All of the UK's existing deep mines will need to take major investment decisions within the next few years (in some cases imminently) if they are to access new reserves. Without such investment, closure later in the present decade is inevitable. As a result of carbon price support, the market for coal in the 2020s is likely to be low and is in any event highly uncertain. Taking major investment decisions in the near term against that background is hazardous, to say the least.

The result of carbon price support is therefore likely to be zero, or near zero investment and the premature closure of most, if not all of the UK's deep mines.

These uncertainties are also likely to lead to a curtailment of development effort and expense on potential longer-term surface mines within the portfolios of coal producing companies. Surface mine output is therefore likely to fall in the medium term.

The combined effect will be a severe loss of highly paid, high-skilled jobs in already depressed areas, loss of tax revenues and other economic benefits.

The overall impact of carbon price support will thus be the replacement of UK produced coal by imported gas. If the market for coal in the 2020s proves to be higher than we fear, UK produced coal will be replaced by imported coal.

CoalPro urges the Government to carefully consider the wider economic implications of the impacts on UK coal production.

Despite high international coal prices, there may still be pressure from electricity generators on UK coal producers to reduce prices in an attempt to offset the effect of carbon price support. This would impact on profit margins and may reduce output further.

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?

The Impact Assessment takes no account of the effect on coal production, the effect of premature closures in the industry, the consequent loss of jobs and other economic benefits (including tax revenues) and the cessation of investment.

CoalPro has concerns on the effect of carbon price support on the competitiveness of UK industry as a whole both directly and cumulatively in conjunction with CRC and CCL on electricity supplies. This double taxation will give rise to risks of carbon leakage on a wide scale.

Concluding Remarks

CoalPro will be pleased to discuss further any of the issues raised in this response.

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Bringing Energy Together

Combined Heat & Power
Sustainable Energy Services
District Heating & Cooling

Justine Greening MP
Economic Secretary to the Treasury
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1 February 2011

Carbon Price Support Proposals:
Impacts upon the Competitiveness of UK Manufacturing

HM Treasury is presently consulting on its proposals to reform the Climate Change Levy and introduce a new framework for Carbon Price Support (CPS). I am writing to raise with you concerns over the adverse impacts of the proposals – particularly in relation to the competitiveness of UK manufacturing - and to outline proposals for implementing CPS which will mitigate these effects.

Combined heat and power (CHP) is a proven energy efficiency technique that is widely employed across the UK economy. It is most extensively utilised in manufacturing sectors exposed to international competition, including the oil refining, chemicals and paper sectors, which together account for 75% of installed CHP capacity. CHP is increasingly being deployed in the public sector, where it offers a practical and affordable means of saving energy, typically by up to 20%. The value of energy saved by CHP in the UK economy is estimated to be in excess of £200M and will continue to grow with rising energy costs.

Throughout the period of development of your proposals the CHP Association (CHPA) has maintained a strong dialogue with your officials and, following the publication of the consultation, we have had the opportunity to analyse more accurately the impact of the proposals upon CHP. This analysis has indicated a number of adverse impacts of the proposed reforms:

- **manufacturing industries which have invested in CHP to manage their energy costs and reduce carbon emissions will see their tax costs increase and their competitive position undermined**, with many proportionately worse off than if they had pursued the higher-carbon, 'do nothing', approach of importing electricity from the grid.

- **public sector and community-based energy projects will face further cost-based barriers to entry**, and will be deterred from operating and developing schemes that could deliver market diversity and cost-savings in public services.

- **prospects for developing competitive and efficient CHP on refining, LNG or chemicals sites will be curtailed** owing to the exposure to greater risk to revenues.

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- **the Government could lose up to 14 million tonnes of existing CO_2 savings**, by CHP schemes being decommissioned or simply redefining themselves to avoid an administrative cost which will no longer provide a significant benefit. To meet its emissions targets, the Government would need to find additional savings from more expensive alternatives.

- **the CHP manufacturing and maintenance sector will suffer directly** as a result of the disproportionate tax burden placed on CHP plant.

Through our understanding of the proposals and of the existing tax treatment of CHP, the CHPA has identified a number of alternative approaches to the treatment of CHP under the proposed CPS. These approaches would involve exempting some or all of the fuel used in a CHP plant from the new CPS levy, thus mitigating the adverse economic impacts we have identified. These approaches would not add to the administrative cost of the proposals, and indeed in the case of a full exemption could result in a significant reduction in bureaucracy for both HMRC and taxpayers.

The CHPA, which represents both suppliers and users of CHP plant, will of course be submitting a full response to the consultation setting out details of both our analysis and proposals. However given the depth of impact upon both this sector and upon our clients across the UK economy, I am writing to seek an urgent meeting with you in order to explore the potential remedies in advance of publication of the proposals in the Budget 2011.

I am copying this letter to your colleague, Greg Barker MP, Minister of State at DECC.

confederation of paper industries

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14 February 2011

Rt Hon George Osborne MP
Chancellor of the Exchequer
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Dear Minister,

Carbon Price Floor: support & certainly for low-carbon investment – Impacts for Industries Using Combined Heat and Power

The Confederation of Paper Industries (CPI) is the trade association for the paper industry in the UK and has within its membership paper manufacturers, corrugated packaging manufacturers and mill-owned and independent recovered paper merchants and exporters.

Paper is a sustainable material and while substantial improvements have been made in energy efficiency, by its nature it is still energy intensive in its manufacture. The UK produces just under 5,000,000 tonnes of paper each year with over 50 paper mills still in production. Around 20,000 people are employed directly by the sector. With over 10,000,000 tonnes of paper consumed annually in the UK, the manufacture of pulp & paper should be well placed to play an important role in the growth envisaged for manufacturing sector as the economy is rebalanced.

As you are aware, HM Treasury is consulting on proposals to increase the cost of electricity generated from fossil fuels to make electricity from renewable sources relatively more competitive and guarantee investment returns for new investors. However this artificially raises the wholesale price of electricity for all consumers.

We have severe reservations about the affordability of these proposals to energy intensive industries, both from passed through costs from the generating sector and direct increases to fuel used by UK paper mills for on site electricity generation. We have of course responded in detail to the consultation, but would make the general point that higher energy costs in the UK (in comparison to other nations) inevitably means the UK loses out on new investment.

Virtually all paper companies are multinational; competing in a global market but also completing internationally for scarce investment capital. We are very concerned that the Carbon Price Support (CPS) proposals will lock the UK into high energy prices for the foreseeable future. The inability of UK energy intensive firms to pay the full rate of the Climate Change Levy (CCL) was the reason for the introduction of Climate Change Agreements (CCA's) back in 2001. The justification to shelter parts of industry from CCL is even more valid now as globalised trading has intensified. The CPS taxation should be included in the remit of CCA's to protect energy intensive industry in the UK – **it would be simple to arrange some form of CPS rebate based on purchased electricity and a grid CPS average rate and we urge this is considered.**

We have a particular concern over the impact of the proposals on the future commercial viability of combined heat and power (CHP) installations. CHP generation allows heat wasted in conventional electricity generation to also be used with corresponding savings in emissions. CHP is amongst the lowest cost means of cutting CO_2 emissions from industry and has been widely deployed by the UK paper industry with nineteen of the fifty two UK paper mills utilising CHP. With fossil fuel still playing an important role in UK generation it makes sense to use the fuel in the most efficient way.

UK Government policy is to support the development and continued operation of CHP and yet we note that targets for expansion continue to be missed by a wide margin – only around 5.5 GW of the targeted 10 GW by 2010, has actually been installed. Moreover, the existing level of support is just enough to sustain existing plant and makes investment decisions for CHP at new mills marginal – of the two new UK paper mills one has CHP and one does not.

The CPS proposals are that CHP will be subject to the CCL carbon price support rates and not exempted as at present with the standard CCL. If enacted, this will directly undermine the viability of existing CHP, and make the installation of new plant far less likely. The result of this will be the loss of a further 1,000,000 tonnes pa of potential CO_2 savings in industry, and risks the current saving of 14,000,000 tonnes pa. This would need to be replaced through other policies at greater cost.

I am sure this threat to the viability of CHP is not intended by the proposals and nor is it intended to make the use of a carbon saving technology uneconomic and penalise industrial investments already saving carbon. This is clearly unfair, especially as exemption for CHP from CCL, until at least 2023, was restated by Government as recently as 2009. Reversing this decision now sends all the wrong signals to long term investors and will undermine confidence in the CPS proposals.

Accordingly we urge that the Government simply exempt CHP from the new CCL CPS as it is already exempted from the existing CCL via the current 'good quality' CHP scheme.

If you need any additional information we would of course be pleased to provide it. We would also be pleased to attend a meeting either at your offices or at one of the CHP operating paper mills so you can see the technology in action.

Such is our concern over this matter that we have also written separately to your colleagues in Government; Justine Greening MP, Economic Secretary to the Treasury; Dr Vince Cable MP, Secretary of State and Mark Prisk MP, Minister of State at BIS; Caroline Spelman MP, Secretary of State at Defra; Rt Hon Chris Huhne MP, Secretary of State and Gregory Barker MP, Minister of State at DECC.

confederation of paper industries

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11 February 2011

Dear Sir

HM Treasury Consultation on a Carbon Price Floor Carbon Price Support Rates Comments from the Confederation of Paper Industries – summary of concerns

The Confederation of Paper Industries (CPI) is the trade association for the paper industry in the UK and has within its membership paper manufacturers, corrugated packaging manufacturers and mill-owned and independent recovered paper merchants and exporters.

Paper is a sustainable material and while substantial improvements have been made in energy efficiency (in part driven by Climate Change Agreements); by its nature, production is still energy intensive. The UK manufactures just under 5,000,000 tonnes of paper each year with over 50 paper mills still in production. Around 20,000 people are employed directly by the sector. With over 10,000,000 tonnes of paper consumed annually in the UK, manufacture of pulp & paper should be well placed to play an important role in the growth envisaged for the manufacturing sector.

The Pulp & Paper sector has already responded positively to the green agenda, with paper mills and associated converting companies providing the key market for recycled paper collected in the UK; making major investments in general energy efficiency; and widely deploying CHP including an increasing the use of biomass. A commitment to a low carbon economy resource efficient economy is clear.

We are concerned that these proposals will cause serious damage to the competitiveness of UK industry.

In summary:

- We are not convinced the new taxation is required. EU ETS is the European Union wide scheme designed to price carbon used by Energy Intensive Industries and it is this scheme that should be used on a pan European and better global scale to price carbon.
- We are not convinced the policy will achieve the desired objective of stimulating investment in low carbon generation as it offer price support at the revenue stage when support is required at the construction stage. The “contracts for difference” initiative may be a more appropriate methodology.

- We are concerned that windfall profits will go to incumbent generators with no guarantee of re-investment. There is also likelihood that generators will take the opportunity to increase profit margins as there is no clarity on the cost pass through mechanisms.
- If the CPS is implemented, it should be at the lower trajectories. We note that the additional cost to the sector in 2030 is £240 million (at 2009 prices) against an estimated 2009 sector profit of £125 million.
- If the CPS is implemented, then the taxation should be included in the provisions of a renewed CCA scheme as is the existing CCL. CCA participants could simply reclaim a portion of the CPS element of purchased electricity via a rebate set at the effective grid average CPS rate.
- We have particular concerns about the impact of the proposals on the viability of industrial CHP and urge that the Government simply exempt CHP from the new CCL CPS as it is already exempted from the existing CCL via the current 'good quality' CHP scheme.
- If the Government is concerned about the loss of revenue, then we note that the auctioning of EU ETS permits will already form a significant stream of revenue.

Detailed comments from the Confederation of Paper Industries

We have already welcomed Government proposals to rebalance the economy and see the pulp & paper sector as one of those well placed to play an important role. The CPS proposals run counter to providing an incentive to rebalance the UK economy towards manufacturing. By reducing competitiveness and increased operating costs, damage is caused at two levels, both putting the future of existing sites in jeopardy and making future investment in the UK unattractive. For a sector such as ours, where profitability is marginal, the net result will be increased imports, reduce exports and increased unemployment. Consequences will reach well beyond the directly-employed labour force.

The Government have acknowledged the overlapping and confused nature of climate change policies. Most of these policies have an impact on the cost of energy and it is the cumulative impact of these policies on cost that is critical. Looked at in isolation, the costs of each scheme are manageable – cumulatively they are not. The CPS proposals add yet another layer of cost and are unaffordable without damaging the future of Energy Intensive Industries in the UK. Information on the cumulative impact of policies has been provided by the Energy Intensive User Group (EIUG) and we have contributed to the updated report that has been provided as part of the EIUG response.

We note with concern that the consultation is unbalanced and seems more directed to the electricity generation industry rather than electricity consumers. Accordingly consultation questions are structured in such a way that there is no opportunity to raise a number of key issues that do not seem to have been fully considered. Because of this we raise these key issues outside the formal consultation questions.

Impact on international competitiveness and carbon leakage

With a captive market for electricity supply, there is clearly no problem for generators in passing through additional costs caused by the CPS to customers. The policy impact

analysis (with no justification) suggests that manufacturers will be able to pass through to customers much of this increased cost.

This is simply not the case as our sector is exposed to growing international competition. Indeed for the development of EU ETS Phase III (post 2012) it has been accepted that the sector is at risk of carbon leakage and so cannot pass through additional costs not imposed on competitors outside the EU without a loss of market to imports and a consequent loss of manufacturing jobs. Even after this analysis, the sector has been allocated no free allocations for electricity use or generation, leading to an estimate of additional cost in the region of £45 million per annum to UK paper mills (assumed EU ETS price £15 per allowance, cost of purchased allowances for generation plus pass through at cost from generators). Already a number of companies have said that extra costs already identified through EU ETS will make them uncompetitive – these new cost are on top of the EU ETS burden.

The CPS proposals add a new layer of costs and no account is taken of these carbon leakage issues and no weight is given to the carbon leakage debate. Put simply, sectors at risk of carbon leakage cannot afford an increased cost of carbon when competitors operate in economies that are not constrained in the same way. There can be no doubt that these carbon leakage issues are of equal or even greater relevance when applied to trade between Member States. These additional costs (imposed on UK installations only) can only serve to drive jobs and investment out of the UK. It is disappointing to note the lack of attention paid to this issue.

The basis of the Climate Change Levy

The Climate Change Agreement (CCA) system and the associated reduced rate of Climate Change Levy (CCL) was based on the premise that UK taxation on energy, that did not apply to competitors elsewhere in the EU, could not be afforded by UK based energy intensive industry without damage to competitiveness. This situation is unchanged and uncertainly over the future of the CCA scheme and the cost to industry of other climate related policies caused by the ongoing DECC review is causing great uncertainly and concern. Already the cost of the existing CCL levy will be almost doubled in April – a much higher overall increase than that required by the provisions of the Energy Product Directive. We urge that the future of the CCA system is quickly confirmed and the provisions extended to also include a discount on the CPS rates for eligible companies. **This would be easy to arrange for CCA members via a proportionate rebate for purchased electricity based on the average grid CPS rate.**

Divergence between European and UK energy policies

A divide seems to be evolving between energy policy at a European level and that in the UK. On the one hand policies continue to be developed by the Commission to provide an interconnected liberalised energy market across Europe, while on the other, Member States (including the UK through the CPS and other policies) are developing an incentives bidding war to attract investment to their country. Assuming the pool of capital is limited, the only winners will be the energy developers who are guaranteed high rates of return but at the expense of energy consumers. There is a particular risk in the case of nuclear development, where the support is essentially required during the capital intensive construction phase and no support is required during the low cost

operational phase. The CPS policy has exactly the reverse effect; offering no support when actually required. While CPS is a long-term proposal, no Government can bind its successors. Policy changes on CHP, the CRC change to a straightforward tax and in other areas has already eroded confidence in Government promises.

Green Investment Bank and support for energy efficiency
The current structure of the proposals indicates an intention by the Government to retain the CPS revenue. Some at least of the tax should be allocated to support investment in energy efficiency. Higher fuel prices hit the most energy intensive firms hardest and serve to reduce the small amounts of capital potentially available for investment.

One of the few mechanisms to support industry in moving towards a low carbon economy is financial support via the Carbon Trust managed Industrial Energy Efficiency Accelerator programme (the IEEA) and we note with concern this funding seems likely to be cut just as our sector completes an assessment process through which potential areas for investment have been identified. This cut should be reversed, or the remit passed urgently to the Green Investment Bank.

Impact of the viability of Combined Heat & Power operation
Paper mills are one of the main industrial users of CHP in the UK. We have a particular concern over the impact of the proposals on the future commercial viability of combined heat and power (CHP) installations. The CPS proposal to impose a new tax on fossil fuels used in the plant, has the potential to seriously impact on the operation of CHP in the UK and so we have written to Ministers under separate cover both in our own name and in partnership with the Combined Heat & Power Association and other large industrial users to draw your attention to the unintended consequences of the proposals as presented. **Accordingly we urge that the Government simply exempt CHP from the new CCL CPS as it is already exempted from the existing CCL via the current 'good quality' CHP scheme.**

Please see the reply to question 4.C2 below for more information.

Affordability of the proposals (sector profitability)
In the UK, CPI assessments estimate that members actually made a loss in 2008 of around £25 million and a small profit of around £125 million in 2009 (on a UK turnover in the region of £4 billion) – these figures before provisions for pension deficits. If it were possible to pass higher costs to customers these figures would not be accepted and prices would be raised to restore long term viability.

For corroboration, PricewaterhouseCoopers (PwC) produce a global annual assessment of the financial performance of the top 100 Forest, Paper & Packaging Companies. The survey reveals that ROCE has greatly fallen in recent years to 2.3% in 2008 and 2.7% in 2009.

By contrast the Electricity Supply Industry – low risk and a captive market with the expectation of pass through of costs – is being offered ROCE of around 11-12% through these proposals.

Grid purchased electricity - We estimate that UK paper mills purchase around 2.5 billion kWh of electricity each year from the grid. Assuming the CPS starts at a level of £1 per tonne of carbon we estimate (using the carbon grid factor used for CRC) this means a direct increase in the wholesale cost of each kWh of .054 pence meaning **a cost increase to our sector of £1.35 million pa for each £1 added to the cost of carbon by CPS**.

This is additional to the cost increase already locked in by changes to EU ETS from 2013 when no free allowances will be granted for electricity generation. Assuming a cost of EU ETS allowance of £15 then this will cause an added cost of around £20 million each year. Of course these figures may be higher as electricity distribution companies take the opportunity to increase profits.

Fuel purchase for CHP – We estimate that UK paper mills purchase in the region of 9 billion kWh (gas equivalent) fuel for use in CHP plant each year. **This means a direct increase in the cost of CHP fuel to our sector of £1.6 million pa for each £1 added to the cost of carbon by CPS**. This is additional to the cost increase already locked in by changes to EU ETS from 2013, when no free allowances will be granted for electricity generation. Assuming a cost of EU ETS allowance of £15 then this will cause an added cost of around £24 million each year.

From the profitability issues discussed above, the additional costs imposed by the changes in EU ETS of around £44 million pa will be difficult to manage, but at least they will be applied equally across the EU. The additional annual cost of CPS (to UK installations only) of between £3 million pa and £9 million pa in 2013 (depending of £1 or £3 rate) is clearly unaffordable.

The increase to £70 per tonne in 2030 - arising from the escalating CPS - means an additional cost (on top of the underlying cost of fuel) of £210 million pa to the sector.

Additionally every 1p increase in the unit cost of electricity increase annual costs by £25 for the sector.

