

## MEMORANDUM

**To:** EMR Consultation Response      **Organisation:** DECC  
**From:** Fichtner Consulting Engineers      **Our Ref:** S1210-0250-0003KSB  
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Fichtner Consulting Engineers has composed a response to the Government's *Electricity Market Reform* Consultation Document. We have mainly focused our response on issues surrounding fossil fuel and renewables, including biomass facilities, as these represent our area of expertise.

In general, we find that the Consultation Document is missing many of the details which are required to fully assess whether any of the proposed options will be workable in practice. Whilst we appreciate that this is intended to be the first step in a consultation to bring about a major change in how the UK will generate its electricity for the next 50 years, much of the language and concepts outlined seem to indicate that the authors have fairly preconceived ideas. Despite this, there is very little substance regarding how the concepts outlined would work in practice. In our view, this makes it extremely difficult to provide a good response: on the one hand the consultation channels the reader into a particular approach; on the other hand there is insufficient detail to assess whether the solutions are likely to work.

We are also concerned regarding the lack of analysis of previous solutions to support renewables. The Non Fossil Fuel Obligation started the emergence of new renewable generation and was replaced in 2002 after 5 rounds. The initial rounds were quite successful, in their limited way, whilst the later rounds did not lead to significant implementation. The Renewable Obligation (RO) was introduced to replace NFFO contracts and has also been reasonably successful after a slow start and constant adjustments. Nowhere in the consultation is there any significant analysis of what worked in these mechanisms and what failed. Unless new legislation carefully considers the benefits and failures of previous legislation, there is a strong likelihood that similar mistakes may be repeated.

Whilst we would not argue that the Renewables Obligation Order is a perfect piece of legislation, it has led to a significant amount of new renewables generation coming on line. The most glaring issue raised by the RO is that it is essential to gain investors' confidence by providing legislation which is fixed for the financing periods required to gain returns. The constant twists and turns in the RO has created the opposite, significant uncertainty. Unfortunately, the recent announcements regarding the application of Feed in Tariffs (FITs) to photovoltaics and more particularly the current hiatus over the Renewables Heat Incentive (RHI) does little to suggest that ensuring future legislation works will be any easier than previous mechanisms.

With reference to the various proposed FIT mechanisms, most systems could be made to work. However, the key details including items such as how the system will be funded, how the support levels will be set, how banding reviews will be carried out, etc are missing but are fundamental to the success of any scheme. Therefore, we have commented in general on our views of the Consultation, but cannot comment in detail until further details are defined by the Government.

Our response to the questions posed in the Consultation Document is given below.

### **Current Market Arrangements**

#### **1. Do you agree with the Government's assessment of the ability of the current market to support the investment in low-carbon generation needed to meet environmental targets?**

- This Consultation Document and the Government's assessment does not clearly explain why they wish to change from the current RO. We feel that a careful analysis of the RO and the previously applied Non-Fossil Fuel Obligation (NFFO) is required to understand the failings of those programmes and to ensure these problems are not repeated in the new system.

- Some of the key lessons learned from previous programmes include:
  - the need for financial security at every stage, including grandfathering;
  - regular efficient banding reviews as shown by experience with the RO – a significant issue with the RO has been the very long time needed to conduct banding reviews, far too long in our opinion, combined with only fixing the banding rates once a plant is commissioned;
  - confidence in the continued availability of funding requires that payments are not funded for a short period of time from a department budget, such as with the Renewable Heat Incentive (RHI), and levels are not changed in short periods of time, such as the current support for photovoltaics (PV) under the existing Feed in Tariff (FIT) system; and
  - the problems associated with auctions as seen in the later rounds of the NFFO where developers won contracts at low levels which could not support development, often intending only to sell the contract on, and led to very low implementation of the latter rounds.
- If the lessons learned from this previous experience are not fully considered in the development of the new system, requiring subsequent amendments, the lead-in time will be too long (as was the case with the RO) which would further delay decarbonisation. Making the functional transition between the RO and new system work is key to its success.
- Under the current support provided by the RO, RHI, LECs, etc securing large capital investment for low-carbon generation can still be difficult. This is especially true for emerging technologies. The volatility in electricity price leads to limited certainty in future revenues for all technologies.
- We agree that without incentives to encourage low-carbon generation, investment will not be sufficient to meet environmental targets.

## **2. Do you agree with the Government's assessment of the future risks to the UK's security of electricity supply?**

- We feel that the Government has performed a high level assessment of the future risks to the UK's security of electricity supply. While we agree with this high level assessment, we don't feel that the Government's proposals fully address these risks in detail.
- Implementation of the Emissions Performance Standard (EPS) will effectively remove new coal from the market as Carbon Capture and Storage (CCS) is currently not demonstrated as viable. This represents a large risk to the future supply. Our views are that the proposed EPS contributes little to the Government's preferred package of options as discussed in more detail in response to the questions dealing with the EPS.
- The proposed system means moving to a base load made up of various low-carbon technologies. This is a very significant challenge as the likely forms of low carbon technology, other than biomass, are not as flexible as coal or gas. In the short term, this means gas will be required to provide peak supply and we believe the Government should not underestimate the significant risk that the proposed policies will lead to a new dash for gas, reducing fuel security significantly.
- Eventually nuclear and other low-carbon generators could provide this base load, but until that point the risk is that coal will be switched off and there will be no viable replacement other than gas. This means gas is likely to provide the base load and peaking load.
- The majority of low-carbon generators currently in operation are either intermittent (wind) or constant supply (nuclear, biomass, etc). The options for low-carbon balancing plant are limited. For this reason, any policy put in place should incentivise new technologies which could fill this need. This supports the need for technology specific incentives. Again, the Government should not underestimate the technical and economic challenges this brings.

