MEMORANDUM

To:	Martin Shaw	**Organisation:**	HM Revenue and Customs
cc:		**Organisation:**	
From:	Fichtner Consulting Engineers	**Our Ref:**	S1210-0250-0001KSB
Date:	11 February 2011	**No. of Pages:**	6
Subject:	Response to the carbon price floor consultation		

Fichtner Consulting Engineers has composed a response to the Government's consultation paper *Carbon price floor: support and certainty for low-carbon investment*. We have not commented on the proposal in general, but have mainly focused our response on issues surrounding renewables, including biomass and energy from waste (EfW) facilities, as these represent our area of expertise.

In general, we find that the addition of a carbon price support mechanism will have little impact on investment in low-carbon generation in the short to medium term. While the mechanism provides a direct disincentive to traditional generation, it provides no similar incentive to low carbon generation. The only driver to increase investment in low-carbon generation comes from eventual increases in the wholesale electricity price. It will take time for these increases to occur, and even longer for investors to have confidence in the increased price level.

In order to have more impact on low-carbon generation, we would recommend that the revenue from the carbon price support mechanism be used directly to provide incentives to low-carbon generation. This is the principal behind Renewable Obligation Certificates (ROCs), and providing a carrot and stick approach is much more likely to encourage investment than simply applying a tax. We are aware of the Electricity Market Review and that the carbon price support is to be seen as one element of this.

Our response to the questions posed in the consultation paper is given below.

Investment

3A.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?

- Increasing the carbon price through carbon price support will increase the wholesale electricity price in the long term.
- Because the wholesale price of electricity is largely driven by the price of fossil fuels (most notably natural gas) traditional electricity generators would still be profitable in the short term even with increases in the carbon price.
- Without additional incentives to low-carbon generation, an increase in the carbon price is unlikely to significantly affect investment in low-carbon solutions in the near term.

3A.2: 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?

- In our experience, the price of carbon and the EU-ETS scheme has had very little impact on decisions on investment on low carbon generation. Whilst it may be factored in by power consumers and utilities, the high allowances and uncertain carbon price have meant that investors have placed little faith in this as a mechanism. As phase 3 comes into force with greater understanding of how it will impact, this may change, but it is likely to take time for investors to become confident of any additional revenues due to this.
- Increasing the carbon price through carbon price support will increase the wholesale electricity price in the long term.

- Because the wholesale price of electricity is largely driven by the price of fossil fuels (most notably natural gas) traditional electricity generators would still be profitable in the short term even with increases in the carbon price.
- While the increase in electricity prices would benefit low carbon solutions, investors would not be willing to take these higher prices into account in investment decisions until they were sufficiently confident that the higher prices would be sustained. Therefore whilst investment in low-carbon technologies could increase in the long term, there are unlikely to be any substantial changes in investment in the near term without additional incentives.
- In the long term, when carbon prices and wholesale electricity prices have reached a sustained higher level, the high carbon price is more likely to affect the investment decisions of large utilities that have large carbon reduction requirements via the EU ETS, but will have limited direct impact on other independent developers whose budgets do not directly include carbon.

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

- In terms of investment in low-carbon generation, the carbon price support mechanism will only cause an impact by increasing the wholesale electricity price. Investors are unlikely to place any certainty on this price increasing as a result of carbon support until the mechanism has been in place for a number years and a consistent increased price level clearly demonstrated. There is also the concern that, as a tax, the carbon price support could be withdrawn in the future.

3A.4: In addition to carbon price support, is further reform of the electricity market necessary to decarbonise the power sector in the UK?

- Definitely. Implementation of the carbon price support on its own would mean new carbon investment will be very slow. The stick approach of taxing fossil fuel generation needs to be balanced by equivalent carrots in the form of certain, long term incentives.
- Increasing the carbon price through carbon price support will increase the wholesale electricity price in the long term.
- To affect investment decisions these rates will have to rise and be sustained at a high level long enough for investors to become confident to use the increased prices in investment decision making.
- Increases in the carbon price alone are unlikely to encourage investment in low-carbon generation without also giving direct financial incentives to low-carbon generation in the near term. This is especially true if the RO is discontinued and no other incentives have been put in place as any increases in the wholesale electricity price are unlikely to happen in a short enough time frame to avoid an investment hiatus. New entrants to the RO are set to end in 2017, meaning investment decisions on facilities falling under the RO will need to be completed by 2014/2015 at the latest. It is unlikely that certainty in an increased wholesale electricity price could be achieved in this timeframe.

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.

4B.3: Please provide an estimate of how much the system changes would cost, both one-off and continuing?

No comment.

Types of generator

4C.1: Do you agree that all types of electricity generators should be treated equally under the proposed changes? If not, please explain why?

- Energy from waste plants are currently exempt from the EU ETS. We believe this position should be reflected in ensuring energy from waste facilities are also exempt under the carbon price support system. Energy from waste plants generate electricity from a mix of biogenic and fossil fuel derived material and it is difficult to determine the biogenic content of the input fuel.
- Energy from waste facilities make a significant contribution to renewable electricity and, in our view, this should be further encouraged to improve energy recovery and incentivise efficiency. Applying CCL would create a disincentive.
- Facilities using exclusively biomass fuel are also currently exempt from the EU ETS, including those where fossil fuel is used for start up and shut down purposes. We believe this exemption should continue to encourage investment in this area.

4C.2: Is there a case for providing additional or more preferential treatment for CHP? If so, what is the best way of achieving this?

- The Government should be supporting CHP as an efficient use of energy and a way to decrease dependence on fossil fuels and reduce carbon emissions. The implementation of CHP in the UK has been far too slow and any measures that increase their costs will only make further introduction of CHP less likely. In our view the development of more CHP should be a major focus for the UK in increasing energy efficiency and therefore reducing carbon. The changes to legislation introduced in the UK has led to significant uncertainty in CHP generation and this should not be allowed to continue.
- Adding additional costs onto CHP would decrease the relative attractiveness of CHP as an investment as compared to separate heat and power generation, so we feel CHP should continue to be exempt from carbon taxes, including carbon price support.
- The addition of carbon price support to CHP will mean that the costs of generating heat will go up, but the income from that heat will not increase because the cost of separate heat generation will not increase (as they are already included under CCL).
- We feel that an additional incentive should be applied to heat from CHP to continue to encourage heat export and counteract the additional costs associated with carbon price support.

4C.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?

No comment.

Imports and exports

4D.1: What impact would the Government's proposals have on electricity generators and suppliers that export or import electricity?

No comment.

4D.2: What impact might the proposals have on trading arrangements for electricity?

No comment.

4D.3: 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

4E.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?

- Impacts on investment in low-carbon technologies will not be driven in the short term by the increases in the wholesale electricity price that will be created by the carbon price support rates.
- There will be a lag in any increase in investment until investors can be confident that any increases in the wholesale electricity price will continue/will be seen in the long term.
- Any increase in certainty will be based on proven increases in the wholesale electricity price. This certainty will be dependent on carbon price support being at some guaranteed level and not being allowed to decrease, as this could possibly lead to reductions in wholesale electricity costs.
- Because investment will be based on confidence in a sustained increase in the wholesale electricity price, the carbon price support would need to be set at a relatively high level to drive any increase in investment in the medium term. Setting the support at a lower level would lead to slower increases in the wholesale electricity market, especially prior to Phase 3 of the EU ETS and the eventual reduction of carbon allowances, which would not provide sufficient incentive or certainty for investment in low-carbon generation.

4E.2: Which mechanism, or alternative approach, would you most support and why?

- We feel the carbon price support mechanism would be more likely to encourage investment in low-carbon generation if the proposal included recycling some of the money collected to low-carbon generators, as is the case with the current RO.
- The impact of the change would more directly affect low-carbon generation if it provided an incentive for low-carbon generation rather than just a disincentive to current generation technologies.

4E.3: What impact would the proposals have on your carbon trading arrangements?

Fichtner do not trade carbon.

Future price of carbon

4F.1: Should the Government target a certain carbon price a) for 2020 and b) for 2030? If so, at what level?

- In order to increase investment in low-carbon generation, the carbon price must be set such that it causes an increase in the wholesale electricity price which is consistent and can provide certainty of increased revenues to investors. The Government should determine the level of carbon price that will provide increased confidence for investment into low-carbon technologies in the short, medium and long term and target those price levels accordingly. Any carbon price should also reflect the revenues that will need to be used as incentives to low-carbon generators.

4F.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?

No comment.

4F.3: When would be the most appropriate time for introducing a carbon price support mechanism and what would be the most appropriate level?

- Whilst it is important for the Government to get support mechanisms right, it is equally important to provide certainty. Constant tweaks and changes in the renewable energy support systems are a strong disincentive to investment.
- It is important that the Government rapidly agrees to a clear support/subsidy system and sticks to it, particularly considering it aims to end the RO for new entrants by 2017.

Electricity investment:

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

- The carbon price support mechanism provides no direct incentive to low-carbon generation. All additional revenues to generators will be in the form of higher wholesale electricity prices.
- Investment in low-carbon generation will not increase until the carbon price support mechanism is in place and has caused a sustainable increase in the wholesale electricity price. This sustained increase in price will provide investor confidence in the increased revenue available to low-carbon generation. However, this incentive alone will not guarantee a diversion of investment towards low-carbon technologies as the increase in electricity prices will offset the additional cost to traditional generators. Additional support to low-carbon technologies will be required to encourage investment away from traditional generation towards low-carbon generation in the medium to long term.
- For this reason, we do not feel that the carbon price support mechanism will increase investment in low-carbon generation in the short term. Depending on the level of support, it is likely that investment will only increase in the medium to long term with some additional incentives to low carbon generation.
- Directing the revenue from the carbon support mechanism to low-carbon generators in the form of incentives (as with the RO) is much more likely to impact on low-carbon electricity generation investment.

5B.2: What other impacts would you expect carbon price support to have on investment decisions in the electricity market?

No comment.

5B.3: How should carbon price support be structured to support investment in electricity generation whilst limiting impacts on the wholesale electricity price?

- As a standalone proposal, the carbon price support mechanism tries to support investment in low-carbon generation through impacts on the wholesale electricity price.
- Limiting this impact would mean that the increased carbon price would provide little incentive to invest in low-carbon generation, but could also provide a disincentive to invest in traditional generation. This could lead to future issues in terms of security of supply and generation mix.
- Directing the revenue from the carbon support mechanism to low-carbon generators in the form of incentives (as with the RO) is much more likely to impact on low-carbon electricity generation investment and in doing so may limit the impact on the wholesale electricity price.

Existing low-carbon generators

5C.1: Can you provide an assessment of the impact of the proposals on your generation portfolio and overall profitability?

No comment.

5C.2: What would be the implications of supporting the carbon price for existing electricity generators and how should the Government take this into action?

No comment.

Electricity price impacts

5D.1: How do you currently manage fluctuations in the wholesale electricity price?

No comment.

5D.2: What difference will supporting the carbon price make to your business?

No comment.

5D.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.

5D.4: As a business, how much of the cost of energy bills do you pass on to customers?

No comment.

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

No comment.

5D.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.

Yours sincerely
FICHTNER Consulting Engineers Limited

Food and Drink Federation

Making a real difference

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

HM Treasury Consultation 16th December 2010 – 11th February 2011.

As the voice of the UK's largest manufacturing sector, FDF would like to make the following response to this consultation.

We are supportive of the long term aims of the Electricity Market Reform Project to deliver a low carbon electricity market and security of supply whilst at the same time being affordable to consumers.

In summary our two main points are:

- The cumulative cost impact of climate change and energy policies need to be assessed to ensure the continued competitivity of UK manufacturing industry in global markets. The impact of the Carbon Price Support is only one of number of cost impacts that need to be assessed.

- The Carbon Price Support should not be applied to fuel used in Combined Heat and Power plant. To do so will potentially close existing plant, prevent new plan coming on line and increase emissions of greenhouse gases.

Electricity price impacts and cumulative cost burden.

We note that this consultation was launched as part of, and alongside, the wider consultation from DECC on Electricity Market Reform but with a shorter consultation period than the main EMR consultation. We are therefore concerned that the full implications of the Carbon Floor Price proposals i.e. the introduction of Carbon Price Support (CPS) will not be assessed alongside other mechanisms that may deliver the same policy objectives of supporting new nuclear and renewable generation. Specifically, the proposals for Contracts for Difference appear to be trying to achieve the same outcome so we would question the need for both mechanisms.

We recognise that consumers will ultimately pay for decarbonising electricity supply so we would wish to see a full Impact Assessment – covering all policies – to ensure the burden on industry is minimised. The consultation Impact Assessment only addresses the impact of CPS on prices. A major concern of our members is the cumulative impact of climate change and energy regulation.

Our sector uses around 10 TWh of electricity per annum and we estimate that the additional cost to our sector of CPS will add £70m to £250m per annum to electricity bills (based on data in the consultation). These equate to the percentage ranges identified in the Impact Assessment of up to 6% price increases compared to baseline. However, the analysis totally fails to address the cumulative impact of successive policy impacts such as renewable incentives, CCS support mechanisms, purchasing allowances in the EU Emissions Trading Scheme from 2013 onwards and the impact of the yet to be resolved uncertainties surrounding the future of Climate Change Agreements and the Carbon Reduction Commitment. The cumulative impact of these would raise prices seen by our members by well over 20% in some circumstances.

Some companies could also in the future face the cumulative impact of CPS, the Climate Change Levy and the cost of CRC allowances all of which are in essence carbon taxes. Clearly this needs to be avoided, not just for regulatory simplicity, but to not impose undue financial burdens on manufacturing industry particularly at a time when the Government Growth Review and the Advanced Manufacturing Review seeks to introduce the best conditions for business and private sector growth.

Closely linked to the current CCL, and in the light future additional burdens on our sector from CPS, FDF supports the continuation of the Climate Change Agreements as the best way of achieving the aims of supporting manufacturing competitivity and growth whilst at the same time delivering long term emissions reductions.

In summary: the decision to take forward the CPS proposals needs to taken after the full cumulative impacts on industry has been fully evaluated and other policies have been simplified and implemented.

Combined Heat and Power Q4.C2

The food and drink manufacturing sector is a major user of Combined Heat and Power with around 500MWe installed capacity.

To quote the DECC web site:

Combined Heat and Power (CHP) is a highly efficient method of simultaneously generating electricity and heat at or near the point of use, typically achieving a reduction of up to 30% of carbon emissions compared to conventional means of energy generation.

We totally agree with this statement and fully support CHP as an important energy efficiency measure and contributor to energy supply security.

We view the proposal to proposal to introduce CPS on fuels used in CHP plant as detrimental to the continued economic operation of existing plant and also would seriously jeopardise future investment in new CHP. Of the CHP support measures listed in Para. 4.25 the exemption for CCL for Good Quality CHP is viewed as the key financial measure supporting CHP ensuring it remains financially viable against the alternative of importing grid electricity and using boilers for heat. The imposition of CPS on CHP fuel inputs takes away this support.

As a result of the proposal FDF members with CHP have already started to investigate contingency plans to switch CHP to auto generation operations or even the option of standalone boiler operations for heat and importing electricity.

Regulatory simplicity is cited as the reason for applying CPS to all electricity generators; however this is a case of too much simplification having a potentially detrimental and unintentional outcome of closing down CHP and raising emissions.

There is a very simple solution to this through an exemption to CPS for Good Quality CHP. This will be easy to implement as GQCHP is already used as the basis for current CCL exemption.

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11 February 2011

Dear Mr Shaw,

Gazprom Marketing & Trading Limited's response to HM Treasury and HM Revenue & Customs consultation on the *Carbon Price Floor - Support and Certainty for Low-carbon Investment*.

Gazprom Marketing and Trading Limited ("GM&T") welcomes the opportunity to comment upon HM Treasury and HM Revenue & Customs proposals for the reform of the Climate Change Levy ("CCL") and Fuel Duty regimes aiming at supporting and giving certainty to the price of carbon in the UK electricity generation sector. GM&T is a UK registered wholly-owned subsidiary of the Gazprom Group ("Gazprom") active in the marketing and trading of energy commodities worldwide, including gas, power, oil, LNG and carbon allowances. In the UK GM&T is an active player in both the wholesale and the retail gas and power markets and therefore has a natural interest in the proposed legislative changes.

GM&T supports the transition to a low-carbon economy in line with the UK's legally binding environmental targets set at EU level, but this has to be achieved in a cost-effective, sustainable and affordable manner. Policy interventions must be carefully designed so as to address the potential inefficiencies of the free market model without undermining the preservation of a level playing field for all generation technologies and without distorting the underlying market price signals.

Our high level comments on the proposal to reform the CCL and Fuel Duty regimes are as follows:

- An administrative Carbon Price Support Mechanism is not necessary. The Department of Energy and Climate Change already projects a sufficient increase in the long term EU ETS price, which coincides with the expected commissioning dates of new low carbon generation, such as

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nuclear. Imposing a carbon tax as early as in 2013 would simply increase costs for businesses and consumers without speeding up the introduction of low carbon generation.

- An administratively set price for carbon will not be reflective of carbon market fundamentals and the true marginal costs of reducing carbon emissions. In effect the government will be setting the carbon price to reflect its chosen generation and capacity mix.
- It is very difficult to implement the proposed tax regime properly as it is dependent on long term forecasts for carbon prices, which in turn are dependent on fuel price and supply-demand balance projections across the entire EU. The resulting fuel tax rate will need frequent revision as the underlying ETS price fluctuates over time. This will create uncertainty for firms because of the way the tax affects power prices.
- The proposals will lead to distorted wholesale power price signals by adding an artificial layer of cost on top of the pure marginal cost of generation. This will hinder the integration of the GB power market within the Single pan-European Electricity Market.
- The proposals are more likely to lead to an increased dependence on imports as companies would seek to build interconnectors to capture the greater margins of importing power from abroad. Effectively, the measure proposed by the government will simply incentivise polluting power stations to locate abroad and import their tax-free generation into the higher priced UK market.
- The proposal will create windfall profits for certain types of generators, namely existing nuclear power stations, which have already depreciated their assets. This is because it will artificially increase wholesale power prices from 2013, at least 7 years before the first new nuclear power station is expected to come on stream. It may even have the effect of delaying investment in new nuclear generation as firms milk the returns from existing plant.
- There will be higher investment risk for new gas-fired CCGT plant which is essential to provide thermal back-up to meet the needs of a predominantly low-carbon future generation mix.
- Combined with the government's proposals for Feed-in Tariffs under the wider Electricity Market Reform, the carbon tax could make the GB market "hostage" to nuclear technology and vulnerable to cost and time overruns for new nuclear plant.

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The section below lays out our specific comments on the proposal to create a price floor for carbon by removing the exemption from the CCL for fossil fuels used in power generation and by removing part of the fuel duty rebates currently applicable to oils used in power generation.

An administrative Carbon Price Support Mechanism is not necessary

GM&T agrees that the price of carbon should deliver strong and efficient economic signals to drive investment in low-carbon technologies. Our view is that this can be best achieved through the existing policy instrument set at EU level, the EU Emissions Trading Scheme ("ETS"), by setting the overall cap on power sector's emissions at the level necessary to deliver a realistic market price for carbon; a price that reflects the full negative externalities associated with CO_2 emissions and at the same time takes into account the cost of the most efficient emissions abatement method in the UK or overseas.

We are of the view that post 2012, with the full auctioning of the EU ETS allowances for the European power sector and the gradual year-on-year decrease in the overall CO_2 emissions cap, the market price of carbon will deliver the appropriate economic signals for investment in the cleanest and most efficient generation plant in the UK and overseas. In fact, this assessment is supported by the analysis carried out by the Department of Energy and Climate Change ("DECC") itself. DECC's Central Carbon Price Assumptions predict a long-term increase in the price of carbon from £18/tonne in 2020 to £70/tonne by 2030, which should be more than sufficient to make low-carbon generation economically viable and to guarantee a satisfactory rate of return for potential investors. That said, given that the first new nuclear plant is not due to come on-line at least until 2019 in the most favourable scenario (under the assumption that long-term feed-in tariffs are guaranteed to nuclear generators) and that Carbon Capture and Storage will not play a role until 2025 at the earliest[1], we do not see the reason for imposing the CCL on fossil fuel-fired generation as early as April 2013. In effect, the proposed tax scheme would increase energy costs for businesses and households in support of targeted investments, which are not envisaged to materialise - in the most optimistic scenario - for at least another 7 years, by which time DECC estimate that the EU ETS price would already be sufficiently high to provide the required investment returns.

For the aforementioned reasons we do not believe that further governmental intervention is required to support the EU ETS price. An ad-hoc national solution tailored to the UK power market will not recognize

[1] See: Electricity Market Reform, Analysis of Policy Options, A report by Redpoint Energy in association with Trilemma UK, December 2010, p.54, table 11

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the global nature of the issue at stake and will create distortions with adverse impacts not only on the UK power market, but on the national economy as a whole. These distortions we analyse below.

- **An administratively set price will not be reflective of carbon market fundamentals**

A centrally administered carbon price will not reflect supply/demand fundamentals in the carbon market. It is very unlikely that a levy charged on fossil fuel consumption for power generation will produce realistic economic signals and help reveal the true marginal cost of CO_2 emissions abatement. It is intended that the *"CCL Carbon Price Support Rate"* be determined on the basis of the government's underlying targeted carbon price trajectory. The latter will reflect the long-term carbon price levels required to make low-carbon technologies achieve satisfactory economic returns, but it will not reflect the marginal social benefit resulting from emissions abatement. In effect the government will be setting the carbon price to reflect its chosen generation and capacity mix.

Furthermore, the capital and construction costs of low-carbon technologies are very difficult to predict. Recent experience shows, for example, that the upfront investment costs of nuclear plant are very unpredictable and that the actual lead times for construction fall short of expectations. For the record, we note the examples of the new Finnish Olkiluoto nuclear reactor (unit 3) and the new French nuclear plant in Flamanville (unit 3), currently under construction, which are both experiencing long delays and appear to be running well over budget. In particular, delivery of the new nuclear station in Olkiluoto is already 4 years late and has incurred cost overruns of about € 2.7 billion equating to about 73% of the initial budget for the project (initially estimated at €3.7 billion). Similarly, the new European Pressurised Reactor developed by the consortium of EDF, Areva and Siemens in Flamanville, France, is already facing a minimum 2 years delay in commissioning and is 50% over budget. Therefore, determining the *"CCL Carbon Price Support Rate"* based on current estimates of the levelised generation costs of these technologies will have little or no practical value.

- **It is very difficult to implement the proposed tax regime properly**

In practical terms, the proposed scheme is very difficult, if not impossible, to implement properly as the "*CCL Carbon Price Support Rate"* must, by definition, be determined on the basis of government run forecasts with respect to future EU ETS prices. These forecasts would need to incorporate assumptions about e.g. supply-demand fundamentals in European power markets, fuel price trajectories and general economic growth prospects across all EU member states, which make the estimates of little or no practical value. (Historically, it has been proven impossible to forecast with

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any reasonable precision fuel prices beyond a few months ahead, for example). There is, hence, a significant risk that the "*CCL Carbon Price Support Rate"* will either over-penalise polluting power stations or be too lenient. On the other hand, if the "*CCL Carbon Price Support Rate"* were to account for movements in the EU ETS price, it would need to be revised regularly. This would effectively wipe out long-term price certainty for investors because of the way in would interact with wholesale power prices.

Overestimating the "*CCL Carbon Price Support Rate"* can cause severe repercussions to the UK power sector and could endanger security of supply. Existing generators, for example, currently faced with a decision to opt in or opt out of the Industrial Emissions Directive ("IED") would be more incentivised to close early rather than invest in Selective Catalytic Reduction facilities, the cost of which they might not be able to recover as the fuel-specific levy will negatively impact their economic competitiveness vis-à-vis other sources of generation. This will reduce the UK capacity margin earlier than expected and could cause security of supply concerns if sufficient new build does not come on-line in the short to medium term.

The interaction between the proposed *Carbon Price Support Mechanism* and the EU ETS should also not be overlooked as the level at which the *"CCL Carbon Price Support Rate"* will be set will in turn determine the total demand of the UK power sector for EU ETS allowances and subsequently impact the formation of the EU-wide ETS price of carbon. The UK power sector's emissions represent a significant proportion (approximately 13% in 2008) of total CO2 emissions across the EU power sector. Overestimating the *"CCL Carbon Price Support Rate"* will lead to higher CO2 abatement in the UK, lower demand for EU ETS allowances from the UK power sector and subsequently a lower EU ETS market price. This could in turn trigger an additional increase in the *"CCL Carbon Price Support Rate"* in order to achieve the government set price target, thus leading to a negative feedback loop.

- **Increased dependence on imports**

A *"CCL Carbon Price Support Rate"* imposed on fossil fuel consumption for power generation will increase the short-run marginal cost of UK-based generators and will subsequently widen the spread between the GB power market and its neighbouring countries. Instead of encouraging investment in low-carbon technologies domestically, our view is that such a measure will incentivise the development of new cross-border interconnections as companies would be interested in capturing the greater margins on imported power. Effectively, the measure proposed by the government will

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simply incentivise polluting power stations to locate abroad and import their tax-free generation into the higher priced UK market. In the long-run the competitiveness of the UK power sector relative to the one in Continental Europe will decrease as a result of the Carbon Price Support Mechanism. Great Britain is only likely to increase its dependence on electricity imports from the Continent, which will have detrimental impact on future security of supply.

