

Response to the Electricity Market Reform and Carbon Price Support consultations



Summary

The CBI¹ has led the calls for electricity market reform in order to unlock the estimated £200 billion of private sector investment needed over the next 20 years to upgrade our energy infrastructure. Enabling this investment is a massive challenge but will enable the climate change targets to be met in a cost effective manner, will help secure energy supplies, is an opportunity to grow the manufacturing supply chain and thus support infrastructure investment as a route to economic growth.

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

Recommendations

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

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

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

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

Evaluation criteria

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

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

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

² <http://climatechange.cbi.org.uk/reports/00283/>



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

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

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

Low carbon Feed-in Tariff

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

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

Carbon Price Support

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

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

Capacity Mechanism

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

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

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

Related aspects

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

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

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

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

1. Part of the motivation for undertaking Electricity Market Reform is due to the currently low carbon price in the EU ETS and because the UK is aiming to deliver low carbon electricity investment at a faster pace. Reforms should ideally be made at a European level and thus CBI encourages Government to look at ways to improve the EU ETS³. In particular, recent events which have damaged confidence in the EU ETS (such as tax fraud and security breaches) need to be convincingly tackled.
2. The CBI's position paper on the EU 2020 emission targets states that at this stage raising the headline EU 2020 carbon reduction target is premature, without commensurate action from our competitors and without understanding the economic impact. The CBI has also stated that we need to move the policy debate beyond 2020, to establish a framework that delivers a clear long-term carbon price signal and supports low-carbon growth.
3. As part of Europe's "Roadmap for a low carbon economy by 2050", greater clarity is required about the long-term trajectory of carbon reductions. The EU could aim to set a post-2020 goal for power sector decarbonisation. A tightening of the EU ETS cap post-2020 in line with such a policy could then be envisaged to improve the certainty for investors. The Electricity Market Reforms would likely still be needed due to uncertainties regarding the future carbon and gas prices, due to the uncertainty about whether it is possible to reach agreement on changes to the EU ETS either for Phase 3 or Phase 4 (post 2020).

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

4. Just as the Electricity Market Reform is being undertaken to provide long-term certainty for power sector investment, manufacturing industry and other sectors of the economy also need longer-term investment certainty in a way that maintains competitiveness in the face of an unlevel global playing field. The competitiveness of energy intensive sectors must be maintained by addressing the cumulative energy policy impact on energy prices for sectors most at risk of carbon leakage.
5. A 'UK only' increase in electricity prices due to the Carbon Price Support would increase the risk that energy intensive manufacturing, business and investment will shift out of the UK to elsewhere in Europe. In addition there could be an increase in the risk of carbon leakage to other parts of the world, leading to loss of economic capacity and likely higher emissions. Carbon leakage risk may also relate to sectors such as data centres in addition to electricity intensive manufacturing industries. The contribution of these sectors to the economy and to UK tax revenues should be quantified as to the risk of carbon leakage on GDP and balance of payments if companies go out of business as a consequence.

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

6. Low carbon technologies require a vast array of components and raw materials that are energy intensive to produce. Examples of this are steel and cement used in all types of power stations and buildings; soda ash and other chemicals used in insulation, recyclable packaging and ingredients in cold laundry detergents; insulated glass; aluminium for light weight vehicles; insulating ceramics for factory furnaces; low rolling resistance tyres plus many others. These and other industries should be part of efforts to rebalance the economy but they continue to be at risk of carbon leakage. These sectors have continued to improve their energy efficiency and cut emissions but need the right framework for continuing to reduce emissions and maintain industrial production in the UK, rather than shifting investment overseas.
7. While free allocation of EU ETS allowances against benchmarks provides some protection from carbon leakage risk, free allocation does not address electricity price increases caused by the cost pass-through from auctioning 100% of allowances in the power sector or by other carbon and renewable incentives policies such as the Renewable Obligation and proposed Carbon Price Support and cost of the other Electricity Market Reform proposals. Some industries also have evidence that the ETS benchmarks have been defined quite ambitiously. According to the Annual Energy Statement, the EU ETS will only account for ~19% of the policy driven increase in an average medium-sized non-domestic user's electricity bill⁴. This assessment does not include the impact of the decision to convert the CRC into a tax or the Carbon Price Support and EMR proposals and does not reflect the situation faced by the largest energy users⁵.
8. Business is also concerned about the limitations of statistics used in reports assessing carbon leakage risk as official statistics may have missing, incomplete or insufficiently detailed data. Much more effort is needed to improve the assessment of the Electricity Market Reform proposals and other climate policies on business competitiveness.
9. The Electricity Market Reform consultation also assumes a rapid increase in natural gas prices when there is increasing evidence (such as from the IEA) that gas prices may remain lower. While future gas supply is uncertain, the low gas price scenario shows that the cost on energy users would be higher. This could mean that the Carbon Price Support and Electricity Market Reform proposals will create even more policy driven increases in energy prices that companies' international competitors do not face.
10. While the Treasury's initial list of sectors most impacted by Carbon Price Support is a useful start, CBI members disagree that *"businesses are likely to pass on some of these costs to consumers and the effect on their profit margins might be smaller"* and that *"For those sectors where electricity costs are a significant proportion of total costs, all businesses in the sector have the same opportunities to reduce the impact of the proposal on their costs. The proposal should not therefore limit their ability to compete with each other."* Our members and the European Commission's