Changing energy markets
A number of factors are conspiring to create uncertainly in energy markets suggesting that options should be kept open to take advantage of new opportunities rather than committing the UK to a long term high electricity price from expensive existing renewable generation technologies;

- Natural gas. Throughout the report the assumption is that the cost of gas will increase and this assumption partially leads to the eventual cost savings arising in the long term. This assumption is increasingly being questioned due to an increased global availability of gas, greater diversity of supply (including massive potential from shale) as well as new sources and associated transport and storage infrastructure. As gas generation releases only around half of the amount of carbon than would be released by an equivalent coal fired station, then the possibility of decarbonising by replacing coal with gas should be seriously considered as an alternative to the present proposals, at least as a

lower cost interim measure. At the very least the proposals should be re-examined to reflect the latest situation in the global gas market.

- Greater use of electricity interconnectors. A number of interconnectors are being built or considered as a liberalised trans-European energy market develops. These offer the option of considering energy diversity and decarbonisation on a wider geographic scale and taking advantage of new developments such as solar in Southern Europe, biomass/hydro in Scandinavia, and wind over a much wider area than just the UK. The affordability of outcomes should be given much greater priority.

- Allowing more time for the development of new technologies. CCS is economically and environmentally unproven on a commercial scale and the inherent additional energy use required to offset the reduced efficiency and carbon capture and sequestration may mean it is never viable without massive subsidy.

Windfall profits for incumbents

Existing operators of low carbon generating equipment (both nuclear and wind) have demonstrated they have no need for the CPS subsidy which will only serve to increase their profits. Accordingly there should be some form of clawback to prevent this transfer of finance from electricity users to generators for no benefit to the generation mix.

We also note that the new subsidy is not actually required until the new low carbon generation actually comes on line – certainly not before 2018 and on a large scale not until new nuclear plant is commissioned. **While the enabling legislation could be passed now, the rate should be set at zero until the support is actually required by new equipment.**

Responses to specific questions;

3.A1. What are your expectation about the carbon price in 2020 & 2030? How important a factor will it be when considering investment in low-carbon generation.

The question is answered assuming the question refers to the price set by EU ETS, though the price of energy (as so partially carbon) is also increased by other instruments such as the existing CCL, ROC's and FIT's; it is the cumulative effect of these policies that it critical.

We note that the fundamental design of EU ETS is to allow the carbon savings to be made at the lowest cost anywhere in the EU. Links to the Kyoto mandated Clean Development Mechanism and Joint Implementation schemes allow a certain amount of the savings to be made in developing nations if this is at lower cost. These schemes are all international and we reiterate that schemes to increase the cost of carbon must be considered on a global basis.

European Commission calculations assume an allowance cost through Phase III (ie to 2020) rising to €30 and this is the figure we use for our calculations when advising our members. However we draw attention to the amount of fluctuation in the actual market price of allowances (rather than the straight line indicated in Chart 4.A). These fluctuations in the market price make the setting of the CPS in advance impossible if the intention is to increase the cost of EUA's to a particular price when the underlying price of EUA's is set by trading.

While forecasting the price to 2020 is difficult, forecasting the price to 2030 is not possible and any estimates given can have no serious credibility until formal details of the EU ETS scheme have been given for the period post 2020; critical is an indication of the overall cap – almost certain to be lower than for Phase III.

As the CPS mechanism will guarantee high prices for the UK (compared to a lower variable price elsewhere in the EU) then UK based sites will be relatively disadvantaged and less likely to secure investment when compared to alterative locations elsewhere in the EU, let alone sites outside the EU not subject to the same carbon cost.

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.

The fundamental effect of the CPS mechanism will be to mean less new investment in the UK by Energy Intensive Industries. Existing installations will need to stay internationally competitive and so will be faced with the choice of investment in low carbon generation or moving out of the UK. The lack of support for CHP means UK investment would be less likely, meaning the long term impact would be a further loss of UK manufacturing.

The ESI sector, unlike the Paper Sector and other industries, operates in a secure and captive market with inherent low risk with the ability to pass through costs. The ESI

has the certainty of UK Government and EC policies in introducing low-carbon measures thus there is already confidence there will be a long term increase in the cost of electricity , already guaranteed by EU ETS and other policies. There should be no doubt that their investments will be profitable. The issue is the relative cost of alternative generation relative to generation via conventional fossil fired generation. On this basis the ESI already has the encouragement to invest without the added cost of the CPS which included an additional element of taxation to be retained by Government. It is clearly unfair that the electricity generators should be favoured at the expense of other industries being faced with ever increasing input costs.

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

Fundamental changes to the CRC scheme, uncertainty on the future of CCA's and the loss of support for CHP (promised as recently as 2009) all indicate that industry cannot place credence on Government promises and all add uncertainty to investment decisions.

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

The primary means to decarbonise the market is via EU ETS and a genuine global agreement. This is the level intervention should be at. It is at this level where intervention should be and not at UK level where the intervention will be damaging.

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?

Accounting for the changed taxation regimes does not seem onerous, nor would be a system to claim a rebate for the CPS offered via a revised CCA and based on a network average CPS rate calculation.

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 system change would cost, both one off and continuing?

No comment.

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.

CHP on industrial sites helps diversify the grid, spread the investment requirement in overall UK electricity generation amongst more companies and helps increase efficiency by reducing transmission loss.

Industrial uses have the choice to simply purchase electricity off the grid (and so increase the overall demand that needs to be met) or to install their own generation equipment (with associated added cost of capital and operational management). Clearly an increased amount of CHP is good for the UK and this should be incentivised by an exemption from CPS to reflect the advantages and reduced emissions from this technology. Particularly since investors in CHP incur additional emissions and cost, to the ultimate benefit of the electricity grid.

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?

Yes.

CHP generation allows heat wasted in conventional electricity generation to also be used with corresponding savings in emissions. CHP is amongst the lowest cost means of cutting CO_2 emissions from industry and has been widely deployed by the UK paper industry with nineteen of the fifty two UK paper mills utilising CHP. With fossil fuel still playing an important role in UK generation it makes sense to use the fuel in the most efficient way. Simply, many existing CHP schemes could be made uneconomic compared to the current alternative of sourcing power from the grid and heat from on-site boilers: yet the CHP solution is at least 10% more efficient thermodynamically and also reduces CO2 emissions for the nation as a whole.

UK Government policy is to support the development and continued operation of CHP and yet we note that targets for expansion continue to be missed by a wide margin – only around 5.5 GW of the targeted 10 GW by 2010, has actually been installed. Moreover, the existing level of support is just enough to sustain existing plant and makes investment decisions for CHP at new mills marginal – of the two new UK paper mills one has CHP and one does not.

The CPS proposals are that CHP will be subject to the CCL carbon price support rates and not exempted as at present with the standard CCL. If enacted, this will directly undermine the viability of existing CHP and make the installation of new plant far less likely resulting in the loss of a further 1,000,000 tonnes pa of potential CO_2 savings in industry and risks the current saving of 14,000,000 tonnes pa that would need to be replaced through other policies at greater cost.

We are sure this threat to the viability of CHP is not intended by the proposals and nor is it intended to make the use of a carbon saving technology uneconomic and penalise industrial investments already saving carbon. This is clearly unfair, especially as exemption for CHP from CCL, until at least 2023, was restated by Government as recently as 2009. Reversing this decision now sends all the wrong signals to long term investors and will undermine confidence in the CPS proposals for investors.

Our analysis indicates that each £1 per tonne increase on the cost of carbon in CHP fuel adds around £1.6 million pa to the operating costs of the sector CHP installations.

CPS should not be applied to inputs for heat from CHP as this is inequitable. There is also a strong case for CHP power to continue to receive preferential treatment – this would be consistent with the Government's previously established CHP target and the current incentives for domestic CHP. More details are given in response to the question on CHP in the consultation.

The existing Good quality CHP scheme (GQCHP) provides a proven methodology to assess and rate CHP operation and preferential support should be offered to plant classified as of good quality by the scheme as this guarantees environmental gains.

Accordingly we urge that the Government simply exempt CHP from the new CCL CPS as it is already exempted from the existing CCL via the current 'good quality' CHP scheme.

4.C3. Do you agree that tax relief should be considered for power stations with CCS?

Yes provided the technology can be proven to be economic on a commercial scale within a realistic timetable. The proposal to exempt the additional energy requirement required to drive the CCS part of the installation from CPS is not unreasonable but we raise concern over the scale and cost of the additional amount of energy required to drive the CCS process. Much work needs to be done before the question of tax relief arises.

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

The greater interconnection with European electricity networks is to be welcomed and indeed essential as the role of intermittent renewable energy grows. However it seems perverse that electricity generated in the UK and exported, will be subject to CPS, while energy imported will not be. The UK level could be set to reflect the network average of fossil carbon and the imported electricity taxed at the level of carbon from the exporting grid. If this is not allowed under EC Directives this highlights the competitive dangers to UK industry from this UK only tax.

Other things being equal, then non taxation of imported electricity means it would be more sensible to build a new fossil fuel powered generation plant outside the UK at the other end of an interconnector and export the electricity with consequent losses to UK jobs and investment.

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

No comment.

4.D3. What impacts might the proposals have in Northern Ireland?

No comment.

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?

EU ETS is designed to facilitate carbon reductions across the whole of the EU in the most cost effective manner. If the set targets are achieved at a low cost this is to be welcomed, not criticised. If the targets are too low then it is only at the level of the EU and in a global contest they can be addressed. The linking of the CPS with EU ETS in the UK alone further confuses climate change related regulation and serves to guarantee higher carbon cost in the UK whilst competitors in other Member States are likely to benefit from lower carbon cost. Changes to EU ETS Phase III, together with tighter targets will severely impact on our sector. We estimate that the removal of free allocations for electricity generation, the use of product benchmarks set by the 10% most efficient sites plus the tightening of targets by 20% will cost our sector (in the UK) in the region of £24 million pa.

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

The issue is already being addressed via the EU ETS and this is the route that should continue to be used.

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

None. The proposal is a fixed additional tax on energy which will vector into increased business costs on top of the market price for EU ETS allowances. EU policies will drive up he cost of carbon anyway so the CPS proposals are not required.

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

No.

The EU ETS is designed to reduce carbon at the lowest cost across the EU. It should be allowed to operate. Any changes to the cost of the ETS, s a matter to be dealt with at European level and in the context of a global agreement. The issue should not be addressed unilaterally in the UK at the cost of making UK energy intensive industry uncompetitive.

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?

Carbon prices should be set by the EU ETS with rules set at European level.

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

If the proposals go ahead, there will be a windfall profit for existing low carbon generators where the investment decisions have already been made. This should be addressed.

If the Government insists on instigating this new tax, then it should only be brought in when required to underpin the wholesale price of the new low carbon generation. If investment certainty is required then the promise of higher wholesale prices should be sufficient – the higher prices only need to start once the newly installed equipment starts to operate. At the earliest around 2017, though new nuclear would not come on line before 2020. If this assurance on price really is the critical matter required to trigger the investment, then the tax could be introduced at zero in 2013 and increased as required at a later date. Any other approach would simply lead to windfall profits for incumbent operators.

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

It could be argued that the proposals is targeting the wrong problem and will not work. CPS guarantees higher better returns once new plant is operational, when the real issue is a lack of capital available to take the risk of the construction phase before any income stream is realised.

Once the risk of construction is out of the way the revenue stream is fairly guaranteed anyway. With a long term increase for electricity expected there can be little risk once the revenue stream starts. This may be better achieved and more clearly targeted if the Government acted as a guarantor for large capital investment – similar to the role envisaged for the US Government to support the revival of its nuclear power generation sector.

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

No comment.

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

We draw attention to the overlap between the CPS tax and "contract for difference" proposed in the DECC consultation on energy market reform and we will return to this issue when we respond to the DECC consultation. However we note the overlaps between the two policies and question the need for both.

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

No detailed comment as this response is on behalf of the sector. However we have already noted increased costs to run the existing CHP in the region of £1.6 million pa for each £1 increase on the cost of carbon imposed by the CPS with no CHP exemption. Clearly this makes additional investment unlikely and even questions the viability of existing plant

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 would be a windfall tax for existing incumbents producing low carbon electricity and this should be prevented as it is not required. There may also be an impact on other generators who have not modelled the impact of the CPS tax on their ability to sell their electricity and this would be unfair.

Our reply to question 4.C2 has already drawn attention to the impact on CHP and the likely impact on future operation and investment. We reiterate out concern that by applying the tax to the heat element of the CHP operation the economics of operation are fundamentally changed with a potential overall increase in carbon emissions.

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

For purchased electricity, a mixture of long term contracts, hedge deals and spot market purchases are used – the strategy varies from company to company. While good deals can delay the impact of higher prices, eventually contracts expire and renegotiations incur higher costs.

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

The current proposals for the Carbon Price Floor (CPS) must be viewed in the context of an increasing cumulative impact on the energy costs of energy intensive industries caused by all energy and climate change related policies. This cumulative impact is simply unaffordable. EU energy costs are already high in comparison to global competitors and these proposals are designed to increase UK costs in relation to competitors elsewhere in the EU. This makes the long term future of Energy Intensive Industries (EII) in the UK unsustainable.

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

History suggest the utility companies will pass through costs and indeed EU ETS Phase I indicates they will also make windfall profits should the opportunity arise. The confidential nature of the utility company contacts for their input fuels means there in little transparency in their price setting.

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

There are no contracts in the paper sector where increases in the cost of energy are automatically passed on to customers. The increased costs of production are factored into general negotiations, thus the time lag between the imposition of additional costs and their partial recovery can be onerous. Indeed the closure of 40 UK paper mills since 2001 and the loss of production capacity in Europe indicates how low the profit margins for paper manufacture have been.

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

It is unlikely it would be possible to fully pass through increase electricity costs to customers. As such a capital intensive industry (a modern large paper mill costs in the region of £400,000,000 to build) then it often makes sense to continue to produce in a poor economic climate in the expectation of future profits. However such scenarios result in no investment to keep a mill competitive and result in eventual permanent shut down. Once a site closes it is very unusual for it to reopen and the paper machines are normally striped out and sold to developing nations for reinstallation. The final issue leading to closure is often reported as an energy price increase that cannot be passed through the supply chain.

Our analysis indicates that the additional costs imposed on UK sites by the CPS are in the region of £3 million pa for each £1 increase in the underlying pr ice of carbon.

On its own CPS has the potential to treble the taxation levied on electricity. To this cost must be added the impact of EU ETS, ROCs and FITs. We have clearly explained in our analysis of sector profitability that this is an unsustainable burden and will inevitably harm the industry.

5.D6. Do you have any comments on the assessment of the Impact Assessment?

At a number of points references are made to not undermining the competitiveness of UK industry and reference is made the Impact Assessment. The assessment is superficial and incomplete in its analysis of the impact on Energy Intensive Industries. Assertions are not justified by evidence presented. It should be refreshed with urgency.

We are frankly astonished to see (Impact Assessment pg 3) a statement that the proposals will have no significant impact on competition. We have already clearly demonstrated that the competitive position of the UK paper sector will be severely damaged by these proposals. Thus we simply cannot understand how this statement can be made.

These proposals lock the UK into a high price for wholesale electricity and increase the cost of industrial generation from gas by a new tax. The industry is already regulated through the EU ETS trading scheme, alongside competitors throughout the rest of the EU. EU ETS is designed to reduce the emissions of carbon at the lowest cost anywhere in the EU. Participants pay the marginal cost of this abatement. This new UK only policy deliberately prevents UK installation from benefiting from lower compliance costs – additional costs not placed on competitors. Hence the competitive impact is obvious.

On its own the additional costs from CPS are significant, yet the new taxation must be viewed as part of the cumulative impact on costs of all energy and climate related policies. This cumulative impact is critical and huge and damaging to industry. On these grounds alone the case for a Carbon Price Floor in not made and should therefore be reconsidered.

We are of course pleased to provide additional information should it be necessary.

Yours sincerely

Introduction

ConocoPhillips (U.K.) Ltd welcomes the opportunity to respond to the 'Carbon Price Floor' consultation. Our primary focus in this response is on the impact to CHP. We expect investment in low-carbon electricity to be driven predominantly by the measures introduced as part of the broader EMR package (CfDs or FITs). As currently proposed, the CPS mechanism would disincentivise new investment in CHP and may lead existing CHP to de-classify with a resulting increase in emissions.

> "CHP stations are energy efficient in operation, providing very significant fuel savings and thus cost and efficiency savings, over conventional forms of electricity generation and heat supply. CHP provides one of the most cost-effective approaches for reducing CO2 emissions and plays a crucial role in the UK Climate Change Programme."
>
> *This is an extract from the HMRC Notice CCL1/2 (July 2010).*

ConocoPhillips is an international energy company operating in over 30 countries. Our Power Development group in the UK are therefore competing internally for investment funds on an international basis. Our interest in the UK power market is in projects related to our core business assets. This resulted in us building the largest CHP in the UK adjacent to our Humber Refinery. The Immingham CHP project provides steam to Total's Lindsey and ConocoPhillips' Humber Oil Refineries which together represent 25% of UK refining capacity. The first phase of the Immingham CHP project was 730MW which was commissioned in 2004. A second phase was commissioned in 2009, which increased the plant capacity to 1220 MW.

ConocoPhillips also has section 36 consent for an 800 MW CHP facility at Seal Sands in Teesside adjacent to the ConocoPhillips-operated Teesside Oil Terminal. We are currently looking at the investment case for this project and, were this investment to proceed, it would supply reliable low cost steam to the Terminal and a number of third party facilities in the area. ConocoPhillips' UK power development group is also analysing both biomass and peaking enhancements to our Immingham site.

As a Downstream operator in the extremely competitive refining sector, ConocoPhillips has invested large amounts of money in making the Humber Refinery one of the top 10% most energy efficient European refineries. This has included the Immingham CHP plant, which was the best technology available to us in lowering our carbon footprint. The investment was undertaken taking account of UK and European government support for CHP developments. This support included CHP targets, the Cogen Directive, Enhanced Capital Allowances and the introduction of Levy Exemption Certificates for Good Quality

CHP plant. Such support has been reinforced more recently as per the quotations in this Introduction.

In contradiction to the measures described above that support CHP investment, we have significant concerns on the potential impact of the UK Electricity Market Reform proposals and, in particular, the CPS consultation on the CHP sector. Charging CHPs CPS on the fuel used to generate heat means that CHP projects will be disadvantaged versus the separate production of power and heat. The vast majority of industrial hosts have Climate Change Levy Agreements (hence are 65% exempt from CCL) or are in CCL exempt sectors such as refining and would therefore not be subject to the CPS mechanism or CCL for the production of heat in standalone boilers. The incentive, as currently drafted, would mean that one such site that saves carbon by CHP investment (as CHP emits less carbon than the separate production of power and heat), would be paying more carbon tax than a site that imports power and has standalone boilers

One further area for concern is the layering of costs to industry, additional to those being borne by European competitors. At the levels suggested in the consultation, by 2030 UK industry might be paying carbon costs in electricity prices several times greater than the rest of Europe, when CPS and CRC are taken together. In many industries this will be sufficient to produce a significant impetus for imports. It is essential that the total impact of climate change measures on costs is clearly assessed.

The treatment of CHP under the CPS Mechanism disadvantages almost all CHP as shown by the CHPA analysis (Annex II). We believe this is an unintended consequence. This analysis has been shared with DECC, Treasury and HMRC. The analysis also shows that the disadvantage could be removed, by exempting CHPs from CPS on the fuel used to generate Good Quality heat, through a simple amendment to the current CHP Quality Assurance process (see Annex III). This solution would ensure CHP remains competitive versus the separate generation of heat and power with no material impact on administration or costs.