### **Options for Decarbonisation**

#### **Feed in Tariffs**

### **3. Do you agree with the Government's assessment of the pros and cons of each of the models of feed-in tariff (FIT)?**

- We feel that the Government's assessment is incomplete, but agree with most of the points that have been raised.
- Our major concern with all of the assessments is that it is not made clear how any of the proposed tariffs will be funded. Concerns raised over the implementation of the RHI due to it being funded from the DECC's budget have shown this leads to reduced confidence in the long term availability of funding. In order to be successful, any plan must provide long term funding confidence. For this reason, we feel the FITs should be funded in a similar way to the current FIT or RO systems which disconnect the systems from any direct budgetary constraints on departments.
- One major advantage to all of the proposed models of FIT as compared to the current RO system is that the level of the FIT seems to be determined when the contract is signed rather than when the facility is commissioned. Moving this financial security forward will make projects more bankable and should help increase investment.
- Premium FIT:
  - The Government's analysis focuses on low-carbon generation with little or no marginal cost for producing electricity. While this may be true for wind and nuclear power amongst others, it is not the case for biomass and any other low-carbon generators which have an input fuel.
  - These low-carbon generators which do have a marginal cost for producing electricity would be at a disadvantage in a situation where a Premium FIT was in place and the wholesale electricity price was driven down by large numbers of low marginal cost generators. This could be mitigated by different FIT tariffs.
  - Uncertainty about the future electricity price therefore reduces the financial certainty associated with a Premium FIT. This could lead to certain technologies not being funded, which would impact on the diversity of supply technologies. The level of the Premium FIT would need to be set accordingly to mitigate this problem.
  - The Premium FIT has the advantage of being very similar to the RO. Assuming the banding levels are set appropriately, this similarity would help reduce issues in implementation. The main exception is that the premium FIT includes no obligation for suppliers to purchase low carbon electricity.
- Fixed FIT:
  - The Fixed FIT provides complete financial security for investors in terms of electricity revenue, which would help generators secure funding. It is similar to the NFFO contracts which were popular with investors and provided long term security.
  - However, if the level is set wrong (such as has happened with PV under the current FITs) there will be over investment or if it set is too low there will be no investment. Getting the level set correctly could be very difficult. In order to abate this issue, banding reviews need to happen frequently and efficiently to allow for fairly quick changes in the FIT levels. Banding reviews have of course been a major issue with the RO. However, we believe this was because they simply took far too long. If tariff levels need to be adjusted up or down, we do not see why this could not be done reasonably quickly in an organised manner. Grandfathering would be used to provide long term security, so once contracts were awarded, the tariff levels would be set for the particular project.

- Over investment in a fixed FIT system could be controlled by setting a level of generation (in terms of electricity production) that would be contracted. This would also require setting a backstop date by which time the development must be going ahead or the FIT contract is cancelled and re-contracted to another development. Such backstop dates would need to be technology specific, as different technologies have different lead in times. Balancing the system could prove difficult under a fixed FIT system, as low-carbon generators will be paid the same price for electricity whether that electricity is needed or not.
- FIT with CfD:
  - The FIT with CfD in theory provides the best value for money to electricity consumers as the subsidy is the difference between the average electricity price and the FIT with CfD strike level.
  - However, because the FIT with CfD is paid as a subsidy above the average electricity price, the financial security associated with it is dependent on generators being able to sell their electricity at or near the average wholesale price. While this may be possible for larger generators, small and intermittent generators have less leverage in power price negotiations than larger generators and will be unlikely to receive the average wholesale electricity price. This is especially true since the obligation to purchase electricity from renewable sources which is part of the RO has not been included in this Consultation. With no control in the market, we foresee that smaller generators would only be able to sell their electricity at prices well below the wholesale price.

#### **4. Do you agree with the Government's preferred policy of introducing a contract for difference based feed-in tariff (FIT with CfD)?**

- We feel it is unreasonable to expect agreement with the policy at this stage, considering how many of the details of how the system will work in practice have yet to be defined. The success or failure of a FIT with CfD will be dependent on numerous factors including how they are funded, how the strike price is determined, how they are banded, how grandfathering is included in the system, etc. Without these details, we are unable to agree or disagree with the preferred policy.
- We feel that any of the proposed policies can be made to work, assuming that the levels of support are set correctly and lessons are learned from previous legislation successes and failures.
- The principle disadvantage we see with the CfD FIT is the difficulty which anyone other than the larger generators will have in selling electricity at the assessed market price (we note that the method of setting the market price is yet to be decided and believe this is a difficult decision).
- In order for FITs to lead to an increase in investment in low-carbon generation, they must provide long term certainty and be as simple as possible while still achieving their goal.
- Experience with the RO has shown the need for technology banding to allow different levels of incentive to be provided to different technologies. This allows for proper levels of incentive for technologies of different maturity levels and also allows for control over the supply mix in terms of technology.
- The RO has also shown the need for grandfathering of banding levels. This needs to be included in any future legislation to provide the long term certainty required to encourage investment.
- A further point to be learned from the RO is the impact on the length of time it takes to perform banding reviews. While reviews of tariffs/level of incentive are inevitable, the long time scales associated with the RO bandings lead to short term delays in investment due to uncertainty in the upcoming levels. Regular review of incentive levels performed quickly and efficiently at regular occasions should be possible to cater for changing markets.