⁴ Table E4 <http://www.decc.gov.uk/assets/decc/What%20we%20do/UK%20energy%20supply/236-impacts-energy-climate-change-policies.pdf> (not including energy bill impact from CCS or CCA policies or CRC; products policies are not included as there is an imperfect match with efficient products and the technologies used by the largest energy users).

⁵ See in particular the Energy Intensive Users Group and Trade Union Congress report: <http://www.eiug.org.uk/publics/WWA%20Impact%20of%20Climate%20Change%20Policies%20EIUG%20TUC%202010723.pdf>

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

11. Carbon Price Support represents a 4th price on carbon/energy paid by business on electricity use (EU ETS, Climate Change Levy, Carbon Reduction Commitment), in addition to the cost of the Renewables Obligation and micro-generation Feed-in Tariff being incorporated into electricity bills. All of these policies may lead to UK businesses paying the highest global price on carbon. This could negatively influence general investor views on UK as a place to invest and impede the economic recovery.
12. The Carbon Price Support proposal will increase UK electricity prices and when combined with a negative impact on the economics of CHP, is yet another factor reducing the international competitiveness of energy intensive sectors. While electricity prices do have to increase for investment in low carbon generation, the price increase needs to facilitate investment in a cost-effective way. Alongside any major policy proposal, Government should assess the energy price increases caused by the cumulative impact of energy policies. The Government's 'Energy Intensive Industries Initiative' should lead to policies that protect the competitiveness of energy intensive sectors most at risk of carbon leakage. CCAs and the derogation under the EU ETS Directive (State Aid) could be tools by which relief from the cumulative cost of energy policies is provided to those sectors most at risk of carbon leakage.
13. Another potential mechanism for protecting industrial competitiveness is consortia of energy users supporting low carbon generation investment with long term contracts. CBI's *Decision Time* report recommended that Government and Ofgem should publish a policy statement on the Competition Law implications of long term contracts and under what circumstances they would be permitted. As good quality CHP plants are a core component of many energy intensive processes, the economics of CHP should be maintained (see paragraph #28-30).

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

14. Both the CfD and Premium Feed-in Tariff appear to perform well against CBI's criteria (see page 18). Members have said that sufficient investment could likely be made under either the Premium or CfD. A CfD is likely to have a lower cost impact and could enable sufficient low carbon investment at a lower cost. However, a key concern is how market oriented the CfD proposal is and its impact on the wholesale market and this may make a Premium Feed-in Tariff preferable. The design of any low carbon Feed-in Tariff must ensure that a liquid wholesale market is maintained so as to ensure a robust reference price. It may be appropriate to have different arrangements for different types of technologies.
15. It may be suitable to use auctions to set some CfD Feed-in Tariffs where significant competition is likely. For 'first of a kind' power stations, CfD auctions would not be suitable and a negotiation is