- **Windfall profits for certain types of generators**

The resulting "artificial" increase in wholesale power prices will create windfall profits for certain types of generators, namely existing nuclear power stations, which have already depreciated entirely, or almost entirely, their assets. Instead of incentivising investment in new nuclear reactors as per the main rationale behind the proposed policy intervention, the Carbon Price Support Mechanism might simply lead nuclear plant operators to extend the lifetime of their aging, and increasingly unreliable reactors, which would probably make economic sense anyway even without the proposed reforms. If this likely scenario were to materialise, the proposed tax scheme would simply redistribute revenues from one type of plant to another and would not deliver the long-term level of investment required to decarbonise the economy.

- **Distorted wholesale power price signals**

Furthermore, the introduction of administratively set levies on fossil fuel consumption for power generation will distort the UK wholesale power price by adding an artificial layer of cost on top of the pure marginal cost of generation. This will hinder the integration of the GB power market within the Single pan-European Electricity Market. We note that the EU Framework Guidelines on Capacity Allocation and Congestion Management call for the immediate introduction of day-ahead market coupling mechanisms on all EU frontiers. Taxes or fees with a national focus, which are imposed on power generators and subsequently on exported and/or imported power, are not in line with the overarching principle of the Single Electricity Market, which is to achieve the optimal, i.e. least-cost, dispatch of power generation capacities across Europe on the basis of the true underlying production costs.

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- **Higher investment risk for CCGT plant**

The impact analysis undertaken by Redpoint Energy[2] suggests that the proposed Carbon Price Support Mechanism would not alter the investment risk for new CCGT plant. Yet, the promotion of low-carbon technologies through a tax levied on fossil fuels will inevitably reduce average load factors of CCGTs and hence increase the availability risk as well as the operation & maintenance costs by forcing the assets to run in a way in which they were not designed to operate. Moreover, CCGTs will be exposed to more volatile fuel costs since, in view of the increased uncertainty surrounding their expected mode of operation and the corresponding amount of gas burn, they will not be in a position to hedge their fuel price risk under long term gas supply agreements. Hence, CCGTs will have a greater exposure to the spot gas market price. Furthermore, increased volatility of supply would result in more unpredictable imbalance prices and will hence increase the financial exposure of generators in case of forced outages. In conclusion, all of the aforementioned components of risk would make investment decisions for new CCGT plants much riskier and more unlikely. In the long run, investment in new and efficient CCGT plant, essential to provide thermal back-up to meet the needs of a predominantly low-carbon future generation mix, will not materialise. An investment hiatus in this respect will be detrimental for the security of supply in the UK.

- **Combined with proposals for Feed in Tariffs under the Electricity Market Reform, the carbon tax proposals could make the GB market "hostage" to nuclear and vulnerable to cost and time overruns for new nuclear plant.**

Although the carbon price floor proposals are meant to be "technology neutral", this is not the case when they are combined with Electricity Market Reform proposals for Feed-in Tariffs. Essentially the two proposals will make the investment environment for generation technologies other than nuclear or renewable very unfavourable. Companies will be unwilling to invest in new CCGTs because of doubts as to whether they will be able to earn a return. Security of supply will be dependent on nuclear power stations coming on stream on time and on budget. As noted above, neither can be taken for granted given recent experience. This will leave governments with a dilemma if nuclear power stations are late and over budget. Will there be sufficient generation to fill the gap until new nuclear does come on stream? Secondly, will the government be prepared to set a

[2] Electricity Market Reform, Analysis of Policy Options, A report by Redpoint Energy in association with Trilemma UK, December 2010, p.33

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higher carbon tax or pay higher feed in tariffs if nuclear power stations need this to be financially viable? Or will government be prepared to let proposed nuclear power stations fail and accept the consequent shortages of generation capacity? If the government does increase the carbon price target and / or feed in tariffs this will result in a higher burden for the economy and consumers.

I hope you find these comments useful. If you have any queries please do not hesitate to contact me on 020 8614 3708 or at vasileios.machias@gazprom-mt.com, or at the address below.

Yours sincerely,

[redacted]

Unsigned as sent by e-mail.

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Mr Robert Pollock
Head of Climate Change and Energy
HM Treasury
1 Horse Guards Road
London SW1A 2HQ

11 February 2011

Dear Mr Pollock,

RE: Consultation on the Carbon Price Floor

I am writing to submit a response to the Government's Carbon Price Floor Consultation and in particular to highlight the potential adverse impact of these proposals on combined heat & power plant (CHP).

As one of the world's leading suppliers of energy generation and delivery technologies GE supports the need for electricity market reform because it is crucial to unlocking the estimated £200bn of private sector investment needed over the next 20 years. As a part of this we also support the Government's commitment to introduce Carbon Price Support mechanism.

GE's installed technology meets 18% of UK electricity needs and we provide a broad array of solutions for traditionally fuelled plants as well as those driven by renewable resources. As a part of our generation portfolio, GE Jenbacher is one of the only companies in the world focusing exclusively on gas engine technology including reciprocating engines, packaged generator sets and cogeneration units for power generation. In the UK alone there are over 500 Jenbacher engines installed, with a total capacity of around 850MWe.

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

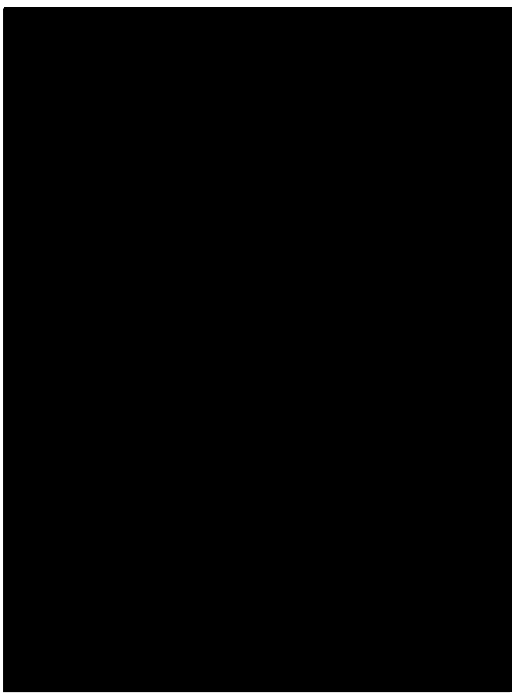
The Coalition Government is committed to reforming the CCL to include a carbon price signal in the electricity market. The effect of the reform proposals would be to:

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

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

More broadly, support for the carbon price is helpful for low carbon technologies but will be insufficient on its own to drive forward investment on the scale required and in the necessary range of technologies. As such we very much support the intentions behind the Government's Electricity Market Reform but are keen to ensure ways to reduce policy uncertainty and enable long-term power generation investment at what is a critical time for GE's investment plans.

I hope this information is helpful. If you require any further information please do not hesitate to contact either myself or policy manager, Simon Ashwell on Tel: 01344 460582 or email simon.ashwell@ge.com



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11 February 2011

Dear Martin,

Carbon price floor consultation

Thank you for the invitation to respond to the above consultation. As you are aware, Good Energy is a unique small electricity and gas supplier, as we only supply customers with 100% certified renewable electricity, and gas which supports renewable heat. It is our mission to provide a blueprint for the UK to transform itself to a low carbon, 100% renewable economy through the work that we do and the actions of our customers and renewable generators.

For your ease we have answered the questions set out in your consultation, expanding where necessary to cover areas of concern.

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

We have no expectations regarding the future price of carbon in either 2020 or 2030. As a market mechanism then the price will reflect demand and supply. The supply of carbon permits will be a political decision. Demand will be governed by both economic growth and the success of carbon mitigation technology and investment.

There are no clear pricing signals for us at the moment. However cost of carbon will be an important factor when considering investment in carbon based generation, but it does not necessarily follow that any investment deterred from carbon based generation will be invested in low carbon generation, it is more likely to be focused on decarbonising existing technology. Whilst the electricity wholesale price is set by carbon based generation it may provide some confidence to investors in low carbon based generation, but it will not be the deciding factor. Once sufficient zero carbon generation is available to weaken the hold on wholesale prices of carbon based generation, then it will have an ever decreasing influence.

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

Greater certainty in the long term price of carbon should deter investment in carbon based generation, this may increase the favourability of investment in carbon free generation by providing a clear long term direction to the wholesale energy price as opposed to the short term nature of many other support mechanisms which are subject to review and political intervention.

As stated in your document, the cost of low carbon generation is more biased to capital costs, and does not have the hedge that fossil based generation has of having some of its costs linked to fossil fuel prices. In the long term, the price of carbon will have influence, but must be part of a wider reform. The increase in carbon costs in driving low carbon investment is only valid whilst fossil fuelled generators set the wholesale price. Once low carbon generation takes hold then this price signal will diminish and eventually, the cheapest carbon free generation availability will set the wholesale price. However, this may bring its own problems of ensuring a diverse mix of energy sources including renewables, as issues like security of supply and long term risk will not be incentivised in the energy price

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

Delivery through the tax system of a stable transparent mechanism would be beneficial, much better than relying on the EU ETS alone. Any carbon price support mechanism delivered via the tax system should include the formula for carbon

price support until 2030, without any of the variables in that formula requiring political decisions. Amendments to the formula must require the introduction of primary legislation, rather than being amendable via statutory instrument. This will give investors confidence that any changes would require full consultation and not be taken lightly.

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. Carbon price support ensures that the "polluter pays" principle is adheres to, but is primarily about deterring investment in high carbon electricity generation by incumbent market players. Additional measures are required to encourage that deterred investment into low carbon generation and new players into the market, especially where the technology is not as mature and proven as coal or gas generation. Investment is also needed in developing storage solution for both energy and heat and demand side response solutions. Decarbonisation of the UK power sector cannot be achieved by a carbon price support mechanism acting as stick to existing players. A carrot is needed to encourage investment and new players into the market which gives certainty of return.

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?

None.

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

Not Applicable.

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

Not Applicable.

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

Yes we agree, although clarity around domestic customer's who use fossil fuel's to generate energy, for example, those off the electricity grid, or who have installed micro-CHP, should be given.

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 not believe there is any special case for treating CHP differently under this support. CHP is supported under other measures, and by including them in this scheme will encourage the use of sustainable fuels such as wood chip, or bio oils.

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 from demonstration projects?

No comment as this is not our area of expertise.

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

We believe that CCL should be applied equitably to electricity where ever it is produced. Imported energy should be taxed in an equitable manner to that of UK generated energy, especially if energy generated in the UK is not to gain relief if exported. Importers of electricity must be able to identify the commercial source of the energy using a guarantee of origin or generator declaration, to which, an appropriate rate of carbon price support must be applied. The European Tracking System for Electricity (E-Track) project (http://www.e-track-project.org/) could provide the facility to monitor imported energy.

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

The proposed changes should have very little impact on the trading arrangements for electricity. The prices may change but the mechanism should be stable.

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 cannot comment as we do not engage in this market.

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

The clearest signal would be to set the desired carbon price for each year until 2030. By prescribing a clear transparent formula for the calculation of the Carbon Price Support rate will give confidence to investors that they can forecast the cost in their own cost projections. If investors believe that the process will allow subjective considerations (e.g. Fuel poverty) to influence the rate, then this will discourage investors.

If the market carbon price is greater than the expected carbon price then the rate would be zero.

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

Key to the decision on a mechanism is that it sets a clear trajectory on required carbon prices to 2030, not just for the life time of the parliament and that the formula for calculating the Carbon support rate is both transparent and based on factual rather than subjective data, thus ensuring investor confidence.

We believe a rate escalator would bring certainty, but be costly. Annual adjusted CCL rates are likely to lead to volatility in the price, and remove some of the stability investors are seeking. Therefore our preferred option would be for rates set annually based on a carbon market index, but averaged over a 3 year period asa minimum to remove short term volitilty.

If the required carbon price is clear, then the Carbon price support rate would be less of an issue as investors would understand what the sum of the actual carbon price, plus the Carbon support rate would result in.

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

We cannot comment as we do not currently trade carbon certificates.

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

Yes. Investment in generation is a long term decision, both in lead time for the development, and the asset life of the generators. It is very likely that any generation built today will still be in operation in 2030. Without such prices, then investors will not get the assurances that the carbon price support mechanism seeks to provide.

We estimate a level of £85/tCO2 by 2030 would allow onshore wind to be competitive in the market without additional support.

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 objective of any carbon price should be ensure that carbon polluting energy generation is more expensive than renewable forms of energy generation, and thus deter such investment. Additionally, other changes in the structure of the market are required to ensure that investment in a diverse range of renewables is an attractive proposition to investors.

As renewable forms of electricity generation increase, then the impact of fossil fuel based generation will diminish on setting energy market prices. We would envisage in the future that the marginal price of electricity in the future would be set by demand management. i.e. The price at which electricity users opt reduce demand in return for payment for the units not consumed.

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 believe that the mechanism should be introduced as soon as possible. All new mechanisms have unintended consequences and these need to be ironed out before other reforms proposed in the Energy Market Reform consultation are implemented. Introducing several reforms at once increases the risk of unintended consequences, and other reforms should be considered against a baseline which includes the carbon price support. Additionally, it is likely that the carbon

price support mechanism will not have any immediate affect due to the long lead time in investment. The Government must be prepared to wait rather than rush in with reviews and fixes because instantaneous results do not occur.

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

On its own the carbon price support mechanism will encourage any investment that is already dedicated to electricity generation. i.e. By incumbent vertically integrated energy companies with customers to supply, to favour low carbon generation over high carbon. However, it does nothing to ensure that more general investment funds are encouraged into generation. The carbon price support is the "stick" against high carbon generation, but other policies must act as the "carrot" for new investment and investors in low carbon generation.

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

We do not believe that investment decisions in the UK electricity market can be considered in isolation from the overall investment market. Many of the investors in this market will be multi-national companies or investment banks weighing up not just what form of generation they wish to invest in, but in what country and even if investing in generation is more favourable than investment in other industries.

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

The carbon price support should be structured to give a clear indicator of the future, so that investors have time to mitigate the consequences by investing in low carbon energy sources instead. Wholesale prices will have to rise in the short term, and other actions will be needed to limit the impact on retail fuel bills (e.g. green deal), but longer term, as carbon based generation diminishes, then wholesale prices will stabilise and the UK will benefit from this stability, and potentially lower prices than had it remained wedded to carbon based generation.

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

In the short term it will increase our costs due to our need to balance our generation and demand portfolio where wholesale prices are rising, but in the longer term we will benefit from increased investment in renewables and thus increased profitability.

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

Existing electricity generators are already likely to have had a rising carbon price factored into their development based on assumptions about the EU ETS. The support mechanism may affect decisions on extending the life of existing carbon based plant and a managed retreat should be undertaken to ensure that the reduction in carbon based generation is outpaced with new renewables.

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

As a company who purchases all of its energy from embedded renewable generators, then long term Power Purchase Agreements are our defence against fluctuating wholesale power prices. Where we are exposed to the wholesale price in terms of short term balancing, this risk is managed by accurate forecasting of our position and inevitably a risk premium that is embedded into our retail prices.

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

If supporting the carbon price increases investment in renewable generation, then the impact in the medium to longer term will be to provide Good Energy with a greater choice of generation to purchase, and thus make us more competitive. In the short term however, we will need to manage rising wholesale prices in the balancing market and mitigate this as best as possible.

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

As an energy supplier we constantly strive to keep our costs down and we will attempt to protect consumers from the carbon price support by purchasing renewables to cover as much of our demand as possible. However, there will be some additional costs to be passed on to customers from our balancing activities.

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

As a premium priced supplier of energy we recognise the need to keep that premium to a minimum, and thus ensure that our costs over several areas are minimised.

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

The Carbon price support will improve the prospect of renewable generators and suppliers by making us more competitive with traditional players. This is time should improve our profitability.

5.D6 Do you have any comments on the assessment of equality and other impacts in the evidence base of the impact assessment, included in annex D?

In the short term it is inevitable that there will be an impact on fuel poverty numbers as the purpose of the carbon price support is to make the current source of electricity more expensive. However, it should be noted that the impact on prices of the policy pale into insignificant compared to the recent price rises from the big 6 caused by market volatility. Longer term it is clear that decarbonising the energy market could significantly reduce fuel poverty and we believe this case does need to be made more strongly by the Government.

I hope you find this response useful, should you wish to discuss further please feel free to contact me.

HMRC Consultation

Carbon Price floor

Questions

The following is a summary of all the questions in the consultation document. The questions are designed to seek views on the detailed policy design and help create a framework for implementing Government's proposal, rather than ask for alternative proposals. Any evaluations of the overall impact of the proposal on the respondent's business would also be welcome.

Ref	Question	Response
	Investment	
3A1	What are your expectations about the carbon price in 2020 and 2030? And how important a factor will it be when considering investment in low-carbon generation?	The carbon price should be set in a way that provides certainty and is fully understood by industry and investors to ensure they have the confidence to invest in projects. Clearly the price needs to rise from 2020 to 2030 in order to incentivise the introduction of cleaner technology. However setting the rate too high too soon, and recognizing it is unlikely that significant investment will be completed much before 2020 will mean the additional cost will be passed straight through to the user.
3A2	If investors have greater certainty in the future long-term price of carbon, would this increase investment in low-carbon electricity generation in the UK? If so, please explain why.	Not necessarily as this will only enable investors to consider one element of the investment model. Investors will still need to understand costs and market revenues in order to understand their overall level of returns.
3A3	How much certainty would investors attribute to a carbon price support mechanism if it were delivered through the tax system?	Clarity and transparency are required in respect of policy and the mechanism to implement that policy. If the policy is not credible then investors will doubt its longevity. There is no direct historic precedent elsewhere for this type of carbon price support. There is a lack of EU wide take up of policy at moment resulting in concerns

		around the impact on industrial competitiveness without any hypothecation of revenues to deal with this. Likewise, the joint stated policy objective of increasing the tax take from environmental taxes may not help. Grant Thornton suggests that consideration is given to an body independent from Government at least recommending carbon prices. Timing should also be considered in this context. This policy is being driven by Budget timetable in advance of other electricity market reforms and yet carbon price support is seen as part of a package of measures. The policy may also have an unexpected impact on small scale electricity generators not within the EU emissions trading system.
3A4	In addition to carbon price support, is further reform of the electricity market necessary to decarbonise the power sector in the UK?	On its own the carbon price support appears to be an indirect and untargeted approach to incentivising low carbon investment. Therefore it is not as cost effective as more direct targeting via feed in tariffs and enhanced capital allowances and not having the undesirable impact on electricity prices. Clearly the two working in tandem will provide the carrot and stick and this is the most likely option to provide the enhanced benefit.
	Administration	
4B1	What changes would you need to make to your procedures and accounting systems to ensure you correctly account for CCL on supplies to electricity generators?	n/a
4B2	How long would you need to make the necessary changes to your systems to account for CCL on supplies to electricity generators?	n/a
4B3	Please provide an estimate of how	n/a

	much the system changes would cost, both one-off and continuing?	
	Types of generator	
4C1	Do you agree that all types of electricity generators should be treated equally under the proposed changes? If not, please explain why.	All types of generators should be treated equally but those generators sited near the borders of the UK may require some form of additional support, eg taper relief, in the event that the import market for electricity makes their generating facility redundant. This is because as we understand it the carbon price support mechanism is not a pan-european instrument at this time.
4C2	Is there a case for providing additional or more preferential treatment for CHP? If so, what is the best way of achieving this?	Again, it may be more effective to give more direct tax relief for combined heat and power (CHP), in particular enhanced capital allowances or feed in tariffs, as opposed to relief from the carbon price support rates.
4C3	Do you agree that tax relief should be considered for power stations with CCS? If so, what are the practical issues in designing a relief; what operational standards should a CCS plant meet in order to be eligible; and how might these issues differ for demonstration projects?	Again, it may be more effective to give more direct tax relief for carbon capture and storage (CCS), in particular enhanced capital allowances or feed in tariffs, as opposed to relief from the carbon price support rates.
	Imports and Exports	
4D1	What impact would the Government's proposals have on electricity generators and suppliers that export or import electricity?	Consideration should be given to generators situated on the borders of the UK as there may be certain instances in which they may become redundant as a result of variations between the price of power in their market and the price in the neighbouring geographical region.
4D2	What impact might the proposals have on trading arrangements for electricity?	No comment
4D3	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	
4E1	How should the carbon price support rates be set in order to increase certainty for investors, in particular over the medium and long term?	Carbon price support rates are the mechanism by which the net of tax carbon price is adjusted to reach the desired carbon price trajectory. Hence it may be better to confirm the price trajectory and agree a mechanism by which carbon price support rates will adjust to achieve the price. There is a question mark concerning whether the carbon price support rates are set in advance based on projected underlying carbon prices or in arrears based on actual prices.
4E2	Which mechanism, or alternative approach, would you most support and why?	Investors have started to derive comfort with the feed in tariff regime and therefore a regime similar to this should be investigated. Investors will also be seeking to ensure that retrospective decisions (such as those taken in Spain) cannot happen in the UK and therefore some form of grandfathering will be required.
4E3	What impact would the proposals have on you carbon trading arrangements?	No comment
	Future price of Carbon	
4F1	Should the Government target a certain carbon price a) for 2020 and b) for 2030? If so, at what level?	Please see our response to 3A1
4F2	What is the most appropriate carbon price for the UK to meet its emissions reduction targets in the power generation sector? How would this be affected by changes in the structure of the electricity market?	No comment
4F3	When would be the most appropriate time for introducing a carbon price support mechanism and what would be the most appropriate level?	If the price change is introduced earlier then investment behaviour can be changed but it is likely that most of the impact will be on price and there will be windfall gains and losses which may impact the credibility and longevity of the policy.
	Electricity investment	

5B1	What impact would you expect the carbon price support mechanism to have on investment in low-carbon electricity generation?	This will depend on the price for carbon and the location of the generation plant. If the plant is placed too close to a border then there may be very little scope for new construction if it is cheaper to import electricity.
5B2	What other impacts would you expect carbon price support to have on investment decisions in the electricity market?	It will impact on the location of construction within the UK. In certain situations the larger generators may look at building generation capacity "offshore" to avoid what it may see as a tax.
5B3	How should carbon price support be structured to support investment in electricity generation whilst limiting impacts on the wholesale electricity price?	See response to 3A1
	Existing Low Carbon generators	
5C1	Can you provide an assessment of the impact of the proposals on your generation portfolio and overall profitability?	No comment
5C2	What would be the implications of supporting the carbon price for existing electricity generators and how should the Government take this into account?	No comment
	Electricity Price Impacts	
5D1	How do you currently manage fluctuations in the wholesale electricity price?	n/a
5D2	What difference will supporting the carbon price make to your business?	n/a
5D3	As an electricity generator or supplier, how much of the cost of the carbon price support would you pass on to consumers?	n/a
5D4	As a business, how much of the cost of energy bills do you pass on to customers?	N/a
5D5	How might your company or sector be affected and would be there any	Our sector would probably be affected by an increase in the costs of the power

	impact on your profit margins?	it uses which it would then be seeking to pass on to its customer base through higher charges.
5D6	Do you have any comments on the assessment of equality and other impacts in the evidence base of the Impact Assessment, included at Annex D?	It may be helpful to have more upfront clarity on the likely tax revenue generated from this policy to help put the proposals in perspective and in particular as one of the stated policy objectives is to raise the environmental tax take.

Chris Greer, Green Energy

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

CHP is a mature, scalable technology which produces two finite outputs from one input. The technology can run on biogas or (as is more common in the shift to low carbon generation) natural gas. As well as producing low carbon electricity, the technology can be used in district heating systems often to provide cheap low carbon heat to those who would most typically be in fuel poverty (please follow this link to an example of a CHP district heating scheme in Aberdeen http://www.greenenergy.uk.com/Videos/Default.aspx?VideoKey=CombinedHeatAndPowerInHousing).

Green Energy UK supports the introduction of the Climate Change Levy (CCL) Carbon Price Support Rates and we feel that the principle of 'the polluter pays' is sound. We feel though that CHP should receive additional support in recognition of the double output it produces, and to ensure that the electricity prices from the technology remain competitive. It seems to us that an extremely simple and effective means for this would be to raise the cost of CCL. This would in turn raise the price of a Levy Exemption Certificate (LEC) and ensure that CHP stations remain financially viable.

CCL is a tax on business especially energy intensive business and therefore it seems right that they pay extra to support low carbon input technologies like CHP. This method seems particularly effective as it would achieve the desired result without risking forcing more households into fuel poverty. With the news in October 2010 that the number of households living in fuel poverty has risen to 4.5 million, a rise of over 11% from 2009 levels, this would seem a logical course of action.

I appreciate that the job of switching to a low carbon economy whilst not further disadvantaging the fuel poor is an incredibly difficult task. The above proposal I believe is fair and demonstrates joined up thinking on both fronts. A detrimental effect on company finances is a proven way to encourage large corporations to pay attention to the environmental impact of their activities. However if companies are unwilling to pay a more robust price for their carbon usage there are legitimate methods for offsetting or negating the price of CCL.