**5. What do you see as the advantages and disadvantages of transferring different risks from the generator or the supplier to the Government? In particular, what are the implications of removing the (long-term) electricity price risk from generators under the CfD model?**

- Uncertainty in revenue from electricity is one of the main barriers to securing capital investment in low-carbon generation. This is especially true for technologies such as biomass which have marginal costs associated with electricity production.
- Removing the long-term electricity price risk from generators will reduce this uncertainty, and should help to encourage investment.
- However, the CfD model assumes that all suppliers will be able to sell electricity at the average price.
  - While this may be true for large generators, it is not the case for smaller independent operators. These operators typically enter into power purchase agreements to provide security of revenue, but which also reduce the price they are able to charge.
  - As the CfD FITs are made up above the average market price, small generators are exposed to the risk that the average price will increase thus decreasing their CfD payments but their actual revenue will not increase due to the constraints of their power purchase agreement.
  - Setting the average market price is also a challenge – clearly it cannot be set based on half hourly prices as most low carbon generators have no possibility of following this. We have heard suggestions that it could be based on average weekly forward prices, but again, this is likely to be difficult for smaller generators. We think this is a fundamental issue and the Government needs to carefully consider how to provide a workable incentive which assists both large generators who are able to take balancing risks and smaller generators who will not survive if they are subject to this risk, which they are unable to manage. A two tier system may be needed.
  - This is a particular risk to low-carbon generators which have marginal costs associated with electricity production (such as biomass) because it could be possible for total revenue to be less than total costs.
  - The level of incentives provided must be sufficient for different low-carbon generator technologies to account for these issues.
- If the level of support under any FIT system is set at the wrong level, the policy can end up promoting the wrong technologies. This could mean that generators and suppliers will look for ways to exploit the system rather than proceeding with the most efficient developments.
- Getting the correct FIT strike price every time will be extremely difficult. The only way to mitigate the issues associated with setting the level incorrectly is to have regular banding reviews. These reviews must take place often and occur in a short timescale to ensure that any problems with the level of support are corrected in a controlled manner rather than letting the system operate inefficiently for an extended period of time. As long as individual projects are awarded FIT contracts before they are constructed, future tariff changes would have a low impact on existing projects, which would be protected by their fixed contract prices.

**6. What are the efficient operational decisions that the price signal incentivises? How important are these for the market to function properly? How would they be affected by the proposed policy?**

- The main efficient operational decision discussed in the Consultation Document is the timing of maintenance. The Government response indicates that they feel that scheduled maintenance will be carried out when prices are low if generators are exposed to the price signal.
- We do not feel that the Government's assessment of the timing of maintenance activities is correct.

- When the average electricity price is well above the strike level, there is incentive for facilities to shut down to avoid making repayments to the system.
- If the average electricity price is below the CfD strike level, there is no incentive to shut down. Whether that price is slightly below or substantially below the CfD strike price, the price that the generator will receive for electricity will remain relatively fixed because they will be receiving the CfD payments as well as the price at which they sell electricity.
- When the average electricity price is lower, the CfD payments will be higher. This means there is no particular incentive to perform maintenance at times when the demand is particularly low. The price signal only drives generators to not perform maintenance when demand is exceptionally high.
- Small generators are usually subject to power purchase agreements, meaning the price at which they sell electricity is contractually determined. This means they are already insulated from price signals.
- In the situation of a fixed FIT, having no exposure to the price signal would mean that generators will continue to produce electricity no matter what happens to the wholesale electricity price. This electricity will have to be purchased, which could mean suppliers end up with a large amount of electricity which isn't required. In the short term, this oversupply could be dealt with by shutting down existing gas power stations. In the future as low-carbon generation makes up a larger portion of the electricity supply, suppliers may be forced to take electricity they don't need.

**7. Do you agree with the Government's assessment of the impact of the different models of FITs on the cost of capital for low-carbon generators?**

- We agree that providing more certainty in terms of revenue will reduce the cost of capital for low-carbon generators. Long term certainty is the key to investment. At this stage it is not possible to say whether the consultation proposals will create this certainty. There are a great number of issues to be tackled and there is a high risk that, if legislation is not clear, this will create uncertainty and the need for change as has occurred with the RO.
- We feel that any of the proposed models of FITs could provide the certainty required; however, this will depend on the incentive levels being set at an appropriate level. It is also dependent on the details of how the system will operate, which have not yet been defined.
- It will also be dependent on the market's belief that the incentives will continue to be applied in the future. Changes to other Government programmes (such as the current discussion of reducing FIT tariff levels for photovoltaic) and the length of time it is taking to bring forward the RHI reduce this level of certainty.

**8. What impact do you think the different models of FITs will have on the availability of finance for low-carbon electricity generation investments from both new investors and the existing investor base?**

- As above in response to question 7.
- Investment from the existing investor base as well as new investors will be dependent on incentives being set at the correct level.
- Investment also depends on certainty that any selected programme will continue to be funded at a consistent level. This certainty will be partially based on how the programme is financed. If funding comes from a department budget (such as with the RHI) there will be little certainty that the programme will not be affected by future budgetary pressures.
- Fixed FIT would probably provide the most certainty for future revenue and would therefore provide the most impact on availability of finance, if set at appropriate levels.