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

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

16. The creation of CfD Feed-in Tariffs has parallels with Government's public procurement contracts. A key difference is that the end product or investment for most government contracts is not part of a competitive market (for instance once a school is built, the school building is not in a competitive market). In comparison, a CfD Feed-in Tariff will support investment and construction of power stations that will then operate in the competitive electricity market for several decades. While differences do exist, lessons can and should be learned for CfDs from wider Government procurement contracts.
17. Government is currently working with the CBI and the defence industry body ADS to reform the rules that underpin contracts in the defence sector that are procured through single source procurement (the 'Yellow Book') due to confidential and National Security reasons. The review is aimed at reducing costs, increasing efficiency and simplifying the procurement process to allow more small and medium-sized enterprises to be involved. We expect the 'Yellow Book' review to examine parallels in the pharmaceutical industry which also have a significant number of single source procurement contracts. As the CfD Feed-in Tariff could include the CfD negotiation for 'first of a kind' power stations like retrofit to CCS demonstration projects, Round 3 offshore wind projects and nuclear, there are likely lessons to be learned in the 'Yellow Book' review as well as from the pharmaceutical industry.
18. The specific skills for achieving positive outcomes in public procurement also need attention. The National Audit Office⁶ suggests that needs analysis, risk identification and management, market engagement and performance evaluation all need to be enhanced to prevent poor procurement from hampering value for money. Badly-run procurements increase bid costs and create delays in projects; this reduces competition over time by putting providers off bidding, which in turn reduces the value brought by competition.
19. Government could make better use of incentives to raise the performance of officials engaged on negotiating CfDs. Encouraging efficient decision-making over risk-aversion will save costs for low carbon power investors, government and energy users. A secondment programme between public and private sectors could be developed to increase commercial skills on both sides.

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

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

20. We agree with Government that a stronger carbon price signal could be generally positive for low carbon power stations post-2020. We also agree that other policies will also be required. Other policies are particularly needed as analysis in our *Decision Time*⁷ report (see pages 22-23) demonstrated that uncertainty on gas prices has a much greater impact on the value of a nuclear power plant than uncertainty about the carbon price. Our report also demonstrated the risk that a large share of low marginal cost technologies in the electricity mix may drive low or negative electricity prices.
21. A stronger carbon price signal should ideally be set at a European level accounting for EU and global emission reduction goals. If a carbon floor mechanism is introduced it should start at a low level and build up towards the anticipated EU ETS price by the end of the decade. The price support rate should be set four years in advance on the basis of an agreed carbon price trajectory. The Government could seek cross-party support for Carbon Price Support. While this could provide a degree of investor certainty, there would be limitations, as one Parliament cannot bind future Parliaments on budget matters.
22. The Carbon Price Support (CPS) proposal would likely have the following investment decision impacts:
- Companies may shift production and investment away from UK plants to other plants in Europe or outside of the EU, resulting in loss of jobs, higher emissions and lack of progress in rebalancing the UK economy and endangering economic growth
 - Plans for CHP facilities could be shelved
 - Companies may plan to convert existing CHP capacity to only generate power and to expand use of standard boilers to meet heat needs
 - Additional pressure would be put on the decision to invest in NO_x abatement on coal fired power stations, which could put pressure on security of supply
 - Plans for investment in electricity interconnectors could be accelerated, resulting in higher imports as domestic generation would have a higher cost burden
 - Existing fossil fueled plants may invest to improve their thermal efficiency
 - It may lead to increased investment in using biomass for electricity generation (depending on the details of how biomass would be supported and the ability to grandfather support levels through any RO or FIT support level review)
23. The proposal to start the CPS in 2013 creates additional energy security risks through additional pressure on the decision to invest in NO_x abatement on coal fired power stations. A third of the UK's power generation capacity is already set to close over the next 10 years due to plants reaching their end of life and EU air quality legislation (the Large Combustion Plant Directive – LCPD and Industrial Emissions Directive – IED). If a Carbon Price Support contributes to a decision to not invest in NO_x abatement, then plants will be forced to take the limited hours derogation which will severely limit operation and force closure around 2020. Some existing thermal power plants could receive investments to comply with the LCPD/IED and enable them to operate as standby, back-up and peaking stations that operate for a limited number of hours per year. Instead of having to rely