The most obvious case is cutting down on consumption and avoiding waste. If CCL raises a company's annual bill by 10% they can seek to cut their consumption by 10% in order to counteract the charge; a fiscal route is an established method to influence companies towards this. Companies could also join a carbon trading scheme. Any companies that need persuading to join either UK ETS or EU ETS may react to an increase in CCL. This can only be advantageous to the schemes and create more accurate records of companies' carbon consumption and increase awareness within the business as to exactly how much carbon is being emitted. Thirdly businesses could switch to a green tariff which CCL is not levied on. This has the advantage of reducing the amount of brown electricity in the national grid, and an increase in demand will ultimately lead to increased investment into renewable and low carbon technologies.

We are aware that this document has strong links to the microgeneration strategy and the electricity market reform consultations released recently by The Department of Energy and Climate Change (DECC), and we are pleased to see that the government is seeking to influence the low carbon supply of energy. As a 100% green electricity supplier we are attempting to influence the demand side of the equation and we feel strongly that making clearer what constitutes a 'green' technology would aid this immeasurably. Currently gas fired CHP is declared as natural gas on a suppliers Ofgem fuel mix disclosure. By classifying CHP in its own right the government would show a commitment to supporting the technology and there would be a related increase in consumer confidence. DECC already have the necessary figures recorded in its DUKES publication and therefore to use these figures in a more useful context would require no further declaration from suppliers or generators.

What we have proposed above we believe has many advantages:

- It would work within existing systems and therefore there is no need for quangos, steering groups or extra consultation time.
- At this time of austerity, whilst a spending review is in progress it seems sensible to merely update current legislation.
- Government could act quickly and efficiently to raise CCL. The scheme would require no ongoing administration team as CCL is collected by HMRC directly from electricity suppliers.
- This scheme would not impact whatsoever on domestic customers.
- It would also not affect the wholesale or retail price of electricity.
- Market competition could be left to work.

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

cc. Rt Hon Chris Huhne MP, Secretary of State for Energy and Climate Change

7 February 2011

Dear Minister

We are writing to express our concern that your current proposal for a carbon floor price (CFP) is unlikely to change behaviour or stimulate investment effectively. We fear it could discredit environmental taxation if it creates a weak price signal, does nothing to help consumers tackle rising energy prices and creates windfall profits for existing nuclear generators.

We support the principle of a rising economy-wide carbon price, but in its current form we cannot support the proposed carbon floor price. We believe that it could only work in the context of a wider package of measures to establish a credible strategy for decarbonisation, and that a carbon floor price would have to adhere to the principles set out by the Green Fiscal Commission.

For a carbon floor price to be effective it would have to be accompanied by the following policies:

- **An Emissions Performance Standard for new power stations set at a level that ensures new and existing gas stations would require CCS in the 2020s.** Relying on the CFP alone could result in a second dash for gas, which would jeopardise progress towards the power sector decarbonisation target recommended by the Committee on Climate Change if this new generation was unabated by CCS.
- **A clear legal cap on UK carbon emissions for the 2020s, in line with the recommendations of the Committee on Climate Change for the 4th UK carbon budget.** The Electricity Market Reform package should then be finalised to meet this objective.

In addition, we believe that a European agreement to reduce the EU ETS Phase 3 cap on carbon emissions from 20% to a minimum of a 30% reduction from 1990 levels with no offsetting is absolutely key to ensure more ambitious decarbonisation objectives across the rest of the EU. This would also help bring the EUA price more in line with the trajectory required to reach UK Climate Change Act targets. We would therefore encourage the UK government to step up its efforts to advocate for a 30% target in upcoming EU budget negotiations.

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The Green Fiscal Commission identified environmental effectiveness and the transparent use of revenues as critical to the successful design and implementation of green fiscal instruments. For a CFP to be effective and fair we therefore believe its design should include the following features:

- **The trajectory to higher, environmentally-effective price levels should be made convincing in this parliament, not delayed to the future.** We believe the CFP should result in carbon prices that follow a linear path from 2013 to £40/tCO_2 in 2020 and a minimum of £70/tCO_2 in 2030 (broadly Scenario 3 in the consultation paper).
- **A significant proportion of the revenues are used to help consumers reduce their overall energy consumption and neutralise the price impact of a CFP.** The carbon price would feed through into higher energy prices for domestic and business consumers. Revenues of up to £4.5bn could be generated by 2015/16 (from the sum of EUA auctions and the CFP) rising to £8bn by 2020. Government should aim to neutralise the price impact by boosting public support for energy efficiency measures for households and business. This could be done by providing further capitalisation of the Green Investment Bank and enabling it to provide low cost capital to reduce the interest charged on energy efficiency loans.
- **The Office for Budget Responsibility should be able to monitor the use of all of the revenue from the CFP and EU Emissions Trading Scheme auctions.** As the revenues are significant, they could also contribute to other government objectives such as an increase in income tax thresholds. However, any tax shift needs to be transparent to gain public support and avoid the CFP being seen as another 'stealth tax'.
- **To avoid undermining the integrity of the CFP, windfall profits for existing nuclear power generation have to be avoided in the design of the mechanism.** The current suite of incumbent low carbon electricity providers (i.e. renewables, CHP and nuclear) all appear to be affected differently by the CFP. The design has to ensure no super profits for existing nuclear generators and no disadvantage for CHP providers. This could be done using windfall taxes and exemptions.

We would encourage you to review your carbon floor price proposal to incorporate these features, and seek your support for the wider package of decarbonisation measures needed to make it work. We are copying the Secretary of State for Energy and Climate Change on this letter given his responsibility for some of these matters.

[redacted]

[redacted]

Martin Shaw
Environmental Taxes HM Revenue and Customs
3rd Floor West,
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Salford,
M60 9LA

Hargreaves
Services plc

10th February 2011

Dear Mr. Shaw,

Re: Carbon Price Floor: Support and Certainty for Low – Carbon Investment /Consultation

Hargreaves Service plc employs, largely through its subsidiaries, about 2500 people, mainly in areas of high unemployment. The group trades coal from around the world and operates across Europe. It manages many aspects of coal-fired power station operations. Hargreaves has the UK's largest bulk transport fleet. It owns several production units, including Maltby Colliery and Monckton Coke Works in South Yorkshire; and the Maxibrite Coal Briquette plant in South Wales.

Hargreaves belongs to the Confederation of UK Coal Producers (Coalpro). It has a copy of Coalpro's confidential response to your consultation and, where those observations cover activities undertaken by or that affect Hargreaves, supports Coalpro's submissions. Those submissions are therefore not repeated here. Hargreaves notes that the specific questions in HM Treasury's document relate predominantly to the impact of the proposals under consideration on the electricity market and on the generation of low-carbon electricity. The document is largely silent on the impact the proposals might have on United Kingdom coal production.

Maltby Colliery, near Rotherham, employs around 500 people directly in an area of high unemployment. It produces almost a million tonnes per annum of high-quality coking coal and power station fuel. The coking coal is used by Monckton Cokeworks, in Barnsley. This employs a further 135 people. Most of Monckton's output is exported.

Hargreaves has made an application for planning permission to Rotherham Council to extend tipping facilities to extend the mine life until 2028. Investment decisions at Maltby are being based on the assumption that the mine will continue to produce until that date. Any increase in the relative cost of coal to the generators is likely to increase the chances of Maltby closing prematurely, i.e. before its exhaustion.

In addition to the activities already mentioned, Hargreaves has also been involved in and expects to continue to undertake a number of land reclamation schemes that involve the recovery of coal slurries from land used historically for tipping mine waste.

Placing what is effectively a substantial tax on coal will inevitably reduce the demand for this product for electricity generation. Whilst Hargreaves understands the Government's long-term aims, it asks that the Government considers specifically the potential impact on investment in deep mines. Without the certainty of an electricity generation market in the longer term, it may be difficult for Hargreaves to make decisions to invest in Maltby for the shorter team.

Hargreaves asks that an exception to any levy be made in the case of coal slurries.

Power station coal is generally of the order of 23.5 – 25GJ/tonne. Coal slurry, which is material with a mixture of coal fines and non-coal material that was abandoned historically because recovery techniques are not as good as they are now, has a calorific value ranging from around 8GJ/tonne to 15GJ/tonne. Coal slurry is often found in old tips and derelict land. Today it can be recovered and mixed with a higher quality product and burned in power stations.

Coal slurries usually have a high ash content, handling difficulties and relatively high moisture content. Because of this, generators pay significantly less (often less than half) as much per GJ as they do for "clean" coal.

Applying a tax on the heat content of slurry at the same rate as on coal would mean slurry was put at a serious competitive disadvantage against run-of-mine material. For example, were slurries to be selling at £1/GJ and for run-of-mine coal to be selling at £2.50/GJ the imposition of a tax at £1 per GJ on both products would, in essence, double the cost of burning slurries, but increase the cost of burning run-of-mine coal by only 40%. This point is important in environmental terms.

If slurries are rendered uneconomic by the application of a charge which hits them disproportionately, two things will happen.

First, reclamation of a number of former coal tips that might be funded by the sale of slurries from them would cease (leaving land in its derelict state). Secondly, a useful national resource would be left unexploited.

Whilst the volume of carbon produced per gigajoule from burning slurry might be the same as the volume from burning run-of-mine coal, Hargreaves believes that the environmental disadvantages of rendering the use of slurry uneconomic outweigh any advantages of taxing the burning of that product.

I hope that the foregoing is clear. I should be happy to discuss any aspect of this with you. If you would like further information, therefore please get in touch.

14 February 2011

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Dear Mr Shaw

Re: Consultation on Carbon price floor

Introduction to Helius Energy

Helius Energy Plc (Helius) was established to install and operate biomass fired renewable energy plants to address the increasing importance that has been given to climate change. Helius' projects mitigate climate change by cutting greenhouse gas emissions using sustainable biomass fuel.

Our strategy is to identify, develop, own and operate biomass projects. The Helius team has extensive knowledge of the UK renewable energy market, biomass energy technologies and their related economics. We use this knowledge to identify sites that offer attractive returns, readily available feedstocks, good transportation logistics and related infrastructure.

During September 2008, Helius sold its Stallingborough 65MWe Net Capacity project, as planned and in August 2009 a joint venture, Helius CoRDe Ltd, was formed with the Combination of Rothes Distillers, to develop a 7.2MWe CHP project.

In March 2010 Helius Energy received consent under Section 36 of The Electricity Act 1989 for the construction of a 100MWe biomass power plant at Avonmouth, and the company is currently involved in public consultations prior to submitting a formal planning application for a further 100MWe biomass power plant in the Port of Southampton. We are also engaged with a number of parties with respect to similar sites for plants elsewhere in the UK.

With respect to this consultation, Helius Energy has answered those questions where it feels qualified to give a response. These answers are presented in the requested format on the following pages.

Also, thank you for agreeing to accept this response today.

Yours sincerely

[redacted]

For and on behalf of Helius Energy plc

Response to the Consultation on Carbon price floor: support and certainty for low-carbon investment

3.A: QUESTIONS ON 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?

We would expect carbon prices to be higher in 2020 and 2030 than now, largely due to the reduced allocation of carbon credits for industrial emitters and fossil fuel generators. However, the value of carbon is also driven by legislative targets and penalties for non conformance, and without a clear understanding of the scope of national and European policy on this market, it is difficult to make long term predictions about the value.

Low carbon generation, as a consequence of not having a penalty for its emissions, will see no direct additional value from a higher carbon price, other than any underling effects that such a carbon price may have on the value of electricity.

As proposed, this carbon floor price is a less even policy measure than a true carbon tax as it only effects selected businesses, and then only on a penalty basis, rather than rewarding low carbon generation.

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.

Greater certainty in the price of carbon would not increase investment in low-carbon electricity *per se*. If policy acted to increase certainty of the UK carbon price, and in turn limited potential increases in respect to the EU ETS, it could create a disincentive.

However, a clear policy which says that carbon will be taxed at a rate which reflects the level of GHG emissions associated with its use will provide investors with a greater level of certainty about the relative business cases for investment in different forms of power generation, which will favour investment in low-carbon generation.

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

See our answer to 3.A2 above.

Little additional certainty will be attributed, if any.

Recent policy experience has been an evolutionary process with UK policies such NOFFO, RO, FIT,RHI, EU ETS Phases 1,2 and 3 etc all with good intentions but the dynamic has so far not worked as well as had been hoped. Other EU countries have examples of similar changing environments so it is a common problem. The ever changing policies and measures has caused investment hesitation, particularly as each emerging policy promises better and more stable investment conditions. Delivery through the tax system is unlikely to provide any particular differentiation.

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

Helius Energy welcomes the Government's consultation on reform of the electricity market and will respond to DECC's consultation separately. It is important that any reforms to the market, or the price of carbon, do not act as a disincentive (even temporarily) to investment in low-carbon electricity generation projects, particularly given the country's renewable energy and GHG targets for 2020 and 2050.

BOX 4.B: QUESTIONS ON 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?

As a consequence of requirements to track Green House Gases as a renewable energy generator, the administration effects on Helius Energy are likely to be minimal provided there is commonality across methodologies and procedures adopted. It is worth pointing out that renewable energy is required to account for its full life cycle GHG emissions including fuel collection, transportation and other fossil derived emissions in the supply chain. It is essential that like for like systems are in place, including fossil fuels carbon accounting taking account of all supply chain emissions so there are co-incidental systems.

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

This would depend on the final details of the scheme and the complexity involved, otherwise see answer to 4. B1.

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

There is currently insufficient information available to allow us to accurately estimate this.

BOX 4.C: QUESTIONS ON 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 broadly agree that all types of non-renewable electricity generators should be treated equally under the proposed changes. However, we would query the assertion in para. 4.26 that electricity generation from combined heat and power (CHP) is more efficient than comparative electricity only plant. This is not true, while the overall capture of energy from chemical to thermal is higher in thermal only or CHP systems, the actual electricity output will be lower as a percentage. Consideration has to be given to the purposefully rejected heat 'i.e. low quality heat' in high efficiency electricity generation stations.

While we understand the desire for simplicity, in the case of CHP plants the proposed carbon price support appears to also be acting on heat generation, something which does not appear to be proposed for other forms of wholesale and industrial heat use. Also see answer to 4.C2

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 the system of CCL recognises operational efficiencies then the CCL applied should relate to the particular generation unit and emissions levels, part for electricity emissions and part for heat emissions. This way the efficiency is built into the mechanism and CCL applied would be fair. Also see answer to 4.C1

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?

For a limited number of demonstration systems, yes, in a similar way to R&D reliefs. However, more wide reaching reliefs require more evidence before they are considered.

Do we really know the life cycle costs in terms of emissions and money for CCS? This should be considered in a similar way to the nuclear industry where wastes have to be managed in perpetuity, before special tax breaks are proposed. If a parallel can be drawn, the state would fund the creation of the CCS system through tax reliefs and, no doubt, at some point in the future pick up the legacy costs once the commercial operators are unable to fund the maintenance requirements, which may be unnacceptable.

BOX 4.D: QUESTIONS ON IMPORTS AND EXPORTS

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

We don't propose to answer this question.

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

We don't propose to answer this question.

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 don't propose to answer this question.

BOX 4.E: QUESTIONS ON 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?

Setting a planned target for carbon price by time, and then setting a target carbon price support level (to be confirmed in the annual Budget or appropriate Energy Bill as appropriate) would give the greatest certainty to investors and the market. However, as set out in our answer to 3.A2, should the price of carbon under the EU ETS undergo an unforeseen rise above expected levels, further adjustments to this target carbon price support level would be required.

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

The use of annually adjusted CCL rates and fuel duty rebates has the potential to be both complicated and expensive to administer. A rate escalator approach would provide certainty of price over the length of a parliament, but would not provide the ability to plan longer, and could also result in rapid changes to the price associated with changes in administration.

Rates set annually, based on a suitable carbon market index and backed with appropriate legislation to ensure their implementation, would appear to be the simplest and most reliable mechanism.

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

As a renewable energy generator, we would expect the proposals would be neutral to positive for Helius Energy.

BOX 4.F: QUESTIONS ON THE 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, but setting the carbon price at any level, as far as renewable energy is concerned, serves to influence the underlying cost of electricity generated, so higher targets will mean higher cost of electricity. From a purely commercial perspective this will help the renewable energy business case but not necessarily the government's policy towards managing the prices for consumers.

We believe that such a target price for carbon would provide the greatest level of market certainty, but could also risk market distortion in the short term.

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 don't propose to answer this 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 would envisage that introduction of a carbon price support mechanism alongside the implementation of Electricity Market Reforms would be most appropriate.

BOX 5.B: QUESTIONS ON ELECTRICITY INVESTMENT

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

We would expect the proposals to benefit low carbon generation as they will increase the generation costs of fossil-fuelled power compared with that from low-carbon sources. However, we query the assertion in paragraph 5.18 that 'existing low-carbon plants (renewable and nuclear) would be likely to benefit from an increase in profits. This is dependent on fossil fuel generation from gas and coal continuing to set wholesale electricity prices and prices for low-carbon fuels (e.g. nuclear and biomass) remaining low in comparison to fossil fuels. Whatever the situation, this is a transitional effect and symptomatic of the switch from the current base of generation to that of the desired future.

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

There is a danger that increased investment in some forms of renewable energy (e.g. wind power) as opposed to fossil-fuelled generation could increase the percentage of peak load variable power supply compared to base load capacity. Suitable investment in biomass and nuclear power, as well as grid improvements will be required to compensate for such effects.

It may also be worth considering the retention of some fossil generation as peaking plant to support the grid in transition.

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

There is no avoiding the fact that renewable energy will cost more. The CCL as proposed along with other renewable energy support mechanisms are allowing differential revenues in favour of the new technologies. One way to soften the burden on consumers would be to use a mechanism similar to the Renewables Obligation Certificates where the failure to comply taxation (the buyout) is recycled to those who performed well. Such a step would reduce the impact on consumers by recuing the impact of renewable energy costs in the mix. The loser here would be the treasury with reduced revenues versus those perhaps projected. Otherwise, any additional price burden (tax) levied on energy generation is likely to be passed on at the wholesale level in full.

However, if the wholesale price of electricity is not impacted, then the inventive to invest in low carbon generation will be reduced. Therefore, while we recognise that the government is keen to keep energy bills low for consumers, we feel that the price of decarbonising the UK's energy mix must be recognised and that, where necessary, alternative action is taken to address consumer's ability to pay and fuel poverty.

BOX 5.C: QUESTIONS ON EXISTING LOW-CARBON GENERATORS

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

As a low carbon generator, the impact of these proposals on Helius Energy's overall profitability depends on the effects of a carbon price support on the price of electricity. If electricity supply and demand remains the main factor in valuing power, then the effect of these proposals is likely to be minimal. However, if the carbon price support raises the base price of electricity then low carbon generation, which is not directly supported by these proposals, will become more viable, and therefore more attractive to investors.

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?

Supporting the carbon price will be passed directly along to the price of electricity but not as increased margin to fossil generators so no differential should be considered.

BOX 5.D: QUESTIONS ON ELECTRICITY PRICE IMPACTS

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

We don't propose to answer this question.

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

See our answer to 5.C1 above.

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

As a renewable energy generator, this question is not relevant to Helius Energy.

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

This question is not relevant to Helius Energy.

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

As a renewable energy generator, we would expect the proposals would be neutral to positive for Helius Energy.

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 don't propose to answer this question.

Mr. Martin Shaw
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10th February 2011.

Dear Mr. Shaw,

Please find below our response to the consultation paper on Carbon floor price. We apologise that we are a few days late in submitting and hope you will overlook this fact. The late submission is due to illness.

In answer to the questions in number order:

Box 3.A: Questions on 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?

Answer:

Unless there is state intervention, low carbon prices will continue as heavy combustion industry moves out of the EU and these products are imported vis. cement, glass, steel, aluminium etc. I know from my German colleagues (the major manufacturing country in Europe) that moving manufacturing out of EU Europe to avoid rising carbon costs is an objective.

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.

Answer:

Yes.

Certainty a high with low volatility carbon price to say 2050 makes for precise quantification of the carbon cost in financial models and the sensitivity analysis for investment.

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

Answer:

The problem with using the tax system is the UK has a bad history of major retrospective tax changes so the tax system in the UK cannot be trusted to deliver long term certainty. The tax system introduces a high level of regulatory uncertainty.

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

Answer:

1. Cost and time delays of grid connection are a major inhibition to low carbon power generation.
2. Planning is also a major problem particularly from the midlands southwards.

No Government seems to be able to resolve these two major hurdles to entry particularly for smaller generating schemes of which renewables are mostly small and decentralized.

Box 4.C: Questions on 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.

Answer:

Yes provided generators using renewable fuels (ROCs accredited) are exempt from carbon cost and CCL but can claim LECs. See below comments on carbon cost.

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?

Answer:

CHPQA should be encouraged. The proposals would eliminate all new CHP plants and I can think of several that would be scrapped in favour of direct power import from the grid (lower cost).

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?

Answer:

Yes but CCS on an industrial scale is a long way off and there is reasonable evidence that CCS will never be technically feasible and cost effective on a large scale.

Box 4.D: Questions on imports and exports:

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

Answer:

This is the major problem with the carbon cost (EU ETS) proposals. How to ring fence the UK within an EU traded commodity to prevent arbitrage, e.g on imported power generated at a lower carbon cost. How to different French nuclear power imported through the interconector versus Dutch gas fired power? Get this wrong and a lot of people will make a lot of money.

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

Answer:

See 4.D.1 above

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 knowledge other than if Eire does not adopt the floor carbon price the arbitrage possibilities are enormous.

Box 4.E: Questions on 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?

Answer:

I find the proposals imprecise on this subject because: is it the intention of HMG to drop out of the EU ETS so the UK will have its own carbon cost or does the new proposals envisage the UK remaining within the EU ETS but the UK unilaterally having a carbon floor price?
I think the intention is to remain in EU ETS with a carbon floor price for power generation only in the UK?

If the UK remains within EU ETS how do you prevent cheaper carbon allowances from the continent being bought by UK power generators?
There is no central register of EU ETS allowances so the opportunities for this arbitrage are obvious?

If the UK leaves the EU ETS and sets up its own carbon system which seems to be the only workable system then why have a floor price just have a rising fixed price for carbon so there is complete certainty of future carbon costs (see Para. 4.44). Allowances could be traded or not? This system would allow HMG to remove the 20 MWt threshold for EU ETS and integrate CRC into the whole carbon system i.e. CRC would become the methodology for the whole carbon cost system in the UK. As a low carbon mechanism CRC is far superior to EU ETS.

HOWEVER ALL IMPORTS OF ALL PROCESSED AND MANUFACTURED GOODS WOUD HAVE TO HAVE A CARBON TARIFF ON LANDING WHICH WOULD INCLUDE AN ESTIMATE OF TRANSPORT CARBON COSTS. Without this tariff all manufacturing and processing (even of locally grown food) would be done outside the UK and imported.

The above comment applies even if the concept behind the proposals is the UK remains within EU ETS but power generators are subject to another carbon tax i.e a high EU ETS floor price which would not apply to other EU ETS member countries.

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

Answer:

Leave EU ETS and adopt CRC or a variation of CRC for UK as the sole carbon cost system, with carbon import tariff. I appreciate an embedded carbon tariff on imports even form other EU member countries may have WTO implications but this must be faced down or the outflow of employment from the UK would be devastating for the UK economy as the carbon cost in the UK moved ever further above the EU ETS carbon cost.

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

Answer:

Arbitrage opportunities within EU ETS are enormous and I submit almost impossible to control.

Box 4.F: Questions on the 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?

Answer:

A. If UK remains within EU ETS and the proposal for a new carbon tax for UK fossil fuel generators only then the carbon cost of the new tax must not drive UK power prices up to the point where all manufacturing and processing goes to France and the low countries to benefit from substantially lower power prices. Extra transport costs are more than offset by lower power costs. OR

B. UK leaves EU ETS and adopts an universal CRC system and taxes imports on the embedded carbon content, then carbon cost will be as high as domestic power consumers can bare during the transisien stage to a low carbon economy which will be markedly accelerated by high carbon costs.

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?

Answer:

See 4.F.1 above.

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

Answer:

If a universal CRC was adopted outside EU ETS then say April or December 2012 (before EU ETS Phase III starts). Existing mechanism vis. CRC exists so legislatively straight forward?

See above answers for appropriate level.

Box 5.B: Questions on electricity investment:

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

Answer:

Subject to the level of carbon price translated into the power price (high level) it will encourage new nuclear generation.
On the same assumption and provided ROCs (or the new FITS) remain at or above the same level it will be a big boost to new renewables generation. If ROCs (or FITS) are reduced more or less in line with the rise in the carbon price driven power price it will have no effect or have a negative effect on new renewable investment.

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

No Answer:

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

Answer:

The whole purpose of a high carbon price is to drive up wholesale electricity prices to encourage new nuclear and renewable generation?
100% of the carbon cost will be passed on to the power consumers.

Please note: the DECC projections for EU ETS carbon prices in the proposal are wildly inaccurate – far too high by 2030.

Box 5.D: Questions on electricity price impacts:

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

Answer:

We take the price offered.

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

Answer:

We are renewable generators so as the carbon price drives up power prices our

profitability improves, PROVIDED RENEWABLES REMAIN EU ETS ALLOWANCE EXEMPT AND THIS IS NOT CLEAR IN THE EU ETS PHASE III DIRECTIVE.

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

Answer:

100%. Otherwise the price mechanism does not work? In which case the whole high carbon cost scheme does not work (achieve its objective)?