Should the CPS mechanism go ahead as proposed, we believe it will preclude further significant investment in CHP and may lead to existing facilities de-classifying with a resultant increase in carbon. These perverse effects seem to go against the stated aim of the CPS mechanism to achieve low carbon targets and provide stable investment signals.

Due to the significant and far reaching consequences for our business we have devoted substantial resource to this consultation in the limited time available. We regret that the consultation has not been given the recommended twelve weeks especially as it has been issued alongside another major consultation the ‘Electricity Market Reform’. However we do welcome the opportunity to share our views on the proposals and would be happy to provide further comment or clarification as necessary.

"to transform heat losses... it is necessary to promote the greater use of cogeneration and district heating and cooling".

Energy Efficiency Plan 2011, European Commission communication to Council and European Parliament. Draft published 26th January 2011

Any questions arising as a result of this response should be addressed to Maureen McCaffrey at maureen.mccaffrey@conocophillips.com

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?

ConocoPhillips supports an EU-wide market driven mechanism to deliver a price signal for carbon. Individual companies will have their own view of prices informed by third party data. Company views on forecast price levels cannot be aired or shared for competition reasons. The CPS will interfere with market signals and distort competition in Europe by causing the UK to have a different price for carbon to that of competitors. Section 2.8 of the consultation states that the EUA price has not been 'stable, certain, or high enough to encourage sufficient investment'. The argument is made that CPS is to make up for the failure of the EU ETS to deliver a high and stable price, however it is being applied to some sectors that are not covered by or have different treatment under the EU ETS, such as heat in carbon leakage sectors.

We question the analysis that assumes a future EUA price of £70 per tonne in 2030, as quoted in section 4.4. Should the EUA price be lower than this projection then the CPS will be higher than shown in the base analysis. This will disproportionately affect CHP as CHP will be competing against the alternative rates of CCL on boilers (**See Annex II)** .Hence the higher the rate of CPS, the less favourable CHP will be. Thus this is likely to disincentivise the saving of carbon by CHP generation and encourage the separate generation of heat and power.

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.

Without conditions of certainty, it is much more difficult for investors to predict their costs and returns accurately and therefore the risks underlying any decision will be greater and make it less likely that new investments are pursued. Decisions to invest in low carbon technology will only follow from a certain carbon

price if that price suits low carbon investment more than it suits conventional investment. This almost seems too obvious to state and yet we believe that the complex interactions between CPS, CCL and CfD could lead to situations in which the carbon price signal is neutralised. With these interactions in mind, the following are some examples of situations in which a carbon price is more or less effective in driving low carbon investment.

CPS will represent an increased cost and risk for CHP as compared to its competitor technologies. CHP will be exposed to the delta between CPS and boiler CCL on the fuel used to generate heat. CHP will not be able to pass through the cost to its heat customers. CHP heat is often being supplied to industry subject to direct international competition (carbon leakage sectors) which are not exposed to this cost. The heat market is not an open wholesale market where the marginal costs can be passed through. Physics limits the distance of customers and cost will only be borne where the customer can or is willing to absorb them. If the customer alternative is to generate steam from boilers which incur no boiler CCL (in exempt sectors such as refining) or the customer pays limited boiler CCL, due to having entered into CCLAs, or in facilities outside the EU ETS, then the new CPS cannot be passed through. The vast majority of CHP in the UK is in sectors which do not pay or pay limited CCL on boilers. See Annex I.

Annex II Fig's 1-3 highlighting the increased cost to CHP of supplying heat versus standalone boiler generation

The cost of the CPS in electricity can be expected to be passed through to the wholesale electricity market, provided a fossil fuel generator is at the margin. Whilst CHP has a higher thermal (hence overall) efficiency than a CCGT, its electrical efficiency is lower and thus it will not benefit to the same extent as a CCGT from the pass through of the CPS cost for power generation to the wholesale electricity price.

If, as proposed in the Electricity Market Review (EMR), a CfD, or FIT is introduced for all low carbon generation then this generation will become indifferent to the market price of EUAs and CPS, as the revenue received by a low carbon generator under a CfD will be unchanged whether the carbon price is high or low. It is therefore difficult to see how the CPS will have any effect on new low carbon generation under these circumstances.

Existing low carbon generation will benefit from an increase in the carbon price. Renewable generation, if their existing ROCs are grandfathered, will see a windfall benefit from a high carbon price due to higher wholesale prices. Similarly, existing nuclear plant would gain from higher wholesale prices. As these technologies have very low variable costs, they are already at the front of the merit order and therefore generate whenever possible so that no change in operation can be expected to provide additional carbon savings. Hence the only additional carbon savings that we believe could come from CPS (if combined with a CfD) are from coal to gas switching. Some such savings have been shown in the Redpoint modelling but we believe this is as a result of the coal and gas curves used in the projections. The coal curve appears to be unrealistically low when compared to the gas curve and existing market forward curves. Thus coal appears artificially more competitive than it would otherwise be. The analysis therefore exaggerates the amount of coal to gas switching as a result of CPS and hence exaggerates the carbon savings resulting from the measure. Given the

LPCD and later the IED much of the older coal plant is in any case curtailed and or retired by 2016 or 2023 respectively.

If CPS is to be introduced without a CfD it would have some effect on low carbon investment, as long as fossil fuel is at the margin. However, using DECC projections, it would appear that increasingly, from 2018, fossil fuel will not always be needed in order to meet demand. When fossil fuel is not at the margin there is no pass through of CPS onto the wholesale price and therefore no benefit to the revenues of low carbon generators as a result of the measures. Thus the window between significant new investment being able to come on stream in response to the measure (circa 2018) and the effectiveness of the measure starting to be diluted, due to no pass through, also from 2018, would seem very short. Redpoint analysis shows that by 2025 fossil fuel is no longer at the margin for the majority of the time. As it is unlikely there will be significant new nuclear until post 2023, the ability of CPS to underwrite new investment appears limited.

It is important that any measure that increases electricity prices particularly to industry is framed to achieve its objectives; otherwise it risks damaging UK competitiveness. We are concerned that CPS will not provide an effective incentive to low carbon generation due to the mismatch of timings. As CPS would be insufficient to generate new low carbon investment without some of the measures contemplated under the EMR, it seems to represent a considerable increase in cost as well as administration and complexity while requiring other additional measures to generate the changes in investment/behaviour required. This seems contrary to the government's simplification agenda. The greater the degree of complexity the more impenetrable the regulations will be for investors seeking to understand the UK market.

As the windfall to existing low carbon generators is likely to be very large this measure would seem to be a poor use of energy bill payer’s money. The cost of this windfall is not quantified in the Redpoint analysis, however using scenario 3 assumptions we have calculated this could be in the order of £850 million per annum by 2020. The cumulative impact of the windfall, for the first 10 years of the mechanism, could be in excess of £5 billion. This calculation excludes windfalls to imported power generators. As importers will be competitively advantaged they are likely to become baseload importers thus 4GW of an average 40 GW of UK demand may be imported and receive further benefit from windfall profits. Government revenue over this period could be in the region of £32 billion. It is therefore not surprising to note that it is the existing owners of nuclear plant in the UK that are the key supporters of this measure, whilst renewable developers appear largely indifferent. (Note the comments of renewable generators to the Climate Change Committee on the 2nd February 2010).

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

Any mechanism delivered through the tax system is subject to political risk. The perception of risk from the investment and finance community will lead to any value attributed to the measure being discounted. The greater the perceived risk, the greater the discount that will be applied to it for investment and financing purposes. The level of certainty will also be affected by the general views of the EMR and the overall perceived credibility (hence longevity) of the measures. Investors are already looking at the point at which fossil fuel is not at the margin and thus the point at which CPS ceases to affect the wholesale 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?

Yes, there are four key areas where we feel that further reform is required:

(1) Management of intermittent supply
The current market design is not likely to lead to sufficient new investment in the UK generation market. Oxera have identified a 17 GW short term supply swing largely as a result of the growth of intermittent wind power. This is the equivalent of all domestic users in the UK going from zero to full power requirement in one hour. The proposals identified by government to date do not identify any measures which will allow the market to manage this level of intermittency, or support the investments in technologies that are needed to compliment the growth of renewables. As well as incentivising low carbon investment, the existing constraints such as grid access, planning constraints and system reinforcement need to be addressed. Failure to deal with these barriers to development is likely to lead to costly over incentives to low carbon generation projects, directing money at the wrong problem. We believe the government has yet to set out a coherent, credible and clear transition plan to the future low carbon state.

(2) Definition of future role for gas
There is a need for a clear narrative from government as to the direction of the electricity market and its interaction with power demand, including heat. In particular, government needs to determine a clear unified message on the future role for gas. Currently government is giving mixed messages as some indicate there is no future role for gas whilst others recognise the need for low cost carbon abatement through gas and the enabling role of gas as a balancing technology to manage the swings in supply which will come with increasing intermittent renewable penetration. It should be noted in particular that neither CCS plant nor nuclear and most renewable technologies are able to easily manage future supply volatility. Gas-fired CHP in particular represents the lowest footprint gas generation and can also be designed to provide flexibility to respond to changes in system supply/demand.

Gas-fired power plant can significantly contribute to the reduction of carbon emissions directly by replacing coal fired plant. Emissions from gas fired CCGTs are lower than equivalent coal fired plant as the carbon content of gas is lower than that of coal and the gas fired power stations are more efficient than coal-fired ones. Typically, carbon emissions from a gas fired CCGT are 60% less than those from a coal fired plant, as well as avoiding the emission of particulates and other gases.

Just as importantly, gas-fired power plant can also indirectly contribute to the reduction in carbon emissions, by supplementing output from renewable sources such as wind which will not always match demand trends. This intermittency of many renewable sources, absent any efficient power storage solution or sufficient demand side response, makes it essential that there is sufficient plant on the grid that can quickly respond to significant changes in renewables-based supply. Gas-fired plant is ideally suited to fulfil this role as their capital cost is several times less than alternatives such as coal and nuclear.

(3) Addressing market liquidity
In order to achieve the very ambitious levels of new investment needed to decarbonise the sector the government needs to maximise access to capital and balance sheet. For new entrants to the UK and for the independent generators the current state of market liquidity presents a barrier and a risk, as imbalances may lead to very high costs, without a portfolio to balance the risk against. So far the measures proposed by government would seem likely to exacerbate the problem rather than improve it. We will expand on this in our response to the EMR consultation.

(4) Effects on the investment in and operation of existing CHP
The question refers to electricity only which ignores the fact that heat is also affected by the proposed measures. 30-50% of EU ETS emissions come from industry. To decarbonise industry, especially those with demand for high grade uninterrupted heat supplies (such as chemical and refining sectors), CHP currently represents the best carbon reduction option, not renewables. CHP can bring the emissions from multiple large plants into a more efficient combined process at a single stack/location that could make future de-carbonisation via renewable fuels or CCS a possibility. It will not be possible for individual boilers to convert to bio-mass due to reliability, sourcing and logistical requirements but a common purpose built CHP may be able to do so in the future.

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?

We would have to calculate how much energy is used in the generation of electricity. We would have to accrue for cost of CPS on future sales. We would have to calculate how much refinery off–gas/process gas is used in the generation of energy as this is not a taxable commodity and would thus need to

be metered and deducted from other fuels. We would need to account for any distillates used in the generation of energy.

CPUKL is currently not required to be registered for CCL. The introduction of CPS will require it to become CCL registered. We will have to review all affected contracts to identify those liable to CPS. Invoices procedures will need to be amended to charge the correct level of CPS where appropriate. CCL returns will have to be completed and filed.

Alternatively, if the CHPQA and the P11 certificates are used to calculate fuel usage for the generation of heat (as shown in Appendix III) there would be no additional material burden on government or industry when compared to the current proposals. See annex III for a proposal that we believe would resolve a number of issues in relation to CPS being levied against heat generation, primarily un-fairness to CHP.

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

There is insufficient definition in the consultation to enable us to answer this question.

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

There is insufficient definition in the consultation to enable us to answer this question.

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, if CPS is introduced, all types of electricity generation should be charged for fuel used for the generation of electricity. Production of heat (not used for power generation) should not be required to pay as it disincentivises low carbon energy production via CHP. The Cogen Directive and CHPQA programme ensure all Good Quality CHP does deliver carbon savings. Failure to provide such treatment conflicts with policy of the EU on carbon leakage sectors where it is recognised such additional burdens distort international competition and cannot be passed on. It can and will damage the vast majority of industrial CHP. It will have the perverse outcome of disincentivising investments in low carbon generation (CHP), and commensurate lowering of carbon footprint of a facility. The resultant change in operation of existing CHP plant and failure to build new CHP will increase the cost of meeting the UK's carbon objectives.

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 do see a case for providing additional or more preferential treatment for CHP, but recognise that is not the intention of this legislation. However CHP should not be disincentivised as a result of CPS and, contrary to statements in the consultation that would be the consequence of these proposals for the vast majority of CHP installations. **Please see attached in Annex II analysis of the effects of the CPS proposals carried out by the CHPA.**

The question structure implies that the proposals provide preferential treatment for CHP and other stakeholders are likely to respond negatively to this question as a result. You will see from our answer below that this is not the case.

CHP's role in the UK economy and decarbonisation agenda

In 2009, CHP delivered major carbon savings to the UK – estimated at between 9.5 and 13.9 MTCO2. DECC currently project installed capacity of 12.7 GWe by 2020, compared to 5.6 GWe in 2009. Decarbonisation of heat is a major challenge in key sectors of the economy. DECC estimate that industrial CHP can deliver 9.6 MTCO2 savings by 2020 at an economic cost of -£35/tCO2.

CHP is a proven and cost-effective means of carbon abatement and is applicable in a diverse range of applications across the UK economy. It is the only realistic means of significant carbon abatement for many industries particularly those who require very high temperature, high pressure and reliable steam; for instance the Chemicals and Refining sectors. As can be seen from the pie chart **in Annex 1,** much of the large CHP in the UK is focused in these sectors. Industry is the major user and beneficiary of CHP in the UK economy, the majority within carbon leakage sectors. CHP is the most cost-effective, efficient and immediate means of reducing energy usage and subsequent carbon footprint within energy intensive industries such as Refining and Chemicals.

A number of factors prevent wide scale deployment of biomass at industrial facilities, including sustainability and reliability of fuel source given high level of demand required, space and size are additional constraining factors. Most large industrial facilities are in intensive economically developed areas. Logistics, transportation of fuel, waste and air quality all normally make the deployment of biomass at these facilities impossible. Given these factors and the political support for CHP, significant investments have been made in the sector and it remains the best case opportunity to reduce the carbon footprint of many industrial sectors. To the extent bio-methane is added to the gas network, gas-fired CHP will be able to reduce its carbon footprint further.

CHP represents a way to increase security of supply for the UK both by using fuel imports more efficiently but also by being situated near its demand thus increasing security and lowering line losses. Contrary to popular belief, CHP can

also be designed to be able to respond quickly to changes in generation supply and thus can complement intermittent wind generation. As CHP used for intensive industry requires constant steam, CHP may hold back electrical capacity and use it to respond to changes in demand very quickly and much more efficiently that other forms of peaking plant and thus compliment a growing intermittent supply of generation from wind. A CHP can also supply more than one industrial host and as much of the UK's energy intensive industry is sited in a few locations; it can often deliver to more than one facility. This means that the emissions from several industrial locations are gathered into a single stack which can allow for either CCS or bio mass at a future date when supply is readily available or the technology proven.

Potential Disincentivisation of CHP

Additional support could be provided to CHP by a full exemption for all certified Good Quality CHP from the CPS mechanism. However, as a minimum, CHP should not be penalised compared to the current situation and this should be done by exempting the fuel used for heat generation from the tax.

The Carbon Floor DECC (2010) document states in section 4.25 that CHP already obtains the following forms of exemption. The list is inaccurate and misleading. ***"Exemptions or Partial exemptions from CCL for the electricity they generate"*** - LECs benefit only applies to CHPs that export electricity. As renewable generation also receives LECs and the renewable portfolio is growing rapidly, there are concerns that LEC supply could exceed LEC demand before 2015. This is likely to mean independent CHP generators will not be able to sell their LECs as it can be expected that the large vertically-integrated players (through whom LEC value must be realised) will take the LEC supply from their own portfolios in preference to those of the independent generators and small CHP players. Should LEC supply exceed demand the LEC value for independent generators will tend to zero. ConocoPhillips and the CHPA have shared this analysis with Treasury but will provide a further copy if requested. ***"Ring fenced EUA's for New CHP stations"*** – There is no allocation of EUAs, for electrical generation from 2013, any EUAs for steam go to the heat consumer not the CHP. The customer would also receive EUA (assuming they are of sufficient size) if they were generating on site via less efficient boilers.

"Favourable treatment of small scale CHP under the CRC" – CHP heat is just treated as it would be in a boiler.

"100 per cent first year capital allowance" – Enhanced Capital Allowances are correctly identified as an incentive to some developers if electricity is supplied to known end users and are extremely important in compensating for the increased capital cost of CHPs, but plant must be in a position to generate profit in order to utilise these allowances. ECAs cannot be obtained by those CHPs owned by the large supply companies nor those building CHPs on the government estate. If, as the analysis in Annex II shows, CHP is disadvantaged

versus the separate, more carbon intensive, generation of heat and power its ability to operate profitably will be questionable hence ECAs will not lead to a positive investment decision for CHP. Additionally, whilst Enhanced Capital Allowances are currently very helpful in getting positive investment decisions and compensating for the greater capital cost of CHP, once a plant is built they will need to ensure that it continues to operate and it is the operation of a CHP versus the alternative marginal technology that generates the carbon saving. ***"Renewable Obligation Certificates"***, benefit for use of renewable CHP only.

"Business Rate exemption" - This is not an exemption from rates as it applies only to small and embedded CHP and ensures that a plant that converts its boilers to CHP can have them treated as part of the plant for the purposes of rates rather than as a generator. There is no benefit for the vast majority of CHP and no competitive advantage versus CCGT.

The rationale given in section 4.27 of the consultation document for including heat in the Carbon Price mechanism is simplicity, fairness the polluter pays and possible State Aid complications. We will address these separately.

Simplicity – We believe the current proposal is far from simple and conversely throws up a whole host of complications, such as treatment of Partial/Occasional CHP, CHP supplying refinery type installations, treatment of CHP in domestic use, treatment of co-firing, the determination of electricity used in electricity generation and Energy from Waste plant and operators declassifying and reclassifying as CHP (including the plant within the CHPQA boundary which often includes boiler plant). Whereas, the alternative of using the current CHP Quality Assurance (CHPQA) certificate to calculate the amount of fuel used in the generation of good quality heat is simple and would lead to no more material cost or administration for either industry or government. (See Annex III for proposal)

In 4.27 the consultation document states it minded not to treat CHP differently from other generators due to reasons of fairness. The **'Fairness'** criteria do not appear to be met as the proposals penalise CHP and create the perverse outcome that CHP operators may pay government more for making carbon savings.

'Polluter Pays Principle' – Under Phase III of the EUETS CHP does not receive the carbon allocation it goes to the host.

State Aid - we do not believe there are State Aid issues if CHP is treated differently to other types of fossil fuel generation as the Cogen Directive allows for state aid for Good Quality CHP.