⁷ <http://climatechange.cbi.org.uk/reports/00283/>

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

24. Some independent power generators without a supply business hedge have forward contracts (up to ~2016) for the sale of electricity. These companies would not be able to pass on the cost of a CPS that starts in 2013, putting further economic pressure for premature closure. The CPS also has the potential to introduce shifts in the economic value of forward power contracts as the CPS feeds through directly into marginal generation costs and prices. For example, introducing the CPS now for 2013 will increase the forward 2013 power price benefiting those who have already purchased, and disadvantaging those who have already sold, 2013 power. Contractual means to deal with the prospect of these shifts (for instance through change of law clauses) are insufficient to address these risks because the indirect means by which the CPS will influence power prices means that there will always be too widely divergent views (the buyer's and the seller's) on the precise impact of the change. Furthermore, the market will not be able to hedge uncertainty in the level of the CPS efficiently. HM Treasury is the only party that is "long" the tax (benefits when the tax rises), which forecloses an efficient "hedge" on future variability of the tax rate with the "short" generators who will have to pay it.
25. The prospect of retrospective shifts in the economic value of forward contracts in this way could undermine market confidence and liquidity in the entire UK wholesale market. Buy-sell spreads will likely increase to compensate for the increased risk and hence increase the cost of wholesale risk management to consumers. It is for this reason that we strongly recommend that tax rates are fixed four years ahead of time.
26. Combined cycle gas turbine plants, renewable electricity and other power plants currently under construction or in the planning permission process could well fill the gap of planned power station retirements through the 2010s. However no plant other than that under construction is obligated or guaranteed to be in place. These planned investments are being financed through the Renewables Obligation, the current EU ETS price carbon and low gas prices.
27. If the introduction of a tax (CPS) leads to UK electricity prices being significantly out of line with the rest of the EU there would be political pressure to reduce or remove tax and this creates additional uncertainty for investors.

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

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

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

29. A change to the carbon price support proposal is needed in order to maintain the status quo CHP investment attractiveness. Not doing so would likely freeze investment plans for new CHP and may cause current CHP operators to convert their CHP units to pure electricity generators and make increased use of boilers to meet hot water/steam needs. Many industrial facilities need high temperature heat that is best delivered through CHP and it is less efficient to revert to increased boiler usage. Many of our members have specifically invested in CHP to reduce their carbon footprint, and these sunk costs should not be retroactively affected by the carbon price support. Replacing CHP capacity with increased boiler usage would increase emissions, requiring more effort in other sectors in order to meet UK carbon reduction targets. Good quality CHP plants are a core component of energy intensive processes. Additionally, CBI is encouraging Government to develop a low-carbon heat strategy that includes encouragement to use surplus and waste industrial heat to support district heating (for instance in nearby residential areas)⁸. Negatively impacting CHP economics would make it even more difficult or even impossible to use surplus and waste heat as a way to decarbonise the UK's energy used for heating.
30. The Combined Heat and Power Association has suggested an administratively simple way that the CHP Quality Assurance program could be amended to provide an exemption from the carbon price support for the heat energy created by combusting fossil fuels. The CBI supports such an exemption being created in order to maintain the status quo economics of CHP. This would also be consistent with how heat is treated under Phase 3 of the EU ETS.

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

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

Avoid problems in the Irish Single Electricity Market.

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

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

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

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

34. CBI’s *Decision Time* report and analysis by Pöyry⁹ have shown that a future electricity mix with a higher penetration of wind power would have much more volatile electricity prices and would require much higher levels of system flexibility to cope with periods of low wind power. Sufficient electricity capacity and flexibility is needed to reduce the risk of involuntary supply reductions (‘unserved energy’) and reduce the cost of excessive wholesale price volatility on energy users. The risks of not having sufficient generation capacity and flexibility are clear and plausible reasons and modelling can show why investment signals for sufficient capacity may not be strong enough. As well, the CPS proposal could negatively impact existing coal and gas power stations which could affect system capacity and flexibility (see paragraph #23).

35. However, the case for a capacity mechanism is currently not uniformly accepted by CBI members. This is due to concerns that:

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

⁹ Pöyry, 2009. ‘Impact of variability, how wind energy could change the UK and Irish energy markets’.