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

Answer:

100%

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

Answer:

Higher power prices driven by higher carbon costs will significantly improve our profitability.

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?

NO.

OTHER COMMENTS:

Please note and this is very important: if the UK remains in EU ETS we will have two divergent methods of measuring carbon emissions – it is exactly the same carbon elements (in various compounds) but measured entirely differently under EU ETS and CRC see "2010 Guidleines to Defra/DECC's GHG Conversion Factors for Company Reporting: Methodology Paper for Emission Factors" October 2010.

It makes no sense whatsoever to have two measurement systems for the same carbon in the UK. The UK should adopt the Defra/DECC Guidelines for both CRC and EU ETS. This should be done in the interests

of "joined up Government", simplicity and consistency and to avoid arbitrages between the two measurement systems of measuring the same commodity.

Yours sincerely,

[redacted]

11 February, 2011

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

environmentaltaxes.consultation@hmrc.gsi.gov.uk

Low Carbon Finance Group

[redacted]

RESPONSE OF THE LOW CARBON FINANCE GROUP TO HMT TREASURY CARBON PRICE FLOOR CONSULTAION

The Low Carbon Finance Group (LCFG) is an informal grouping of financial institutions and investors from across the finance sector with considerable experience and a shared interest in renewable energy and energy efficiency market growth, although also investing across the energy spectrum. Its members include commercial and investment banks, investment advisory firms and private equity, venture capital and infrastructure funds. The investment professionals of LCFG members have financed £ billions of low carbon projects around the world.

This paper sets out LCFG's views on HM Treasury's Carbon Price Floor consultation. The LCFG has an interest in this consultation as it forms a part of the Electricity Market Reform package, which if implemented should have a significant positive impact on the investment environment for UK low-carbon energy.

General Comments

The LFCG broadly supports the proposals outlined in the Carbon Price Floor consultation. We believe that a strong carbon price signal, when combined with a package of reforms from the Energy Market Reform Consultation being run by DECC, would be effective in spurring the investment needed to achieve the UK's low carbon and renewable energy targets.

Low-carbon energy financiers currently do not consider the EU ETS as a major factor in making investment decisions. This is because the EU ETS's carbon price signal has proven to be relatively weak and volatile to date and, looking forward, significant uncertainties remain over the outcome of international climate negotiations, further increasing pricing uncertainty.

As a result of this weak carbon pricing signal, there is currently not a level playing field between incumbent fossil fuel plants, which are not being charged the true costs of generating electricity, and newer low-carbon energy technologies (both on the supply and demand sides). A robust carbon floor price would create a more level playing field, advantaging low-carbon energy generation sources compared to current arrangements. In addition, a strong carbon price floor would increase revenue stability for low carbon projects, encouraging more capital to flow to low-carbon investments.

However it is important to emphasise that even with a stronger and more certain carbon price, renewable energy technologies will still require technology-specific support mechanisms – as reflected in the banding within the Renewables Obligation and DECC's proposed system of Contracts-for-Difference / Feed-in tariffs (LCFG will be providing written views to the EMR consultation) as well as a supportive broader energy policy environment (planning and grid) etc. In other words a strong, certain carbon price is an important component in the set of policies needed to enhance investment into low-carbon energy but is not in itself a silver bullet.

We wish to point out one item omitted from the consultation – the grandfathering of the current Climate Change Levy Certificates which form a key part of the revenue stream of existing generators under the Renewables Oblgation. The Consultation does not specifically cover the impact of the changes, to be instituted through modifying the climate change levy, to the levy exemption certificate (LEC) income stream currently enjoyed by UK renewable energy projects operating under the Renewable Obligation.

In the main, UK renewable energy generators are receiving levy exemption certificates (£2.4 per MW hour index linked to RPI) which are sold to the principal utilities. We understand from

discussions with Treasury that this system will be grandfathered. We would appreciate detailed confirmation that the existing system will be grandfathered. We view this as critically important because most of the renewable energy projects financed in the UK since the advent of the RO have been project financed under long term contracts in which the LEC revenue stream is a part of the banking security package. A termination or change of that arrangement could be viewed by the lending banks as an event of default and could lead to terminations or defaults under the loan agreements, which should be avoided.

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?

Absent the proposed intervention by HMT and / or changes to the European ETS, we would expect carbon prices to be in the range of €15-€25 per tonne in 2020 to 2030. At present, carbon costs are not a material factor in our investment decisions because they are (a) currently low and (b) they are currently partially reflected in electricity prices via the ETS. Firmer long term price signals on carbon would increase this importance in investment decisions.

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

Greater long term certainty and visibility over carbon price should increase investment in UK low carbon electricity generation. As HMT knows, the current price of electricity does not provide sufficient price signals for new low carbon generation investment, favouring gas generation investment. Carbon price stability should increase the cost of conventional generation (and provide the stronger pricing signals to underpin investment in newer generation technologies). Please note that, in line with the EMR Consultation, a carbon floor price alone is uikely to drive the necessary low carbon generation investment but will need to be done in conjunction with other support schemes described in the EMR Consultation.

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

In the short term, supporting the carbon price through the tax system should provide a reasonable degree of certainty because of the need of the government to secure additional tax revenues under current budget deficit circumstances, which we would expect to continue for several years. In the long term, however, the tax system is subject to change and it could be viewed as less stable. Generally, we believe that the stability of the system would be less than that being considered in the EMR for additional low carbon support.

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

See response to question 3.A2. Yes, additional energy market reform is critical to delivering low carbon generation investment in Britain. The carbon floor price

mechanism, in combination with a package from the EMR Consultation, can help to provide the complete regulatory support required.

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?

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

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

We represent financial investors and therefore have no comments under technical administration questions.

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. This should be done in a way that does not undermine the development of CHP.

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

4.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?

Imports and exports

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

Currently, we would not expect these proposals to have a material impact on importers and exporters of electricity, pending further analysis. However, there are underway discussions about numerous additional transmission interconnections between the UK and the Continent. Further, there has been consultation at DECC as to whether offshore wind farms outside UK territorial waters but within the North Sea should be eligible for UK renewable energy support systems. Finally, several major utilities in Scandinavia, including Vatenfall, are seeking either additional connection to the UK or tradeable green certificates between the UK and Scandinavia. These factors, if combined, could lead to material imports of low carbon power into the UK. It is difficult to anticipate all the consequences of these interconnections on the electricity and carbon market pricing. A provision allowing for a re-evaluation of import and export restrictions may be warranted in the coming years as interconnections increase.

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

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

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?

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

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

The carbon price support should be set as clearly and for as long as possible. It should be fixed and at least a minimum level for the entire life of the low carbon investment. It should be fixed as of the date the project achieves "financial close" and enters construction as that is the date on which investment decisions are made and economic expectations set.

There is a legitimate question if, as HMT appears to favour, the carbon price rises gradually over time to reach its targets, whether investments made at the beginning of the price rise period should receive the same price as investments made at the end. For example, if the carbon price is set at £25 a tonne in 2020 and was planned to increase £2 per year to 2030, giving a 2030 price of £45 per tonne, would an investment that started construction in 2020 receive the benefit of £20 Carbon price for its life or benefit from the step up in each year, as transmitted through the wholesale electricity price.

Future price of carbon

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

Yes, the government should set a target carbon price, and the indicative trend of price levels in the consultation would provide a clear and important signal to the market.

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?

As above, levels that exert a strong, simple, and sustained higher cost on carbon are required. The proposed changes in the structure of the electricity market in the EMR Consultation do not change this amount unless the additional support for low carbon in the EMR review, namely capacity payments and contracts for differences are lower or higher. If at the end of that consultant those support mechanisms are lower than anticipated the carbon price would need to be correspondingly higher, and vice versa.

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

If the intent of this policy is to change investment decisions, the impact of the carbon floor price would need to be able to appear in business models at least two years ahead of project construction. This means avoiding a delay in the adoption of this instrument.

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 that a carbon floor price would have a material benefit to investment in low carbon generation. It would provide investors with greater certainty and visibility over both pricing and the long term intentions of government policy, which should spur additional investment.

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

We do not believe that there would be any other material impact from establishing a carbon floor price.

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

Existing low-carbon generators

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

It is too early to evaluate the impact of the carbon floor price on existing portfolios and profitability until we have more clarity as to the form of the Energy Market Review, as this is viewed as a critical package.

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?

Electricity price impacts

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

Most of the finance respondents within the Low Carbon Finance Group have invested under the renewables obligation (RO). In most of these circumstances, the wholesale price fluctuation is managed through long term balancing contracts with the principal utilities.

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

As the Low Carbon Finance Group seeks to deliver additional capital to the UK low carbon sector, we view carbon price supports as very favourable to our business, as outlined above.

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

Not applicable.

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

Not applicable.

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

Not applicable.

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?

One item not specifically covered in the Consultation is the impact of the changes, to be instituted through modifying the climate change levy, to the levy exemption certificate (LEC) income stream currently enjoyed by UK renewable energy projects operating under the renewable obligation. In the main, UK renewable energy generators are receiving levy exemption certificates (£2.4 per MW hour index linked to RPI) which are sold to the principal utilities. We understand from discussions with Treasury that this system will be grandfathered. We would appreciate detailed confirmation that the existing system will be grandfathered. We view this as critically important because most of the renewable energy projects financed in the UK since the advent of the renewables obligation have been project financed under long term contracts in which the LEC revenue stream is a part of the banking security package. A termination or change of that arrangement could be viewed by the lending banks as an event of default and could lead to terminations or defaults under the loan agreements, which should be avoided.

We welcome the opportunity to discuss any of the points raised above with HM Treasury.

This is submitted on behalf of the Low Carbon Finance Group, although this submission does not necessarily represent the view of any single financier or institution.

Written Response

to

Treasury

“Carbon Price Support” Consultation

Prepared by:

INEOS ChlorVinyls

February 2011

INEOS ChlorVinyls

INEOS ChlorVinyls is a manufacturer of chlorine and caustic soda. We operate in the UK, Norway, Germany and Sweden. The electrolytic processes we operate are very energy intensive and electricity is a key raw material representing approximately 60% of our manufacturing costs.

The cost of carbon – either through the EU ETS or as proposed here as Carbon Price Support - has a direct and significant impact upon our costs of production, as do all other energy taxes.

The products we produce are globally traded and we cannot pass on additional costs that are not faced by our competitors. As a result, badly implemented energy and environmental policies have the potential to severely impact the ongoing viability of our business within the UK.

Carbon Price Support

We welcome the opportunity to respond to the government's proposals on Carbon Price Support.

If the UK is to contribute fully and properly to reducing anthropogenic CO_2 emissions, government policy must achieve 2 goals:

- The UK must become a low carbon economy, in particular with respect to energy (electricity) production, and

- The UK must manufacture the energy intensive goods it requires within this low carbon economy.

We see clear evidence of a considered plan to achieving the first of these aspirations, with binding emission targets and a route map to a low carbon economy.

Unfortunately, there is no evidence that due regard has been given to the latter. There appears to be no consideration for the needs of energy intensive industry and no plan for helping industry manage the transition from a fossil fuel economy to a low carbon one. This is a dereliction of both economic and environmental policy. Without urgent action from UK government, we are faced with the progressive abandonment of the UK as a manufacturing centre for energy intensive goods and the export of our carbon emissions.

This is wrong. The UK should be seeking to export energy intensive goods into higher carbon economies, creating jobs and economic growth within the UK alongside delivering significant and real environmental benefits. This will not happen by chance. The political will that has driven the decarbonisation agenda needs to be applied to a manufacturing strategy that will allow the transition to a low carbon economy. This is not a request for subsidy but a recognition that the costs of carbon, either through EUETS or proposals for Carbon Price Support (and other energy tax measures) create a far from level playing field which must be addressed.

The impact of environmental policy on energy intensive industry within Europe is already creating an unacceptable burden. Whilst there is some support for the costs

faced as a result of direct CO_2 emissions, the impact of “indirect emissions” is much more significant for electro-intensive industry. Without adequate support for such costs, we face a difficult future within Europe. The government is now raising the prospect of an additional and unique UK-only cost through the Carbon Price Support.

The Carbon Price Support seeks to deliver additional certainty for low carbon investment. The reality is that unabated, it creates an equal but opposite certainty for investment in energy intensive industry and the prospect of its terminal decline. Our business faces key investment decisions in the coming years. It is clear that current UK energy policy will make the UK unattractive.

It is essential that government give proper support to policies that ensure energy intensive industry can survive in the transition to a low carbon economy. In the absence of such measures we cannot support this proposal.

CPS Consultation – Responses to 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?

We have no opinion on the expectations of carbon prices.

We do not believe the carbon price will be a significant factor in influencing investment in low carbon generation if the current proposals for a feed in tariff – contained in the electricity market reform proposals - are enacted. In these circumstances we believe the carbon price support proposal will largely act as a tax raising mechanism.

However, if the UK has a higher carbon price than Europe and the rest of the world, investment in energy intensive industry in the UK will be severely curtailed and may well cease.

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.

We believe the proposed feed in tariff provides all the certainty necessary, and that the proposals on carbon price support do not add to this in any way.

We do not believe the carbon price support proposals will aid investment in low carbon generation. We do however believe they will damage investment in Energy Intensive Industry.

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

See above.

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 do not believe carbon price support is necessary to decarbonise the UK power sector.

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.

No comment.

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?

While we are not supportive of this proposal, we are surprised that CHP has not been given preferential treatment. CHP has, for many years, been recognised as being important in delivering improved energy efficiency. However, targets for increased capacity have never been achieved and this proposal makes further investment look even less likely.

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

No comment.

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?

See answers under Investment above.

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

See answers under Investment above.

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?

No. The carbon price should be common throughout Europe, and left to the market to set.

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 it is appropriate to introduce a carbon price support mechanism.

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

As above.

Electricity investment

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

We believe the proposed feed in tariff provides all the certainty necessary, and that the proposals on carbon price support do not add to this in any way.

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 carbon price support be structured to support investment in electricity generation whilst limiting impacts on the wholesale electricity price?

Whilst the proposed feed in tariff would not impact the wholesale price, any increase in carbon price will impact wholesale electricity prices for as long as it is in place. For the foreseeable future, marginal generation in the UK will be gas (CCGT) or coal. Consequently carbon costs will be a minimum of 0.4te/MWh, even if the UK average CO_2 content in power is significantly below this. Thus a £1 cost of CO_2 through Carbon Price Support will increase wholesale power prices by a minimum £0.40/MWh.

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?

No comment

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?

As an Energy Intensive user subject to European and world competition, carbon price support will fully hit our profitability. We are not able to pass on additional costs that are solely UK based. Importantly, we believe that the impact of this proposal upon Energy Intensive Industry is seriously underestimated within the consultation. The serious

impact on the competitiveness of UK energy supply will result in investment in our industries rapidly falling away unless mitigating measures are introduced.

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

From our experience of the generation and supply markets it is inconceivable that generators and suppliers will not pass these costs on in full to customers. Further because the carbon price support will impact electricity through marginal price setting, the costs could be over-recovered from consumers.

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

We compete in European and world markets. We are wholly unable to pass increases in energy costs onto our customers. Ultimately an increase in the cost base in the UK will lead to reduced competitiveness and hence a lack of investment in Energy Intensive industry in the UK. This will result in a shift in production to Continental Europe or the rest of the world and an increase in emissions as products are produced in more carbon intense regions (so called carbon leakage).

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

As stated above, as a minimum:

- Investment in Energy Intensive industry will be curtailed. The threat of higher carbon costs in the UK than the rest of Europe will be a huge barrier to investment in core manufacturing industries.

- As these costs are UK only, they will fully and directly hit our profit margins. We compete directly with European and world producers. EUETS is already a significant concern to the long run competitiveness of our business. The prospect of a carbon support tax of similar magnitude would be crippling. At some of the carbon price levels envisaged in this consultation it is difficult to see any Energy Intensive Industries surviving in the UK.

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 note that to date, no Impact Assessment has been carried out to understand the impact of these measures on manufacturing industry, and energy intensive manufacturing industry in particular. The document merely makes passing reference to the impacts on our industries,

> "When determining the level of the carbon price support mechanism, environmental objectives will need to be balanced appropriately to ensure UK business competitiveness is not unduly undermined"……

> " a carbon price support mechanism... would:

- affect profit margins for some energy-intensive business, but these impacts need to be seen in the context of wider changes to the competitiveness of the tax system over the coming years;"……

"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."

The apparent lack of understanding of the business conditions faced by Energy Intensive Industries is staggering. We have repeatedly made representations on the increasing (energy) tax burden Energy Intensive Industry faces in the UK and the cumulative impact this will have. Yet our concerns are largely dismissed.

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9 February 2011

Reference:

Dear Mr Shaw

HM Treasury Consultation on Carbon Price Floor: support and certainty for low-carbon investment - INEOS Manufacturing Scotland Limited Response

We welcome the opportunity to comment on the Government's proposals for support to carbon price / reform to the climate change levy (CCL). INEOS Manufacturing Scotland Limited (IMSL) strives to contribute to "greening" of the economy, from promoting efficiency in its operations to participating in the Scottish Government's 2020 Delivery Group. We support the objective of moving towards a low carbon based economy, and many of our products assist in delivering low carbon solutions.

INEOS Manufacturing Scotland Limited (IMSL) is a producer of refined petroleum products and commodity petrochemicals, including ethylene and propylene and their derivatives. As such, our operating margins are largely set by the global commodities markets in which we source our feedstocks and market our products. Any increase in the levels of taxation levied against our business directly impacts our operating profitability, and therefore our ability to invest and ensure the sustainability of our business.

In this context, the proposals contained within the Carbon Price Floor (CPF) consultation give rise to significant concerns; concerns we hear echoed by other members of the trade organisations we participate in:

- **Impact assessment** – this does not adequately address the impacts on energy intensive businesses, like petrochemicals and refining. Reference is made to the BIS and DECC project to look at the cumulative impact of energy and climate change policies on energy intensive industries in the UK; however, without this work being completed many of the conclusions drawn in the impact assessment are invalid.
- **EU ETS Carbon Leakage** – the proposals amount to a unilateral policy reversal of the provisions made in the EU ETS Phase III to protect against carbon leakage. Further to the above point, the impact assessment appears inconsistent: it recognises that the proposals go beyond minimum EU requirements, but asserts there is no impact on competition. IMSL operating margins would be directly impacted by the proposed changes, with no technically or commercially feasible options to mitigate to an extent that would maintain its competitiveness in the globally traded commodities. This would significantly hinder IMSL in attracting investment to Grangemouth.

- **Administrative Burden** – the CPF proposals are running con-currently with consultation on Electricity Market Reform and "discussions" on reform to the CRC Energy Efficiency Scheme. The future of Climate Change Agreements is being discussed, and industry is awaiting the National Allocation Plans for Phase III of the EU ETS. All of these are directed at achieving broadly similar goals (moving to a low carbon economy), yet through the multiple schemes overlap is inevitable and management of the schemes and their interactions is becoming a serious administrative burden.
- **Cumulative Burden** – the CPF proposals are potentially another burden on the UK Energy Intensive Industries, furthering the payment of multiple taxes for emission of the same carbon. It appears to be possible to pay for carbon emitted in generating power on the physical emission (EU ETS), on the fuel (CPF) and on the energy produced (CRC) – two out of the three being applicable in the UK only. This does not feel like the simplification promised in the Coalition Agreement to reduce red tape and "...end the so-called 'gold plating' of EU rules, so that British businesses are not disadvantaged relative to their European competitors".
- **Dis-incentive for CHP investment** – previous administrations have recognised the role of fossil-fuel CHP in producing heat and power with high efficiency, promoting good resource utilisation by providing incentives for CHP investment. We have such an arrangement at our site. The proposal as laid out actually ranks good quality CHP as less desirable than importing power from the grid and generating steam from package boilers. This is despite the fact the latter option emits more carbon dioxide.

Whilst we are supportive of the principle of moving towards a low-carbon economy, we do not feel that the Carbon Price Floor as proposed is sufficiently targeted to have the desired effect of promoting low-carbon alternatives whilst ensuring the sustainability of UK energy intensive industries.

Attachment

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

Responses 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?

It is not practicable to have a forecast for carbon price in this period, as there are too many uncertainties over factors that will ultimately influence the price:

- *There is currently no carbon reduction pathway beyond 2020. The EU ETS only sets a certain pathway to 2020*
- *The negotiations over international climate change agreements, which could change the entire nature of the market.*
- *Continued debate over an EU unilateral increase to the 20% reduction target, independent of any international agreement being met.*

The consequence of these, and other uncertainties, is that carbon price can only play a small element in the overall economics of investment decision; however, a UK unilateral policy to support carbon price will not provide the certainty required to allow investment in UK carbon reduction. On the contrary, such a policy is more likely to promote manufacturing investment in geographical locations that are NOT subject to this policy i.e. outside of the UK / EU, and as such this policy is more likely to promote carbon leakage

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.

It is unlikely that this would generate the investment proposed unless the longer term uncertainty of the economic and political risks is properly addressed. A poor commercial project cannot be considered a good investment simply as a result of favourable tax treatment, because of the political risk it may be removed with a change of government.

We believe that implementation of the CPF would, however, act as a dis-incentive for investment in the energy intensive industries in the UK. This would lead to investment and jobs being lost from these industries in the UK, and carbon leakage such that the global emissions from these industries would not actually be reduced.

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

As proposed, the CPF is primarily a tax raising mechanism and is not likely to generate the certainty required for investment, due to a high level of political risk. What is required

is long-term certainty over the fiscal regime, and measures which are targeted to support the end goal. This current consultation appears to be rushed, and not sufficiently well targeted – evidenced by the inadequate impact assessment. The fear for investors would be a post-implementation review completely changing the basis / key principles e.g. CRC Energy Efficiency Scheme.

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

IMSL is primarily a refiner and producer of petrochemicals; therefore, our comments are presently confined to the impact that the CPF would have on our business. It would appear to us that the currently proposed measures are not sufficiently targeted to produce the desired reduction in carbon emissions from electricity generation, whilst maintaining the international competitiveness of the UK manufacturing industry. If UK manufacturing competitiveness is impacted, then this would produce a detrimental impact on the UK's balance of payments and ultimately lead to job losses from these sectors.

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?

On an industrial site, such as IMSL, natural gas is imported and used as feedstock in addition to generation of electricity and steam. Furthermore, power is generated from other fuels in addition to natural gas. The consequence is that systems for administering the CPF would become complex and onerous, in terms of maintaining an audit trail. This will add further cost to the business, without necessarily promoting any reduction in carbon emissions.

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.

No. Existing exemptions for refinery auto-generators (or generation that is clearly dedicated to a refinery, by virtue of co-location irrespective of ownership) should be maintained in line with the Energy Products Directive, Council Directive 2003/96/EC under Article 21 (para 3).

The change in treatment proposed for CHP dis-advantages existing plants in which there has been investment. This undermines the investment case for this high cost plant that was largely justified on the basis of Government energy efficiency policies. (See 4 C.2).

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. The question seems to imply that CHP will continue to receive preferential treatment under these CPF proposals, but in fact the impact is detrimental to CHP. Indeed, it is detrimental to the extent that it is more economic to import power from the grid and generate steam in package boilers than to utilise the efficiency benefits of CHP.

The proposal undermines the economics of the investment decision to locate CHPs at major refineries and petrochemicals sites, such as our own. It is also contrary to previous Government policy to promote the use of CHP. Our assessment suggests that the current proposal would result in lower total taxation for using package boilers to generate steam and import power, versus using a good quality CHP, despite the total emissions and fuel consumption being lower for the CHP. This would appear to be the opposite of the intention of the CPF proposals.

As a minimum CHP fuel supplied for the generation of heat should be exempt. This would, however, result in an extremely complicated and onerous administrative process within the generator's organisation and HMRC to administer.

The approach that we believe would be simplest, and consistent with previous commitments to promotion of efficient resource utilisation would be to completely exempt CHP from the CPF scheme.

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?

Fiscal measures may be required for the promotion of CCS, however, it should be noted that CCS has a significant detrimental impact on the overall generating efficiency of a power station. It should also be considered that CCS could be applied to many industrial sites, where the emissions are not as a consequence of power generation, but from the requirement to provide process heat.

Therefore, at such time as CCS is technologically proven on the required scale, it may be more appropriate to provide a direct fiscal stimulus for the use of CCS, irrelevant of the process that is generating the carbon dioxide emissions.

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?

As discussed, IMSL does not believe that the CPF proposals represent the correct way to provide an incentive to invest in low-carbon power generation. It should be noted that, if implemented as proposed, the higher the carbon price support the greater the risk of carbon leakage as UK manufacturing capacity is re-located outwith the UK / EU.

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

No comment.

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

No comment.

Future price of carbon

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

No. (See 4 E.1). IMSL is concerned that the unilateral increase in UK carbon price will significantly impact our business, and our ability to attract inward investment to the Grangemouth site. The European Commission has identified refining and petrochemicals as being exposed to the risk of carbon leakage and has constructed the EU ETS Phase III taking this in to consideration. The UK Government proposals would have the same consequences that the EC is trying to mitigate.

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 that there is an appropriate carbon price for the UK, based on the assumption that this policy should ensure the sustainability of UK manufacturing and avoid carbon leakage, as well.

The UK government should allow the EU-wide market to set the carbon price, and this should be via the EU ETS. There should be no additional UK only taxation of the carbon emissions.

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

See response to 4 E.1.