**9. What impact do you think the different models of FITs will have on different types of generators (e.g. vertically integrated utilities, existing independent gas, wind or biomass generators and new entrant generators)? How would the different models impact on contract negotiations/relationships with electricity suppliers?**

- In the case of fixed FITs, we would assume that generators would no longer contract directly with electricity suppliers as they would have no financial incentive to do so since their payment for electricity would be fixed by the Government.
- Under the current system, small independent generators typically operate using power purchase agreements (PPAs) which limit the price at which they can sell their electricity.
  - Typically small generators receive less than the average wholesale electricity price for their electricity. This reduction in revenue occurs in the current market, and could be overcome, assuming that the incentive levels are set properly and provide long term certainty in terms of investment.
  - In the case of FITs with CfD, generators will be exposed to additional risk associated with selling electricity at a price below the average price, because the level of CfD support they will receive could be reduced if the average wholesale electricity price were to increase. This could negatively impact on the long term certainty of revenue from FITs.

**10. How important do you think greater liquidity in the wholesale market is to the effective operation of the FIT with CfD model? What reference price or index should be used?**

- The FIT with CfD model should work at any level of liquidity in the wholesale market, assuming the incentive levels are set correctly. However, greater liquidity in the wholesale market would mean the average price of electricity would more accurately reflect its actual value. This would mean the CfD amounts being paid by the Government would be based on the true value of electricity as compared to the strike price, and it is more likely that the Government (and the tax payer) will be receiving maximum benefit for the cost.
- A disadvantage of the FIT with CfD is the selection of the reference price. If you select a reference price at a level achievable by small and intermittent generators, you risk over paying large generators who can secure higher prices. If you pick a reference price more consistent with the price achievable by large generators, the revenue certainty for smaller generators will be lower and they may choose not to enter the market.
- We feel that the FITs should be indexed with RPI. This is how ROCs and existing FITs are indexed and we know of no better index.

**11. Should the FIT be paid on availability or output?**

- At this point in time, low-carbon generation will make up a small portion of the base load and is unlikely to be used only for peak demand. The demand for electricity should always exceed the low-carbon supply. For this reason, we feel that the FIT should be paid on output rather than availability.
- As the amount of low-carbon generation increases, it may be required to change the system to pay FITs on availability rather than output, but we feel this change should be made in future when needed rather than attempting to predict the future of the electricity market at this stage.

**Emissions Performance Standards**

**12. Do you agree with the Government's assessment of the impact of an emission performance standard on the decarbonisation of the electricity sector and on security of supply risk?**

- We are not clear as to the precise mechanism for introducing the EPS. Is the intention that this will be a piece of legislation which sets the EPS and bans the building of new stations which do not achieve it?
  - If this is the case, we consider it overcomplicated and unnecessary. The current planning and permitting system can be used much more easily to create the same effect, and will be much easier to amend to match future requirements.

- If this is not the case, and the Government intends to use it to introduce some form of EPS tax or deterrent, this is also unnecessary as we already have the EU-ETS and the proposed carbon price support mechanism.
- Whilst we welcome the Government's commitment to invest in four CCS demonstrator projects, we are concerned that introducing a regulatory framework that makes new build coal-fired power stations solely dependent on CCS presents a significant risk to security of supply should the technology be found to be either technically or commercially unsuccessful.
- We consider that a failure to develop new coal-fired power stations and the likely prolonged timescale to construct new nuclear power stations will lead to an inevitable new phase of gas fired power stations, increasing the UK's dependency on gas and the associated security of supply issues.
- We believe it is highly unlikely that the amount of investment required to build the number of new generators envisaged will come forward in the time proposed. If this proves to be the case, it will be essential to be able to provide power from other sources – the Government needs to be able to react reasonably quickly to address shortfalls as it is entering an extremely uncertain future. Providing legislation to make it very difficult to build coal fired power stations does not seem to us to be either necessary or advisable. The Government has already said it will not give planning consent to coal fired power stations without CCS. If the Government were to increase guidance under the environmental permitting process regarding Best Available Techniques for new coal fired power, perhaps linked to a target EPS, this would seem to us to be a far more straightforward and flexible way to achieve the same end, and to adjust it rapidly if required. Currently, no new coal fired stations without CCS will be consented. If demonstrator plants indicate this is a necessary and viable way to generate power, the environmental permitting process for new build stations would be the easiest and most flexible way of providing this. As technology and cost becomes clearer, the required CO<sub>2</sub>/MWh levels could be optimised, and once built, it would be possible to regulate plants via their permit.

**13. Which option do you consider most appropriate for the level of the EPS? What considerations should the Government take into account in designing derogations for projects forming part of the UK or EU demonstration programme?**

- On the premise that we accept the EPS as an appropriate regulatory mechanism (which given the concerns raised in our response to question 12 is not the case), we would recommend that of the options presented the level of the EPS is set at the higher level so that it only affects unabated coal-fired power stations.
- We consider that the derogations outlined in the Consultation Document should be included as a minimum. The Government should also consider derogations that would allow future unabated coal-fired power stations to operate should the CCS demonstrator plants not mature into a viable and economic technology and the UK's security of supply is at risk.
- We would welcome clarity on the derogations applicable to biomass and energy from waste facilities, which we consider should be exempt from the EPS.