Charging CHPs Carbon Price Support on the fuel used to generate heat means that CHP projects will be disadvantaged versus the separate production of power and heat. The vast majority of hosts have CCLAs (hence are 65% exempt from

CCL) or are in CCL exempt sectors such as refining and would therefore not be subject to the Carbon Price Support mechanism on CCL for the production of heat in standalone boilers, **See Annex I**. The incentive as currently drafted would mean that one such site that saves carbon by CHP investment (as CHP emits less carbon than the separate production of power and heat), would be paying more 'Carbon tax' than a site that imports power and has standalone boilers. **See Annex II**

There is no relief for CHP from this incremental cost of the CPS on its heat since it cannot be passed through to a heat customer (as plants would not pay CPS on standalone alternative, and heat is not part of a wholesale market). It should also be noted that whilst CHP has a greater thermal efficiency than generation from a CCGT its electrical efficiency is not as high thus it will not benefit to the same extent as a CCGT plant from the pass through of the CPS on to the wholesale electricity price.

CPS will obviously act as a disincentive to investment in new CHP, and it may also affect how existing facilities are run in the future. Some CHP would be incentivised to declassify as CHP (thus increasing actual and reported carbon emissions) or operate differently. For industry that requires very stable high pressure steam, CHP is the most efficient method of doing so available to them. These perverse effects seem to go against the stated aim of the Carbon Price Support Mechanism to achieve low carbon targets and provide stable investment signals.

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 as the concept of CPS is the payment related to final emissions. The relief should be aligned with the Monitoring Reporting and Verification requirements of the EU ETS.

We do not believe the CCS timetable outlined in the Redpoint Analysis is credible; there is no prospect of two 300 MW plant being up and running by 2015 and four by 2018. We also do not believe the modelled retrofitting of all existing plant with CCS by 2025 is possible due to supply chain and labour availability. Relief should only apply to the proportion of the facility which has CCS and based on abated carbon. CCS CHP will have lower carbon for useful energy delivered so should benefit proportionally.

Imports and exports

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

The Government's proposals are likely to introduce further market distortion which will increase the import of electricity to the UK. Imports are already advantaged as they do not pay TNUoS. By 2013, 4 GW of Interconnection (excluding a proposed link to the Norwegian system) can be expected (2 GW French, 1 GW Irish, 1 GW BritNed). The total 4 GW of interconnection can expect to be fully utilised, as it is at a commercial advantage to UK power, this represents 10% of the average UK demand of around 40GW. This effectively creates additional 10% base load power in the UK hence increased pressure to provide a higher proportion of flexible generation in the UK. The Government has not attached sufficient significance to this in its impact assessment. We would prefer to have an EU-wide mechanism to support the carbon price, which would create a level playing field for electricity generation and supply and reduce competitive distortions at least within Europe. We note that the European Commission may bring forward proposals in the first half of 2011 for an EU-wide carbon tax. There will also be an issue around the export of electricity as increased wholesale prices in the UK resulting from CPS will mean that higher prices may be exported to the continent or UK exports become uncompetitive.
The EU is currently raising the profile of the need for greater transmission between EU states. Analysis has shown that this is an important factor in managing the increasing intermittency of renewable power sources. Having a unilateral UK carbon price would seem to fly in the face of this policy by distorting the cost of generating between member states.

Power imported from these sources may not be low carbon as trading may encourage use of high carbon power generation. French nuclear for example is already base load so it will be the marginal continental plants that will be encouraged to run. These unintended consequences provide windfall to owners and capacity holders of interconnectors as well as a disproportionate advantage for overseas generation.

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

The severity of the impact of the proposals on electricity trading arrangements will depend largely on the way in which they are introduced. To avoid market shocks, the method and timing of setting the tax should be visible to operators well in advance of its introduction, be as predictable as possible and be aligned with market arrangements. A lack of predictability would tend to reduce hedging through forward sales of electricity and thereby further reducing the already inadequate levels of market liquidity. Some delay in the introduction of the tax would help the industry to work through existing/legacy contracts.

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

In addition to the answers given to 4.D1

It is unclear how CPS would interact with SEM and this is not addressed in the consultation document, but prices in the Irish Republic could be expected to increase as generators in the North of Ireland will incur the additional cost which will be passed through via the all Ireland market and the SEM mechanism.

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?

CPS will provide little certainty for investment due to the political and unilateral nature of the measure and the fact that its effect diminishes with increasing low carbon penetration, expected to be from 2018.

It may create uncertainty if it is introduced quickly due to hedging and trading activity. Government need to ensure the traded power and EUA market are healthy and liquid in order to ensure no damage is done.

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

For the reasons above, we believe that CPS will add to the cost of electricity with little material benefit in terms of low carbon generation. It is unclear what the value of CPS will be within the context of wider reforms. In the interest of simplification for both Government and industry, we would prefer for all low carbon incentives for low carbon generation to be explicit through one mechanism to ensure transparency.

Section 4.39 of the consultation document sets out three possible options:

- 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;
- **Annually adjusted CCL rates and fuel duty rebates** that take account of short-term trends in the carbon market and economy to ensure closer targeting of the Government's carbon price trajectory from year to year;
- **Rates set annually based on a carbon market index** averaged over a specific annual or biennial period to reflect future carbon prices.

We do not favour either the 'escalator' or 'annually adjusted rate'. Our preference is for rates set annually based on the carbon market index.

The stated intent of the proposal is to provide greater stability and certainty over the carbon price. The only method of achieving this is through a mechanism

which explicitly links the support rate and the emissions price achieved in the market. By setting the rate over an annual index the government avoid setting a rate in a manner which lacks transparency or which is tied to the price at one point in time. Rather than allowing different companies to hedge using a timing of their choice, any mechanism will force a large number of buyers onto the market at a known time and could potentially distort the market. Although this will be a natural consequence of any support mechanism linked to the market price, the longer the time period over which the index is set the less the market will be impacted.

Ideally the rate should be tied to an emissions price at or close to the time of delivery. This avoids tying up capital holding EUAs for long periods of time and achieves closer matches with the EUAs purchased at the index to the number of EUAs required by a generator. One method could be setting the support rate monthly based on the average index for the previous month. We assume that the UK EUA auctions will be the index used to set the reference price. As such, auctions should be held on a regular (e.g. weekly) basis rather than the current irregular sales of large volumes to tie purchases closer to time of delivery of power.

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

The proposal will significantly impact hedging strategies for all companies impacted by the Carbon Price Support rate. As the support rate is relative to a defined EU ETS price, to maintain certainty over carbon price achieved it will be necessary to source credits at the time the price is defined. To source credits at any time before or after the price is defined would create uncertainty over the total price achieved, as the total carbon price will be EUA price plus carbon support price.

Additionally, the price support mechanism may impact the instruments used to hedge carbon, adding extra cost to generators. Generators may need to use options or similar to hedge the risk from shifts in the carbon price from below to above the support price level (or vice versa).

The impact would therefore be twofold. As well as increasing the complexity of the instruments required to hedge our own carbon requirement we are concerned that the proposal could have a negative impact on the already illiquid forward curve due to the additional risk it introduces to all market participants. Generators who currently start hedging three years forward may bring their hedging programme closer to the period of delivery, removing this volume from the market. Whereas previously a generator could lock in a clean spark (or dark) spread through purchasing carbon and gas (or coal) and selling the power, purchasing carbon at the same time as the fuel and power legs under a CPS

mechanism would actually be a view on carbon price (speculation) rather than a hedge.

The CPS introduces risk to generators due to it being a one-way payment, in that generators will pay if the carbon reference price is less than the support rate target, but receive no payment if the carbon reference price is more than the support rate target. The risk to generator hedging comes from volatility over time, the greater the time difference between the fuel and power hedges the more likely the market price for carbon would switch from under to over the reference price (or vice versa). Even if the market price at the time of entering hedges was above the target price level, hence the CPS rate would be set at 0, it would still be impossible to hedge carbon without taking a price view due to the possibility of subsequent declines in market price. This decline would lead to a CPS rate greater than 0 and therefore an increased total carbon cost. However, by not hedging carbon, the generator is left open to further price increases eroding the margin they hedged. The risk of this price movement leads to uncertainty over the total effective carbon price applicable at the time of entering into generation hedges and so an increase in the risk premium included in market prices and a reduction in the number of parties prepared to take this risk.

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?

It is much easier to determine a desired emissions level than a desired price. That was the rational of cap and trade versus a tax. If the government wants to set new or different emissions levels or standards that is a different matter and can be much more accurately targeted than a price signal which, as discussed elsewhere in this response, is obfuscated by other interacting measures.

If a carbon price support mechanism is to be introduced, the Government should target a certain carbon price for 2020. Given the lack of visibility of the emissions reduction trajectory in the EUETS post-2020 and the political uncertainty surrounding EU emission reduction targets for 2020, it will be challenging to target a price for 2030 at this stage.

For CHP, the target price is less relevant than the difference between the EUA price and the target as this represents the level of CPS. As EUA price is an unknown, the target price is irrelevant. The reason the absolute number is important to CHP is that it is this number that will be compared with the counterfactual investment cost (or lack thereof) for those with CCL exemption on boilers (such as refining) and for those with CCAs, who are partially exempt from CCL on boilers as this represents the costs applied for separate generation of heat when compared to that for CHP heat. Lack of predictability of CPS represents a risk to CHP thus discouraging investment and increasing hurdle rates on investment decisions. For power generation, the same does not apply

as the addition of EUA and CPS can be assumed to equate to the target price irrespective of the split between the 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 do not believe the CPS target price will be the key driver for new investments and that it is the CFD (or FIT) mechanism under the EMR that will provide the key investment drivers. The target price could however be detrimental to investment in and operation of CHP to the extent the target price differs from the EUA price. This difference represents the CPS against which the rate paid by boilers is compared. As is shown in the CHPA analysis (**see Annex II**) the higher the CPS the greater the disincentive to CHP.

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

The level of carbon price support should be notional until 2018 at the earliest.

Electricity investment

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

We expect investment in low-carbon electricity to be driven predominantly by the measures introduced as part of the broader EMR package (CfDs or FITs). As currently proposed, the mechanism would disincentivise new investment in CHP and may lead existing CHP to de-classify with a resulting increase in emissions. We do not believe that there will be much coal to gas switching as a result of the measure as coal is normally at the back of the merit order and the coal cost curve used in the Redpoint analysis is too low relative to the gas curve thus overstating the savings. Existing renewables will not change their place in the merit order and output is non-price responsive. The exact effects will depend on which support mechanism is chosen as part of the EMR.

- New low carbon investment will be indifferent to wholesale prices if a CfD is introduced and will not therefore benefit from any increase in prices.
- If a Premium FIT is introduced then new low carbon investment would benefit from the increase in wholesale price bought about by CPS but only to the extent fossil fuel is at the margin. Using government projections, we see that is not always the case from as soon as 2018 and Redpoint state it is not the case the majority of the time from 2025.

As significant new nuclear investments cannot be on stream until 2023, the benefit that will be attributed to it in their investment economics would seem to be minimal. There will however be substantial windfall benefits for existing low

carbon generation but we do not see this having any effect on the output from those facilities as they are already at the front of the merit order (base load).

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

Carbon price support is likely to affect investment decisions for projects that are not subject to the "contract for difference" (or FIT) model under EMR. It will also affect investment decisions for existing coal and gas-fired power stations that will be subject to the requirements of the Industrial Emissions Directive in the period post-2015. Those stations are expected to make an important contribution to the security of electricity supply during the transition to a low-carbon generating fleet. The CPS treatment of heat will prevent new investment in CHP, reduce the despatch of existing CHPs and may lead to some CHPs declassifying.

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 unclear as to the intent of this question. If CPS does not affect the wholesale price, it would not be of any benefit to low carbon generation.

The support mechanism should be introduced in a way that minimises disruption of the existing electricity market arrangements. Introducing a notional rate of CPS for the period to 2018 would help to achieve that.

Existing low-carbon generators

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

For impact on fossil fuel CHP sector please see analysis in Annex II.

Our investment in the Immingham CHP would be undermined as the CHP would face significant additional carbon taxes versus the separate generation of heat from boilers on the ConocoPhillips Humber and Total Lindsey oil refineries.

We are currently looking to develop an 800 MW CHP at Teesside; It would be very unlikely this investment could proceed if the CPS is implemented as drafted.

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?

It will impact investment decisions including plant retirements. It will disincentivise CHP, leading to a fall in CHP output and a commensurate increase in carbon.

Electricity price impacts

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

We cannot address this for reasons of commercial confidentiality and competition law.

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

As drafted it will disincentivise future CHP developments and our existing CHP will be made less economic which could be expected to lead to reduced load factors going forward. It will also make further investment by our company in new CHP projects in the UK unlikely.

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

To the extent the electricity price is increased due to the pass through of CPS on to the wholesale price, we would obtain a higher wholesale price. Higher costs cannot be passed through to heat customers who would not otherwise incur those costs were they to generate their own heat from boilers. As ConocoPhillips operates in the refining sector, this is the case for our host customers.

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

See answer to 5D3
In addition, refined products compete in markets based on global pricing. Additional costs which are not incurred by competitors are highly unlikely to be passed on (and if they are the competitors still have a profitability advantage), and rises in electricity prices caused by this CPS, and CRC additionally, will tend to decrease the output of UK refineries and increase imports.

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

The Government's proposals are likely to introduce a market distortion which will increase the import of electricity to the UK. Our company and sector (CHP) would be adversely affected. Confidence in the UK markets and future investment in the power market would be undermined.

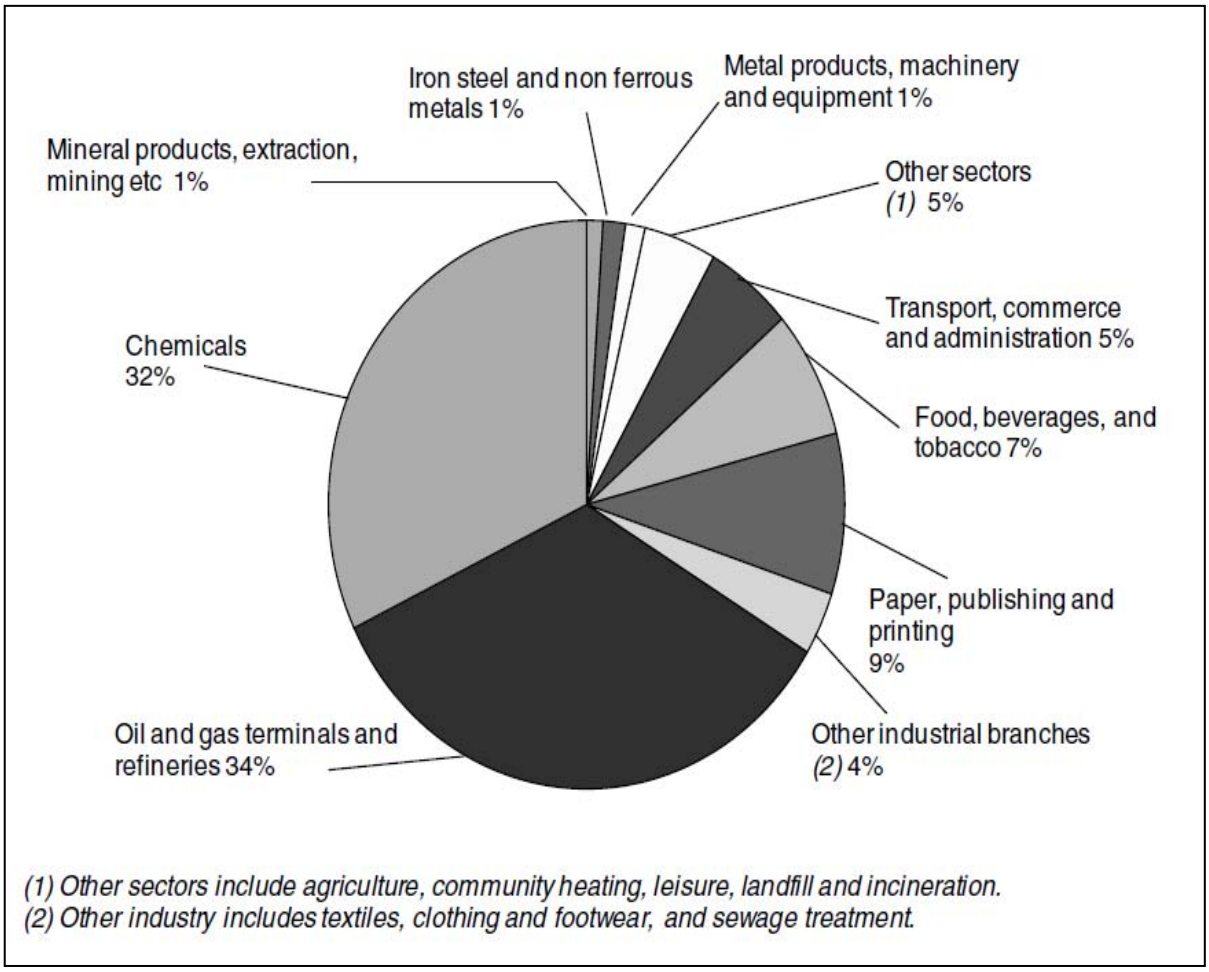
At the levels suggested in the consultation, by 2030 UK industry might be paying carbon costs in electricity prices several times greater than even the rest of Europe, when CPS and CRC are taken together. In many industries this will be

sufficient to produce a significant impetus for imports. It is essential that the total impact of climate change measures on costs is clearly assessed.

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?

The Coal Forward Curve used by Redpoint in modelling appears to be unrealistically low pushing coal higher up the merit order than currently positioned and leading to likely overstatement of benefits in relation to carbon savings. The Impact Assessment states there will be no impact to competition, however the analysis in annex II highlights CHP will be disadvantaged versus it's competition. The Carbon Leakage and competitiveness section does not identify the refining sector or the impact of taxing heat.

Annex 1 - DECC 2010 CHP by sector



Source, Digest of UK Energy Statistics (DUKES)

Annex II

This CHPA analysis modelled the impact of the proposed CPS on 3 sample types of CHP plant versus the comparative investment decision of separate generation of Power and Heat.

- Large CHP generating 830MW of Power, supplying 300 teph of Steam to a Refinery.
- Medium CHP generating 66MW of Power, supplying 95 teph of Steam to a user with a CCLA.
- Small embedded CHP generating 1MW of Power and 2 teph of Steam.

N.B Input assumptions for this modelling have been based on independent government endorsed sources wherever possible. All fuel and commodity pricing assumptions are DECCs central case, carbon price scenarios are as per HMT, cost assumption are from Mott MacDonald and generation output assumptions are based on DUKES.

The following charts highlight the increased liability faced by CHP versus separate generation and prove that the statement made in 4.26 of the consultation document, namely “Fossil fuel based CHP would still face a significantly lower CCL liability relative to the separate generation of heat and power” is incorrect.

The three charts below show that under CPS the generation of Heat in a CHP will face a greater liability than that from comparative generation in a standalone boiler.

Figure 1 – The impact of the CPS is that a large CHP supplying heat to a refinery will face a greater liability than that of a boiler which faces a zero liability.