36. For these reasons, we recommend a joint Government – business ‘task and finish’ group to jointly examine and develop proposals to feed into the electricity market White paper. The group should include diverse business representation and examine the costs and case for introducing a capacity mechanism at this stage as well as other options such as a reformed and sharper ‘cash-out price’, a capacity supplier obligation, a broader ‘potential flexibility mechanism’, and other actions to improve market liquidity, system flexibility and capacity. Ways to encourage the potential of demand side (‘smart grid’) solutions to capacity and flexibility should in particular be examined.
37. One alternative to a market wide capacity mechanism is a supplier obligation. This would require suppliers to demonstrate they have sufficient physical generation (which could be via contracts) to meet their supply obligations. This would require a body to assess how suppliers are meeting their obligations and penalties for failure (e.g. a pseudo cost of new flexible capacity). The requirement to demonstrate a physical obligation may place a barrier to entry and favour vertical integration. The benefit however is that a supplier obligation would provide certainty and being a more market based approach would bring with it efficiencies.
38. Another option is a broader ‘potential flexibility mechanism’ that would be aimed at incentivising the provision of flexible capacity to the market with eligibility via an agreed set of flexibility criteria. Such a mechanism would broadly preserve the current role of the system operator in procuring reserve and response, and preserve the important role of the energy market in efficiently dispatching flexibility when it is required. The flexibility criteria would be technology neutral, and therefore open to demand-side capacity, storage technologies, as well as thermal and peaking plant but not technologies supported through the Feed-in Tariff mechanism.
39. The case for a capacity policy intervention at this time and different options should be examined by a joint Government – business ‘task and finish’ group to report into the electricity White paper.

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

40. Using waste and/or biomass to produce electricity provides important flexibility as such generation can respond quickly to help balance electricity supply and demand¹⁰. It has been shown with lifecycle assessments, that significant carbon savings are possible for a variety of types of biomass used for producing electricity. Energy from waste also potentially provides a stable, flexible and reliable base-load generation from a domestic fuel source which is also largely renewable. CBI’s recent report on energy from waste¹¹ set out recommendations which could help energy from waste reach 6% of UK power generation by 2015.
41. The world’s bio-resources are being put to an increasing number of energy end-users to help reduce carbon emissions and provide different types of energy and energy security that is most relevant to different countries and sectors. Bio-resources are also important raw materials for

¹⁰ http://www.draxgroup.plc.uk/files/page/84635/Biomass_the_fourth_energy_source_FINAL.pdf

¹¹ CBI, Oct 2010. ‘Going to waste: Making the case for energy from waste’ <http://climatechange.cbi.org.uk/reports/00447/>

many different industries. With appropriate sustainability criteria, incentives for using bio-resources for different energy objectives can expand supply of bio-resources in an environmentally friendly manner as well as improving the technologies for converting biomass into energy¹². In the UK, the Renewable Transport Fuel Obligation is encouraging investment in vehicle biofuel technologies, the Renewables Obligation is encouraging biomass electricity technologies, some companies are testing aviation biofuels, energy intensive industries are investing in biomass and waste to energy facilities¹³, and the Renewable Heat Incentive will incentivise the use of renewable biomass for decarbonising our heat energy use.

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

Innovative tidal power

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

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

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

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

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

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

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

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

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

46. A land use planning policy framework should enable timely planning permissions to be granted and policies that enable business to invest in energy saving technologies. For instance, the Localism Bill must maintain the right balance between significant local public consultation and timely decision making on planning applications. As well, a third party right of appeal must not be included in the Localism Bill, changes to the fast-track process for nationally significant infrastructure must be kept to a minimum and the duty to co-operate must be strong enough to ensure sub national, critical infrastructure is delivered where it is genuinely needed¹⁵.
47. The need to reduce uncertainty to enable long-term investment is not confined to the power sector but extends to all aspects of business. In particular, policy uncertainty about Climate Change Agreements (CCA) and the Carbon Reduction Commitment continues. We encourage Government to press on with reforming these policies so that business can have the confidence to invest in long-term energy saving technologies. CCAs have been a very useful policy that has encouraged sectoral collaboration and reduced more emissions than originally anticipated. Government should clarify that CCAs will continue. CCAs could be the tool by which relief from the cumulative cost of energy policies is provided to sectors most at risk of carbon leakage. The revenue recycling of the Carbon Reduction Commitment should be returned (if public finances allow) or the scheme should be stopped and a simpler policy designed for promoting energy efficiency.