Electricity investment

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

See responses to questions 3 A.2, 3 A.3, 4 E.1 and 4 F.2. We do not believe that these proposals would provide the incentive for investment in low carbon electricity generation due to the considerable uncertainty over whether the mechanism would remain in place long-term.

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

As currently proposed, the CPF would end investment in CHP, in favour of less resource efficient fossil-fuel generation. Beyond the electricity markets, they would reduce investment in energy intensive manufacturing industries.

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

No comment.

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 proposals would significantly impact the continued investment in our generation portfolio (good quality CHP). We have not completed a detailed assessment of our options, however, it is likely that investment decisions may not favour continued use of CHP over other less resource efficient options.

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?

No comment.

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?

As discussed, CPF will significantly impact the operating margins of our refining and petrochemicals businesses, resulting in a loss of competitiveness versus non-UK / non-EU sites. This will impact our ability to attract investment to the site, and ultimately risks site closure with the loss of employment and carbon leakage from the UK.

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

No comment.

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

IMSL is a producer of refined petroleum products and petrochemicals commodities. Both are traded on global commodities markets and are manufactured from feedstock sourced on the same global markets. As a consequence, the "gross" margin capability is largely set by these markets. Therefore, none of the UK carbon price support could be passed on to the consumer; it is a direct tax on our operations.

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

Yes, there would be a direct and significant impact on the profit margins, as discussed above.

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?

It is our belief, and one shared throughout the trade associations we participate in, that the Impact Assessment is fundamentally flawed, as it has failed to properly assess the impact on energy intensive industries exposed to global competition and carbon leakage. Nor has the assessment recognised the significantly detrimental impact on the economics of CHP operations; that they may be replaced by stand alone power and heat production with higher overall emissions.

The Impact Assessment does acknowledge that BIS and DECC are progressing work to evaluate the cumulative impact of energy and climate change policies on the UK's energy intensive sectors. Without this work reaching a conclusion we feel that the conclusions drawn in the Impact Assessment, particularly on the energy intensive industries are invalid. It seems inappropriate to bring forward further policies, like CPF, without the tools to properly assess their impact on the competitiveness of the UK's energy intensive industries.

We also note that the recently published Working Paper 38, from the Grantham Research Institute on Climate Change and the Environment (Samuel Fankhauser, Cameron Hepburn & Jisung Park) concludes that "… stacking multiple policies in an attempt to control carbon prices is often ineffective and inefficient, and can have several adverse consequences. In particular …. combining taxes, subsidies or standards with cap-and-trade instruments can undermine the carbon price and increase mitigation costs. This is counter to the original objective ….."

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 current policies we forecast EU ETS carbon to be around €20/t in 2020 rising to €30/t in 2030 which in our view is insufficient – we believe that carbon price needs to be €40/t by 2020 and €70/t by 2030 to achieve the decarbonisation agenda .

This view is based upon the EU adopting proposals to increase the current reduction target from 20% on 1990 levels to 30% (as outlined in the consultation document).

Poor PR in recent months centering on the surrendering of allowances, 'hacking' and the failure of Phase I of the scheme only serve to undermine confidence in it and hence why some market commentators are much less bullish on their forward view of carbon prices.

In our view the expectation of future carbon prices is becoming increasingly important in investment decisions, particularly as renewable subsidies are reined in. Those investments that look most marginal can potentially be taken forward as developments purely as a result of the expectation of higher power prices in the future resulting from an 'uptick' in the price of carbon.

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

Certainty alone is not the only issue; the price clearly needs to be high enough too. Investors can (and do) successfully hedge against commodity prices. However, the price of carbon is predominantly driven by regulatory changes and is therefore very difficult to hedge.

In theory increased certainty should feed through to increased levels of low carbon deployment, provided banks and other financial players are comfortable with the proposed scheme and therefore lend at competitive rates, as generators will be able to invest in low carbon technologies with a degree of certainty that long-term carbon prices will ensure sufficiently high revenue levels to recoup their capital investment over the medium to long term.

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

This is a key constraint on the scheme as proposed; any change in government (or indeed in any annual budget set by the government) could result in the tax being repealed. Developers, like ourselves, are unlikely to take this view in light of such strong inter-government commitments on climate change although debt providers could well assume a base case of no carbon support when agreeing to fund a project.

In our view certainty around medium to long term revenues is required for the renewable industry to accept the huge capital challenge required to deploy generation of sufficient scale to meet the upcoming decarbonisation targets which in turn requires medium to long term carbon support, not an annually set tax which is susceptible to changes in government, changes in funding approaches and revenue needs intra-term by a government and changes in policy around climate change. It is these structural changes in public/government agendas against which the tax system alone cannot provide sufficient certainty.

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, the Alternative Package proposed in DECC's December 2010 consultation on Energy Market Reforms will be key in decarbonising the UK power sector.

In addition, we feel the following items will be critical to the UK decarbonising its power sector:

1) Liquidity - the UK power sector needs to be structurally redesigned to ensure liquidity is significantly improved. The market is largely made up of vertically integrated utilities that are able to supply themselves - all participants need to be able to buy and sell quickly, easily and without large discounts and charges

2) Grid – the process of obtaining a grid connection in the UK is currently not fit for purpose. A very large number of projects are delayed (for anything up to seven years) whilst they await connection to the grid. We welcome the recent steps forward in the form of 'Connect and Manage' and Project TransmiT but further work is required to ensure this ceases to be a significant issue

3) Planning – the current planning system is severely hampering the development of onshore wind in the UK, with significant capacity currently stalled in the system awaiting decisions. We again welcome the recent step forward with the Localism Bill; we do however wish to reiterate the importance of resolving planning issues in a timely manner for the UK to succeed in meeting its renewable energy targets

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 do. Keeping the scheme as simple as possible will be key to introducing a successful carbon floor price and therefore we urge the government not to introduce specific exemptions for different types of generators. We appreciate that, as a result of universally applying the scheme to all generators that circa 1.4% of the UK generation portfolio will for the first time be exposed to the EU ETS, however to meet the government's criteria of fairness and the 'polluter pays' we see this as a positive and only step forward

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?

Depending on the final design of the Renewable Heat Incentive ('RHI'), we believe that CHP can be adequately catered for under that support mechanism, as opposed to under the carbon floor mechanism

The RHI is in our opinion the most important tool the government has to drive the UK towards its 2020 European target and we look forward to the consultation we is expected later this month

Carbon price support mechanism

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

The support should be set with visibility and certainty in mind and whichever methodology is chosen it needs to be consulted on and agreed with industry in advance

Intra-year variability is inevitable and we strongly advise the Government not to be overly concerned on this issue. The longer term and bigger picture is where the focus should be when introducing schemes which will run for decades and for that reason we support the third option of *'rates set annually based on a carbon market index'*. This proposal is the most robust as it incorporates a forward looking view from the market and importantly this view is taken over a significant period of time, which protects against the rates being set on what turns out to be a peak/trough in the market

The *rate escalator* runs the risk of over or under pricing the cost of carbon, as it does not take into account the spot or forward rates of carbon. While the *annually adjusted CCL rates and fuel duty rebate* proposal is too narrow and is heavily waited on the current market conditions – as a result they are unlikely to provide investors whith much certainty.

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, we strongly support the introduction of 'scenario 3' as outlined in the consultation document in which the price of carbon is €40/t in 2020 and €70/t 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?

The carbon prices outlined above, if introduced, would send out a strong and clear signal to investors and developers that the UK is serious about decarbonising its power sector. In addition to this, higher carbon prices in the near to medium term will actually result in lower prices in the longer term, with nuclear and renewables providing significantly more of the generation mix than in the other two scenarios

It is worth remembering that €40/t will (according to the table on page 6 of the Impact Assessment) only add around £8/MWh to the power price – assuming gas is at the margin – although our own analysis suggests that it could be higher than this

Market inaccessibility and large discounts charged by utilities currently prohibits investment; if the structure of the UK electricity market is altered to address these matters for example through increasing liquidity and therefore price certainty, then investment is likely to naturally increase. This would open up the potential for a lower carbon price support, although the danger still remains that developers will favour gas over other low carbon technologies.

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

As soon as possible. Scenario 3 in which €3/t is added from 2013 seems reasonable, given the time it will take to engage with industry.

Electricity investment

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

Increased revenues on which to provide a return on investment will bolster investment in low carbon technologies; however we remain sceptical as to the scale of CCS assumed in the RedPoint modelling

The impact will be most profound on those technologies for which the power price makes up the largest proportion of their revenues, such as nuclear. Investment in other technologies such as offshore wind will not be as significantly influenced as they are subject to greater subsidies elsewhere

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

The design of the scheme is ultimately to increase power prices in a certain and controlled manner, after all it is this impact which it is assumed will attract additional capital investment into the market.

The support should however be intrinsically structured with openness and simplicity at the heart of the proposals; this will be of benefit to both existing and future generators

Conventional fossil fuel generators have an important role to play in the transition to a low carbon electricity market, for example in providing balancing services. Should these generators, for any reason, be prohibited from generating it will cause large volatility in near term power prices, coal based generators also need incentives to reduce Carbon emissions.

Existing low-carbon generators

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

Assuming that the carbon floor support increases power prices as we expect, the proposals will increase the revenues from our existing portfolio. These increased revenues will be redeployed in the business to invest in new renewable technologies (such as anaerobic digestion, reserve capacity and renewable heat) as well as making further investments in our portfolio of wind, LFG and hydro, that we would otherwise not have invested in due to inadequate returns

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 consultation document states that introducing any support to carbon prices in the future will provide a windfall to existing low carbon generation (albeit small). Equally the increased revenue for low carbon generation will facilitate investment in additional renewable capacity which might otherwise have been economically marginal and therefore uncertain.

The opposite is true of carbon intensive generation although introducing the floor price at €3/t will add less than £1/MWh to the operating cost of a carbon intensive coal plant and therefore the impact will be almost negligible (in the scheme of underlying fuel price movements).

The government has for a long time set an agenda to actively discourage emissions from carbon intensive generators (such as the Large Combustion Plant Directive and the Industrial Emissions Directive) and therefore this should not come as a surprise to these types of generators. In fact a case could be made that they have had a windfall from an underpriced carbon market since 2005.

Electricity price impacts

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

We have an internal price forecasting system which when combined with forecasts provided by external companies drives our hedging strategy.

As a business we invest significant resource into this area but it still leaves us exposed to medium term price fluctuations and an inadequate number of parties with which we are able to trade. For example some utilities are comfortable with paying the RO buyout fine as opposed to purchasing ROCs from generators.

Market liquidity is the only constraint currently on our hedging strategy. For example, trading further than two years out is currently very difficult. If this were to be improved by way of increased liquidity it would assist greatly in smoothing out fluctuations in the wholesale market.

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

It is difficult to quantify with any great accuracy at this stage. Suffice to say a robust carbon floor mechanism should facilitate greater access to capital markets to build further generation and should also result in greater certainty of returns leading to further investment in additional generation capacity, including the development of currently marginal sites assisting the UK to achieving its 2020 renewable energy targets and beyond.

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

As a purely renewable generator, we will not pass on any additional cost associated with the carbon price support.

Any likely effect on our profitability is currently not quantifiable by looking at this consultation in isolation from the host of other Energy Market Reform proposals that are currently being consulted upon

Questions not answered:

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?

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

4.B3: Please provide an estimate of how much the system changes would cost, both one-off and continuing?
4.C3: Do you agree that tax relief should be considered for power stations with CCS? If so, what are the practical issues in designing a relief; what operational standards should a CCS plant meet in order to be eligible; and how might these issues differ for demonstration projects?

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

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

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

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

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

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

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

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

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?

Martin Shaw
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11th February 2011

Mr Shaw,

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

InterGen welcomes the opportunity to respond to the above consultation.

InterGen is the UK's largest and most successful new entrant independent generator, having invested £1.4 billion in the UK since 1995. InterGen owns and operates three highly efficient gas fired power stations in the UK totaling 2,490MW and actively trades in the prompt and forward wholesale power and gas markets. InterGen is currently pursuing a number of development opportunities in the UK including the construction of two further 900MW gas fired power stations, representing a further £1 billion investment.

InterGen fully supports the UK Government's commitment to secure a low-carbon energy future, and acknowledges the difficulties in achieving the dual aims of a significant reduction in greenhouse gas emissions along with secure and affordable energy supplies in the coming decades. InterGen believes that the introduction of a scheme to underpin the price of carbon for electricity generators will greatly assist in achieving these aims. The attached response looks at the proposals in greater detail.

InterGen would be happy to discuss further any of the points raised in our response,

InterGen (UK) Ltd's response to HM Treasury Carbon Price Floor: support and certainty for low-carbon investment

Executive Summary

InterGen believes that:

- **A scheme to underpin the price of carbon for electricity generators should be introduced with an early start (no later than 1 Apr 2013) and a high trajectory.** Such a scheme is the most critical element of incentivising a switch from high to low carbon generation.

- **All generators should face costs according to the mass of emissions they release to the atmosphere.** A taxation scheme, such as the one proposed, in which emitters are subject to costs based on the volume and carbon content of the fuel consumed effectively achieves this.

- **The level of carbon price support should be fixed several years in advance on a rolling basis.** Investors will only have confidence in the level of continued support if there is a firm future price trajectory. Furthermore, any lack of forward price visibility is likely to undermine liquidity in the wholesale electricity market.

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 future EU Allowance ("EUA") price trajectory will be influenced by a number of complex interactions, namely:

- progressively tightening supply as the EU-wide allocation cap reduces;
- fluctuating demand (which will depend on the rates of economic growth and decarbonisation);
- uncertainty arising from regulatory changes, such as the potential increase in the targeted reduction of emissions from 20% to 30% of 1990 levels, the rules for the use of alternative allowances and the potential for linkage with other carbon reduction schemes.

InterGen anticipates that the market price of EUAs will increase as the cost of further decarbonisation increases, generally in the central area of the range of private sector forecasts shown in Chart 3.D of the

consultation document. However, as the market's view of the supply and demand balance and the marginal cost of further decarbonisation will continually change, the price trajectory is unlikely to be smooth. Carbon price volatility will remain a key risk for emitters to manage.

InterGen anticipates that the price of carbon will continue to feed into the wholesale electricity price whilst fossil-fuel generation remains an appreciable part of the marginal plant mix. It will therefore remain a key factor when considering the economic case for investment in low-carbon generation for the foreseeable future. However, the degree to which it is important will depend on the timing and level of other support mechanisms given to new low-carbon generation, such as the proposed long-term Feed-in-Tariffs ("FIT"s).

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.

Implementing a support mechanism for the carbon price will improve the economic case for investment in low-carbon generation capacity through the underpinning of the future wholesale electricity price (assuming that the price is set by the marginal plant and that this is likely to be carbon emitting). The extent to which it will support investment in low-carbon electricity generation will depend upon: (a) investor's perceptions regarding the long-term commitment from the main political parties to retain such a support mechanism; and (b) the extent to which the future carbon price support level is fixed for a minimum number of years ahead (a proposed method to address this risk is included in our response to question 4.E2).

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

No more or less certainty would be attributed to collection through the tax system compared with any other mechanism. Investors would only attribute a high-level of certainty to the carbon price support mechanism if the price trajectory was fixed for a minimum number of years in the future. If the legislation allowed the support level to be revised on an annual basis for the following year, it is likely that investors would attribute little certainty to the projections of future support levels.

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

Broadly speaking, InterGen agrees with the high-level findings and proposals outlined in DECC's Electricity Market Reform consultation. Further reforms of the electricity market are required to successfully decarbonise the power sector whilst maintaining an adequate security of supply.

FITs are required to subsidise low-carbon generation and provide a guaranteed return on investment, whilst leaving operational risk with the generator. Replacing FITs with, for example, a very high carbon price would be insufficient to provide reasonable certainty of returns, primarily due to the transitional nature of any carbon price support mechanism (once the marginal generator is no longer carbon emitting, there will be no increase in low-carbon generation returns).

A capacity payment mechanism is necessary to support the maintenance of existing flexible generation and the construction of new flexible generation. Flexible and efficient gas-fired generation will be necessary to balance the increase in intermittency and inflexibility arising from low-carbon generation, thereby ensuring security of supply. InterGen supports the early introduction of a capacity payment mechanism to attract sufficient investment in flexible generation to meet demand requirements.

Finally, InterGen believes that a truly competitive, robust, transparent and liquid wholesale electricity market is necessary to ensure good value for the consumer.

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?

InterGen believes a key objective in implementing the Carbon Price Floor should be that it can be implemented and operated at low cost.

InterGen believes that the simplest way to achieve this would be to levy the tax on generator itself rather than the suppliers of fuel. The volume of fuel consumed by a power station (and in fact the mass of carbon emitted) is already recorded and independently verified as part of the EU ETS regulations. Calculating and paying a tax on the basis of these verified carbon emissions would be very straightforward and no new systems would be required. Tax payments could be made monthly or quarterly, if necessary, based on initial fuel use and emissions estimates with a reconciliation made according to the verified emissions in the April following the end of the relevant calendar year.

InterGen is concerned that under the recently issued draft legislation CCL will in practice be levied by suppliers on all sales of fuel to electricity generators even if some (or all) of that fuel is not in fact used for the purposes of electricity generation e.g. if the fuel is re-sold in the market by the electricity generator for general trading purposes or if the fuel cannot be used because the electricity generating station is unavailable for technical reasons. This is because it may not be possible for a generator to distinguish contractually between the fuel which it has physically used for the purposes of electricity generation and that which it has not. InterGen therefore anticipates that if the legislation is enacted in its current form an appropriate rebate mechanism will need to be established to ensure that electricity generators are reimbursed for CCL paid on fuel purchased which is not in fact used for the purposes of

electricity generation. This mechanism will need to ensure that there are no adverse cashflow implications for those generators who are in such a position.

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

In general and subject to our comments above, we believe that a small amount of internal training will be necessary to familiarise personnel with the proposed application of CCL to commodity transactions and to make the necessary changes to systems and operating procedures. It is anticipated that the filing requirements, if assumed to be similar to a VAT return, will take up around half a day per month of one person for each power station company. Detailed guidance on the requirements would allow a more accurate estimate of the time commitment required

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

As above, until more detailed guidance on the implementation of the scheme is published, InterGen is unable to make an accurate assessment of costs.

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.

InterGen believes that all generators should pay according to the mass of emissions they release to the atmosphere, irrespective of the type of generation. A taxation scheme in which emitters are subject to costs based on the volume and carbon content of the fuel consumed effectively achieves this, with the exception of plant fitted with CCS (see answer to question 4.C3).

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, in the interests of fairness and simplicity of the tax system there should be no additional preferential treatment for CHP plant. As stated in the consultation document (paragraphs 4.22 to 4.29) CHP plant receives financial support through a number of other mechanisms and the Carbon Price Floor should be implemented such that remain in place.

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?

As stated in response to question 4.C1, InterGen believes that all generators should pay according to the mass of emissions they release to the atmosphere. In keeping with this principle, CCS generators will automatically pay less CCL as a high proportion of carbon emissions will be captured by the CCS process.

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 would increase the overall costs associated with carbon-based fuel used for electricity generation, which, in principle, should cause the UK wholesale power price to rise. Imports into the UK will therefore become more attractive and exports less attractive. Consequently, we anticipate that there will be a higher level of imports and lower level of exports than would otherwise be the case. This is an inevitable consequence of any UK-only scheme which introduces an additional cost for electricity generation. However it is unlikely to have a significant impact on the volumes imported or exported relative to the UK market as a whole given the present and planned levels of interconnection.

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

The proposals have the potential to impact wholesale electricity trading significantly (much more widely than simply cross-border trading). Unless there is a clearly defined and stable price track for future carbon price support CCL rates, the long-term forward market (i.e. beyond one year) for electricity could become even more illiquid as market participants would have no means of hedging the full extent of their carbon price risk. InterGen supports the establishment of CCL levels for at least five years in advance: a proposed method to achieve this is included in our response to question 4.E2.

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

InterGen does not currently operate the Northern Ireland and Ireland single electricity market and does not wish to respond to this question.

Carbon price support mechanism

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

In order to encourage investment in low-carbon generation and avoid undermining liquidity in the wholesale electricity market, the Carbon Price Support Rates ("CPSRs") should be calculated and fixed

several years in advance. InterGen suggests a firm trajectory for the rates should be set for a minimum of five years ahead with an indicative trajectory for the following five years. A proposed method to achieve this is included in our response to question 4.E2.

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

The most appropriate mechanism for setting a firm trajectory of the carbon price support rates would be the rate escalator approach. The key advantage of setting CPSRs several years in advance is that electricity companies can choose when to hedge their electricity price exposure, together with any associated carbon exposure, as far ahead as the CPSRs are set. This is essential to prevent further reduction in the liquidity of the forward electricity market. InterGen proposes that CPSRs should be set at least five years in advance. The other options, in which near-term rates are calculated on a rolling annual basis, are likely to lead to a decrease in liquidity of the wholesale electricity and carbon markets.

An important factor in suggesting a mechanism so far ahead is how the forward prices for EUAs can be extended. Presently, the EUA market is liquid for the next three December delivery products – presently for delivery in Dec. 2011, Dec. 2012 and Dec. 2013. Given that EUAs can be "banked" from one year to the next (allowances bought today can be used in future years), the difference in price is not related to the supply-demand situation in the relevant year but rather to the market's inferred opportunity cost for not having cash available to invest from one year to the next. This average annual opportunity cost can be readily calculated and used to determine a price for future EUA delivery products. In our illustration (see below), the 2-year opportunity cost as of January 2011 is calculated by subtracting the price of EUAs for delivery in Dec. 2011 from the price of EUAs for delivery in Dec. 2013.

InterGen envisages the following steps in determining the CPSRs.

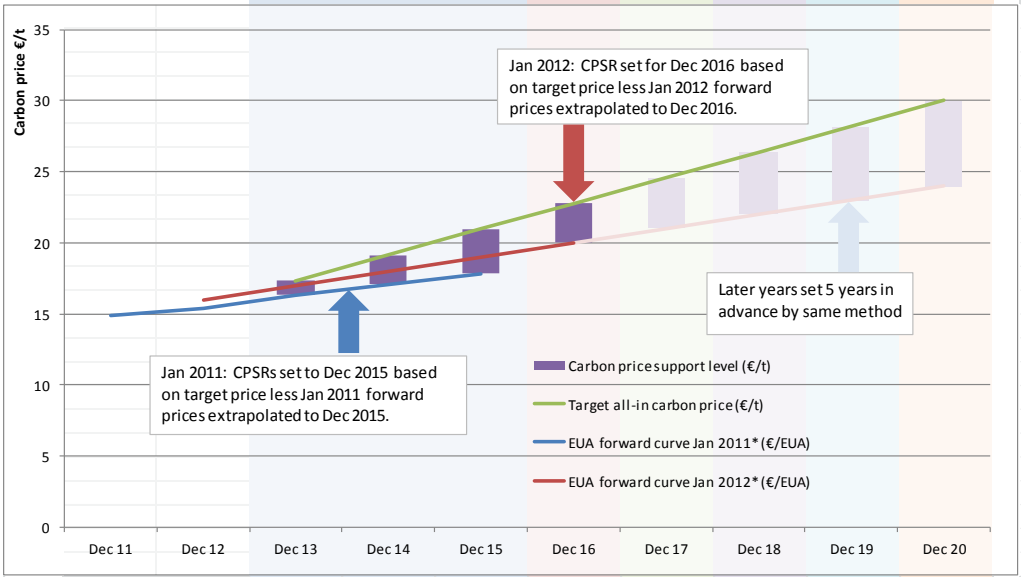
- Near-term (i.e. Dec. 2013) and long-term (e.g. Dec. 2020) all-in (i.e. EUA plus the effective carbon price support level) target prices are set by UK Government. The all-in target prices for intervening years are determined by interpolation assuming a uniform annual inflation rate.
- In Jan 2011, the Dec. 2011 and Dec. 2013 EUA prices are determined from the selected market price index (which may be a spot price or averaged over a period of time).
- A uniform annual EUA inflation rate is determined from these prices.
- The long-term EUA price is calculated from the near-term EUA price and the EUA inflation rate. The EUA prices for intervening years are determined by interpolation.
- The effective carbon price support level for each year is calculated by subtracting the EUA price already calculated above from the all-in target price set by the UK Government.
- The CPSR for each commodity for each year is determined from the effective carbon price support level and the carbon content of that commodity.
- The CPSR for at least five years out are fixed.

- The calculation process is repeated annually with the carbon price support rate for the 5th year only becoming fixed. The rates for earlier years would be unchanged.

This is illustrated graphically below:

	Dec 11	Dec 12	Dec 13	Dec 14	Dec 15	Dec 16	Dec 17	Dec 18	Dec 19	Dec 20
Target all-in carbon price (€/t)			17.4	19.2	21.0	22.8	24.6	26.4	28.2	30.0
EUA forward curve Jan 2011* (€/EUA)	14.9	15.4	16.4	17.1	17.8					
Carbon price support level (€/t)			1.0	2.1	3.1					
EUA forward curve Jan 2012* (€/EUA)		16.0	17.0	18.0	19.0	20.0				
Carbon price support level (€/t)						2.8				
** extrapolated at opportunity cost*										

	Dec 11	Dec 12	Dec 13	Dec 14	Dec 15	Dec 16	Dec 17	Dec 18	Dec 19	Dec 20
Time structure of CPSR setting			Years for which CPSR set in 2011							
						CPSR set 2012				
							CPSR set 2013			
								CPSR set 2014		
									CPSR set 2015	
										CPSR set 2016



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

InterGen generally purchases EUAs at the time of selling electricity in the wholesale forward market in order to hedge the carbon price risk. Provided the all-in cost of carbon can be hedged because the CPSR is fixed far enough into the future, the proposals would have no direct impact on InterGen's activity in the carbon or electricity markets. However, if the all-in cost of carbon can only be hedged in the short-term, because the CPSR is only set for one year ahead for example, this would greatly restrict InterGen's (and other electricity companies') ability to hedge its carbon price risk in the longer-term carbon and electricity markets.