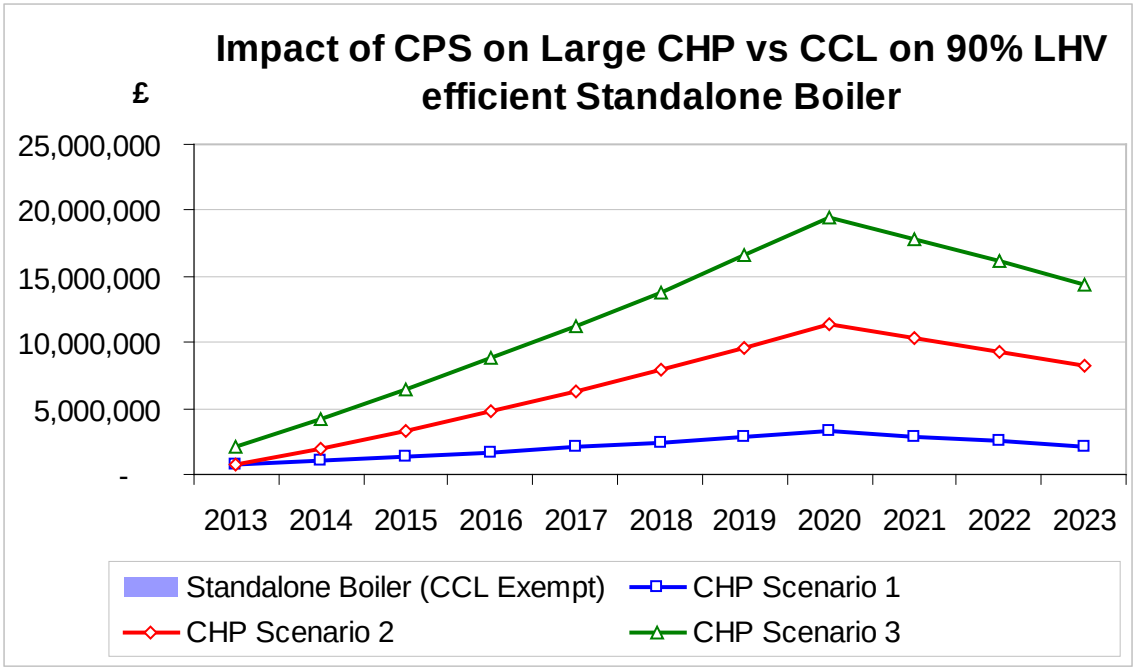


Figure 2 – The impact of the CPS is that a Medium sized CHP supplying heat to a user with a CCLA will face a greater liability than that of a boiler which receives a 65% CCL discount under most scenarios.

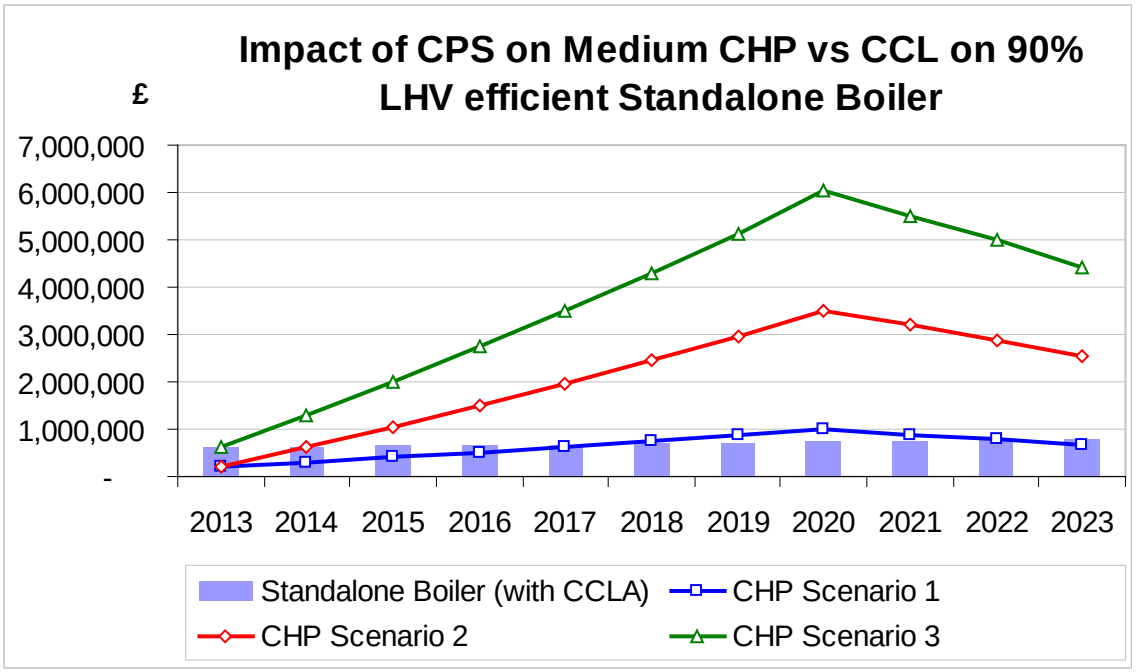
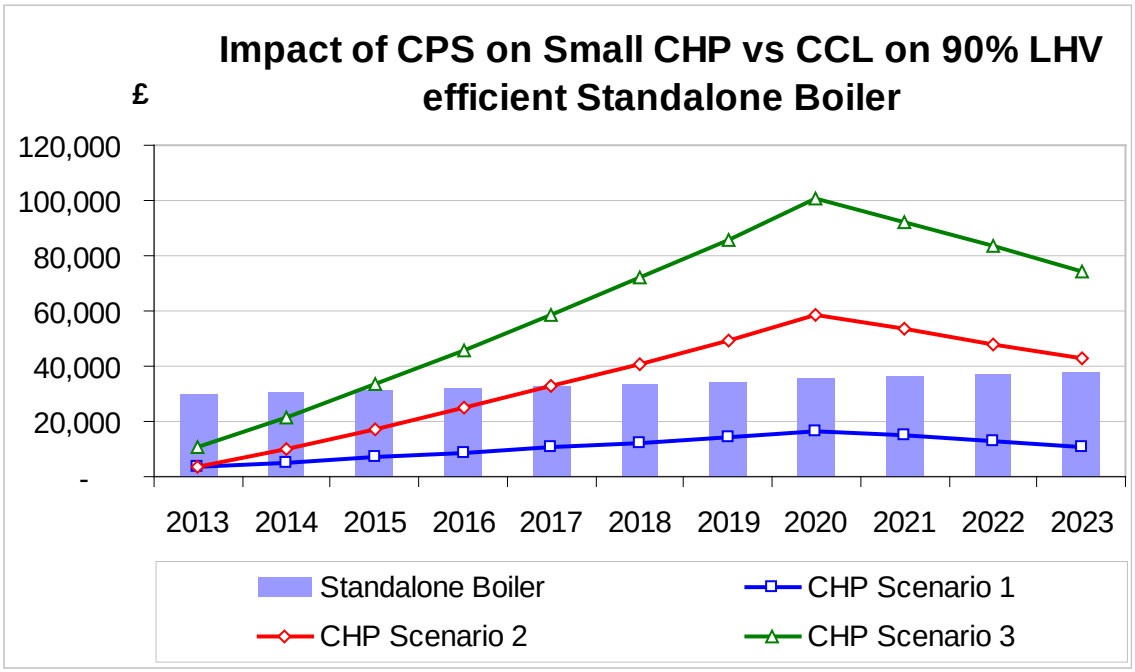


Figure 3 – The impact of the CPS is that a Small sized CHP supplying heat to a user will face a greater liability than that of a boiler under Scenarios 2 and 3 for most of the time



The next 3 charts show that when the lines cross above the zero point on the y-axis, the total liability to CHP is greater than that of separate generation and result in CHP paying government for saving emissions.

For the Large CHP this occurs under all scenarios from implementation. For Medium CHP this occurs under scenario 2 from 2016 and under scenario 3 from 2014. For the Small CHP this occurs only under scenario 3 from 2018.

Figure 4

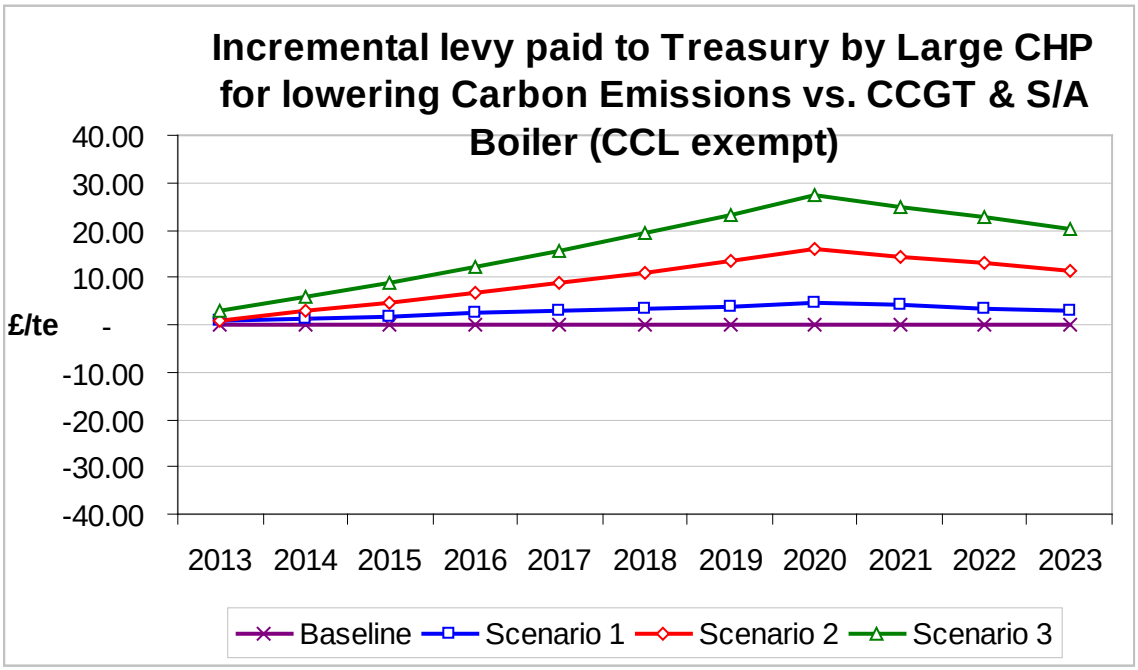


Figure 5

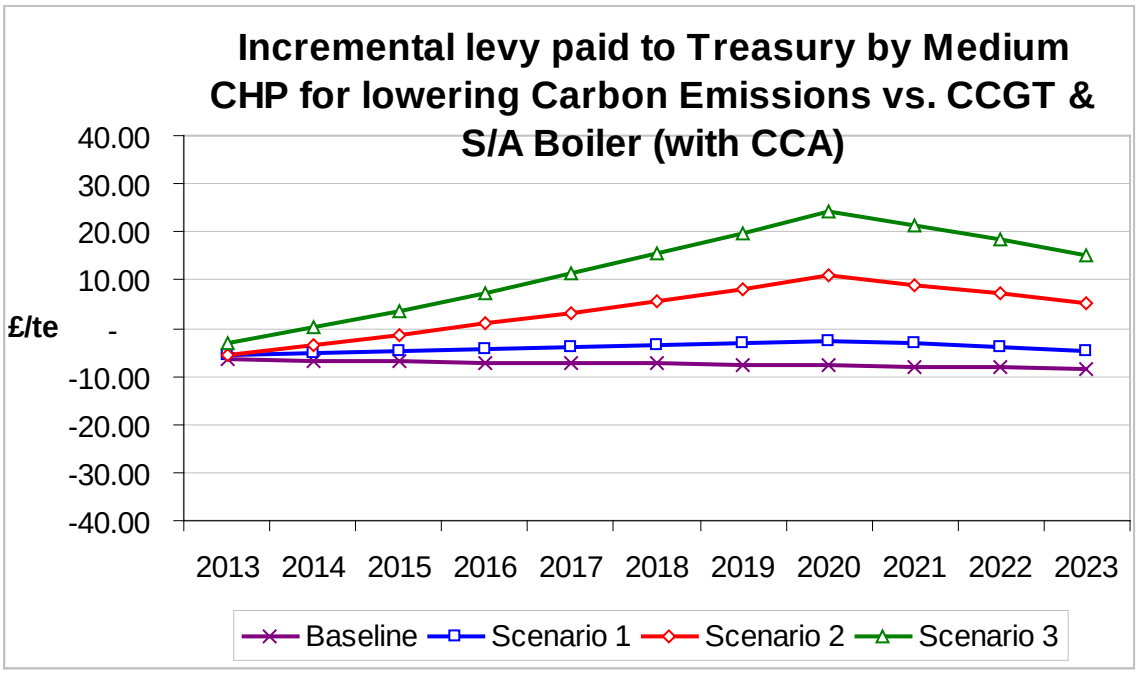
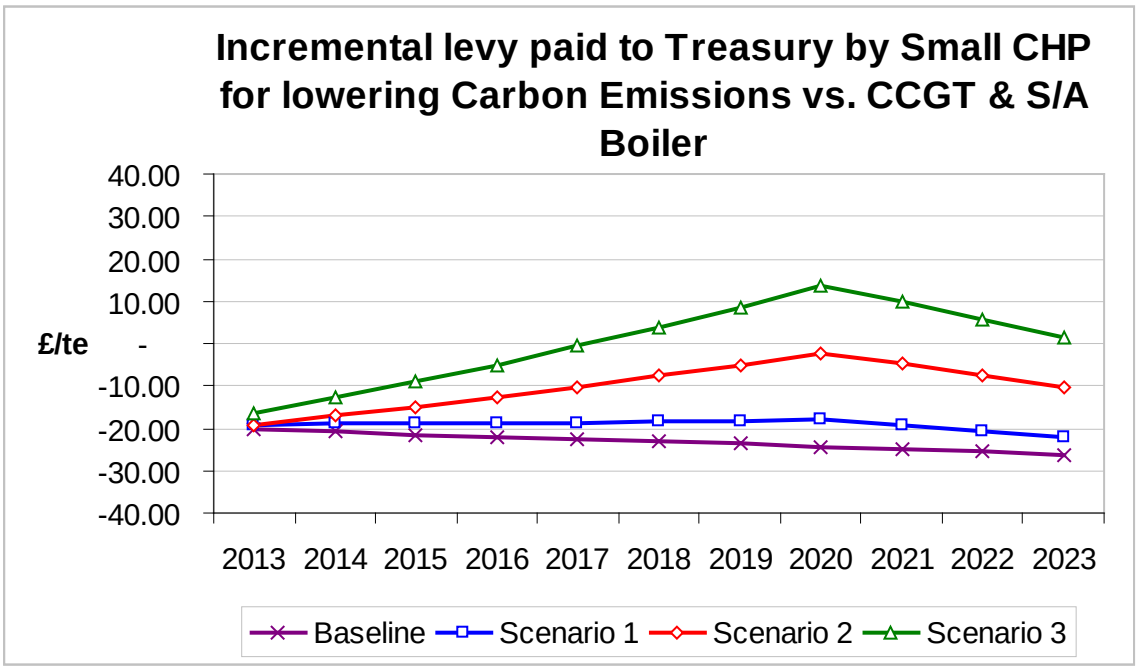


Figure 6



The tables below highlight the impact on IRR from CPS to CHP and its competition (Fig.7) and that by exempting heat CHP can move back to a position of equilibrium (Fig 8), annex III proposes how this could by achieved simply.

Figure 7

IRR Impact vs. Baseline	**CPS on all fuel inputs**		
Plant Type	**Scenario 1**	**Scenario 2**	**Scenario 3**
Large CHP	-0.8%	-2.7%	-4.5%
Large CCGT + Boiler (CCL exempt)	-0.6%	-1.9%	-3.3%
Medium CHP	-1.1%	-3.6%	-6.2%
Medium CCGT + Boiler (with CCA)	-0.5%	-1.7%	-2.9%
Small CHP	-0.8%	-2.9%	-5.0%
Small CCGT + Boiler	-0.5%	-1.7%	-2.9%

Figure 8

IRR Impact vs. Baseline	CPS on fuel inputs (heat exempted)		
Plant Type	**Scenario 1**	**Scenario 2**	**Scenario 3**
Large CHP	-0.7%	-2.1%	-3.6%
Large CCGT + Boiler (CCL exempt)	-0.6%	-1.9%	-3.3%
Medium CHP	-0.4%	-1.4%	-2.4%
Medium CCGT + Boiler (with CCA)	-0.5%	-1.7%	-2.9%
Small CHP	-0.3%	-1.0%	-1.7%
Small CCGT + Boiler	-0.5%	-1.7%	-2.9%

NB. All analysis and modelling is attributable to the CHPA.

Annex III

As ConocoPhillips state in response to the consultation, and the CHPA modelling shows in Annex II, we believe that CHP should be exempted from the fuel it uses to generate heat in order to retain its current competitive position versus the separate generation of heat and power. This can be achieved by a simple calculation using the existing CHPQA process building on a process that is already in place and familiar to suppliers, with no additional material cost or administrative burden to both government and industry.

The CHPQA calculation already identifies Qualifying Heat Output (QHO), Total Fuel Inputs (TFI) and Qualifying Fuel Inputs (QFI). Assuming that the operator qualifies as 100% Good Quality CHP, QFI and TFI are the same number. Taking QHO and dividing by the efficiency delivered from a standalone boiler 85% HHV would give Fuel used in the generation of heat, which would then be deducted from QFI to ascertain the fuel inputs subject to CPS. See example I below

Example 1

TFI	100MW
QFI	100MW
QHO	30MW

Fuel used in the generation of Heat (HFI) = QHO / Standalone Boiler Efficiency

HFI = 30 / 0.85
HFI = 35MW

TFI subject to CPS = QFI – HFI
TFI subject to CPS = 100 – 35
TFI subject to CPS = 65MW

If the CHP operator is partially qualified then QFI would be lower than TFI the calculation would be as per example II below

Example II

TFI	100MW
QFI	80MW
QHO	20MW

HFI = 20 / 0.85
HFI = 24MW

TFI subject to CPS = QFI – HFI + TFI – QFI
TFI subject to CPS = 80 – 24 + 100 - 80
TFI subject to CPS = 76MW

A simple amendment to the CHPQA certificate could identify the volume calculated above and the PP11 CCL exemption form could be amended to provide the supplier with the proportion of input fuel subject to CPS

CHP QA

DEPARTMENT OF ENERGY & CLIMATE CHANGE

Quality Certification for an existing CHP Scheme

CHPQA Certificate No: **P03221799**

Scheme:

CHPQA Scheme Reference No: **739 B**

This is to Certify that the Self-Assessment of the above CHP Scheme undertaken by

of Scheme performance during the calendar year: **2009** has been Validated under the Combined Heat and Power Quality Assurance programme and that:

1. The Total Power Capacity of this Scheme is:		MW
and the **Qualifying Power Capacity** is:		MW
2. The threshold Power Efficiency criterion for this Scheme is:	**20**	%
and the **Power Efficiency** of this Scheme is:		%
3. The Qualifying Heat Output from this Scheme is:		MW
and the **Heat Efficiency** of this Scheme is:		%
4. The threshold Quality Index criterion for this Scheme under **Annual Operation** is:	**100**	
and the **Quality Index** of this Scheme is:		
5. The Total Fuel Input to this Scheme is:		MW
and the **Qualifying Fuel Input** is:		MW
6. The Total Fuel Input used in Heat generation to this Scheme is:		MW
and the Qualifying Fuel Input Subject to Carbon Price Support is:		MW
7. The Total Power Output from this Scheme is:		MW
and the Qualifying Power Output is:		MW

8. The fuel supply reference(s) (e.g. TRANSCO/MPR gas meter reference nos. And/or other unique ID descriptors) for this scheme are:

This certificate is a statement of Scheme performance over the period 01/01/2009 to 31/12/2009 and is valid until 31/12/2010

Approved by the CHPQA Administrator on behalf of DECC. Date: ***11 MAY 2010***

The CHPQA programme is carried out on behalf of the Department of Energy and Climate Change (DECC), in consultation with the Scottish Executive, The National Assembly for Wales, and the Northern Ireland Department of Enterprise, Trade and Investment

For the purposes of the Climate Change Levy (General) (Amendment) Regulations 2003 only, the QPO limit shall be equal to the actual output of the station multiplied by the following ratio: the Qualifying Power Output referred to at item 6 above over the Total Power Output referred to at item 6 above.

