



Response to the 2011 HM Treasury Carbon Floor Price Consultation

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UKERC response

The UK Energy Research Centre welcomes this opportunity to provide input to the HMT Carbon Floor Price Consultation. We have focused only on the questions where we believe we may have something to offer. The observations have benefited from discussions at an “Independent Experts Workshop on Electricity Market Reform” convened jointly by UKERC and the Imperial College Centre for Energy Policy and Technology on 31 January 2011.

Investment

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

In the hypothetical circumstance where investors have complete confidence that carbon prices will be sustained in the long run, low carbon investment would be encouraged and high carbon investment discouraged. However, where the carbon price overlays electricity wholesale prices and the latter are uncertain and outside the control of low carbon generators, volatility in the wholesale price will still discourage investment in low carbon generation. We explain the reasons below. In addition, the evidence suggests that investors attach political risk to taxes.

It is also worth noting that the uncertainty over the future price of gas, because of the availability of cheap shale gas, will affect the impact of the any carbon price support mechanism.

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

Carbon taxes offer greater certainty than cap and trade schemes such as the EU ETS. However, investors have indicated that they view fiscal instruments as relatively risky, because political changes create changes to the fiscal environment¹. Taxes can drive investment, but when considering power sector investment, the relatively long run uncertainty relating to carbon taxes has to be seen in the context of highly capital intensive, long lived assets such as nuclear power stations. As we explain below, long run fixed price contracts for electricity are likely to be more bankable and economically efficient.

¹Energy and Climate Change Select Committee: Electricity Market Reform - uncorrected evidence - 2 February 2011- <http://www.publications.parliament.uk/pa/cm201011/cmselect/cmenergy/uc742-iii/uc74201.htm>

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

For the reasons set out below further reform is desirable, perhaps essential and certainly likely to be much more economically efficient than carbon pricing alone.

Types of generator

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

Yes. But see the response to 4.C3.

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?

UKERC believes that some degree of tax relief for power stations with CCS is essential. These plants are expected to produce electricity at a cost of up to one third more than unabated coal fired power stations. Taxes on the fuel will prejudice the economics of this family of technologies. However, tax relief should not be set at 100% and should take account of residual emissions associated with say 80–90% capture. For commercial plant a minimum level of availability of capture plant should be met. For demonstration plant, any periods during which capture plant was not available but the station continued to operate should be granted relief, as teething problems will be inevitable as experience is gained.

Imports and exports

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

Greater physical integration with the wider European markets via interconnection will be beneficial in the future, but physical integration will also require harmonisation of the rules on carbon price support mechanism. Physical integration coupled with a standalone UK carbon price could simply make un-priced carbon flow through the interconnector to the UK.

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?

It would probably be best to base support rates on forward prices for carbon under the EU ETS. It would be helpful to set indicative rates several years ahead, but firm these up a year or two ahead as price expectations become clearer.

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

See answer to Question 5.B3.

Electricity investment

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

UKERC would expect the immediate impact to be rather modest, for three main reasons:

1. Investors view carbon prices as a relatively risky instrument compared to long run, contracted, guaranteed prices (Feed in Tariffs for example). The reason is that taxes are viewed as politically risky – subsequent governments can change the rates.
2. Electricity generators and suppliers are usually able to pass increases in prices through to consumers. This is because gas or coal generators are ‘price makers’, due to the way the electricity market functions. A carbon price would be expected to benefit investment in gas and discourage investment in coal, since the former generates at around half the carbon intensity of the latter. However, gas is already preferred by investors for a variety of reasons and there are no plans for a new coal station in Britain at present.
3. Whilst a carbon price would also be expected to improve the relative economics of zero carbon generators such as nuclear power or renewable energy, it would not of itself insulate such generators from movements in wholesale power prices. Nuclear and most renewable are ‘price takers’, and while high fossil fuel prices benefit such plants they may be unable to cover key costs, including debt service, when prices are low. Only a very high carbon price would be sufficient to over-ride such downside risk. For reasons described below we believe that it would be more economically efficient to de-risk investment in low carbon generation through other means, notably through the Feed in Tariff/Contracts for Difference described in DECC’s Energy Market Reform proposals.

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

By far the simplest and most economically efficient means by which to incentivise investment in low carbon generation is through long run, fixed price contracts for plant such as nuclear and wind that have high fixed costs, very low operating costs and are exposed to electricity price risks. If wholesale prices are to be held down then the carbon price should be seen as a secondary intervention, focused more on signalling intent, encouraging minimum carbon dispatch and improving energy efficiency.

Existing low-carbon generators

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

There are very serious implications for existing generators. Companies fortunate enough to have portfolios that contain significant nuclear, hydro or wind will receive a windfall benefit as wholesale prices rise. On the other hand generators with a lot of coal plant will experience a cost increase. Merchant coal operators would be expected suffer particularly in this regard. It is difficult to avoid these impacts and for this reason instruments additional to carbon pricing are likely to be both a more economically efficient and a fairer means of encouraging low carbon investment.

Whilst in carbon terms limiting the use of such plant and encouraging its retirement might be desirable, this is less true in terms of prices, consumer costs and security of supply. A key consideration is whether proposals to introduce a capacity mechanism might interact with carbon pricing so that older, higher carbon plant is retained to provide system margin and reliability with minimal impact on emissions. UKERC will address these issues more thoroughly in our response to the DECC EMR proposals.