UK electricity market liquidity is already very poor: hence it is crucial that CPSRs are set and fixed several years in advance.

Future price of carbon

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

In order for the suggested mechanism outlined in the response to question 4.E2 to operate effectively, InterGen believes the Government should initially target an all-in carbon price for Dec 2020 (with firm CPSRs initially established to Dec. 2015). The Dec. 2020 target should be established at a level necessary to provide strong assurance that the UK complies with its requirements under the Renewables Directive whilst maintaining an adequate security of supply, as determined by robust scenario modelling.

Given the degree of uncertainty over fuel prices, UK and EU-wide emissions reduction targets, technological advances and the rate of penetration of low-carbon generation capacity, InterGen believes that setting a rigorous 2030 would not be appropriate at this time. However, it may be helpful to set an indicative target, perhaps based on the level required to make CCS economically viable, to stimulate debate and encourage further work in modelling potential outcomes.

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?

InterGen has not undertaken any robust scenario modelling in order to estimate within an acceptable range the appropriate carbon price that is required to provide strong assurance which would allow the UK to comply with its requirements under the Renewables Directive.

It is recognised that additional changes to the design of the electricity market have been proposed by DECC and it is appropriate that the impact of these measures can only be fully assessed once the initial trajectory for the carbon price support rates has been determined.

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

InterGen supports the introduction of a carbon price support mechanism no later than 1st Apr 2013. This will provide a strong incentive for market participants to invest in low-carbon technologies and allow the UK to comply with its requirements under the Renewables Directive. To encourage low-carbon investment and in order to prevent a further reduction in market liquidity, InterGen believes that the Government should publish the intended CPSRs as early as possible.

To reduce the average emissions intensity for the power generation sector, the initial level for CPSRs should be at a level which (based upon market projections of fossil-fuel prices) is sufficiently high to change the behaviour of existing generators, causing them to switch to lower carbon-emitting plant.

Electricity investment

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

See responses to questions 3.A2 and 3.A3.

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

On its own, a scheme which imposes additional costs on fossil-fired generation according to the carbon content of the fuel will improve the economic case for investments to increase the thermal efficiency of such plant. However such investment decisions will also be impacted by DECC's proposals for electricity market reform and the Industrial Emissions Directive.

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 inevitable that the move to low-carbon generation will add costs to the consumer: the issue is then whether the proposals for carbon price support and other reforms minimise this increase.

InterGen anticipates that the increased costs of the CPSRs incurred by fossil-fired generators will necessarily feed into the price at which they are prepared to offer electricity to the wholesale market. Additional proposed reforms will also impact on the price at which generators will be prepared to make their electricity available to the market.

Wholesale electricity prices will be minimised by ensuring that low-carbon generators do not receive excessive profits through upsides from the carbon price support mechanism, the proposed FIT scheme and the proposed capacity payment mechanism. This can best be ensured by determining FIT price levels and the design of the capacity mechanism in light of the proposed carbon price support mechanism

InterGen believes that wholesale electricity prices will be minimised by the promotion of a competitive, transparent, robust and liquid wholesale electricity market.

Existing low-carbon generators

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

InterGen owns and operates three high-efficiency, gas-fired CCGTs in the UK. The proposal for a carbon price support mechanism will increase the all-in cost of fuel and carbon for generation. InterGen will account for those costs, as it does for all other costs, in the price at which it is prepared to sell electricity in the wholesale market.

InterGen expects to remain broadly neutral to the proposals except for some recovery of profit margins from their present unsustainable levels as a result of increasing levels of gas fired generation relative to generation from coal plants.

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?

InterGen anticipates that carbon price support would lower the average UK emissions intensity by increasing the costs incurred by high carbon-emitting, low-efficiency coal plant relative to those incurred by low carbon-emitting, high-efficiency gas plant. To the extent that this displaces coal-fired by gas-fired generation, it will reduce the average emissions intensity of the UK generation sector and help the UK to achieve its emissions reduction targets.

Electricity price impacts

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

InterGen generally manages fluctuations in the wholesale electricity, gas and carbon prices by hedging the forward clean spark-spread (electricity price less gas and carbon costs) that can be achieved at the time of entering into an electricity sales transaction. In general, all of these commodities are transacted simultaneously. Trading is based on a balance of value and cashflow-at-risk management against a three year forward book.

InterGen's ability to manage price risk forward is significantly limited by poor electricity wholesale market liquidity beyond the front year. InterGen supports Ofgem’s ongoing investigation into possible solutions to address this issue.

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

As per the response to question 5.C1, the additional cost incurred in generating will be accounted for in the price at which InterGen is prepared to sell electricity in the wholesale market. Unless this additional cost is fixed and known in advance, it cannot be hedged and this would greatly reduce the extent to which InterGen can transact forward sales of electricity in the wholesale market.

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

InterGen would take the full additional cost it incurs into account when determining the price at which it is prepared to sell electricity in the wholesale market.

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

InterGen is an independent generator and as such does not have any retail or commercial customers. However, InterGen anticipates that the full costs of implementing carbon price support in the UK will be passed on to residential and commercial customers through their energy bills.

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

See response to question 5.C1.

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

The assessment of cost estimates incurred by individual companies (paragraph 31 to 51) seems low but will depend upon how the scheme is implemented. Otherwise there are no new points of significance raised by Annex D.

11 February 2011

IETA Response to UK Price floor consultation

IETA is the leading voice of the international business community on the subject of emissions trading with over 160[1] member companies from across the carbon cycle. IETA supports efforts to address the pressing environmental challenge of climate change, and is dedicated to the establishment of environmentally effective market-based emissions trading systems that generate reductions at least cost to the community.

At this stage IETA will not address the details of the UK Government's proposals, but would like to express concerns of principle about several risks from the proposed carbon support mechanism for the efficient and effective functioning of the EU's emissions trading scheme (EU ETS):

1. Conveys lack of trust in EU ETS

IETA does not understand why a government that has championed free markets and open trade, and lent strong support to the European Commission in the use of trading mechanisms to reach climate objectives, is now seemingly turning its back on emissions trading as a policy instrument.

IETA believes that the UK proposal for a carbon price support mechanism – which is nothing else than an increase on overall taxation on fuels for electricity generation by their imputed CO2 emissions - shows a serious lack of trust in the EU ETS which is the cornerstone of the EU's strategy for fighting climate change.[2]

This UK Government's proposal has the potential to undermine market confidence and will impact on supply and demand balances in the EU ETS. While clarity about the lowest possible price for carbon looking ahead should reduce some investment uncertainty, the introduction of a political overlay, which may change as politics changes, to the balance of supply and demand risks increasing the uncertainty.

There is evidence that the EU ETS can trigger a deviation from business-as-usual investment trends away from projects with high carbon intensity, where scarcity in the cap exists. The EU ETS is a relatively young mechanism that has performed very well given the market environment over the last 5 years. Now is not the time to undermine it by assuming it cannot deliver.

Now is the time to give the EU ETS the means to reach the goal it has been assigned. More clarity on the future emission reduction trajectory – for instance through the Roadmap 2050 - would enhance the effectiveness of the EU ETS in a much more powerful way. We would like the UK Government to clarify whether the proposed approach is in substitution for higher emission

[1] The full list can be accessed on www.ieta.org

[2] EU Climate and Energy package, 2009: http://ec.europa.eu/clima/documentation/package/index_en.htm

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reduction targets, and in expectation of continued political difficulties in dealing with them directly, or is simply a state-revenue raising exercise?

2. Hampers agreed harmonized approach to carbon trading for phase 3

IETA is also concerned about the apparent lack of understanding for the need of harmonization of market rules across the EU. Rather than moving ahead on the European low-carbon agenda, it seems the UK is moving out of line and this could greatly weaken the common approach to emissions trading agreed among the Commission, Member States and the European Parliament in December 2008 for phase 3 of the EU ETS. There could well be competitive distortions resulting from a unilateral approach, whereby UK power generation costs are increased, hence distorting the import-export dynamics at interconnectors.

3. Undermines market confidence

Confidence in market-based mechanisms is essential to support the transition to a low carbon economy. A demonstration that one of Europe's largest economies, and a Government that has hitherto strongly supported the EU ETS as the primary tool of low-carbon policy, now believes the market needs constraints and intervention will damage investor confidence and increase fears of political risk.

4. Piecemeal approach more expensive

A single, EU-wide signal is the best way to reach EU climate policy targets in the most cost-effective way. The UK proposal interferes with that signal thereby distorting it and reducing efficiency. A price floor undermines the cost benefits of using a market based approach, signalling to market participants that the government feels they know better what an acceptable price range should be. This is adding unnecessary costs to compliance entities and thereby electricity consumers.

Such policy also would counter efforts to create an integrated EU energy market.

The EU ETS must remain the key pillar of an EU-wide approach to climate policy. National efforts to supplement it will just result in lower efforts elsewhere and distort prices. Any measures to enhance its effectiveness should be adopted at EU level.

Carbon price floor: support and certainty for low-carbon investment
A HMT and HMR&C Consultation

Submission by International Power Plc

(I) About International Power Plc

International Power plc (IPR) welcomes the opportunity to contribute to the HMT and HMR&C Consultation *Carbon price floor: support and certainty for low-carbon investment.*

International Power plc is a leading independent power generation company with active interests in closely linked businesses such as LNG terminals and water desalination. Following the combination with GDF SUEZ Energy Europe and International, International Power plc has strong positions in all of its major regional markets (Latin America, North America, the Middle East, Turkey and Africa, UK-Europe, Asia and Australia). In total, it has 66 GW gross capacity in operation and committed projects for a further 22 GW gross new capacity.

In the UK-Europe region, International Power plc has 13.2 GW capacity in operation and a further 1.3 GW under construction. This includes over 7.3 GW of plant in the UK market made up of a mixed portfolio of conventional plant – coal, gas, CHP, a small diesel plant, and the UK's foremost pumped-storage facility. Several of these assets are owned and operated in partnership with Mitsui & Co. Ltd. IPR's assets represent just under 9% of the UK's installed capacity, making IPR the country's largest independent power producer.

IPR in the UK-Europe region operates about 1100 MW of wind power. The company is keen to develop its renewable portfolio further and is developing a range of projects in the UK as part of this strategy. The company also has a significant Industrial and Commercial retail supply business, and a gas supply business in the UK.

(II) Summary

- It is very important that any proposals for a carbon price floor are considered alongside DECC's Electricity Market Reform programme. There are significant interactions between the proposed initiatives, all impacting on the wholesale energy markets. There is a risk of realising unintended consequences, including unnecessarily high costs to consumers, unless a coherent package is developed that best meets all the Government's energy policy objectives.

- There needs to be greater clarity on what is meant by 'certainty' and 'support' for the carbon price. If the purpose of a Carbon Price Support Mechanism is to insure against a collapse in the carbon market, the level should be set close to the European Commission's price projections for Phase 3 and beyond.

- New low carbon generation will likely be 'subsidised' through, for example, a separate Feed-in Tariff mechanism – with this in mind, the Carbon Price Support Mechanism adds relatively little extra 'certainty' or 'support' for low carbon investment.

- The proposals deliver very substantial unwarranted 'windfall profits' for existing nuclear and renewables generation, paid for by consumers. Depending on assumptions this could amount to between £4 and £8.5 billion for the period 2013 to 2030.

- The cost to consumers outweigh the benefits of an early start for the scheme – if investors need greater certainty then declaring a scheme with a start date consistent with the operation of new nuclear plant should be sufficient.

- It is likely that as the penetration of low carbon generation increases in the electricity mix post-2020, there will be periods in which the wholesale price will no longer be determined by gas technology as it is today, making the Carbon Price Support Mechanism, whose purpose is to deliver a higher wholesale price than would otherwise be the case, redundant.

- There are concerns related to the potential interaction with a Contracts-for-Difference (CfD) style Feed-in Tariff mechanism – there may be a temptation to increase wholesale prices via the carbon price to 'minimise' the 'subsidy' to nuclear and other low carbon generation through the CfD mechanism.

- The UK power sector, and the industries that rely on it, will be subject to an increasingly stringent carbon regime, significantly different from the rest of Europe; exemption for imports will further disadvantage UK operators.

- As a consequence of reduced coal generation in the UK brought by higher cost of carbon, there will be downward pressure on the cost of EUAs – in effect this means EU carbon market participants outside of the UK power sector could benefit from lower EUA prices, paid for by UK consumers.

(III) Answers to Questions

Investment

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

1. There are a number of sources companies draw on to establish the future cost of carbon for their investments. Often, complex economic models are used to carry out detailed analyses of the energy sector, with particular emphasis on the electricity sector. For example:

- Some analyses model the implications of the carbon targets in the EU ETS Phase 3 and beyond for the cost of carbon. For example, EURELECTRIC's *Power Choices* study[1] explores, for example, the implications of the EU's various targets to 2020, and further reductions through to 2050 to ensure the limit of 450ppm is met. The analysis has a strong market element, and focuses on Europe within a global context. A carbon price of around €50/tCO_2 or £40/tCO_2 emerges in 2030 for several scenarios.

- Others take a slightly different approach in which the desired carbon intensity for the electricity sector at a particular year (say 2030 or 2050) is an end-point and modelling is used to establish the technology mix needed and the carbon price that can deliver that mix. For example, the Committee on Climate Change suggest the required carbon price would need to be about £70/tCO_2, in real terms, to deliver a carbon intensity of about 50gms/kWh for the UK electricity mix in 2030[2].

2. IPR favours the Power Choices approach which incorporates a slightly stronger market element and maintains greater continuity across Europe. The baseline value for 2020 in the Consultation then is consistent with this but the 2030 value of £70/tCO_2 is much higher. This is not surprising because it is proposed that the carbon intensity for the electricity sector in the UK is to achieve a lower level than that for other major EU economies countries at this milestone date – this means the UK will be out of the mainstream, and industry potentially less competitive than in other European countries.

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

3. There is already a level of 'certainty' provided by the EU ETS[3] - Phase 3 of the EU ETS will begin in 2013 and last for 8 years to the end of 2020 with the cap declining linearly at 1.74% of the average annual level of the Phase II cap; beyond 2020, the Directive confirms an ongoing commitment to reducing the cap by 1.74% each year until carbon emissions have essentially ceased.

4. Detailed modelling provides investors with a good idea of the importance or otherwise of the carbon price to their investments. Of course, a once in a generation perturbation on the economic system (e.g. the oil price shocks of the 1970s, or the more recent financial crisis) can lead to recession and thus a weakening of the carbon price, and this is difficult to predict. But taken over the long-term investment horizon, the EU ETS can provide a carbon price signal to include in investment decisions with the market based mechanism enabling the efficient allocation of capital.

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[1] *Power Choices: Pathways to Carbon –Neutral Electricity in Europe by 2050, Eurelectric, November 2010*

[2] *The Fourth Carbon Budget: Reducing emissions through the 2020s, Committee on Climate Change, December 2010*

[3] *Directive 2009/29/EC of the European Parliament and of the Council, Official Journal of the European Union , 23 April 2009*

5. The carbon price floor then, unless set at a price that would damage the UK economy, will have relatively little impact on the level of low carbon investment; other factors are likely to be more important such as planning, upgrading the network, development of the supply chain, and of course DECC's proposed Feed-In Tariff support mechanism.

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

6. Delivering a carbon price floor through the tax system would not necessarily deliver greater certainty than other potential mechanisms – indeed the temptation to change the carbon price floor, for example, to increase revenues for HMT, would increase costs to the consumer and to the rest of the sector.

7. The tax system is also a blunt instrument with perverse outcomes such as the delivery of large 'windfall profits' to existing nuclear and renewables generation as shown in Appendix 1. We estimate these will range from £4 billion to £8.5 billion over the period 2013 to 2020 depending on assumptions about the market price for carbon and on the particular carbon price floor trajectory chosen[4].

8. There are alternative approaches to creating a carbon price floor, summarised in the Appendix 2, which would focus attention on the specific need being addressed, involve the consumer in much less cost, and minimise the potential for such perverse outcomes. It is disappointing that no alternative approaches have been presented in the Consultation.

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?

9. DECC has published proposals to implement a Feed-In Tariff mechanism - this instrument can deliver the 'subsidies' needed for all low carbon generation, without some of the perverse outcomes associated with the Carbon Price Floor. Indeed, with more than one support mechanism there is a significant risk of over-rewarding low carbon generation, with the consumer bearing higher costs than necessary, and industry becoming less competitive.

10. Also, the Government has indicated it wishes to simplify the regulatory space for stakeholders - the proposals by HMT and DECC will have the opposite effect, resulting in overlapping measures and a more congested and complex regulatory space.

[4] *Scenarios 1-3, page 30 in the Consultation document*

Administration

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

11. Changes to accounting system will be dependent upon the detailed implementation guidance provided by HMRC to companies. This can involve very complex rules with a significant burden of proof being placed upon the supplier to prove the end use of the fuel. In electricity generation businesses it is common to trade commodities including the fuel and therefore the gross fuel purchases will be substantially more than the net fuel consumed. This adds complexity to the process and could require extensive changes to the trade capture and accounting systems to ensure the levy is charge at the appropriate point.

12. For example, if the levy is charged on gross purchases it is not clear how the trading activity to the net position is reflected. If a company were to purchase coal on the high seas it is not clear at which point the levy is chargeable: would it be before the coal leaves port, or at the point of importation, or on arrival at the power station, or on consumption? If charged at any point prior to consumption, this leads to the need for increased working capital requirements of that station (potentially tens of millions of pounds for a typical coal-fired power station) and also removes its ability to trade that commodity as the levy has already been paid and the basis price of the coal is therefore above the current commodity market. More complexities apply for other fuels, in particular at CHP stations.

13. A further consideration would be the stability of the scheme. VAT, for example, has undergone a number of rate changes and commodity reclassifications; each of these changes required changes to systems which are often complex to implement and costly. These costs cannot be recovered through the wholesale generation market.

14. It is not possible to predict how much such changes to systems may cost, or how long it would take to implement them without the detail of how HMRC would administer the system. However, most system changes take at least 18 months and cost many millions. The implementation of CCL, for example, initially cost businesses very substantial sums of money and it would be important to make sure this does not occur on this occasion.

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

15. See answer to Question 4.B1.

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

16. See answer to Question 4.B1.

Types of generator

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.

17. No, there need to be some exemptions for CHP (see answer to Question 4.C2) and also for generation on Northern Ireland (see answer to Question 4.D3). Even with these exemptions, the proposals as they are presented do not achieve this; rather the approach proposed rewards existing low carbon generation, both nuclear and renewables, with significant 'windfall profits' paid for in the main by the consumer, and to a lesser extent other parts of the electricity sector. Existing nuclear generation is from old plant that has already been paid for while renewables generation is heavily subsidised through the existing Renewables Obligation.

18. Also, electricity imports are exempt from these proposals, placing UK generation and manufacturing that use this electricity, at a significant disadvantage compared to competition in other parts of the EU.

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?

19. The wording of this question implies that the proposals do give some kind of additional or preferential treatment for CHP whereas they are actually detrimental to CHP. The proposals will create the perverse outcome that CHP operators may pay Government for making carbon savings when compared to the separate production of power and heat. Imposing these extra costs on CHP through the Carbon Price Support Mechanism will reduce the incentives for this technology. We believe CHP should not be penalised compared to the current situation - this is best achieved by exempting the fuel used for heat generation. The benefit from Levy Exemption Certificate (LECS) must also be maintained.

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?

20. No, there should be no tax relief for power stations fitted with CCS - CCS demonstration plants will be 'subsidised' through dedicated funds while commercial CCS will be 'subsidised' alongside renewables and nuclear generation in DECC's market reform proposals for a Feed-In Tariff mechanism.

21. In reality, CCS beyond the demonstration level will potentially became available in the mid-2020s - any decision on providing tax relief should be left closer this time, taking due regard to the prevailing market conditions.

Imports and exports

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

22. Imports can be expected to rise, putting pressure on generation in the UK. There is a suggestion that at 3% of UK capacity, imports are perhaps not of material importance. But the Consultation indicates imports could rise markedly over the next decade and beyond; these proposals make this outcome more likely with potential implications for security of supply.

23. On the one hand greater connectivity should lead to enhanced cross-border trade and improve security of supply: on the other hand there are occasions in the recent past when electricity has flowed from the UK to the continent i.e. connectors cannot always be viewed as 'firm' capacity that can be relied upon on demand because there have been occasions in the past when electricity has flowed to the continent.

24. Further, UK electricity exports will be more expensive than they would otherwise be and as such will be less competitive than that in other EU countries.

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

25. These proposals will increase the cost of fossil fuel generation and so increase UK power prices, impacting both the wholesale and retail markets.

26. The design of the mechanism will also impact on 'hedging' strategies, as operators seek to minimise their combined exposure to two separate carbon signals. The process by which the tax rates are set therefore has the potential to influence/distort trading in the wholesale electricity market. Forward uncertainty (and/or a lack of transparency) over the tax rates will limit forward trading of electricity and run counter to the government's position on improving market liquidity. This is a key concern.

27. Further, the introduction of a UK carbon floor price can be expected to distort cross-border trading of electricity with our EU neighbours, leading to an increase in the flows coming into the UK.

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

28. IPR does not operate in this market but does not believe that a carbon floor price is appropriate given that Northern Ireland generators are part of the All Ireland market and do not participate in BETTA.

29. If these proposals prevail in Northern Ireland, they will reduce the competitiveness of generators in NI compared to those in the Republic of Ireland - in the short term, if NI generation is marginal, prices will increase for Ireland as well. In the longer term the proposals may influence investment location decisions to the Republic of Ireland impacting on security-of-supply.

Carbon price support mechanism

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

30. DECC's proposals for a Feed-In Tariff mechanism should be the main vehicle to 'subsidise' all low carbon generation. The original aim of the Carbon Price Floor was to ensure against a collapse in the price delivered by the market – this would imply that the carbon price support rates should be set close to the projected market values under Phase 3 and beyond.

31. A Carbon Price Support Mechanism will continue to benefit low carbon generation so long as the cost of carbon is passed through into the wholesale price via the marginal technology, which is likely to be gas for the foreseeable future. However, it is possible that as the penetration of low carbon generation increases in the mix post-2020, the wholesale price will no longer be determined by gas generation, making the carbon price floor mechanism redundant in this context. This suggests that the level of carbon price for the post 2020 period should wait until the implications of increasing levels of low carbon generation in the market become apparent.

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

32. IPR believes that DECC's proposals for a Feed-In Tariffs mechanism can provide support for low carbon technologies – with this in mind, we believe a second mechanism in the form of the Carbon Price Floor would add relatively little additional value.

33. If Government believes it needs greater certainty through changes in the carbon regime a number of options exist and these are discussed in detail in the paper outlined in Appendix 2; the Government's proposals have the same effect as Approach (III) described in this paper.

34. With reference to this paper, IPR believes there are options that have a lower impact on the consumer and the sector, and avoid unwarranted 'windfall profits'. For example, Government could simply exempt all new low carbon generation from the Climate Change Levy, which would be worth the equivalent of up to £16/tCO_2 when the nuclear station begins operation; alternatively a one-way contract-for-difference approach would provide the focused support needed for nuclear generation without the impacts on the consumer, or the delivery of unwarranted 'windfall profits' associated with the carbon price floor.

35. Whatever approach is adopted the carbon price difference between the floor price and the market price should be linked to the wholesale price to ensure the potential for over rewarding low carbon generation is limited if gas prices, and therefore wholesale prices, increase. Again this is discussed in detail in Appendix 2.

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

36. Our trading arrangements will be more complicated and challenging. As a generator with fossil generation we will continue to participate in the carbon market to deliver the permits required to continue operating, and will have to take account of the extra carbon cost passed through by suppliers due to these proposals when selling electricity products to consumers. As discussed above in our answer to Question 4.D2, there is a risk that the rate-setting process could impact on forward trading.

37. Also, our coal plant will likely operate less than would otherwise be the case because it will not be possible to pass on all the extra cost of carbon associated with these proposals, at least until the electricity price is high enough to support this generation – this will likely be the case for all coal fired stations.

Future price of carbon

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

38. Since all low carbon generation, including nuclear, will be subsidised through the Feed-In Tariff mechanism in DECC's market reform proposals, the carbon price support rates should be set as close to the projected market values as possible, thus minimising detrimental impacts such as excessive cost to the consumer and unwarranted 'windfall profits'.

39. The price level should be set at around 2020 when the first nuclear station is expected to start operating – any value set post-2020 should be based on the success or otherwise of low carbon deployments, and a view on what is then needed by the sector to 2030.