11 February 2011

Construction Products Association response to the Carbon Price Floor Consultation

The Construction Products Association is the umbrella body for manufacturers and suppliers of construction products in the UK and our membership consists of the 24 major companies in the industry as well as 44 sector trade associations, which collectively represent 85% of the industry by value. The products sector has an annual turnover of more than £50 billion and accounts for 40% of total construction output and 4% of GDP.

We strongly support the efforts to curb climate change, and our members are in the forefront of providing the products and materials that will improve energy efficiency, capture renewable energy and deliver the low carbon built environment that we all seek.

Many of our member companies use significant amounts of energy in their processes, and many are global companies who have a choice of where to invest. Energy security and competitive prices are key factors in where they make their investment decisions globally. Their decisions are also key to the delivery of the government's growth strategy.

Many of our members will be responding to the consultation in detail and they are better placed to deal with the specific questions in the consultation document. We will therefore focus our remarks on strategic issues which are important to the long-term competitiveness of the UK economy.

- We believe establishing a carbon price floor prior to 2017 at the earliest will be harmful to many manufacturing industries. We appreciate the need for the government to send a strong signal of stability in the carbon price as part of its strategy of delivering a long term secure energy supply, especially though nuclear energy. However, this signal will not need to take effect until 2017, the earliest date when new nuclear capacity will come on stream. To bring a carbon price floor in before that date will impose an unnecessary and expensive burden on many of the energy intensive businesses in our sector, at a time when government has an absolute priority to generate growth in the economy.

- Taking action that will lead to an increase in energy prices prior to when it is absolutely necessary will set the UK at a disadvantage compared to other European countries where our manufacturing companies are also located. In setting the carbon price therefore, every effort must be made to balance the desperately needed investment in the UK energy supply whilst at the same time not disadvantaging manufacturing companies based in the UK to such an extent that they relocate outside of the country. If this were to happen, the result would be simply that we outsource our carbon emissions, along with the jobs and prosperity of many, which is neither good for our society, economy, nor the environment. With a growing population in the UK, plus the need to refurbish the 26 million existing homes to a new standard of energy efficiency, we will need many more construction products in the years ahead.

- In the meantime, ever stronger effort must be given to reduce the demand for energy in our building stock and other activities through measures such as the Green Deal and the Code for Sustainable Homes

- Policy and fiscal initiatives addressing improved energy efficiency and reducing carbon emissions is becoming a very crowded field in the UK. The bureaucracy, confusion and frustration felt by companies, already battling the recession, in having to respond to a variety

of overlapping and confusing initiatives is having an adverse effect on many a companies willingness to commit to investment in UK-based industry. Yet the government is expecting to see the growth in the economy come from the manufacturing sector. What we need now is a simplification and harmonisation of all these instruments. We refer of course to the EUETS, the CRC Energy efficiency scheme, Climate Change Agreements and the Levy, as well as the Electricity Market Reform; a number of which are also out for consultation at the present time. We believe an overarching review needs to be done of the policy framework in this area if we are to continue to make the progress we all seek. The Coalition Government is currently undertaking a thorough review of waste policies. A similar review of energy and climate polices is required.

We therefore urge the government to think again before bringing in a carbon price floor at this time.

Consumer Focus
Campaigning for a fair deal

Response to HM Treasury consultation: 'Carbon price floor: support and certainty for low carbon investment'

February 2011

Contents

About us

Consumer Focus is the statutory consumer champion for England, Wales, Scotland and (for postal consumers) Northern Ireland.

We operate across the whole of the economy, persuading businesses, public services and policy makers to put consumers at the heart of what they do.

Consumer Focus tackles the issues that matter to consumers, and aims to give people a stronger voice. We don't just draw attention to problems – we work with consumers and with a range of organisations to champion creative solutions that make a difference to consumers' lives.

Executive summary

We provide more detailed answers on questions posed in the consultation in the Appendix, but first set out the general context in which they should be viewed.

Overview

Project Discovery highlighted the formidable challenges that the UK faces to decarbonise its energy sector; challenges that the Treasury and DECC are seeking to rise to with the Electricity Market Reform (EMR) package. A core component of these proposals is the introduction of a carbon price floor.

The carbon price floor proposals have significant strengths and weaknesses. The introduction of a carbon price floor would strengthen the relative attractiveness of investment in zero carbon, or low carbon, generation when compared with conventional fossil fuel generation. However, it is by no means certain that a floor price for carbon on its own will provide the necessary investor certainty required to incentivise investment in low carbon generation. In any case such a mechanism would come at a significant social cost; the modelling in the Impact Assessment suggests that it would inflate retail energy prices until the late 2020s, with pensioners and those on low incomes the hardest hit.

In its current form there is a real risk that this policy may simply displace detriment; reducing the likelihood that the UK will miss its carbon targets (although the extent to which it may achieve this is open to debate) but significantly increasing the likelihood that it will miss its fuel poverty targets, water down disposable incomes and dilute the international competitiveness of our economy.

If the Government is wholly committed to the introduction of policy reform in this area it needs to do more to balance the package; we see nothing in it on the affordability front. As a minimum, we would like to see the significant tax receipts generated by this proposal – estimated at between £200 million and £400 million per year even under the lowest of the three tax scenarios presented[1] – hypothecated and returned to consumers, with priority given to those least able to pay. For example additional funds could be made available for energy efficiency measures (to reduce customer bills) or increase social price support funding.

But our preference would be that the Government considers alternative approaches to encouraging decarbonisation that may deliver better value for money. Its separate proposals for Feed in Tariffs with Contracts for Difference (Fit with CfD), while still needing further development, appears to provide a better route to deliver a low carbon generation fleet, with greater certainty and less front loading of costs on to consumers. We think there may also be value in investigating whether accelerated substitution of high carbon fossil fuel generation with lower carbon fossil fuel generation may deliver significant carbon savings at lower cost to consumers.

[1] Page 7, impact assessment.

A very mixed picture

On the positive side, carbon floor price support would:

- Increase the relative attractiveness of zero carbon investments by decreasing the competitive advantage of fossil fuel generation through higher taxation
- De-risk low carbon generators assumptions on carbon prices; providing them with a stable, rising, higher carbon price – acknowledging that to date the EU ETS has only provided volatile, inconsistent, comparatively lower carbon prices (although working with EU member states to solve the apparent deficiencies of the operation of the ETS would appear to be a more cost effective approach)
- Raise revenues for the Treasury at a time of difficult public finances (although we note that this will not necessarily benefit consumers – how this money is utililised will determine whether consumers benefit)
- Be much easier to implement than other aspects of the EMR, because the CCL and Fuel Duty are already established instruments
- Be relatively compatible with the existing liberalised energy model we have; because it would not prescribe volumes or types of new generation to be built, these decisions would rest with the market

But the picture is mixed. On the negative side, carbon floor price support would:

- Hike consumer bills, at a time when record numbers of customers are in fuel poverty, bills are already at record levels, incomes are flat and affordability is deteriorating
- Only provide investor certainty and reduce volatility for a comparably small element of the export price. Commodity price volatility would be unaffected by the introduction of a carbon floor price. Reducing such volatility would be the most effective way to provide improved incentives to facilitate greater investment in low carbon generation. This would in our view require a different regulatory intervention. Therefore there is a real risk that carbon price support on its own will not provide the necessary investor certainty required to incentivise increased low carbon generation investment (and as such come with a cost but no benefit). However, implemented in conjunction with an additional mechanism (say FiTs with CfDs) the carbon price support runs the risk of being superfluous and as such an unnecessary cost for consumers
- Provide lesser investor certainty than a contractual based approach would, noting that governments are not bound by their previous taxation decisions. This is particularly pertinent given that energy has increasingly become a political football – at a time of mass fuel poverty and rising retail energy prices it seems naive to expect that a tax based route will not come under future pressure
- Result in windfall gains and losses for existing generation, including providing price support for zero carbon assets that have been already built, and which could therefore be reasonably regarded as economically viable without further price support. Consideration should be given to clawing back some of these gains, most obviously from existing nuclear plant

- Front-load consumer liabilities when compared to other interventions considered by the EMR. Consumers would start paying higher prices immediately the tax treatment of generation changed, even if new low carbon generation was not installed until many years later (or at all). Indirect taxation will also be at its highest in the earliest years of implementation, when a comparatively greater proportion of the generation fleet is fossil fuel based. Consumers would be hit on all sides with additional costs during this period; away from investment in generation Ofgem anticipates that a colossal £32 billion of investment is needed in the energy networks before 2020[2]
- Flow through to bill increases regardless of whether additional low carbon generation is actually delivered or not

Is this measure needed as well as FiTs?

The EMR contains four measures, but while the Emissions Performance Standard and Capacity Payments mechanism each appear to be tackling discrete issues (preventing non-abated coal plant from being built, and ensuring that peaking plant is available to deal with intermittency respectively) the carbon floor price and FiTs with CfD appear to be separate approaches to tackling the same issue – encouraging new low carbon generation.

It is not clear that both measures are needed to tackle the same issue. We note that a number of witnesses to the Energy and Climate Change Committee have challenged whether it is necessary to introduce carbon price support, if a FiTs with CfD approach is implemented and we have sympathies with that view.

This is not to suggest that the FiTs with CfD option is particularly attractive in its own right – it would still likely result in material increases in consumer costs and there are formidable implementation issues that would still need to be considered and resolved – but in comparative terms it would appear to provide consumers with a better balance of risk and reward than carbon price support would.

We illustrate some of the comparative weaknesses in the carbon price support approach when compared to the FiTs with CfD approach in the table below.

Issue	Carbon price support	FiTs with CfD
Impact on consumer bills	Price rises, front loaded. Wholesale costs inflated from implementation date, even if new generation only delivered years later.	Price rises, tied to delivery. Additional consumer costs only incurred once new renewable generation is delivered (ie once CfD can be called on)
Linkage of consumer benefit with consumer cost	Muffled. Likely to incentivise low carbon generation, but consumers will pay more regardless of how much and when it is delivered (it is an incentive, not a guarantee).	Direct. Consumers only incur costs if new low carbon capacity is delivered.

[2] **http://bit.ly/9pobhu**

Issue	Carbon price support	FiTs with CfD
Increase in investor certainty	Moderate. Governments are not bound by their predecessors (or their own) tax decisions. Long term cross-party consensus needed. Carbon price is only one component of export price. A precedent for having introduced retrospective tax hikes is generally undesirable if you are trying to create investor confidence.	High. Counterparty risk remains, but contracts are more binding than government tax statements. Guaranteed export price.
Temporal impact and competitive distortion	Retrospective as well as prospective. Windfall gains for existing low carbon build. May aggravate security of supply problems if encourages accelerated plant closure this decade.	Prospective. No windfall gains.
Security of supply incentives	Negative. May encourage existing peaking plant – invariably fossil fuel based – to close earlier than otherwise would. Discourages new peaking plant.	Negative, but probably to a lesser extent. Unlikely to affect existing peaking plant, but may discourage new peaking plant (ie comparatively less attractive compared to other investments).
Consumers share of risk	Downside only. Proposal is for 'top-up' to desired trajectory. No suggestion that tax will be refunded if EU ETS delivers a stronger carbon price.	Both downside and upside. Debit or credit to generator (and indirectly, to consumer) depending on wholesale price.

Policy needs to be joined up

We can understand the need to separately consult on the carbon floor price support mechanism from the remainder of the EMR package, given the split in implementation responsibilities between HM Treasury and DECC. But we are concerned by the assertion in the consultation document that the Government intends to publish its response before the Budget – at which time the separate DECC consultation on its part of the EMR package will only just have closed.

There are such significant interactions between the carbon floor support price and other parts of the EMR package that it appears deeply unwise to make a decision on this part of the package before the Government has reached views on the other proposals. We urge you to wait until DECC has had an opportunity to absorb the responses to its consultation before a decision is made on this measure.

Appendix: views on consultation questions

We do not have views on every question posed within the consultation document and therefore have chosen to simply answer a subset.

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

Tax based incentives tend to provide less certainty than contract based approaches, because they are much less binding; governments are not bound by the taxation decisions of their predecessors (or indeed by their own previous statements). Any perceived risk that a government will not abide by its previous tax decisions – or that an opposition will alter them if it gets in to power – will dilute the credibility of taxation based price support measures.

It should be noted that if uncertainty over cross-party commitment to taxation based price support emerges it may have a chilling effect on both zero-carbon and fossil fuel based generation, ie just as the former may refuse to invest if they think it will be cut, the latter may refuse to invest if they think it may be hiked. This could leave consumers in the worst of all worlds – paying additional indirect taxation but without this delivering either better security of supply or decarbonisation.

Because of that risk, notwithstanding that we are not supportive of the proposal in its current form because of the absence of measures in it to tackle its negative impact on affordability, if the Government does go ahead with it we would urge it to try and demonstrate commitment to maintaining the mechanism at its implemented level. Ongoing tinkering would harm consumers' interests.

Question 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 will provide a more expansive response on complementary or alternative reforms in our response to the DECC consultation, but suggest that a number of additional measures may be worth considering.

Firstly, some reform of the electricity balancing and settlement arrangements appears necessary. The electricity balancing and settlement arrangements in Great Britain are designed to encourage market participants to match their physical supply and demand with their contracted position. At times when the system is tight, imbalance prices will rise to reflect the marginal cost of ensuring that demand is met – which should provide incentives to build peaking plant.

The capacity mechanisms proposed in the separate DECC consultation appear likely to separately incentivise building (or maintaining) peaking plant. If implemented without reform to the balancing arrangements, this could result in consumers paying twice for the same service – so reforms to the latter may be necessary to prevent this.

More broadly, the Government needs to resolve the desperately poor levels of liquidity in our wholesale power markets. This is freezing out competition to the Big 6, which may result in consumers paying more than they need to for their energy. It may also leave us overly, and unnecessarily, dependent on a small coterie of firms to provide the investment – which they may struggle to fund on their own. An aspiration of the EMR review must be to try to open up the market to wider competition, in order to try and mitigate cost increases as much as possible.

We note Professor Dieter Helm's evidence[3] to the Energy and Climate Change Committee proposed that an alternative way of meeting the government's climate targets but at a materially lower cost may be to accelerate the closure of coal plants and building more gas fired generation. His proposition was that although the latter were not zero carbon they were much lower carbon than coal and that significant carbon savings could be made from this substitution process. He further argued that even if these replacement plants were themselves subject to early closure a significant cost saving could be achieved while meeting a similar carbon trajectory. It is not clear to us how robust the analysis underlying the claimed cost savings is, but the essential thesis – that fuel source substitution may provide material carbon savings at a lower cost than some of the interventions being considered – does strike us as a reasonable one that should be further investigated.

Question 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 think that this question is trying to explore whether respondents agree with your view that fossil fuel fired combined heat and power (CHP) should be subject to climate change levy (CCL) and fuel duty taxation as well as fossil fuel fired 'conventional' generation. In principle, this seems reasonable – it would appear illogical to treat such plant as zero carbon if it is not.

It may however be worth giving consideration to whether it is appropriate to apply a single CCL/fuel duty rate per input fuel (as appears to be proposed), or whether there should be a range of rates depending on the carbon intensity of the generator's output. The carbon efficiency of plant will depend on a range of design factors. For example, one would expect that a newly commissioned power plant using the latest designs would be more thermally efficient than an ageing one reaching the end of its economic life, even if both were using the same input fuel. Similarly, a fossil fuel powered CHP unit may have a lower carbon footprint than other generation using the same fuel source if the heat created as a by-product of the generation process is being sold on to customers rather than simply emitted.

So rather than treating each fossil fuel source as having a 'one size fits all' carbon intensity, it may be appropriate to have a sliding scale that reduces the tax burden for those plants that use that fuel more efficiently. This would result in a more complicated and potential costly mechanism, but would seem to more clearly deliver the intent of the proposal.

[3] Oral evidence, 31January 2011.

Question 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?

See our answer to question 4.C1 above.

We think there may be a case for providing preferential treatment for fossil fuel based CHP where the by-product heat is being used (for example, in district heating projects). This is because the heat provided may be reducing the need for other fossil fuel consumption (ie to separately heat the water). In this kind of scenario, preferential treatment for CHP would appear to be due discrimination and consistent with the intent of the policy.

As highlighted in 4.C1, we think the means to achieve this may be to have a sliding scale of tax rates for each input fuel type rather than a single rate. This would be a more complicated and potentially costly scheme to implement, but would seem to more clearly deliver the intent of the proposal.

Question 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, this should be considered. The principal underlying driver of this proposal is to encourage low carbon generation and discourage high carbon generation. As such, a tax regime that treated successful CCS projects as resulting in the same emissions as unabated plant would be perverse. If anything, this might actually discourage low carbon generation (because CCS enabled plants would have the same tax treatment, but would be more costly to build than unabated plant subject to the same taxation rate).

As highlighted in previous answers, if the Government does favour a carbon price floor we would encourage it to look at applying a sliding scale based on emissions intensity, rather than a flat tax rate based on input fuel. Although this would be more complicated to implement than a flat tax rate, it might avoid some of these risks of perversities whereby plant is treated as significantly “cleaner” or “dirtier” than it actually is.

CCS is a nascent technology and we do not have a view on the sub-question regarding what operational standards should be applied.

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

These proposals would hike indirect taxation on electricity produced within the UK, while leaving it unchanged outside our borders. As such it will increase the relative attractiveness of importing electricity compared to producing it domestically.

On the margins, in some settlement periods this may ‘flip’ the interconnectors from exporting to importing (ie because the UK is paying a premium on continental prices, rather than vice versa). It may also make investment projects close to (but not within) our borders comparatively more attractive. The extent to which this may occur is unclear from the modelling.

We note the desire and intention of the European Commission to create a harmonised internal market in energy; it would be prudent to assess whether this proposal would assist or impede this aim. For example, the Irish Single Electricity Market (SEM) may see some distortions from having generators in the north subject to a new tax that is not also applied to those in the south of the same market.

Question 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 do not support this proposal, but if the Government does go ahead, we would urge it to take two factors in to account when deciding timing.

Firstly, to combine its decision making on a carbon price floor with its decision making on the wider Electricity Market Reform package. The proposals in the EMR package interact, and the effectiveness (or not) of this proposal will be contingent on what other measures the Government chooses to adopt. It would appear hugely inadvisable to make a decision on carbon price floor reform in advance of reaching conclusions on any other part of the package. In this regard, the decision to run the Treasury and DECC consultations to separate timetables, and the implication in the consultation that a decision on carbon floor price reform will be made in advance of the remainder of the package, is deeply unhelpful.

Secondly, the date on which new generation brought forward by the carbon price floor will start exporting energy on to the network. The carbon floor price will start having an inflationary effect on wholesale prices, and by extension consumer bills, from the date on which it is implemented. This may be considerably sooner than the date on which any low carbon generation incentivised by the measure comes online. Any commencement date for a carbon floor price should be future-dated, rather than immediate, to mitigate this frontloading effect on consumer bill rises. We note the proposal for a 1 April 2013 start date, but cannot see an explanation for why this date has been chosen – it would be useful if we could understand why this date has been chosen rather than any other; does the modelling suggest materially different costs if a later or earlier date is chosen?