**14. Do you agree that the EPS should be aimed at new plant, and 'grandfathered' at the point of consent? How should the Government determine the economic life of a power station for the purposes of grandfathering?**

- On the premise that we accept the EPS as an appropriate regulatory mechanism (which given the concerns raised in our response to question 12 is not the case) we agree that it should only be applied to new plant and 'grandfathered' at the point of consent. This will be essential to provide a regulatory framework that will be attractive to investors.

**15. Do you agree that the EPS should be extended to cover existing plant in the event they undergo significant life extensions or upgrades? How could the Government implement such an approach in practice?**

- Extending the EPS to cover existing plant in the event they undergo significant upgrades increases the likelihood that such projects will not be implemented as they would also require investment in CCS to meet the EPS. This will prevent improvements on existing plant that would otherwise reduce emissions.
- We agree that extending the EPS to cover existing plant in the event they undergo significant life extensions will help reduce the UK's dependence on unabated coal-fired generation. However, we do not accept that this may be necessary to provide incentive to move to other forms of generation and progress the development of abatement technologies. The amount of coal fired generation will drop drastically over the next few years and the existing stations are ageing. Extension of the existing stations life may be required to compensate for a slower than required new build of low carbon generators. This also presents a risk to security of supply in the scenario that new build projects are not developed and would result in new gas fired plant being developed to provide the required generation capacity, thereby increasing the UK's dependence on gas fired generation. At this stage, we consider it far more advisable to concentrate efforts on promoting new build low carbon generators than risking creating a crisis by preventing coal take up a small part of the generation profile. For example, it would be far more productive to encourage coal fired power stations to co-fire an increasing amount of biomass than to threaten them with closure if they seek to extend their life.
- Even if we did agree with this policy, it would be difficult to establish a reasonable and fair mechanism to determine what a significant life extension is.

**16. Do you agree with the proposed review of the EPS, incorporated into the progress report required under the Energy Act 2010?**

- We note that the proposed review of the EPS is limited to increasing the application of the EPS and does not consider the need to relax whatever provisions have been introduced. If the EPS is introduced then it should be reviewed on a regular basis to consider merits of either increasing or decreasing its application.

**17. How should biomass be treated for the purposes of meeting the EPS? What additional considerations should the Government take into account?**

- Biomass is an important part of the future UK generation mix providing a source of base load renewable generation. Under current market and regulatory conditions these projects require financial support to encourage their development. Extending the EPS to include biomass would be counterproductive to the support mechanisms that are provided by the Government. Therefore, we consider that biomass should be exempt from the EPS to ensure there are no new obstacles to prevent biomass development.
- In any case, biomass is carbon neutral and the Government has already considered sustainability, which is important. We believe that the sustainability of biomass is important and needs to be addressed, but adding further complications by introducing the EPS for biomass is an unnecessary complication and likely to be another factor in slowing biomass projects.

**18. Do you agree the principle of exceptions to the EPS in the event of long-term or short-term energy shortfalls?**

- We do not believe the EPS is necessary at all.
- We are concerned that the EPS will present a real risk to both short and long-term generation capacity and therefore, if introduced, consider mechanisms for exceptions to protect security of supply to be essential.

**Options for Market Efficiency and Security of Supply**

**20. Do you agree with the Government's preferred policy of introducing a capacity mechanism in addition to the improvements to the current market?**

- A capacity mechanism is an absolute essential for restructuring the market. The EMR proposes a wholesale change in the way we generate electricity. Independent of the EMR, many of these changes are happening anyway, with old nuclear and coal fired power stations certain to shut. The Government's current policy on coal, outlined in the EMR, will mean little new coal fired power is introduced at least in the medium term. Therefore there will be a dramatic change in the balance of generation and an inevitable drop in the current oversupply. This is largely historical in any case, with the UK currently surviving due to the large investment in the power generation industry in the 1960s and 1970s. To avoid creating a shortfall in electricity generation, the Government will need to ensure a capacity margin is safeguarded. This will be even more essential with the large increase in wind power, an intermittent generator.
- Whilst the requirement for a capacity mechanism is absolute, how this should be created is far from clear. In our view, it will need to match the development of low carbon generation closely. There is also a significant risk that, if the Government proposals do not work properly, there will be a new dash for gas. Expansion of coal fired power is off the agenda, certainly for the medium term, wind will be expanded but creates significant balancing issues when it is not windy, nuclear is not a particularly good alternative to follow load and is far from certain in any case. The only significant generation method to fill a gap is gas.
- We have not really understood the proposals put forward in the EMR for capacity, which are at a very high level. As with the FIT concept, several systems can be made to work or otherwise. Therefore it is difficult to comment clearly without greater detail on the propositions. However, there are some clear objectives which we believe can be agreed and which should form the basis of any revised system:
  - As with all changes, to attract investment, these need to be easy to understand and not subject to constant changes.
  - To maintain security of supply, it is essential to maintain a significant excess capacity which is available in time. Up to now, the UK has lived off the flexibility of its old coal fired stations together with CCGT. As wind generation is still only a small percentage of overall generation, this has had little impact on flexibility of the grid. The main aims of the EMR, to massively promote low carbon generation, in particular wind and to remove much of the coal fired generation, means that the UK's future generation system will inevitably be far harder to balance than the current system.
  - To be successful, the EMR should ultimately lead to low carbon generation with low marginal costs, such as wind and nuclear, to take up the main base load supply when it can. There is little point in building wind farms at a high capital cost and then not running them when wind is available. Other low carbon technologies such as biomass are more able to follow load demand, and may form part of the solution. However, biomass plants are currently promoted to operate at base load. The economics of biomass plants would currently be very poor if they were to operate intermittently or to load follow. A capacity mechanism may assist in this regard. Capacity payments should therefore be targeted on those technologies which are required to balance the UK's grid and which are best suited to do this.