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

48. It is clear that an Emissions Performance Standard (EPS) is an unnecessary duplication of existing policy which adds to investor uncertainty and creates no additional benefit. This is elaborated in CBI's evidence to the Energy and Climate Change Committee's inquiry into Emission Performance Standards¹⁶. If an EPS is put in place, it should only apply to new power stations and be grandfathered at consent. The EPS should avoid undermining energy security.
49. The EPS proposal, as framed in the consultation, could further deter investment in new high efficient gas CHP, unless emissions associated with heat production are removed from the EPS levels. Good Quality CHP (defined under EU legislation as upward of 75% electrical + heat efficient) could fail to meet even the higher proposed EPS level of 600g/kWh given its low electrical efficiency (between 16-30%, depending on heat load) relative to its overall efficiency. Unless heat associated emissions are stripped from the calculations, the EPS will serve to penalise larger heat loads, perversely incentivising new CHP plant to maximise its electrical efficiency potentially to the detriment of overall plant efficiency.

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

¹⁶ <http://www.publications.parliament.uk/pa/cm201011/cmselect/cmenergy/writetv/523/eps28.htm>

Criteria - Reforms should:	Evaluation	Criteria met?	Recommendation
Remain market oriented	<p>Carbon Price Support</p> <ul style="list-style-type: none"> • Creating an additional price on carbon emissions is a market oriented reform. • The Carbon Price Support would increase UK electricity prices and could cause electricity interconnectors to primarily flow into the UK rather than two-way. This creates a barrier to market coupling between Ireland and France and to growing a Regional Energy Market as a step towards EU energy market integration. • Could be seen as communicating lack of trust in EU ETS which could undermine market confidence and a harmonised EU approach to carbon reduction. • Proposal to levy Carbon Price Support on fossil fuel 'on delivery' creates difficulties for companies who buy natural gas for either onward sale to other companies, for customers' direct use, or in power generation. CPS may also affect decisions as to where coal supplies are stored. <p>Feed-in Tariff</p> <ul style="list-style-type: none"> • CfD proposal could have the unintended consequence of forcing liquidity (particularly for intermittent generation) from the forward market to the spot market, as the CfD would have to be settled against the spot price. This creates a risk that there is not enough demand at particular points on the spot market and a significant amount of generation with a CfD would end up on the imbalance market. • Under the Premium FIT, generator would still participate in the balancing market and there would not be a direct impact on wholesale market liquidity. <p>Capacity mechanism</p> <ul style="list-style-type: none"> • Capacity mechanisms are used in other markets but a mechanism relies on an agency or regulator setting the target capacity level. This leads the market to become more administrative or centrally determined. • As the nature of the future generation mix is uncertain, the needed capacity is also uncertain. • A centrally determined target capacity level risks under or over providing capacity, which either exposes energy users to unnecessary risk or creates unnecessary cost. <p>Carbon Price Support</p> <ul style="list-style-type: none"> • As the price support would be differentiated based on the carbon content of the fossil fuels, the price support would have higher impact on carbon intensive electricity production. All technologies would face the same carbon price 	<p>Partially</p> <p>CfD is somewhat less market oriented</p> <p>Likely not</p> <p>Yes</p>	<p>CPS should start at a low level and build up towards the anticipated EU ETS price by 2020.</p> <p>Structure the CfD to match specific characteristics of the different technologies. Work to ensure that whatever FIT proposal is adopted, is as market oriented as possible.</p> <p>Create gov't-business 'task and finish' group to examine & develop capacity proposals for the White Paper.</p> <p>CPS should start at a low level and build up towards the</p>
Remain technology			