40. The level of the carbon price should also take into account the potential impact on the price of allowances in the carbon market since the UK is one of the major participants in the EU ETS. Coal generation in the UK is likely to be lower than previously assumed within a purely EU ETS driven carbon market; policy driven abatement in the UK then reduces overall demand for EUAs, resulting in downward pressure on the carbon price. Given that the overall level of emission from the EU-27 will remain the same, this effectively results in a transfer of value from the UK to the rest of the EU.

Question 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?

41. The Carbon Price Floor is less important than DECCs proposals for a Feed-In Tariff mechanism to 'subsidise' low carbon generation - carbon price support rates should be set close to the projected market values as possible; in this way the UK will be broadly in line with the rest of Europe while providing the 'certainty' sought, for example, by investors in nuclear. A carbon price rising beyond the market price will result in the UK consumer effectively 'subsidising' carbon emissions of other EU countries, and place UK industry at a competitive disadvantage.

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?

42. If the purpose of a carbon price floor is to provide 'certainty' to investors in low carbon technology, and bearing in mind the DECC proposals for a Feed-In Tariff mechanism for such technology, it should be operational once the plant is generating, which is a little before 2020 for nuclear, and set at a level close to the projected market price.

Electricity investment

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

43. DECC's proposals for a Feed-In Tariff mechanism should be the main vehicle to subsidise all low carbon generation and if set at the appropriate level, will encourage the required investment. With this in mind the Carbon Price Support Mechanism will have relatively little added value on investment in new low-carbon electricity generation.

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

44. There is little doubt the extra costs imposed on the fossil sector of the electricity industry will undermine investment in those assets, particularly coal - at best, they will limit their operation, and at worst lead to their closure earlier than would otherwise be the case. Companies with such plant will see the value of their assets eroded and their ability to make new investments, low carbon or otherwise, compromised.

45. The potential early closure of much of the UK's coal plant could have implications for the UK's security of supply with erosion of the reserve margin followed by increased prices for consumers. These plant also provide valuable cover for operational failure of nuclear plant, and when intermittent renewables are not generating.

46. Premature closure of such plant is clearly at odds with some of the objectives of the Government's electricity market reform programme. Surprisingly, DECC is considering introducing a targeted capacity mechanism for new plant; this is to ensure sufficient reserve margin following the premature closure of coal fired generators brought about by higher carbon prices than would otherwise be the case. It appears the targeted capacity mechanism will simply replace existing capacity with unnecessary and costly new capacity, increasing the cost burden to consumers.

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

47. It is intended that the carbon price is passed through to the wholesale price to provide a subsidy to low carbon generation, particularly nuclear. But the proposed mechanism would have the unintended consequence of providing very substantial 'windfall profits' for existing nuclear and renewables, paid for by the consumer and to a lesser extent other parts of the electricity sector. There are ways to mitigate such unintended consequences as indicated in Appendix 2 – for example, CCL exemption for generation form for new nuclear plant, or a one-way contract-for-difference approach, deliver the 'certainty' needed, at least cost to the consumer, and avoids 'windfall profits'.

48. Further, the wholesale price is determined largely by the marginal technology, which has been gas over the last decade or so, and is therefore highly responsive the price of gas in the international market. It is reasonable to suggest that the carbon price set will take account of the price of gas going forward; it is also possible then that having set the carbon price, the price of gas rises and with it the wholesale price thus potentially over-rewarding new low carbon generation. Once again, this issue is addressed in detail in Appendix 2 and suggests a simple relationship between the difference between the floor and market price for carbon and the wholesale price, such that as the latter rises the carbon price difference declines.

49. Overall, the Carbon Price Support Mechanism as proposed will increase wholesale electricity prices. Therefore "limiting the impacts" (which is desirable) effectively implies due consideration be given to alternative support mechanisms that do not have unintended impacts, or setting the carbon price floor close to the projected market price, or delaying the introduction of the scheme, or a combination of the last two options.

<u>Existing low-carbon generators</u>

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

50. IPR's portfolio includes coal, gas, gas with CHP, a flexible oil plant, and the UK's largest pump storage facility; the company is hoping to develop its renewables portfolio through a pipeline of projects. It may be possible to pass through some of the 'extra' carbon costs associated with these proposals into the wholesale price with our customers being asked to pay more; but the company will not be able to pass through all of the extra costs, particularly those for its coal plant. The result will be lower overall output and reduced profitability from its fossil generation; the value of the coal asset will decline.

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?

51. These proposals will separate the generators into winners and losers:

- Those with existing nuclear and renewables generation will gain very substantial 'windfall profits';
- Those with new gas plants will not be impacted since they will be able to fully recover their extra costs; those with older and slightly less efficient gas plant will be worse off;
- Those with coal plant will not be able to fully pass on the extra carbon costs and will thus be less profitable. In the event that the floor price results in coal plant operating at the margin, they will operate less than before. Either way the value of their asset will be eroded;
- The vertically integrated companies are better placed than the independent generators because the former can recoup any additional carbon costs through both their retail and the wholesale markets whereas the independent generators can only recoup extra costs though the wholesale markets.

52. DECC's proposals to implement a Feed-in Tariff to subsidise low carbon generation makes it possible to restrict the carbon price floor to the projected market price, thus mitigating the impacts identified above.

53. Our response to Question 4.D1 is also relevant to this question – UK generators will be disadvantaged compared with their EU counterparts.

<u>Electricity price impacts</u>

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

54. As a power station owner and operator our key exposure is not to the outright level of wholesale electricity prices but the spread between these prices and our costs of generation including all taxes. We manage fluctuations in wholesale electricity prices by forward selling electricity when this spread is attractive. This involves forward selling power and purchasing fuel and carbon. This captures the value and therefore the margins that our assets will deliver.

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

55. IPR is an independent generator with a portfolio that includes coal, gas, gas with CHP, an oil plant, and the UK's largest pump storage facility; the company is hoping to develop its renewables portfolio through a pipeline of projects. It may be possible to pass through the 'extra' carbon costs associated with these proposals into the wholesale price with customers being asked to pay more; but the company will not be able to pass through all of the extra costs, particularly those for its coal plant. The result will be lower overall output and reduced profitability from its fossil generation; the value of the coal asset will decline.

56. Other impacts, such as impact on accounting systems and trading operations are covered elsewhere in this response. At a higher level, this initiative signals a move to a more interventionist approach from government in energy markets which has the potential to increase perceptions of regulatory risks to operators and investors in the GB market.

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

57. It should be possible to pass through the extra carbon cost into the wholesale price but only at the level associated with the marginal technology (usually the most recent gas plant); coal and to a lesser less efficient gas generation will have to internalise the additional costs, or operate less; in either case the result is lower profitability.

58. In circumstances where the extra cost is high enough to result in coal operating at the margin then coal operators will have the opportunity to try to pass through these costs into wholesale pricing – however this will be difficult and load factors can be expected to fall, again impacting on profitability.

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

59. The proposals suggest fossil fuel suppliers will be responsible for the extra carbon cost – this will be passed onto their customers, the electricity generators, who in turn will be expected to pass on these costs into the wholesale price; this uplift in wholesale price then provides the benefit for low carbon generation. As an independent generator with both gas and coal generation in our portfolio, it will be possible to pass on some of the extra cost, but not all to our wholesale customers.

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

60. Both our company and most of our sector will be adversely affected by these proposals, with profitability of fossil generation reduced, and increased costs to 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, included at Annex D?

61. The impact assessment annex outlines the importance of low carbon generation technologies in the mix in determining the net cost to the system. The generation mix under different scenario analysed is a result of the work carried out by Redpoint[5].

62. Small differences in the assumptions and in the methodology adopted could affect the conclusions in terms of timing, capacity mix and ultimately wholesale power price. The benefits to the residential and to the industry and commercial sectors could be shifted even further out in time, resulting into a net loss to the system.

63. We believe the range of possible outcomes and the assumptions adopted to probe them should be widened and deepened.

[redacted]

[5] *Electricity Market Reform Analysis of Policy Options, Redpoint Energy in Association with Trilemma UK, December 2010*

(IV) Appendices

Appendix 1 – Estimated windfall profits for existing low carbon - nuclear and renewables - generation

Approach

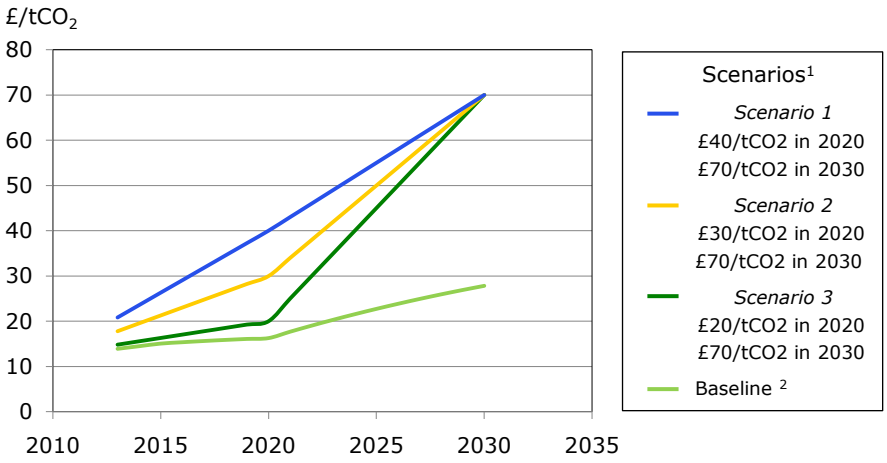
A comparison is made between the three carbon price floor scenarios proposed in the Consultation document for the period 2013 to 2030, and a baseline which is the projected carbon price in the absence of a carbon price floor taken from a recent analysis of the European electricity system, for the same period – these are shown in Figure 1 below.
The difference in the cost of carbon in each of the scenarios and the baseline cost of carbon is passed through into the wholesale price for gas generation, which is assumed to be the technology at the margin; the wholesale price then is higher than it would otherwise be in the absence of the carbon price floor.

The potential 'windfall profits' for existing low carbon technologies, nuclear and renewables generation, are taken as the extra revenues resulting from the difference between each of the scenarios and the baseline.

Assumptions

- The analysis only considers that nuclear and renewables plant that exist in 2010;
- Some existing nuclear reactors are assumed to benefit from further extensions; nuclear generation from existing assets to be reduced by 2/3 by 2020 and the load factor in line with historic performance – the existing nuclear generation profile from 2013 to 2030 is shown in Figure 2;
- Renewables to retire after 25 years of operation; average load factor by technology is unaffected by retirements – the existing renewables generation profile from 2013 to 2030 is shown in Figure 2;
- Baseline assumption of carbon price in line with Eurelectric's Power Choices scenario - €25/tCO2 in 2020 and €52/tCO2 in 2030;
- Carbon price floor set to increase linearly from 2010 level to £20, £30 and £40 /tCO2 by 2020 and converging to £70/tCO2 by 2030;
- Standard efficiency (46.2%) CCGTs to set wholesale electricity price;
- Exchange rate to reach a long-term value of €/£ of 1.25 by 2020;
- All prices and results have been expressed in real 2009 prices.

Figure 1 - Carbon price floor scenarios



Source 1: Scenarios 1-3 taken from Carbon Price Floor: support and certainty for low-carbon investment, HMT and HMRC, December 2010
Source 2: Baseline – market price of carbon taken from Power Choices: Pathways to Carbon – Neutral Electricity in Europe by 2050, Eurelectric, November 2010

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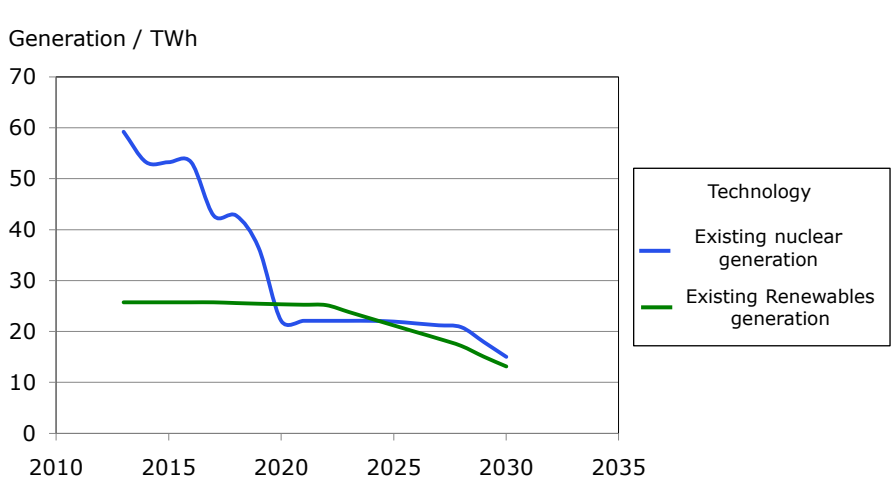
Figure 2 - Projected electricity generation by existing nuclear and renewables plant



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Results of the analysis

Figure 3 shows the potential 'windfall profits' for existing nuclear for the three carbon price scenarios presented in the Consultation document. The annual 'windfall profit' varies from about £50 million to 350 million each year; the cumulative benefit varies from just over £2000 million to around £4500 million for the period 2013 to 2030; all figures are in 2009 £.

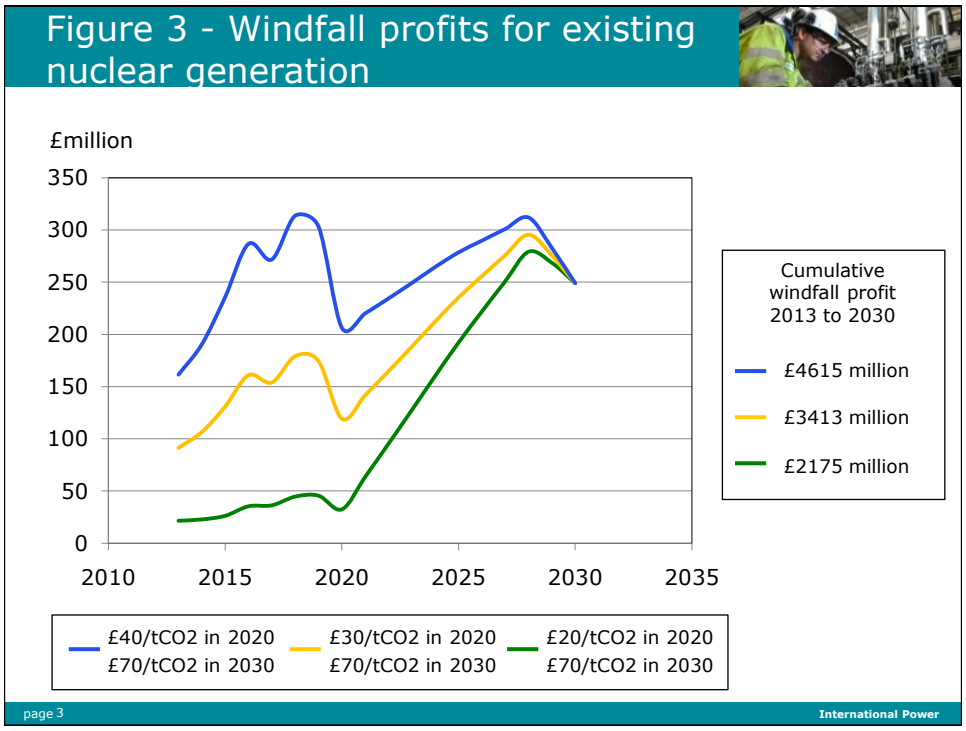
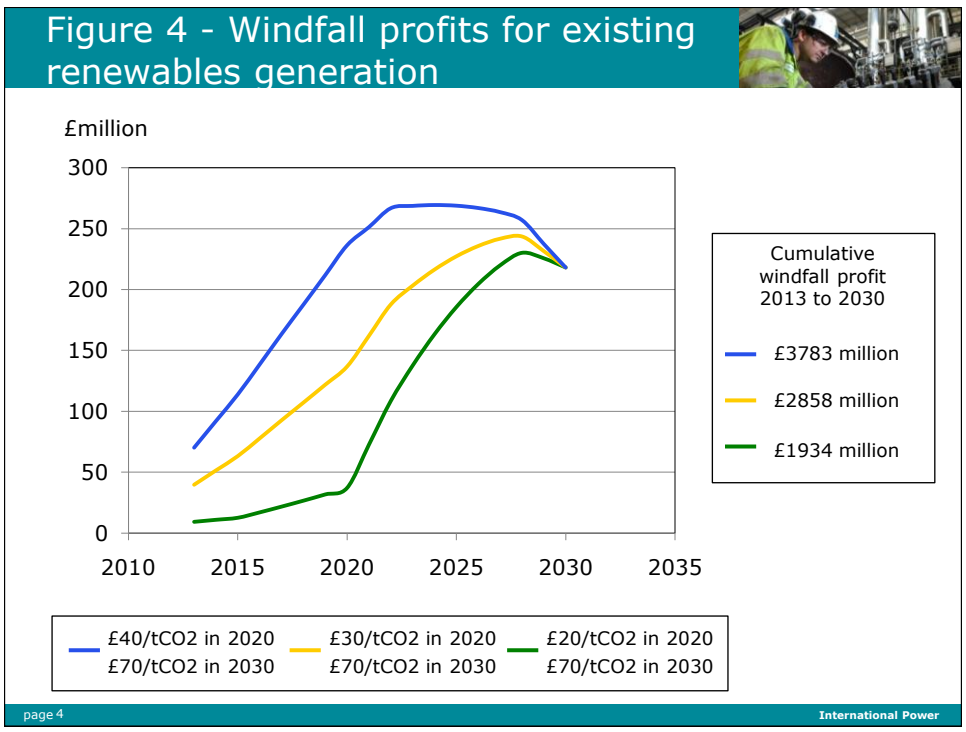


Figure 4 shows the potential 'windfall profits' for existing renewables for the three carbon price scenarios - the annual 'windfall profit' varies from about £10 million to around £270 million each year; the cumulative benefit varies from just under £2000 million to just below £4000 million for the period 2013 to 2030; all figures are in 2009 £.



The total potential 'windfall profits' to existing low carbon then varies between about £4000 million and £8500 million for the period 2013 to 2030 depending on the scenario.

Appendix 2 – Alternative approaches to provide certainty for low carbon generation

On the proposal to create a carbon price floor to help incentivise
new nuclear and other low carbon generation
A paper sent to HMT by International Power Plc, 4 August 2010

Summary

- ***The market based EU ETS can provide the 'certainty' sought in the carbon price signal for future investment.***

- ***The government's Energy Market Assessment has as one of its aims the need to encourage new low carbon investment and this process could deliver a solution in which a carbon price floor is not needed***

- ***If the Government wishes to provide further incentive for low carbon generation it could do so by exempting new low carbon generation from the Climate Change Levy***

- ***If the Government decides to create a carbon price floor then it should only apply to new low carbon technology, and only once the plant is generating electricity and not before***

- ***Any carbon price floor should be set at a level that provides 'certainty' not 'subsidy', and is linked to the wholesale price to minimise 'windfall' profits***

- ***A one way contract-for-difference approach is the most equitable option for delivering the objectives of a carbon price floor***

- ***It is possible that in seeking to provide certainty for one technology, and a small set of albeit significant investors, a much larger set of investors, including new entrants, may be discouraged from investing in the UK***

Background

1. The Government hopes that the first new nuclear power station will begin operating at around 2018, and that new commercial scale fossil plant fitted with Carbon Capture and Storage (CCS) will be built in the decade beginning 2020. It also expects renewable generation to grow significantly if the UK is to meet its EU 2020 targets.

2. The electricity price at that time, like today, will be determined by a number of factors - fossil prices in general and gas prices in particular, the nature of the mix and reserve margin, and the cost of carbon. It is important to have a view on these contributions, not just for 2018 but for a period beyond this date, into the 2020s and 2030s.

3. There is concern that the carbon market will not deliver a cost of carbon in 2018, and beyond, of sufficient magnitude to help the finance of new low carbon build. A floor price for the cost of carbon is one option being proposed to provide greater 'certainty' for this part of the investment.

4. There are major barriers for the UK Government to this proposal, not least gaining acceptance from the European Commission which has thus far steadfastly stated it will not interfere in the carbon market beyond setting the emission caps and the framework for its operation.

5. The government is also conducting an Energy Market Assessment to explore the kind of market that will encourage stakeholders to invest in new low carbon investment and this process could deliver a solution in which a carbon price floor is not needed. What is disappointing is that a carbon price floor mechanism may be put in place before all the options in the EMA have been fully explored risking a complex and potentially damaging outcome for many stakeholders.

6. Despite these concerns, the new Coalition Government has confirmed it will seek to provide such a floor, and from what has been discussed in the past, reform of the Climate Change Levy (CCL) is one potential approach.

7. Whatever approach is adopted, the UK government will have to seek clearance from the European Commission.

Some key issues

8. There are a number of issues that must be considered in the development of a mechanism to underpin the carbon price such as:

    - The focus should only be on the deployment of new low carbon generation;
    - There should be minimal impact on consumers and the wider economy;
    - The potential for 'windfall' profits, for existing and new low carbon generation should be avoided;
    - The level of carbon price should be linked to the wholesale price, and must not constitute a public *or* consumer subsidy;
    - The mechanism should only be active once new generation enters the market;
    - There should be equitable treatment of all stakeholders.

The Climate Change Levy

9. The Climate Change Levy (CCL), introduced on 1st April 2001, is a tax on the business use of energy, to encourage carbon reductions through energy efficiency. It is applied at different rates, depending on the energy content of the different sources: electricity, 0.43 p/kWh, gas and coal, 0.15 p/kWh, and LPG 0.07 p/kWh. From 1st April 2008, all rates are increased in line with inflation.

10. The CCL was designed to be broadly revenue neutral – balanced originally by a reduction of 0.3% of employer's National Insurance Contributions (although the NICs was raised by 1% a short time later). Some of the revenue is also used to promote the development and deployment of low carbon technologies through the Carbon Trust.

11. The energy supplier collects the levy from customers and passes the revenues to Customs and Excise.

12. There are a number of exemptions, such as electricity from renewables and CHP, but nuclear generation, despite its 'carbon-free' nature, is not exempt.

13. Certain energy intensive businesses have Climate Change Agreements (CCAs) whereby they currently receive an 80% rebate on the CCL in exchange for meeting agreed emissions reductions or energy efficiency improvements. These are currently being renegotiated to run until 2017, albeit at a lower rebate. Any changes to the CCL may involve unravelling a number of commitments.

Potential approaches (I) – Creating greater certainty in the EU ETS

14. The carbon price in Phase II of the EU ETS is currently at a much lower value than was forecast, primarily because the economic downturn, prompting concerns that this will continue into the eight year Phase III of the scheme beginning in 2013. The implications of this are two-fold: a much cheaper cost to the EU of reaching the 20% reduction in greenhouse gas emissions by 2020, but also a weaker carbon price signal for investors in low carbon technology.

15. In light of these developments the European Commission has carried out an analysis exploring the cost and feasibility of moving to a 30% reduction by 2020. Such a move would lead to a much higher carbon price, providing greater certainty for those wishing to invest in nuclear and other low carbon technologies. This proposal is in the UK's Coalition Government Programme and has the strong support of a number of Member State Environment Ministers - there are suggestions that a move to higher target is likely at some stage in the near future.

16. The crucial period for deployment of nuclear power and fossil generation with CCS is actually the 2020s decade. An early declaration of the basic elements of a ten year Phase IV beginning in 2020 and a clearly stated reserve price for this period, consistent with the projected market price, would also provide carbon price certainty for investors.

Potential approaches (II) - Exempt new low carbon generation from the CCL

17. The simplest way to incentivise low carbon generation beyond the EU ETS is to exempt generation from new nuclear build and fossil fitted with CCS from the CCL. This has had the support of some industrial groups and the CBI in the recent past.

18. In terms of operation, generation from such sources would be given Levy Exemption Certificates which can be bought by business consumers and set against their CCL.

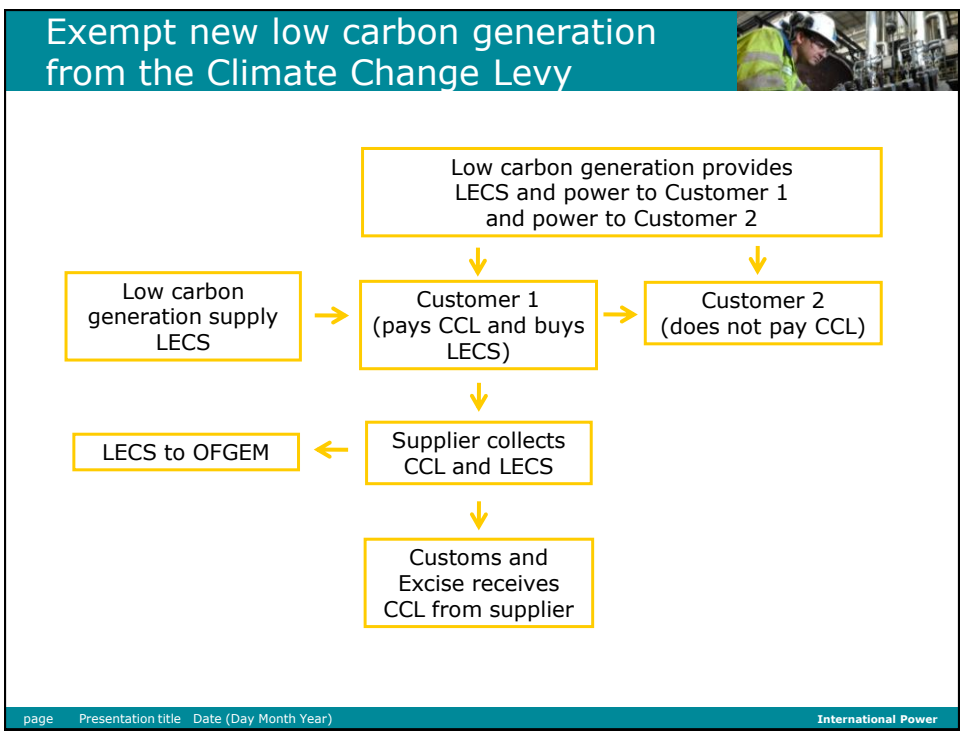
19. CCL on electricity will be at about £6/MWh by 2020, which is equivalent to about £16/tCO2 or €19/tCO2 if new gas technology determines the wholesale price (see box below). The fraction delivered to the new low carbon generation is dependent on a number of factors:

    - Since the levy is applied to the commercial and industry sectors any benefit from an exemption would be subject to negotiation between supplier and consumer;
    - The commercial and industrial sector constitutes about one half the total consumption and suppliers may have to service the needs of their domestic consumers also, particularly as the level of new low carbon generation grows;
    - The government could choose to exempt new low carbon generation at a lower rate than the prevailing CCL rate.