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

It would remove one area of risk involved in low carbon investments, which should act as an incentive to such investments. It would not tackle other areas of risk, for example wholesale price volatility, and is unlikely to be sufficient to bring forward enough low-carbon generation to meet carbon targets if pursued in isolation. Under such a scenario there is a real risk that consumers would pay the costs without receiving the corresponding benefits. On the otherhand, if the carbon price floor was introduced in conjunction with say FiTs with CfDs there is a real risk that consumers will be paying unnecessarily high levels of support to achieve statutory government targets ie the carbon price floor will be superfluous.

Although in general terms there should be a positive effect on investment in low carbon generation the rather crude ‘flat tax per fuel type’ approach proposed may create some perversities – for example, treating CCS fitted generation, or fossil-fuel based CHP where the by product heat is sold, as being as high carbon as plant without these mitigating measures. Some low carbon technologies may actually be discouraged by these proposals; slipping down the merit order when compared with other technologies.

As previously mentioned, investor confidence in tax based incentives is inherently influenced by their views on whether such treatment will persist – so the extent (or absence) of enduring cross party political support for this measure may enhance or impede its effectiveness.

Question 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 carbon price floor proposal has retrospective as well as prospective effect, ie it will change the operating costs of existing generating plant as well as new operating plant. By inflating fossil fuel generation costs it will implicitly have a distributional impact that rewards existing low carbon generation and penalises existing high carbon generation.

This re-distribution is largely a deadweight cost although on the margins it may have some influence on accelerating or deferring closure decisions, or on which plants are operated. The principal effect is likely to be windfall gains for low carbon generators, in particular nuclear power (because of its scale).

We are uncomfortable with the creation of windfall gains for existing generation – consumers are already being asked to pay a great deal to decarbonise the economy, and it is morally questionable to expect them to pay additional money for nothing; these plants have already been built and do not need further financial incentives. As such serious consideration should be given to clawing back some of the windfalls received by existing low carbon generation ie those plant built before the implementation of any legislation required to bring in to being a floor price.

More broadly, most flexible plant is currently fossil fuel fired; incentivising its early closure may reduce the probability of keeping the lights on rather than improve it. The combination of reduced flexible plant and increased intermittency is likely to increase the costs that National Grid incurs in balancing the networks; costs that are ultimately met by consumers.

Question 5.D6: Do you have any comments on the assessment of equality and other impacts in the evidence base of the Impact Assessment?

It would be useful to provide further detail, and scenarios, on your assumptions on future fossil fuel prices – as you highlight, assuming lower fossil fuel prices would reduce the amount of low carbon investment delivered by this policy. You highlight that the assumptions made are based on DECC's June 2010 Updated Emissions Projections. Those projections are themselves based on analysis conducted in May 2009[4] and are therefore likely to be somewhat out of date. More recent projections from organisations such as the International Energy Agency[5] suggest a relative benign pricing environment for gas, at least in the short term. This is not to suggest that there is such a thing as a definitive energy price forecast – quite the opposite; that there is no clear consensus on such trends. The future is very uncertain, and we would like to see more scenario modelling in the public domain so that we can understand how robust this proposal is to different price scenarios (and not simply the central forecast of the Updated Emissions Projections).

Similarly, it is not clear what assumptions you have made regarding future trends on energy consumption. You model wholesale power prices roughly doubling by 2030 while household bill changes remain in single digit percents. This infers very heavy energy usage reduction in that window. This is plausible, but, again, it would be useful to have more detail on the assumptions underlying the modelling and to see some scenario modelling to understand how robust this proposal is to different efficiency scenarios.

[4] See page 7, Updated Energy And Emissions Projections (Urn 10d/510)
[5] See its World Energy Outlook 2010, published November 2010.

We note that BIS and DECC are working on a joint project looking at the cumulative impact of energy and climate change policies on energy intensive industries in the UK. We hope that this will include an assessment of whether or not these will result in carbon leakage (ie relocation of investment or production to countries without carbon constraints). We would like to see this research published in time to inform the Government's decision on the EMR package.

The impact assessment highlights that pensioners, single parent families and the poor will be hardest hit. If the Government is determined to press ahead with this proposal we urge it to consider ways to make sure that the tax receipts are hypothecated and returned to consumers, with priority given to those least able to pay. For example additional funds could be made available for energy efficiency measures (to reduce customer bills) or increase social price support funding.

Consumer Focus
Campaigning for a fair deal

Response to HM Treasury consultation: 'Carbon price floor: support and certainty for low carbon investment'

Written by Richard Hall, Consumer Focus

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Published: February 2011

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Consultation Response

Carbon Price Support

Open Date: 16 December 2010

Close Date: 11 February 2011

Introduction

This report outlines Costain's response to the government's consultation, on new generation assets and the related issues likely to affect development of Carbon Capture and Storage (CCS) infrastructure (carbon dioxide pipelines and storage sites) – third party access and how best to organise long-term investment.

The consultation document Carbon price floor: support and certainty for low-carbon investment sets out how Government proposes to encourage additional investment in low-carbon electricity generation by providing a clear long term price for carbon.

Without major reforms to our electricity market, the UK will fail to meet its legally binding targets to reduce emission and power could become increasingly expensive and unreliable.

It is also the intention of Costain to respond to Government's consultation to deliver fundamental reforms to the electricity market to ensure the UK has secure, affordable low carbon supplies of electricity over the long term.

Consultation Questions & Responses

	Question	Costain's Response
3.A	**Investement**	
1	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?	Costain believe that if the UK is to achieve 2050 Carbon reduction targets then significant build out of new low Carbon generating assets must be completed by 2030. The transition from the current legacy portfolio to a new low Carbon asset base will require the continued growth of renewable (mainly offshore wind), the replacement of the UK Nuclear fleet and the introduction of clean flexible fossil (Coal and Gas) assets. On the basis of current asset age and the current legislation, significant new build must be deployed at pace during period 2015-2030. This will achieve a central generating asset base that is 'fit for purpose' in terms of reliability, flexibility and low Carbon and which will still be operating in 2050 To achieve the new UK asset base, investment grade policy must be established now. To attract investment into the UK and to ensure the UK can build out the programme of projects, surety on Carbon price is required 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 teste against this criterion.
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.	Greater certainty would increase investment in low-carbon electricity generation. However, availability of capital against other opportunities will be critical.
3	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. However, taxation rates are always subject to uncertainty and change. What assurance will the Government be able to provide to investors that their long term investment will not be compromised by subsequent policy changes; this is the key to establishing certainty.
4	In addition to carbon price support, is further reform of the electricity market necessary to decarbonise the power sector in the UK?	Yes, there needs to be a market for low-carbon electricity and also encourage a market for flexible low-carbon capacity. Decentralised generation embedded in areas of high usage would reduce losses associated with transmission and distribution. Further incentive for renewable heat through the use of biomass fuelled CHP who add greatly to the opportunity for decarbonisation
4.B	**Administration**	

1	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 to our business
2	How long would you need to make the necessary changes to your systems to account for CCL on supplies to electricity generators?	Not applicable to our business
3	Please provide an estimate of how much the system changes would cost, both one-off and continuing?	Not applicable to our business
4.C	**Types of generator**	
1	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 emissions.
2	Is there a case for providing additional or more preferential treatment for CHP? If so, what is the best way of achieving this?	"Good quality" CHP should be encouraged due to its high levels of efficiency when taking into account high take up of available heat
3	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 relief should be granted for power stations with CCS. Tax relief should be granted to all carbon that is removed for storage and residual plant emissions still subject to tax. This would be wholly consistent with the requirements of the EU ETS for the installation and would only incur a small administrative penalty as the emissions would be already accounted for. Clearly, early demonstration plants would need to have more flexible treatment in anticipation of first-of-a kind operational issues leading to higher than expected emissions. Costain proposes that demonstration plants are granted full tax relief to the operating capacity of the plant.
4.D	**Imports and exports**	
1	What impact would the Government's proposals have on electricity generators and suppliers that export or import electricity?	Not applicable to our business
2	What impact might the proposals have on trading arrangements for electricity?	Not applicable to our business
3	What impact might the proposals have on electricity generation, trading and supply in the single electricity market in Northern Ireland and Ireland?	Not applicable to our business
4.E	**Carbon price support mechanism**	

1	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 years from plant operation, i.e. perhaps twenty years from project inception.
2	Which mechanism (outlined above), or alternative approach, would you most support and why?	A rate escalator is the method suggested. It needs to be set for considerably longer than the lifetime of a Parliament otherwise investment would be limited by the inherent uncertainty.
3	What impact would the proposals have on your carbon trading arrangements?	Not applicable to our business
4.F	**Future price of carbon**	
1	Should the Government target a certain carbon price a) for 2020 and b) for 2030? If so, at what level?	The target price should reflect the best high-end estimate of the ETS price in 2020 and in 2030.
2	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 Carbon price has to consider incentive to invest and ability to maintain the UK as an attractive production centre
3	When would be the most appropriate time for introducing a carbon price support mechanism and what would be the most appropriate level?	In order to drive investment, prices must have certainty from 2015
5.B	**Electricity investment**	
1	What impact would you expect the carbon price support mechanism to have on investment in low-carbon electricity generation?	Carbon price support will have an impact on the operation of existing plants being inhibitory to the operation of higher carbon generation plant. Investment in new low Carbon assets will be encouraged driving towards the 2030 attainment of the trajectory milestone for generators towards the 2050 target
2	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 unabated high carbon fuels. The question that needs to be resolved is whether there are still good strategic reasons for the UK to maintain fuel diversity incorporating a high mix of flexible fossil plant including clean coal.
3	How should carbon price support be structured to support investment in electricity generation while limiting impacts on the wholesale electricity price?	Carbon price support will not support investment in electricity generation merely inhibit investment in high-carbon generation. Existing fossil generation will pay the tax and will seek to recover costs through the wholesale electricity price. Existing low-carbon generators will receive a premium if fossil is setting the price.
5.C	**Existing low-carbon generators**	
1	Can you provide an assessment of the impact of the proposals on your generation portfolio and overall profitability?	Costain are committed to work with existing generators to deliver technology that provides a low Carbon future

2	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. The Government needs to consider ways in which the tax could be progressively introduced on existing plant. Not to do so might risk early retirement of fossil plant with consequential effects on supply security and potential lost opportunity to refit flexible fossil generation sites with low-carbon CCS. A transition mechanism should be considered.
5.C	**Electricity price impacts**	
1	How do you currently manage fluctuations in the wholesale electricity price?	No comment
2	What difference will supporting the carbon price make to your business?	No comment
3	As an electricity generator or supplier, how much of the cost of the carbon price support would you pass on to consumers?	No comment
4	As a business, how much of the cost of energy bills do you pass on to customers?	No comment
5	How might your company or sector be affected and would be there any impact on your profit margins?	Costain is looking to deliver new energy assets in the UK across all fuel types. Costain are well positioned to grow their business, responding to the demand for UK build partners for the sector
6	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?	No Comment
	Any other comments?	

RESPONSE TO CONSULTATION:

CARBON PRICE FLOOR

Introduction

US-based Covanta Energy is the world's largest developer and operator of energy from waste (EfW) facilities, converting residual wastes into renewable and low-carbon electricity and heat. The company operates over 40 plants worldwide, treating around 18 million tonnes of residua waste every year.

Covanta has been active in the UK market since late 2005 and currently is developing six projects with a combined annual residual waste treatment capacity of around 3 million tonnes and capable of generating some 400 MW of electricity. These projects represent potential inward investment into the UK low-carbon sector well in excess of £2 billion.

Progress in the UK to date in bringing on stream renewable and low-carbon energy sources has been slow compared with many competitor economies. In this context, Covanta considers that a strong new fiscal signal will be the most effective way of bringing about a step-change in investment in these technologies.

While looking at the issue purely from the perspective of an EfW developer, Covanta broadly supports the government's proposal to introduce a Carbon Floor Price (CFP), which potentially would fulfil the role of a carbon tax for which we have been calling for some time.

EfW – challenge and opportunity

Before commenting on the specific CFP proposals, it is worth outlining both the potential contribution that EfW can make to the UK's low-carbon transition objectives and the challengers that industry faces in realising that potential.

The UK currently produces around 100 million of municipal (MSW) and commercial and industrial (C&I) waste. The country has a legal obligation under EU Directives to achieve an overall recycling rate of 50% by 2020 for this waste. Potentially, therefore, some 50 million tonnes of residual waste are available each year (though recycling rates by 2020 may exceed 50% by a small margin).

The key objective of waste policy is to divert this residual waste form landfill into more beneficial uses. Significant progress has been made in recent years, largely as a result of the strong financial signal given by the landfill tax.

Nonetheless, significant volumes of waste continue to go to landfill, where, among other things, they release methane, one of the most potent greenhouse gases. It is estimated that if this waste was diverted into energy recovery it could contribute around 6% to 8% of total electricity demand. In order to deliver this capacity, EfW must move firmly into the mainstream of the UK's renewable and low-carbon energy production.

The UK has long supported the deployment of renewable and low-carbon energy sources, including through a variety of fiscal instruments such as the Renewables Obligation (RO). However, these mechanisms have had only limited success. Since the RO was introduced in 2002, renewable energy generation has increased only from about 2.5% to 6.5% in 2009. Reaching the current target of 30% by 2020 requires a near six-fold increase in just ten years, which is extremely unlikely under current support arrangements.

The scale of the challenge is underlined by comment sin the consultation document itself which note that:

- Meting the 30% target will require annual investment of at least double the current rate throughout the next ten years; and
- The EU – with UKK support – is considering the need to increase the existing targets, which would bring forward the need for early investment.

Against this background, Covanta Energy considers that a mechanism like the landfill tax, giving a clear transparent and long-term fiscal signal to the energy markets is will be the most effective way of achieving the necessary step-change in the level of investment in renewable and low-carbon energy.

If anything in this context the flaw in the government's proposals is that they are perhaps not ambitious enough. They appear to be the focussed more on deployment in the period beyond 2020 than in the critical years to 2020. From an EfW perspective, if the CFP is to have an impact in delivering the investment that will contribute to meeting the 2020 targets for both waste and energy, it needs to:

- Kick-in as soon as possible;
- Begin at a higher initial rate; and
- Move to £70 per tonne more quickly, and preferably no later than 2025.

Responses to consultation questions

In this section we provide responses to the specific question raised in the consultation document. We respond only to the questions relevant to our sector and where we have relevant knowledge. Numbering follows the numbering used in the document.

<u>3.A1: future carbon price</u>

We have no reason to consider that, without further regulatory intervention, the carbon price in 2020 0r 2030 will be very much different to the levels set out in the

various forecasts in the consultation document. If carbon prices remain low, it is unlikely that they will be a significant factor in investment decisions when weighed against other considerations (ranging from labour costs to regulatory risk such as planning) for either energy generation or for wider commercial investment where energy prices may be a factor. Without a strong carbon price signal, we are sceptical that investment in renewable and low-carbon energy will receive the investment kick-start that it requires to meet existing targets. Therefore, a strong carbon price signal will be a vital consideration in future investment decisions in this sector, which is, of course, internationally highly competitive.

3A.2: investor certainty

As noted above, Covanta Energy is currently working on plans to develop projects with capital investment requirements well in excess of £2 billion. However, the UK is only one of many markets into which the company can invest. Therefore whether its capital comes to the UK or goes elsewhere will depend upon the kind of business case that can be made and upon the level of certainty around return that can be achieved. Visibility of the long-term price of carbon would be an important factor in increasing investor confidence in the UK and would lead to accelerated investment.

3A.3: carbon price support and certainty

Carbon price support through the tax system would give substantial certainty for investors. The way that the landfill tax, with its annual escalator mechanism, has worked to drive investment to divert waste way from landfill is a good analogy. Where customers can see the long-term direction and scale of travel of future prices, they will commit to longer-term contracts, thereby helping to underpin investment.

3.A4: other electricity market reforms

Focussing purely on what is needed to facilitate EfW development to deliver the potential indentified for it, the key is to simplify the regime for support of renewable energy. The current structure of the RO is excessively complex and weighted not towards carbon outcomes but to supporting new technology development. Therefore it is not a mechanism for mass deployment of viable renewable projects but for market development. Renewable energy payments should be made on the basis of carbon equivalent avoided. This could also address the anomaly whereby a significant proportion of EfW generating capacity that meets the criteria for classification as renewable is not counted towards targets simply because it is not RO eligible.

4B.2: time required to develop systems to account for CFP

Covanta does not currently have operational plant in the UK. We expect our first facility to come on stream in 2014. We consider that it will be very straightforward to put in place by then any accounting mechanism that would be required to meet the requirements of the proposed CFP/CCL regime.

4.C1: treatment of electricity generators

The CFP mechanism needs to be sensitive to the different carbon outcomes of the operations of different types of electricity generators. One particular area of uncertainty is over the treatment of waste as a fuel in generating electricity. As noted above, EfW has the double benefit of diverting waste from landfill where it emits methane and using it to generate energy that is classed partially as a renewable.

Paragraph 4.12 notes that renewable fuels, including biomass, will continue to be exempt from the CCL, and we assume that this means that they also be exempt from the CFP mechanism associated with the CCL. In this context, biomass includes the biodegradable fraction of residual wastes that go to EfW.

If the CFP mechanism is to work to encourage the deployment of new EfW facilities to deliver the potential required for it:

- The renewable fraction of wastes must be exempt; and
- Allowance should be made for the fact that even the non-renewable fraction delivers significant carbon savings by simultaneously displacing fossil fuel generation and the emission of methane from landfill.

4C.2: treatment of CHP

We understand from work undertaken by the Combined Heat and Power Association that as currently formulated the proposal would adversely impact upon CHP generators. EfW is especially suitable for CHP operation and most of the projects that we are seeking to develop would exploit surplus heat in commercial uses. Attaining CHP operation, obviously, has substantial benefits in terms of energy efficiency and carbon savings. We urge government to look again at its proposals in this area to ensure that introduction of the CFP mechanisms does not have perverse unintended impacts on the CHP market.

4.E1: setting carbon price support rates and investor certainty

The key point here is to have a long-term view of both the direction of travel of future carbon prices and of the level that will be attained at a given time. This is important both to allow for investment lead-times and for consumers to have a choice to enable them to potentially mitigate their carbon costs. We favour setting an initial rate with committed subsequent annual increases at least until an initial target price is reached. The option to go beyond the initial target price must be left open to ensure that there is scope to respond to external market factors.

4.E2: mechanism

We support the rate escalator model. This model in our view is best suited to delivering the objectives set out in the response above. It reflects experience of the landfill tax, which in our view has been highly successful.

4.F1: target carbon prices

We agree that an eventual carbon price of £70 per tonne is about right. At that level, it should be high enough to underpin a fundamental shift towards investment in renewable and low-carbon generation. Critical targets in both the energy and waste sectors are due to be met in 2020. We consider that the target of £70/tonne by 2030 may not be fast enough to kick-start investment. We would favour bringing forward the date for attainment of the £70 target to 2025. For this reason, we also support setting an interim target price of £40/tonne for 2020.

5.B1: carbon price support impact on investment

The carbon price support mechanism clearly will increase energy costs for consumers and encourage them to seek low-carbon (and cheaper) alternatives.

Consequently, we would expect the market to react by investing in low-carbon generating capacity.

5.B2: wider investment impacts

The full impact of the proposal on investment will, of course, depend upon its detailed design. We have noted above some examples of ways in which that design could introduce market distortions that might inhibit investment in certain technologies and modes of operation. We expect these issues to be fully addressed in further consultation around the detailed architecture of the scheme.