neutral	<p>following the same principle as the EU ETS.</p> <ul style="list-style-type: none"> Existing low carbon generators would receive an unexpected increase in revenue. 		anticipated EU ETS price by 2020.
	<p><u>Feed-in Tariff</u></p> <ul style="list-style-type: none"> All low carbon technologies would be eligible for the CfD or Premium FIT. CfD arrangements could be complex for smaller generators/investors. 	Likely yes	Develop simplified approach for smaller scale technologies.
	<p><u>Capacity mechanism</u></p> <ul style="list-style-type: none"> Targeted mechanism could be a 'slippery slope' and essentially become a market wide mechanism – though there is not agreement on the chance of this happening. Incentives for supply side capacity could dampen interest in developing demand side solutions and interconnection. 	Uncertain	Create gov't-business 'task and finish' group to examine & develop other proposals.
Safeguard existing investments	<p><u>Carbon Price Support</u> - The proposals create a series of unintended consequences:</p> <ul style="list-style-type: none"> Additional pressure could be put on the decision to invest in NOx abatement on coal plants, potentially impacting electricity supply security. Combined Heat and Power capacity may be prematurely retired or might be converted to only generate electricity with increased utilisation of less efficient boilers. This would effectively increase emissions. Thermal power plants in Northern Ireland would become less competitive than their competitors in the Republic of Ireland in the Single Electricity Market. 	No	<p>Adjust the CPS through key exemptions.</p> <p>CPS should start at a low level and build up towards the anticipated EU ETS price by 2020.</p>
	<p><u>Feed-in Tariff</u></p> <ul style="list-style-type: none"> As the policy is aimed at new investment, there would be negligible impact on existing investments. Investment planned to come forward towards the planned end of the Renewables Obligation (2017) could be delayed without clarity on what "grandfathered support" actually means and as the FIT may only just be starting operation 	Negligible impact	Provide clarity on how grandfathered RO support is priced.
	<p><u>Capacity mechanism</u></p> <ul style="list-style-type: none"> Mechanism could be structured to reward existing generation capacity maintaining its availability (though this could reduce the incentive for demand side measures and new investment, though it may be more cost effective to utilise existing capacity as back-up plant rather than new investment). If capacity revenue only focused on name-plate capacity or on energy delivery rather than its effectiveness in improving reliability and flexibility, there could be risks of distortions to decisions on power scheduling and consumption. 	Potentially yes, but depends on mechanism details	Create gov't-business 'task and finish' group to examine & develop capacity proposals for the White Paper.
Be politically durable	<p><u>Carbon Price Support</u></p> <ul style="list-style-type: none"> There are examples of politically durable taxes that have facilitated investment and which CBI supports: The steadily escalating Landfill Tax is encouraging waste reduction, recycling and waste to energy investments. There are other examples of Government adjusting taxes in a way that changes previously published intentions. CBI is 	Likely not	Focus on reform of the EU ETS and other electricity market reforms.

	<p>opposed to arbitrary adjustment of taxes, which undermines investor certainty (such as changing the Carbon Reduction Commitment).</p> <ul style="list-style-type: none"> Due to concerns about the impact on existing investments and impact on energy users, there could be political pressure to adjust the CPS as the tax rate increases over time. There could be negative perceptions of the additional revenue for existing low carbon generation and this could reduce support for the other proposed electricity market reforms. 		<p>CPS should start at a low level and build up towards the anticipated EU ETS price by 2020.</p> <p>Reform the EU ETS.</p> <p>Develop cross party support for the agreed reforms.</p> <p>Commit to avoiding retroactive changes.</p>
	<p>Feed-in Tariff</p> <ul style="list-style-type: none"> A CfD is a contract, which would be a politically durable policy that gives investors certainty. Premium FIT has similarities to a contract. Some EU countries have made retroactive decisions for FITs, damaging investor confidence. If there was a large difference between the CfD strike price and the wholesale price, then this could raise question about CfD durability, though this would only likely arise post-2020. A Premium FIT could 'over-reward' new generation which could raise questions about its durability. <p>Capacity mechanism</p> <ul style="list-style-type: none"> Depends on the cost impact of the capacity mechanism compared to the actual improvement in security of supply and the overall cost of electricity. 	<p>Likely that both CfD and Premium FIT could be politically durable.</p> <p>Uncertain</p>	<p>Create gov't-business 'task and finish' group to examine & develop capacity proposals for the White Paper.</p>
Minimise cost impact on energy users	<p>Carbon Price Support - The carbon floor price proposal as currently drafted:</p> <ul style="list-style-type: none"> Increases the risk that energy intensive manufacturing, business and investment will shift out of the UK into Europe due to the higher electricity price. Increases the risk of carbon leakage for energy intensive sectors shifting production and investment out of the UK to other parts of the world, leading to loss of economic capacity and likely higher emissions. Assumes an optimistic rapid increase in natural gas prices when there is increasing evidence (such as from the IEA) that gas prices may remain lower. The low gas price scenario shows that the cost on energy users would be higher. Represents a 4th price on carbon/energy paid by business on electricity use (EU Emissions Trading Scheme, Climate Change Levy, Carbon Reduction Commitment) in addition to the cost of the Renewables Obligation and micro-generation Feed-in Tariff being incorporated into electricity bills and may lead to UK businesses paying the highest global price on carbon. This could negatively influence general investor views on UK as a place to invest and impede the economic recovery. 	No	<p>CPS should start at a low level and build up towards the anticipated EU ETS price by 2020.</p> <p>Provide energy policy cost protection for sectors most at risk of carbon leakage to avoid off-shoring industry.</p>