**21. What do you think the impacts of introducing a targeted capacity mechanism will be on prices in the wholesale electricity market?**

- We do not understand how this question can be answered without some detail as to how the capacity mechanism will work, but obviously any capacity mechanism will increase wholesale prices. The success of any capacity mechanism will be to provide the capacity required, but not to over-promote capacity, thereby adding to electricity costs. Unfortunately the time it takes to get planning, finance and then build most power generators means that, unless we want to risk power cuts, it is necessary to err on the side of caution and maintain too much capacity.

**22. Do you agree with Government's preference for the design of a capacity mechanism:**

- **a central body holding the responsibility;**

- **volume based, not price based; and**
- **a targeted mechanism, rather than market-wide.**
- We agree the best mechanism to ensure security of supply and a suitably sized capacity is to make a central body responsible for this. It should be easier for the country to decide centrally the appropriate level of capacity required and then adjust the mechanism and targets to achieve this, than to try to set a market mechanism in advance which, if it works, would result in a set level of capacity several years later.
- We also see a volume based system as likely to be more straightforward, although volume or price could work if levels are set correctly.
- Again, we would like to see how the mechanism is proposed to work in practice, but we would expect a targeted mechanism to have far greater impact than a market-wide one. The overall package should be designed to ensure that, once built, higher capital cost, low marginal cost, low carbon generation is generating whenever it can. For example, wind generation should be incentivised to do this by paying for its power generated, not for its ability to produce power.

**23. What do you think the impact of introducing a capacity mechanism would be on incentives to invest in demand-side response, storage, interconnection and energy efficiency? Will the preferred package of options allow these technologies to play more of a role?**

- To promote demand side response, incentives will clearly be required, otherwise there is no benefit on the demand side to respond. Demand side response could have a very significant impact, but historically, due to low energy prices, this has not been the case. There is also a mindset which would need to be changed, that we have electricity on demand with little responsibility on the consumer.
- Storage and interconnection may be longer term objectives, but are unlikely to provide sufficient solutions in the short to medium term. Storage remains an important possibility, but to our knowledge no satisfactory solution exists to date, other than pumped storage which is quite expensive and with limited expansion potential. As electricity consumption patterns change, for example if electric transport becomes more prevalent, this may change and the system will need to respond to this.
- We do not see energy efficiency as being a significant solution to capacity. Whilst energy efficiency should be promoted, and we are disappointed that there is little support for this elsewhere in the EMR, as a method to affect long term capacity or assist short term load fluctuations, we do not believe it will have an impact. The drive to improve electricity efficiency will be incentivised by the price of energy, but once installed, electricity efficiency measures are likely to have little impact on short or long term capacity.
- Whether the "preferred package of options" will have any impact cannot be answered until more explanation is provided as to how the various incentives will work in practice.

**24. Which of the two models of targeted capacity mechanism would you prefer to see implemented:**

- **Last-resort dispatch; or**
- **Economic dispatch.**
- Further explanation of the overall EMR solution is needed to be able to provide any comment.

**25. Do you think there should be a locational element to capacity pricing?**

- We feel that some locational element should probably be included in capacity pricing.

**Analysis of Packages**

**26. Do you agree with the Government's preferred package of options (carbon price support, feed-in tariff (CfD or premium), emission performance standard, peak capacity tender)? Why?**

- Without additional details of how the system will be implemented, we cannot agree with the Government's preferred package. The only difference between the preferred package and the alternative package is the choice between FITs with CfD and Premium FITs. We feel that either of these solutions could be made to work with a large amount of development, but that the details such as how the system will be funded and how tariff levels are set is key.
- We believe that the carbon price support aspect of the preferred package will not directly encourage low-carbon investment in the short term – we expanded on this in our response on the carbon price support consultation. Recycling of the carbon price support payments to low-carbon generators would provide a direct incentive to low-carbon development and would have a much larger impact on investment in low-carbon technologies.

**27. What are your views on the alternative package that Government has described?**

- As with our response to question 26, we are unable to provide a specific response in terms of our views of FITs with CfD as compared to Premium FITs (the only difference between the two proposed packages) without further details of how the proposed systems will operate.

**28. Will the proposed package of options have wider impacts on the electricity system that have not been identified in this document, for example on electricity networks?**

- No comment

**29. How do you see the different elements of the preferred package interacting? Are these interactions different for other packages?**

- As discussed in our response to question 12, we feel that if the EPS is implemented as proposed then the peak capacity tender will mainly be directed towards gas fired power stations, which could impact on the UK's security of supply.
- We believe that the carbon price support included in the selected packages has little interaction with the other elements, and will not directly encourage investment in low-carbon generation, especially in the short term – we expanded on this in our response on the carbon price support consultation. Recycling of the carbon price support payments to low-carbon generators would provide a direct incentive to low-carbon development and would have a much larger impact on investment in low-carbon technologies.