5.D2: carbon price support impact on business

Provided that EfW is treated favourably within the price support mechanism in recognition of its dual benefit of delivering low-carbon generation and preventing methane emissions, it should encourage investment in this sector. In particular, a strong positive signal about the price of carbon would encourage customers to look to longer term energy supply contract sand this would address a current critical risk factor for the investment community.

5.D2: pass through to customers

On the expectation that EfW will be treated favourably within the mechanism compared to fossil fuel generation, we would expect to be able to pass significant energy cost benefits through to our customers. On a number of our current projects where we are exploring the provision of heat and power to major industrial and commercial partners, this pricing benefit could be a major factor in securing inward investment and job creation.

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11th February 2011

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Dear Sir

Consultation: Carbon price floor

Thank you for the opportunity to respond to the HM Revenue & Customs consultation on the carbon price floor and support and certainty for low-carbon investment.

Millennium Inorganic Chemicals (Millennium) is the UK operation of Cristal Global (Cristal), a foreign-owned, multinational company, the world's second largest producer of Titanium Dioxide (TiO_2) white pigments. The Millennium facility, based at Stallingborough near Grimsby, manufactures TiO_2 that is used in paints, paper, plastics and many other applications. TiO_2 is a raw material essential to several sectors of the economy including construction, automotive, aerospace and packaging. Millennium has the largest capacity in the Cristal family and directly employs nearly 400 people with a sales turnover of £250 million per year. We export 85% of our production to Europe, Middle East and Asia.

Millennium at Stallingborough is a world leader in the development of green technologies based on ultrafine particle size TiO_2. These products are used in an increasing range of environmental applications using catalyst systems to make significant reductions to NOx and SOx pollution. Excess nitrogen from NOx leads to excessive plant growth and decay (eutrophication), that disturbs the biodiversity of both land-based and water-based ecosystems and contributes to acidification of ecosystems. An estimated 60 million tonnes of NOx emissions have been prevented using catalytic grades of TiO_2 in power station DeNOx systems over the past 30 years.

Cristal is highly concerned about the proposals set out in the consultation document, the high number of instruments for managing a low carbon economy in the UK that amount to a triple tax on electricity, and the fact that the resultant financial burden would be a major contributor to Millennium's high cost base relative to Cristal's non-UK operations and overseas competitors.

We attach further general comments on the consultation and specific responses to those questions in the consultation document relevant to the Millennium operation and to which we feel able to comment. We remain at your disposal for any further information or explanation that you may require.

[redacted]

Carbon price floor: support and certainty for low-carbon investment
Cristal Global response to HM Treasury Consultation

Main comments

We support the objective of moving to a low carbon baseload generation mix, but too many instruments are being proposed without properly considering their contribution to the cumulative impact on the energy costs of energy intensive industries. The EU already has the highest energy costs and these proposals would push the UK's even further ahead: this is not a sustainable environment for energy-intensive industries such as Millennium's.

There are too many instruments - we cannot see the need for both a carbon price support (CPS) tax and "contract for a difference" to drive a low carbon generation mix. We regret the short timescale for the CPS consultation relative to the EMR consultation as this limits the opportunity to debate the two proposals alongside.

CPS adds up to a triple tax on electricity - Even on their own, the CPS tax rates for generators could add over 20% to electricity prices in 2020. By 2020, the combined tax from CPS, the EU Emissions Trading Scheme (EU ETS) and Climate Change Levy (CCL), could push power prices up by 50%.

Cumulative impacts have not been considered - these carbon taxes will contribute to the rising cumulative impact on our energy costs from other instruments, including the Renewables Obligation (RO) and Feed In Tariffs (FITs), and projected increases in energy market prices resulting from UK energy policies, particularly the Renewable Energy Strategy. An independent study by WatersWye[1] for the Energy Intensive User's Group and TUC shows that the cumulative costs of unilateral UK and EU policies could see Millennium's UK energy and carbon costs double by 2020. Because TiO_2 is a globally-traded commodity, and Millennium's owner has plants in five other countries around the globe, this cumulative impact could render continued investment in the Millennium operation by Cristal unsustainable.

CHP will be placed at a disadvantage and emissions savings lost - The proposals could also make Cristal's CHP plant uneconomic compared to the current alternative of sourcing power from the grid and heat from on-site boilers: yet the CHP solution is significantly more efficient than the alternative. CPS should not be applied to inputs for heat from CHP as this is inequitable. There also is a strong case for CHP power to continue to receive preferential treatment – this would be consistent with the Government's previously established CHP target and the current incentives for domestic CHP. It would also align with the European Union's continued support for CHP and avoid our asset becoming redundant.

The future of CCL relief under for Climate Change Agreement (CCA) participants is uncertain - The CPS proposals come at a time when manufacturing industry faces continued uncertainty over the full scale of the costs from energy and climate change policies. Within this, not only has Government imposed a larger than needed reduction in CCL relief for CCA participants, but the Coalition has triggered a protracted debate about the future of the CCAs and whether all sites will continue be entitled to CCL relief.

Energy intensive sectors have a role in rebalancing and greening the economy - Its vital that the Government recognises that the optimal way to rebalance and green the economy is through the retention, within the UK, of the whole supply chain for green products – this includes the

1 http://www.eiug.org.uk/publics/WWA%20Impact%20of%20Climate%20Change%20Policies%20EIUG%20TUC%202010723.pdf

energy intensive industries who already enable a range of low carbon solutions (if customers and supplies are in the UK its more likely the research will take place here).

We need a strategy for growth and manufacturing - we strongly urge the Government to push ahead with a strategy for growth. A key part of this is to develop a manufacturing strategy at the earliest opportunity. This strategy should be informed by BIS and DECC progressing their assessment of the cumulative impact of energy and climate change policies on energy intensive industries together with proposals for mitigating this impact. Millennium has the potential to be the flagship operation of the Cristal family that has similar facilities in five other countries around the globe. First hand evidence of carbon policy in the other countries indicates that the Millennium plant will have no hope of achieving this status should the direction of travel set out in the consultation document be pursued.

Responses to relevant consultation 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?

It is difficult to form firm expectations about the carbon price in 2020 and 2030 because there is no certain carbon reduction pathway set as far as 2030, and businesses currently face considerable policy uncertainty over the carbon reduction pathway to 2020. In particular EU ETS) only sets a certain carbon reduction pathway to 2020 and there is continued debate about whether the EU should increase its unilateral 20% emissions reduction target (when a move to 30% is supposed to be conditional on a new international agreement).

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

There are too many instruments**.** We cannot see the need for both a carbon price support (CPS) tax and "contract for a difference" to drive a low carbon generation mix. Millennium is in the business of chemicals manufacture. As the sole Cristal operation in the UK, we cannot afford the overhead resource required for efficient compliance with existing instruments that other multinational companies may be able to support for several installations in the UK. Yet more instruments will exacerbate this. Keeping abreast of these complex instruments is becoming ever-more complex and burdensome even for an operation the size of Millennium. Smaller intensive energy users in the chemicals sector will be even more challenged. We regret the short timescale for the CPS consultation relative to the EMR consultation as this limits the opportunity to debate the two proposals alongside.

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?

We are concerned that it will be difficult for suppliers of natural gas to anticipate the extent to which supplies to industrial consumers are attributable to CHP generators and that this will add complexity. Millennium has its own CHP supplied through sub-meters from deliveries to the chemical site through the fiscal meter. We question the legality of removing CHP and autogenerator exemptions under the provisions laid out in the current Energy Products Directive, Council Directive 2003/96/EC.

If CPS is to be administered through the existing system of PP11 Supplier Certificates, then sites with CHP will need to issue more PP11s upfront to cater for the specific CCL carbon price support rate and more adjustments made when initial payments are reviewed against actual consumption. Exempting inputs to heat would not add to administrative burdens and maintaining the exemption for all inputs would reduce burdens for both operators and HMRC.

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 are concerned that the treatment of CHP is inequitable compared to other generators. This is because the Government appears to be proposing the taxation of all inputs including those to heat. Yet Millennium's CHP is substantially more energy efficient than importing power from the grid and raising heat in on-site boilers.

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?

Yes.

In the first instance the treatment of CHP should at least be equitable with that of other generators. It is therefore important that rather than taxing all inputs to CHP, as proposed, inputs for heat produced by good quality CHP should continue to qualify for exemption from CCL.

There is also a strong case for CHP to continue to receive preferential treatment in relation to the inputs for power generation. This is because:

- CHP is more energy efficient than importing power from the grid and raising heat in on-site boilers. Therefore production of power by CHP is preferable to the production of power in centralised gas fired generators which will remain part of the fuel mix in 2030.
- The economics of existing CHP were based on full exemption on CCL. CHP have a high capital cost and these investments could be placed in jeopardy if the exemption is withdrawn..
- The energy intensive industries which largely host existing CHP installation are exposed to international competition. They will be less able to pass on the cost of CPS to power generated for own use to global product markets than the main generators will when selling power to the UK electricity market.
- Removing CCL exemptions would be inconsistent with the practice, until now, of maintaining a national CHP target and the current practice of offering large subsidies to encourage domestic CHP installations. It would be inconsistent with the European Union's continued 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?

The sole reason for using CCS technology is to reduce carbon emissions. CCS actually reduces the energy extraction efficiency. However, within a carbon constrained environment, it allows another primary energy source to be used and increases energy diversity and thereby contributes to overall energy security. Technological development and future performance and cost of CCS are too uncertain for us to comment on operational standards. Any reliefs given should be assessed in terms of the cost/benefit to consumers from promoting this technology ahead of other low carbon sources with equivalent reliability of supply. Development of efficient and commercially feasible storage technologies would bring other renewables into serious consideration by improving their effective reliability.

Carbon price support mechanism

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

We believe the second of the three proposals in paragraph 4.39, annually adjusted CCL rates, best meets the objective of accurately steadying the carbon price while maintaining some flexibility to react to external circumstances. We least favour a rates escalator as this sounds an inflexible approach which would not deliver a target carbon price as accurately and could produce a higher combined price than intended (if the price of EU allowances is higher than expected).

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?

We are concerned that a unilateral increase in the UK carbon price risks heightened impacts on energy intensive industries' competitiveness. We also cannot see the need for both a carbon price support (CPS) tax and "contract for a difference" to drive a low carbon generation mix.

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

There will never be a good time unless the impact on UK business is recognised and measures taken to address impacts on those who are vulnerable to global competition.

Electricity investment

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

As written, the proposals will reduce investment in new CHP because taxing all inputs, including those to heat, mean it will be inequitably treated compared to other forms of gas generation (see also answers to 4.C1 and 4.C2).

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 written, the proposals will risk premature closure of Millennium's incumbent CHP because taxing all inputs, including those to heat, mean it will be inequitably treated compared to other forms of gas generation. (see also answers to 4.C1 and 4.C2).

Electricity price impacts

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

We are concerned that a unilateral increase in the UK carbon price risks heightened impacts on energy intensive industries' competitiveness as power generators will see to pass on the full cost.

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

Most chemicals produced in the UK, and all of those produced in bulk by energy intensive processes, are sold at prices determined by global markets. Millennium's TiO_2 pigments are no different. Millennium has no scope to pass on higher costs imposed unilaterally in the UK. The Millennium asset has overseas owners, Cristal Global, with production capacity in several countries. Cristal has a global product portfolio developed to satisfy multinational customers. This portfolio means that Cristal has the ability to move production away from the UK at relatively short notice if energy costs become prohibitive.

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

UK chemical sectors use large volumes of electricity and/or depend on CHP for both heat and power. So there could be a significant impact on margins from the carbon price support proposals. But the impact from the carbon price support proposals needs to be taken in the context of the cumulative impact from the UK and EU's energy and climate change policies rather than individually. These are exemplified by last summer's independent study by Waters Wye for the Energy Intensive User's Group (EIUG) and TUC which shows that the cumulative costs of UK and EU's unilateral climate change policies could see UK energy and carbon costs double by 2020.

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 are disappointed that the CPS proposals are being made without properly considering their contribution to the cumulative impact on the energy costs of energy intensive industries and the associated risks to carbon leakage. In the absence of this work, the current RIA asserts that evidence on the costs of EU ETS suggests that CPS is a significant issue for a limited number of sectors and lists *Chemicals-industrial gases, fertilisers,* which DECC have clarified includes basic inorganic chemicals. However, even this fails to recognise that the whole chemical sector is deemed to be at risk of carbon leakage based on the Commission's assessment of its combined direct + indirect carbon costs and trade exposure in Phase 3 of the EU ETS. In the absence of a full cumulative assessment other generalised statements about impacts on profits and competition are misleading in the context of energy intensive sectors. Our specific comments are set out below.

Distributional impacts – business - Para 78 – "*the average medium-sized non-domestic user's annual electricity bill is estimated to increase by between 1 per cent and 2 per cent in 2013, moving to between 1 per cent and 6 per cent in 2020"*. Bills for medium-sized are not representative of electricity costs for large users because wholesale electricity prices represent a much larger part of the delivered cost.

Carbon leakage and competitiveness - Para 80 – "*The published evidence on carbon leakage for the costs of the EU ETS suggests that it is a significant issue for a limited number of sectors".* In the absence of a properly considered assessment of the contribution to the cumulative impact on the energy costs of energy intensive industries, it is not possible to reach such a conclusion. In addition, most of the studies cited are EU level; only the 2007 Climate Strategies study looks specifically at the UK and considers both intra-EU and extra-EU competitive impacts.

Sectoral impacts

- Para 83 – *"Based on initial analysis of energy and trade intensity, the Government considers that the sectors most impacted by carbon price support, taking into account the existing CCL, are as follows:... chemicals-industrial gases, fertilisers;..."* DECC have since clarified that this includes basic inorganic chemicals This fails to recognise that the whole chemical sector is deemed to be at risk of carbon leakage based on the Commission's assessment of its combined direct + indirect carbon costs and trade exposure in Phase 3 of the EU ETS. A further failure of all EU ETS carbon leakage studies is that they slice and dice" the chemical industry and consider each subsector in isolation: this ignores the integration and interdependence between plants and between sites, eg: chlorine (basic inorganic chemicals) is an indispensable process chemical in the manufacture of Millennium's TiO_2 (basic inorganic chemical) but there is only one chlorine manufacturing site in the UK. Chlorine cannot be shipped easily internationally. This is one of the reasons why the authors of the 2007 Climate Strategies study recognised that they needed to do further work to understand the impacts on the chemicals sector.

- Para 84 - There might be a reduction in profit margins for these sectors, assuming businesses cannot pass on the extra electricity costs they face and have to absorb them entirely. In reality, businesses are likely to pass on some of these costs to consumers and the effect on their profit margins might be smaller. TiO_2 pigments are commodities which are traded at global market prices and any cost pass-through will be nearly impossible. To the extent that there might be pass through, competing sites outside the UK would also benefit and their greater profitability would attract internationally mobile investment to the detriment of the Stallingborough site.
- **Competition assessment –** para 106 - For those sectors where electricity costs are a significant proportion of total costs, all businesses in the sector have the same opportunities to reduce the impact of the proposal on their costs. The proposal should not therefore limit their ability to compete with each other. This is a totally erroneous assertion as it ignores the fact that carbon price support is a unilateral UK measure and that businesses such as Millennium's, which typically exports 85% of production, are exposed to severe international competition.

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Cumbria County Council

11 February 2011

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Dear Mr. Shaw

HM TREASURY CONSULTATION – CARBON PRICE FLOOR: SUPPORT AND CERTAINTY FOR LOW CARBON INVESTMENT

Please find below the authority's consultation response to the Government's proposals regarding the provision of a carbon price floor for the UK's electricity generating sector.

Generally, we support the Government proposals to provide greater certainty and support to the pricing of carbon. However, it is recognised that, on its own, the carbon price floor support proposals are unlikely to fully meet the need to decarbonise the electricity market. The use of these proposals in conjunction with the Electricity Market Reform (currently out for consultation) will be an effective method of achieving the decarbonisation goals.

The proposals are part of a wider Carbon Reduction Commitment (CRC) and the aim of these proposals is to adapt the existing energy market in order to produce the required energy efficiencies. Rather than introducing the carbon floor price at the projected final target price, a price escalator will be built into the process from 2013 to slowly increase the floor price over a number of years, with scenarios suggesting to 2030. This suggestion is supported as it indicates a long term strategic commitment on moving away from carbon intensive energy generation.

As a combined result of increasing the carbon floor price and continuing to exempt renewable fuels and uranium from the Climate Change Levy and fuel duty, it is likely that investment into low carbon energy will increase, thus expanding the sector. The envisaged longevity of governmental support will be a key element in providing greater investment certainty and reducing the investment risks involved. This is encouraging news as these factors will bolster the confidence of low carbon investors. This is particularly important in Cumbria, especially the west coast, as it is home to Britain's Energy Coast and Sellafield, a large nuclear processing site which employs approximately 10,000 people.

The proposals show that the predicted total annual electricity capacity mix in 2030 will apportion a much greater share to the nuclear industry. The consultation document also states that nuclear plants are likely to benefit from an increase in profit if the proposals go ahead, thereby increasing confidence that investment in nuclear new build will provide a return to investors. This view is encouraging as currently the prospective developer at Sellafield is considering the installation of two, possibly three, reactors. At £3-4 billion a reactor this represents a significant investment into Cumbria; bearing in mind the dependence on Sellafield for employment in west Cumbria, this is to be welcomed.

The development of the nuclear industry will not only prove beneficial to Cumbria, but to the UK as a whole. Currently, the majority of imported electricity is derived from a nuclear power station in northern France. By encouraging the development of the UK's nuclear market, it will retain economic benefits within the country and provide a better security of supply.

However, the proposals do highlight some concerning aspects regarding fuel poverty. Whilst the Government states that it is committed to ensuring that people do not live in fuel poverty, on its own, the consultation proposals would increase the wholesale electricity price (for both domestic and non-domestic usage), leading to the increased risk of fuel poverty for some households in the short to medium term. Scenario Three shows that the number of households in fuel poverty could increase by 225,000 (although it is recognised that this figure does not take into account potential reduction in fuel poverty from other Government policies/spending).

Chart 8 graphically displays the impact of higher electricity expenditure in relation to the proportion of total household expenditure; all three scenarios provided show that isolated dwelling households would incur proportionately higher electricity expenditure, with households in villages also being strongly affected when compared to urban areas. This raises concern for Cumbrian households as the Cumbrian population in rural and isolated areas is high when compared to other authorities. The potential increase in the number of households in fuel poverty is likely to affect Cumbria's high elderly and vulnerable adult populations significantly. We would encourage the Government to consider future support mechanisms to cater for the adverse affect on low income household and rural areas generally.

Having considered the Government's proposals, it is believed that the proposals will reduce uncertainty and risk levels, thereby encouraging investment into the low carbon sector. Overall, the proposals will provide economic, social and environmental benefits for Cumbria, especially with the potential development of the nuclear industry and Britain's Energy Coast. The proposals, in conjunction with other Governmental policies and strategies, will help to achieve national carbon reduction targets. However, the Government does need to address the serious issue of potential increases in household fuel poverty which could occur as a result of the implementation of these proposals.

We urge the Government to act quickly on developing these proposals, bearing in mind the long lead times involved from the initial decision to invest and the plant eventually generating electricity (two-three years for offshore wind and eight years for nuclear). It is important to act now in order to give an indication of how the Government plans to support carbon pricing in the future, providing assurances for low carbon investors.

If you have any queries regarding this response, please do not hesitate to contact Francesca McEnaney, Planning Officer in the Spatial Planning Team (contact details can be found at the top of page 1).