Enable sufficient low carbon investment and associated technologies	<p><u>Feed-in Tariff</u></p> <ul style="list-style-type: none"> Enabling low-carbon power investment ensures that decarbonisation of other sectors of the economy occurs on a time frame best suited to those sectors. Not enabling low-carbon power investment means that the UK carbon targets would be more expensive to achieve. CfDs could reduce investment financing costs and this would reduce the cost of investment for users. Premium FIT could 'over reward' new generation if wholesale prices are higher than expected which could increase costs for energy users (though this could be less likely to occur in a low gas price scenario). 	Depends on details but CfD would likely have lower cost impacts	Further develop the CfD option. Provide energy policy cost protection for sectors most at risk of carbon leakage to avoid off-shoring industry.
	<p><u>Capacity mechanism</u></p> <ul style="list-style-type: none"> Capacity mechanism could ensure sufficient flexibility and capacity to ensure security of supply and reduce the risk of spiking wholesale prices for energy users or involuntary supply reductions ('unserved energy') Centrally determined capacity mechanism risks over investment in capacity or payments which would be an additional cost for energy users DECC estimate market wide capacity mechanism has larger bill impact than targeted mechanism Improvements to existing market will have costs but this would be less than the cost of introducing a capacity mechanism 	Depends on details	Create gov't-business 'task and finish' group to examine & develop capacity proposals for the White Paper.
	<p><u>Carbon Price Support</u></p> <ul style="list-style-type: none"> By increasing the wholesale power price, a signal for investment is created. The creation of a higher price on carbon would more accurately reflect the cost of investment in low carbon electricity and may encourage investment. Higher UK electricity prices would also incentivise expansion and higher use of electricity interconnections, which would likely continually import power into the UK, potentially reducing the incentive to invest in UK power generation. Un-captured emissions from CCS demonstrations would be subject to the tax, potentially undermining the economics of demonstration plants. There is uncertainty about the need for the carbon tax as an additional policy to enable investment given the proposals for a Contract for Difference/Feed-in Tariff. If the CPS is centrally set as the marginal cost of carbon reduction, it may correctly reflect the market driven marginal cost of carbon reduction and may lead to power prices that are needlessly high or not enough investment. 	Potentially, but sufficient investment mostly depends on the other proposals for electricity market reform	Focus on reform of the EU ETS and developing the CfD FIT proposal.
	<p><u>Feed-in Tariff</u></p> <ul style="list-style-type: none"> Stable, predictable returns are more likely under a contractual approach. CfD arrangements could be complex for smaller generators/investors. 	Likely yes, but depends on details	Further develop the CfD option. Develop a simple

	<ul style="list-style-type: none"> CfD likely reduces the cost of investment ('hurdle rate') more than a premium FIT (though perhaps by not as much as DECC estimates). There are questions about Government's ability to negotiate/auction CfD contracts given concerns expressed in CBI's work on procurement and public services Premium FIT could potentially be seen as more of a 'subsidy' than the CfD. 		<p>mechanism for smaller scale technologies.</p> <p>Ensure CfD officials have strong procurement and negotiation skills.</p> <p>Learn lessons from Government procurement contracts.</p>
	<p>Capacity mechanism</p> <ul style="list-style-type: none"> Capacity mechanism could ensure sufficient flexibility and capacity is in place. Capacity payments to supply side capacity may reduce the incentive to develop demand side 'smart grid' investments. Member feedback from their experiences in other markets with capacity mechanisms suggest that the mechanism either delivers little new capacity (compared to ensuring existing capacity remains in place) or that the capacity mechanism causes market forces to reduce or stop delivery of investment. 	Likely yes, but depends on details	Create gov't-business 'task and finish' group to examine & develop capacity proposals for the White Paper.

Summary of CBI's evaluation of Electricity Market Reform proposals

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