**Implementation Issues**

**30. What do you think are the main implementation risks for the Government's preferred package? Are these risks different for the other packages being considered?**

- The Government's preferred implementation solution is use of auctioning as a mechanism to set the level of FIT support, regardless of the specific model of FIT. The Government believe that the competitive price discovery nature of auctions should lead to the appropriate level of support, without overcompensation.
- We have strong concerns over the use of auctions since these are an ineffective way of getting the right market price for the tariff. We feel that the Government should set the relevant tariff support levels.
- We remind the Government that NFFO contracts were let and by the fourth and fifth rounds led to too low contract prices. Developers bid for contracts often with a view to selling them on, and few of these projects were actually developed. However, we are aware that the Government will have to find a way to manage the level of contracted low carbon power. We believe that the best way to do this is to control the number of contracts let, based on centrally set tariffs grandfathered for the life of the contract, and if uptake is too rapid, adjust tariffs to slow the uptake. Contracts would be let based on deliverability and suitability of the projects in matching set objectives.

- While a number of issues would be included in the design of an auction, we believe that auctioning could lead to delay in project development and consequent reduced rate of low-carbon generation deployment. The transition would be problematic and protracted, not smooth or fast. This is because development of a robust auction mechanism would take time (including further consultation) and possibly a number of false starts.
- We also believe the transition to auctions would be slow because uptake would be gradual because the many stakeholders in a given project (developers, lenders, equipment suppliers, contractors) would take time to become comfortable with the auction's effectiveness. We particularly mention technology suppliers and contractors amongst the stakeholders since they are often overlooked when considering parties affecting the financability of projects. Technology suppliers' and contractors' prices and willingness to participate are a key function of the robustness of a project: these tend to be project specific and can vary widely.
- Rather than auctions, we would prefer to see technology specific tariff support levels set by Government, as is the case under the RO and current FITs. In the Consultation Document, the Government acknowledges that this system has a key advantage over an auction system: it could be implemented with relative ease and there is a track record of setting support levels for renewable technologies in this way.
- We do not have a preference for a specific type of FIT since most systems can be made to work. The important issue is to analyse what has gone wrong on the previous subsidies and ensure the new FIT system learns from these lessons. Problem to resolve include how and when contracts are let, and how the Government controls the amount of capacity let at any time (knowing that not all of it will be built, and it may take 4-5 years to know this).
- We have strong views that the ERM should aim to deploy low-carbon technologies rapidly in order to meet the ambitious targets set at national and European level. While we understand that the Government has to consider cost to the taxpayer, there is a very real concern that new system will be complex and continually tinkered with (as has been the case with the RO) before it is in a fit state to attract investment. For this reason our view is that Government should keep it simple, provide investor certainty, and avoid their tendency to keep changing the goalposts.

**31. Do you have views on the role that auctions or tenders can play in setting the price for a feed-in tariff, compared to administratively determined support levels?**

- **Can auctions or tenders deliver competitive market prices that appropriately reflect the risks and uncertainties of new or emerging technologies?**
- **Should auctions, tenders or the administrative approach to setting levels be technology neutral or technology specific?**
- **How should the different costs of each technology be reflected? Should there be a single contract for difference on the electricity price for all low-carbon and a series of technology different premiums on top?**
- **Are there other models government should consider?**
- **Should prices be set for individual projects or for technologies**
- **Do you think there is sufficient competition amongst potential developers/sites to run effective auctions?**
- **Could an auction contribute to preventing the feed-in tariff policy from incentivising an unsustainable level of deployment of any one particular technology? Are there other ways to mitigate against this risk?**
- We do not favour auctions since these are an ineffective way of getting the right market price for the tariff. We feel that the Government should set the relevant tariff support levels. However, if auctions are to be used to implement the FIT system we believe that running a single auction would favour lower cost/lower risk technologies as the RO did pre-banding (on-shore wind and landfill gas). This would not meet the Government's objective of ensuring a mixed portfolio of low-carbon technologies.

- Relatively recently Government accepted the need for technology specific support with the introduction of banding in the RO. This resulted in a huge increase in development of banded-up technologies, particularly offshore wind and biomass. A single auction for all technologies would therefore be a backward step.
- Different tariffs for different technologies are essential to ensure security of supply and a mix of solutions, which we believe is essential. It is unrealistic to expect that a single solution would be suited to nuclear, wind, biomass etc. It is also likely that as well as different tariff levels, different lengths of contract may be preferred for different technologies. Nuclear will be built for long term operation and should presumably attract long term contracts, biomass, due to high fuel costs, requires ongoing support, whereas other technologies with high capital costs and low operating costs may be suited to shorter term contract lengths to support finance costs.
- The Government has suggested use of technology specific premiums to top up the single auction tariff. We assume that the setting of technology specific top-up premiums would require the Government to undertake detailed research into appropriate levels of support and provide a suitable administrative body to oversee this (e.g. Ofgem). If this were the case, we would suggest that this body should set the tariff support level so that auctioning was not required.
- NFFO contracts are a previous example of auction based tariffs. The contracts were very good financially and worked well up to Phase 3. At that point, the contracts then became ineffective as developers bid low hoping to sell land linked to an NFFO contract rather than ever building the project. This resulted in auction prices being unrealistically low and worthless. Therefore any proposed auction system should rule out this weakness.