On the numbers used in the analysis - Climate Change Levy (CCL) exemption

- Assume carbon dioxide emissions from efficient Combine Cycle Gas Technology (CCGT) = 0.38kg CO_2/kWh. Assuming CCGT generation sets the wholesale price, then a CCL of £6/MWh in 2020 translates to:
  - (£6/MWh) / (0.38kgCO_2/kWh) = £16/tCO_2 or (£16/tCO_2 x €1.3) = €19/tCO_2
- The Levy applies to electricity consumed by the business sector and this amounts to approximately one half of total consumption i.e. about 170 TWh (2008 figures from DUKES). The level of exemption proposed can be estimated from the output of a new nuclear power station;
  - 1650MW x 0.9 Load Factor x (24hrs x 365 days) = 13 TWh per annum

20. For these reasons, individually or in combination, the value to the new low carbon generation would be <u>up to</u> €19/tCO_2.



21. There are a number of potential difficulties with this approach:

- It may be considered a 'subsidy' requiring clearance by the European Commission;
- This approach would mean the CCL must remain for a period at least to 2030 and possibly beyond, much longer than is currently envisaged;
- The Levy was designed to be broadly revenue neutral i.e. the monies collected are balanced by outgoings on rebates, capital support schemes, and so on. If the monies collected are reduced, albeit by a relatively small amount in the first instance (see the box above) then so must the recycling.

Potential approaches (III) - Reform the Climate Change Levy to create a carbon price floor

22. The floor price proposal was in the Conservative Party paper *Rebuilding Security: Conservative Energy Policy in an Uncertain World.* The text in this document is reproduced in detail here to help guide the development of this concept:

We propose to fulfil our commitment to reform the CCL in a way which is revenue - neutral, by turning it a rebateable carbon levy that would act as a floor price for carbon in the energy sector:

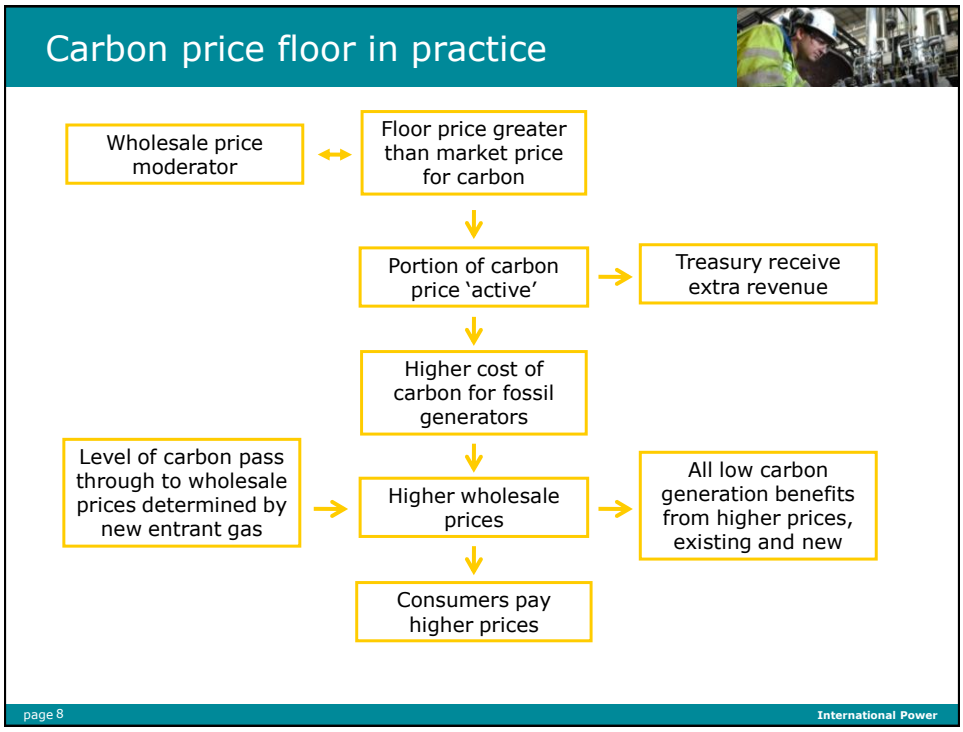
- *The CCL would be removed from the downstream supply of electricity to consumers and would instead be payable upstream on the carbon content of the electricity when it is generated;*
- *The levy would be set at a rate determined by the Treasury, but power generators would be able to offset the costs of purchasing ETS allowances against their liability for the reformed Climate Change Levy;*
- *If the ETS price is at or above the level of the rebateable levy, no net charge would be payable; if the ETS is below the level, then the difference would be paid through the levy to the Treasury.*

We intend that this reform should provide incentives primarily for future generating capacity, rather than penalise existing capacity. Accordingly,

- *The rebateable levy should begin at a low rate, to be determined with the industry, and then in increase at a defined predictable pace until it reaches an optimal floor price in the future;*
- *The levy should be in place for at least 25 years, matching much of the life of all but the longest investments in capacity;*
- *The exemptions that currently apply to domestic consumers, small businesses and charities under the CCL would be carried over to the new system;*
- *The current system by which some groups of industrial users can secure rebates in return for improving their energy efficiency would also continue;*
- *The reform would be revenue-neutral, first replacing the CCL on electricity and in time rebating the proceeds to energy consumers.*

23. An illustration of how such a floor price might work, and the role of different stakeholders, is shown in the figure below. Some comments on the proposed approach:

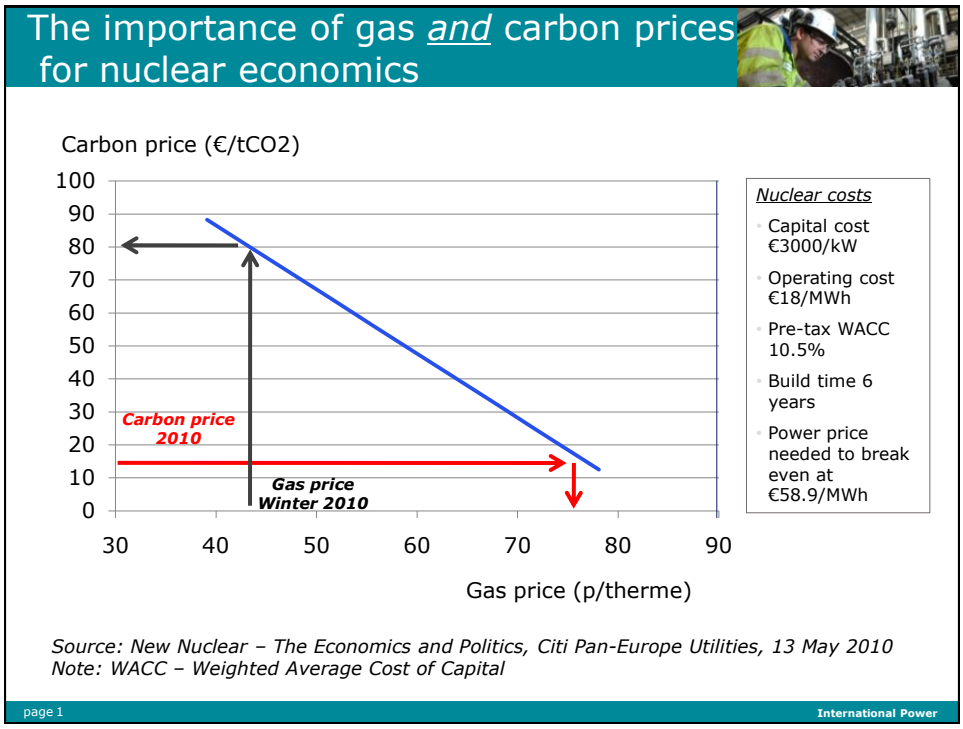
    - This approach transfers *risk* from the low carbon technology developer to the consumer and companies with fossil generation;
    - Although this may not be a 'public' subsidy in the normal sense of the word – i.e. from the public purse – a floor price would provide a 'subsidy' to low carbon generation, albeit paid for by consumers;
    - The text implies the changes should not penalise existing capacity but it is the existing fossil plant that will bear any additional cost in carbon over the market price, and likely set the price for electricity, otherwise there would be no benefit for new low carbon generation.



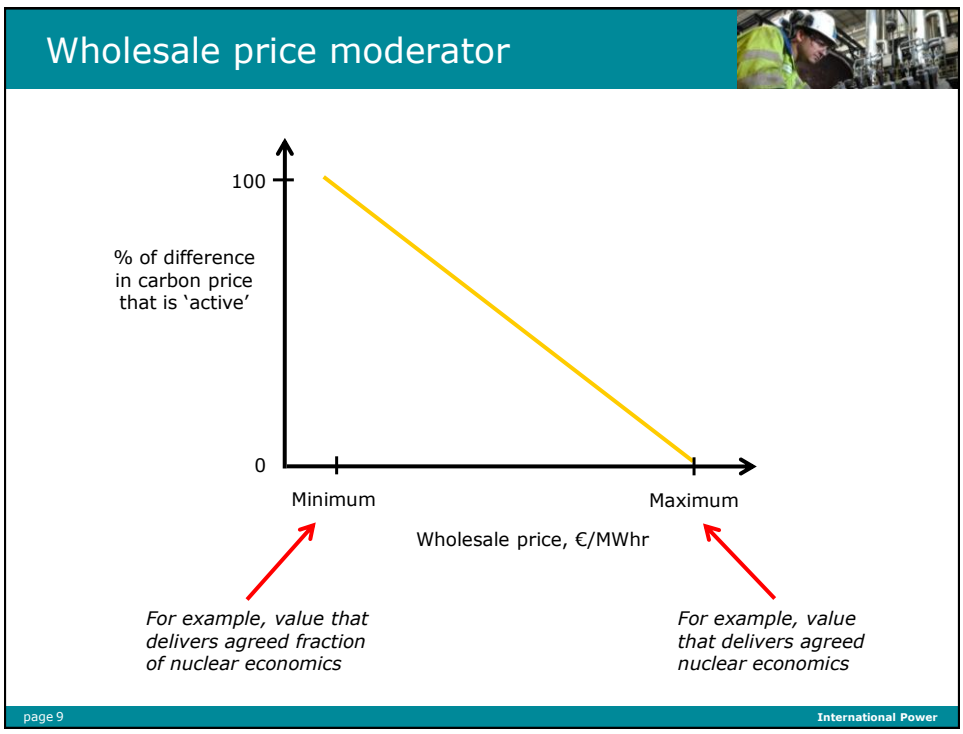
The importance of a wholesale price moderator

24. A recent analysis by Citi, *New Nuclear – The Economics and Politics,* has explored the relationship between two of the key variables that determine the wholesale price, gas and carbon prices, and the implications for nuclear. In particular, the analysis focuses on the price of carbon needed, at different gas prices, to deliver a return on new nuclear generation. The relationship between the gas price and carbon price is shown below for one set of nuclear economics.

25. As indicated in the figure above, the lower the price of gas, the higher the cost of carbon needed to deliver the nuclear economics. At current gas prices, the carbon price would have to be about €80/tCO_2; alternatively at current carbon prices, the gas price would have to rise to about 75p/therm to deliver the nuclear economics.



26. The possibility of wholesale prices rising due to increased cost of gas then needs to be considered if a carbon price floor is created. In the case where the carbon price floor is above the market price, the proportion of the difference considered 'active' (i.e. the portion levied from fossil generators and passed through to the wholesale price) should be moderated according to the wholesale price. For example, if the wholesale price is low, the full difference in carbon price could be levied on the fossil sector; the portion of the difference in carbon price that is 'active' would decline to zero as the wholesale price rises to a value that delivers, for example, the nuclear economics. The figure below captures the principles of this moderation, with the minimum and maximum values in the wholesale price to be agreed by stakeholders.



Additional comments on the floor price for carbon

27. A major cause for concern here is the potential for 'windfall' gains by low carbon technologies, both existing and new – for example,

    - Existing nuclear and renewables would also receive extra revenue from an uplift in wholesale price brought about by a carbon price floor higher than the prevailing market price;
    - If the gas price increases post-2020, then so may the wholesale price, increasing revenues to the low carbon generation beyond that intended; moderating the portion levied according to the wholesale price as described above would minimise the risk of this occurring;
    - If more than one technology is being incentivised, and the carbon price in 2020 is set to deliver the low carbon technology with the higher economics, then the low carbon generation with lower costs will receive disproportionate benefit when compared with its economic case.

28. A major beneficiary from the creation of a carbon price floor approach is the Treasury – an additional €10/tCO_2 would deliver about €1360M to the exchequer in that year (see box below). The Exchequer would also have about €3400M from auctioning permits to the electricity sector at a price a little below a prevailing market price of say €25/tCO_2.

On the numbers used in the analysis - Reform of Climate Change Levy to create carbon price floor

Assume:

Market price prevailing in 2020 is €25/tCO_2

- Assume floor price set at €35/tCO_2
- Assume difference to be reconciled is €10/tCO_2 after normalising for wholesale price
- Assume 1650MW nuclear plant - output of 13TWh/annum using a 90% Load Factor
- Assume total annual UK consumption is 340 TWh (2008 figures from DUKES)
- Low carbon generation is about 75TWh in 2008 (52.5TWh nuclear and 22.5TWh renewable)
- Assume gas determines the wholesale price - pass through to wholesale price is €4/MWh (i.e. €10/tCO_2 x 0.38kgCO_2/kWh) or €10/tCO_2 x 0.38tCO_2/MWh

- Additional cost to the consumer is 340TWh x €4/MWh = €1360M
- Illustration of 'windfall' to existing low carbon generation - assume the same generation for nuclear and renewable as that in 2008 results in:
  - 75TWh x €4/MWh or €300M total benefit to existing low carbon generation
  - of which 52.5 TWh x €4/MWh or €210M additional benefit to existing nuclear
  - and 22.5TWh x €4/MWh or €90M additional benefit to existing renewable

29. As with other forms of Government revenue raising instruments there may well be a temptation to use the carbon price floor mechanism to raise additional monies in times of financial stress. Indeed the current economic climate may prompt Government to introduce the floor much sooner than is needed for the declared purpose of supporting the carbon price to help reduce the risk to new low carbon build.

30. Although there is widespread recognition that new low carbon capacity is needed, Industry will, naturally, be against an increase in wholesale prices. There will be pressure therefore for suppliers and independent generators to internalise these increases as much as is possible with a subsequent erosion of profits and a weakening of ability and confidence in some stakeholders to invest in low carbon technologies. Indeed some stakeholders may choose to invest in other markets in which they operate.

31. The timescale set in the Conservative Party document is 25 years but as the penetration by low carbon sources increases - by about 2025 about 60% of the sector could be serviced by nuclear plus renewables - it is these technologies that could set the electricity price in some periods, making the floor price less important as a support mechanism.

32. It is not clear what relevance CCAs, and rebates in particular, have in the case where the costs have moved from business in the 'downstream' sector to 'upstream' fossil generation. There may well be extra costs associated with higher electricity prices than would otherwise be the case if the cost of carbon was left to the market in which case a more complex rebate system would have to be developed and implemented.

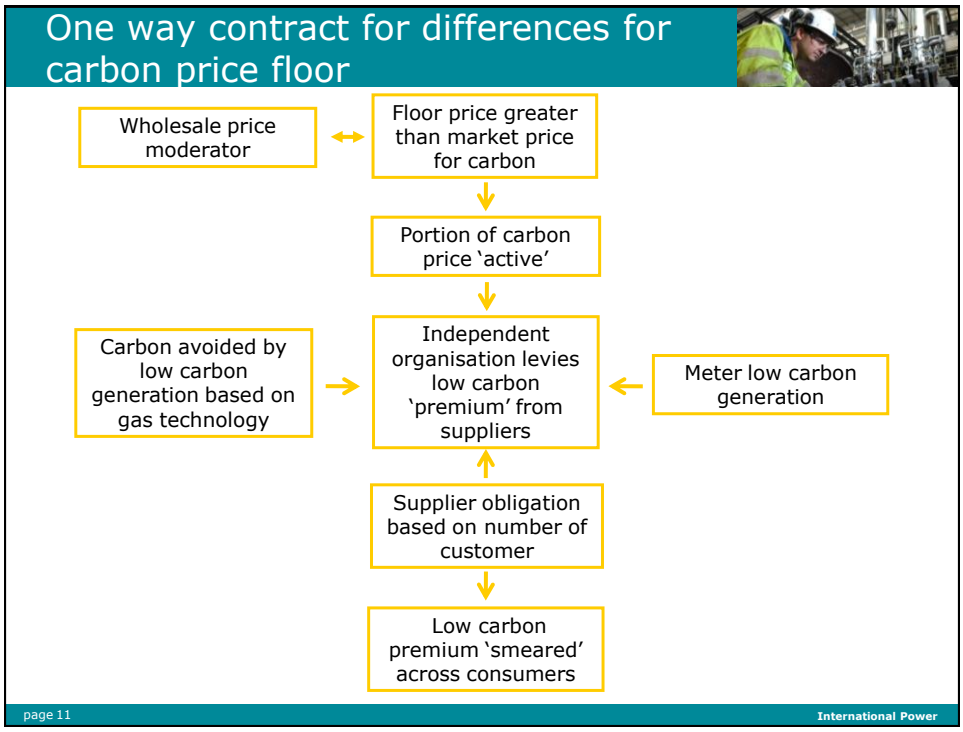
33. In addition to higher costs for industry and the commercial sectors, an increase in wholesale prices will bring more people into fuel poverty. Government will need to address this, perhaps be expanding initiatives that have placed obligations on suppliers and most recently on generators. For the generators who have been forced into this initiative and who, unlike the suppliers, have no opportunity to 'smear' these costs across their entire customer base, this would further erode their financial position and confidence to further invest in the UK.

Potential approaches (IV) - A one way contract-of-differences approach to a carbon price floor

34. A one way contract-of-difference approach to the carbon price floor would potentially address many of the concerns highlighted above. The figure below summarises the key elements of the process involved.

35. An independent organisation would carry out a 'reconciliation' process that would involve the following:

    - Establish the portion of the difference in carbon price that is 'active' - for the same reasons, and in the same way, as indicated in potential approach (III);
    - The metered output from say, a nuclear plant, would be converted to the amount of carbon avoided, by comparison with a gas plant that could otherwise provide the same volume of electricity;
    - The additional monies needed for the nuclear plant would be established and an obligation placed on suppliers to contribute to these monies, in proportion to their customer base.



36. An indication of the economic implications of this approach is shown in the box below. For example if the carbon price floor is €35/tCO_2 compared to a market price of €25/tCO_2 then a sum of €50M would be needed from consumers for the output from a single nuclear plant.

On the numbers used in the analysis – One way contract of difference for a carbon price floor

Assume:

- Market price prevailing in 2020 is €25/tCO_2
- Assume floor price set at €35/tCO_2
- Assume difference to be reconciled is €10/tCO_2 after normalising for wholesale price
- Assume 1650MW nuclear plant - output of 13TWh/annum assuming 90% LF
  - Assume carbon avoided in 2020 by new CCGT at 0.38$MtCO_2$/TWh then *carbon avoided* by new nuclear plant is 13TWh x 0.38 $MtCO_2$/TWh or 5$MtCO_2$
  - At €10/tCO_2 need €50M from consumers (rising to €400 for 8 plants of the same type)

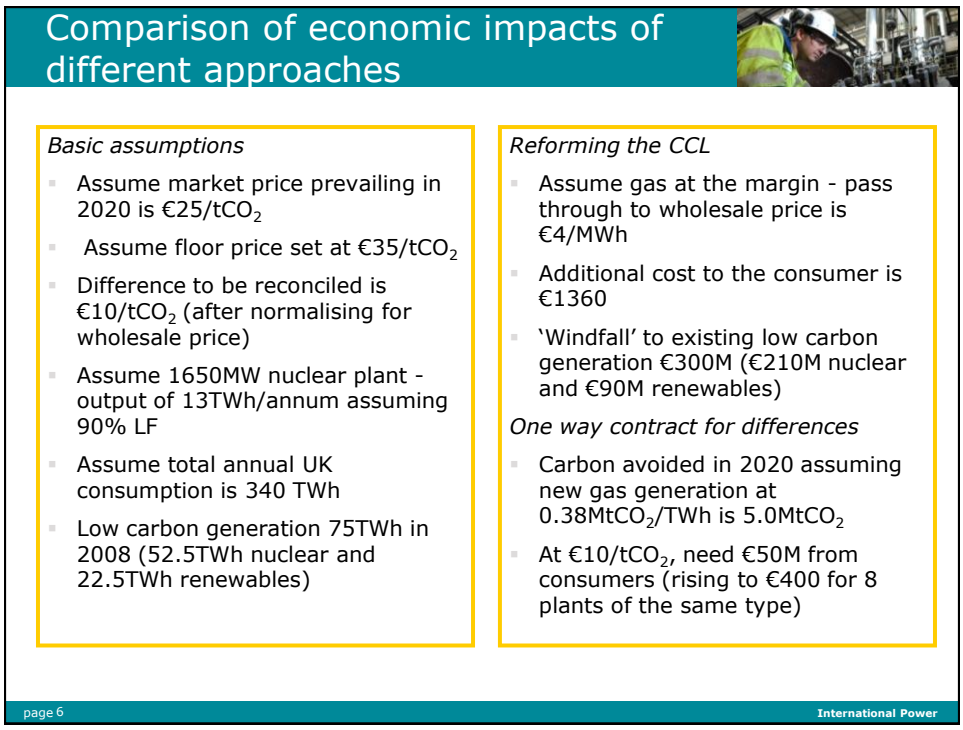
37. Overall, this approach provides the targeted support needed for new low carbon investment while protecting industry and the consumer from excessive costs because:

- Perturbation on the electricity market relatively small;
- Impact on consumers, and fuel poor in particular is limited;
- Potential for 'windfall 'profits eliminated;
- Potential erosion of industry competitiveness lessened;
- Can be applied for the period desired;
- Retains CCAs and LEC benefits for CHP and renewables.

Comparison of CCL reform approach to a one contract for difference approach to deliver a carbon price floor

38. There are major differences between the two approaches discussed above, particularly in their overall economic impacts and these are summarised in the figure below. The economic impact of a one way contract of difference approach is almost a factor of 27.2 *lower* than that of an 'upstream' carbon Levy for a single nuclear plant; if the number of plants steadily rises to say eight plants (the declared intention of the two entities at the forefront of nuclear new build, the economic impact of a one way contract of difference approach is still a factor of 3.4 *lower*, and spread over a decade or so making it much easier to absorb.

39. The highly focused nature of the one way contract-for-difference approach then not only provides the 'certainty' sought by nuclear, but also at a much lowest cost to the consumer – and this is the preferred option whether it is a single plant or many plants.



Concluding remarks

40. There needs to be greater clarity as to what is actually needed from a carbon price floor - is it to provide a measure of 'certainty' to the carbon price? Is it to provide a 'robust' price for carbon? Or is it to help 'deliver the economics' of low carbon technologies such as nuclear? These require quite different responses – the detailed case needs to be made in a transparent process.

41. The concept of a carbon price floor was presented by a narrow set of stakeholder to address the ***risk*** of a weak carbon price into the 2020s and beyond. This preceded a wider review of the functioning of the UK electricity market, and the European Commission's work exploring the possibility of raising the EU 2020 reduction target in greenhouse gases from 20% to 30%. Both of these initiatives are now underway and will likely lead to a solution that not only provides 'certainty' for investors but also delivers a more equitable treatment of all stakeholders. The case for a floor price for the cost of carbon in light of these developments needs to be made - if the decision remains to precede, then the level at which it is set should take these developments into consideration.

42. It is possible that a carbon price floor may provide some 'certainty' for a relatively few, albeit significant investors, but such a floor could potentially disadvantage a much larger group of industry and power sector investors, including new entrants, particularly if the floor is set at too high a level. In this case there is a real risk of loss of industrial competiveness, and flight of valuable investment away from the UK.