**32. What changes do you think would be necessary to the institutional arrangements in the electricity sector to support these market reforms?**

- If tariff levels were administratively determined (as is currently the case for ROCs and ROC banding) there would be very small changes required to institutional arrangements. We believe this an important issue: if Government are to meet the ambitious targets it is important to ensure a smooth transition to the FIT scheme. Ofgem has now well developed administrative practices procedures. Significant changes to institutional arrangements would inevitably cause a disrupted transition.
- One issue to address urgently is the time taken to carry out reviews. We are suggesting a system whereby tariffs are set centrally and contracts let in a controlled manner to develop the mix of supply required to deliver low carbon electricity at a reasonable cost whilst maintaining security. We believe this will only be possible by setting up a central system which reacts as the system changes. Reviews will be required, but these should be carried out based on agreed methodologies and deliver results quickly.

**33. Do you have a view on how market distortion and any other unintended consequences of a FIT or a targeted capacity mechanism can be minimised?**

- We accept that banding levels should change to avoid market distortion if evidence is provided of significant change in costs or other criteria as in legislation. Changes in support should be applied within a clear framework.
- A major failing of the RO is that it takes too long to adjust. Reviews of tariffs should be done at regular occasions, and be done quickly and efficiently to cater for changing markets. We have never understood the requirement for banding reviews to take several years. If these were set up with clearly defined guidelines, they should be able to review and deliver results in matter of months. The framework for reviews should provide investor certainty rather than a continual changing of the goalposts with associated uncertainty, as has been the case under the RO.

**34. Do you agree with the Government's assessment of the risks of delays to planned investments while the preferred package is implemented?**

- We agree that the Banded RO should remain in place until well after the preferred package of legislation is fully defined to allow time for investors and developers to gain confidence in the new system before it is implemented.
- We feel that technologies which are current not grandfathered under the RO must be grandfathered in the vintage system or it must be made clear they will be allowed transition to the new system, otherwise planned investment in these areas is unlikely to go forward.

**35. Do you agree with the principles underpinning the transition of the Renewables Obligation into the new arrangements? Are there other strategies which you think could be used to avoid delays to planned investments?**

- We generally agree with the measures set out in Annex A of the Consultation Document which are designed to maintain investor confidence during implementation of the new market mechanism.

**36. We propose that accreditation under the RO would remain open until 31 March 2017. The Government's ambition is to introduce the new feed-in tariff for low-carbon in 2013/14 (subject to Parliamentary time). Which of these options do you favour:**

- All new renewable electricity capacity accrediting before 1 April 2017 accredits under the RO;
- All new renewable electricity capacity accrediting after the introduction of the low-carbon support mechanism but before 1 April 2017 should have a choice between accrediting under the RO or the new mechanism.
- We feel that all renewable electricity capacity accrediting before 1 April 2017 should have a choice between accrediting under the RO or the new mechanism.
- We believe it important to maintain an option for developers to choose support under the RO during the period 2012-2017. While the RO is not perfect, it is now finally leading to deployment of significant renewable power capacity. If this is withdrawn from 2013 there will inevitably be a hiatus for a number of years until the new FIT system is established.

**37. Some technologies are not currently grandfathered under the RO. If the Government chooses not to grandfather some or all of these technologies, should we:**

**Carry out scheduled banding reviews (either separately or as part of the tariff setting for the new scheme)? How frequently should these be carried out?**

- Carry out an "early review" if evidence is provided of significant change in costs or other criteria as in legislation?
- Should we move them out of the "vintaged" RO and into the new scheme, removing the potential need for scheduled banding reviews under the RO?
- We believe that lack of grandfathering has resulted in many potentially viable projects not attracting the investment required. Grandfathering is important to ensure projects are built. While there are arguments not to grandfather, lending institutions require certainty of returns which is not achievable without grandfathering of support levels.
- We accept that banding levels should change to avoid market distortion if evidence is provided of significant change in costs or other criteria as in legislation. However, the support level should not be changed for projects that have agreed financial arrangements in place. Rather, changes in support should apply to development projects within a known framework.
- A major failing of the RO is that it takes too long to adjust. Reviews of tariffs are likely to be inevitable, but they should be done at regular occasions, done quickly and efficiently to cater for changing markets. The framework for reviews should provide investor certainty rather than, like under the RO, a continual changing of the goalposts with associated uncertainty.

**38. Which option for calculating the Obligation post 2017 do you favour?**

- **Continue using both target and headroom**
- **Use Calculation B (Headroom) only from 2017**
- **Fix the price of a ROC for existing and new generation**
- If the new FIT mechanism is to apply to all new schemes after April 2017, then the RO post 2017 will only apply to vintaged schemes and the total installed capacity of scheme under the RO would not increase. The number of ROCs awarded would therefore be a function of the banding level applicable for each technology of RO vintaged installations. and their annual production: it may therefore be possible to predict the total number of ROCs with reasonable accuracy from 2017 onwards.
- In this case we believe that the easiest mechanism may be to fix the price for ROCs (and index it). This is because the ROC pricing system, which includes a recycle element designed to encourage investment in new schemes to meet RO targets, would no longer be required as no new schemes would enter the RO after April 2017. The ROC price should be fixed at a level that is fair to operational schemes under the RO, either fix the ROC value equivalent to ROC plus 10% (the headroom), or ROC buyout price plus the recycle price at April 2017.
- In general we believe fixing the ROC value at the ROC buyout price plus the recycle price at April 2017 would be preferred, as this would best reflect the market position at the time.

Yours sincerely

