AQUAMARINE POWER

elec.marketreforms@decc.gsi.gov.uk

Electricity Market Reform Project
Department of Energy & Climate Change
4th Floor Area E
3 Whitehall Place
London
SW1A 2AW

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Dear Sir / Madam

Consultation response: Electricity Market Reform

We welcome the UK Government's positive statements in support of marine energy and its willingness to engage with the industry in order to develop policies which will foster this promising industry's growth.

We welcome the explicit recognition of the need to maintain clarity and stability in the marketplace and are keen for DECC to act swiftly in providing details of the new regime and transition arrangements which will be put in place.

Please find attached our response to the consultation document. We hope you find these comments helpful, and if we can help by clarifying any of the points made, please get in touch.

Yours sincerely,

[redacted]

AQUAMARINE POWER

Electricity Market Reform – Aquamarine Power response

1 General comments

Aquamarine Power appreciates the government's objective to bring forth new investment in the UK energy market and we welcome the explicit recognition of the need to maintain clarity and stability in the marketplace.

A number of pre-commercial marine energy projects are currently in the pipeline with deployment dates from 2013 onwards. It is therefore crucial that DECC offers potential investors and power purchasers as much clarity as possible as soon as possible in order to prevent an investment hiatus which could severely affect or stall the UK's nascent marine energy sector.

Our key points are as follows:

- The Government must offer very a clear indication on how the RO will be vintaged from 2013 onwards, in order to prevent an immediate investment hiatus which will not be resolved until 2013, to the severe detriment of the marine energy sector;
- The RO should be extended to 2020;
- Contracts for Difference are, of their nature, complex instruments which will require significant government intervention in order to operate effectively. It will take the market some time to become accustomed to CfDs and could create an investment hiatus;
- A premium FIT is a well-understood mechanism which is fully reflective of the market and could be adopted with relative ease;
- Auctions are fundamentally flawed as a price discovery mechanism. The experience of NFFO demonstrates that an auction becomes a 'race to the bottom' which stifles development;
- In the absence of an obligation on suppliers, FIT levels must be set sufficiently high to incentivise investment in higher risk early-stage technologies. If the FIT is too low, there will be no investment; if set sufficiently high, there will be the potential to accelerate the development of marine energy;
- The concern of 'volume overshoot' could be overcome through the implementation of a cap at say 500MW for marine energy;
- The government should consider extending the existing small-scale fixed FIT to marine energy.

Our comments on the consultation are under the following headings:

1. Transition from RO to FIT
2. Type of FIT
3. Auctions / price discovery

2 Transition from RO to FIT

We welcome that, should the RO be replaced, it will be 'vintaged' for existing and upcoming investments – however, the period that the RO is open for new investments should be extended until 2020 (and 'vintaged' until 2040), to ensure investments needed to meet 2020 targets are not adversely impacted.

We are concerned that under the proposals suppliers would no longer be obligated to contract for renewable electricity. This undermines the strategy of utilities that have supported Government policy in pursuing renewable development as well as fundamentally undermining competition in the renewable energy market.

The PPA market is reasonably liquid at present due to the demand from utilities. If suppliers no longer have an obligation or target to purchase renewable electricity then they will be less inclined to contract. There is a very real risk of the PPA market becoming much less competitive with higher discounts applied to PPA terms.

If the RO is to be replaced it would be important to keep the new renewable capacity 'in the market', such as through a Premium FIT.

We would especially welcome clarity from DECC on how the transition arrangements and the mechanism for 'vintaging' of ROCs that will be put in place. Whatever road is taken, 'vintaging' arrangements must properly address wholesale price and capacity payment changes post-EMR, as these will have a major impact upon the revenues of renewables projects. The principles of the transition must be to protect existing RO investments and prevent a hiatus in renewables deployment.

We would welcome a period of parallel operation in the period 2013-2017 – offering generators the opportunity to elect for either support mechanism.

3 Type of FIT

We accept it is possible that either a Premium FIT or Contract for Difference could be made to work for renewable generation, if designed appropriately. However whichever FIT is introduced it must work for all types of renewable generation, and major complexities and fundamental uncertainties must be resolved before the industry as a whole can be confident of success.

Contracts for Difference are, of their nature, complex instruments which will require significant government intervention in order to operate effectively. It will take the market some time to become accustomed to CfDs and could create an investment hiatus.

A premium FIT is a well-understood mechanism which is fully reflective of the market and could be adopted with relative ease.

We are concerned that Contracts for Differences (CfDs) would substantially undermine the basis of liberalised markets and could have a number of damaging effects:

- Loss of competitive pressure. With contracts for electricity in effect being with, and set by government, the scope for competition in supply and in contracting of energy would be heavily restricted. Moreover, market signals on when and how much to build would be lost and competitive pressure on the supply chain would be reduced. In particular the ability to generate value through prudent risk management and by selecting the 'right' projects is a fundamental motivation to invest for all developers which would be largely removed with a system of CfDs.

- Limited scope for price discovery. CfDs inherently require more government involvement in fixing prices, increasing the information requirements for government and the risks of setting the 'wrong' price. In particular, the scope for the market to 'self-correct' for general movements in construction costs over time would be removed. Therefore, under a CfD, developers would require a significant premium to cover this risk, raising costs to consumers.

- Reduced development capital. With CfDs, developers would not be in control of the build decision (with this being subject to the successful award of contract) and hence the motivation to invest at this crucial development stage would be substantially reduced.

- High transaction costs and implementation issues. CfDs would require substantial contracting, payment and cost-recovery systems which would involve high setup and running costs.

CfDs would be much more complex and, with experience, generators are now very comfortable with the RO.

Before extending support beyond renewables, SSE believes it is important to first assess the impacts of CPS and a capacity mechanism (once their design has been established) to determine what funding 'gap' remains. Should this remain, explicit and clearly targeted support for nuclear, such as a Premium FIT, may be needed which will need careful design. The impacts of extending subsidy coverage through a CfD scheme on wholesale markets and dispatch patterns also need to be carefully assessed and managed. The analysis so far has been at too high a level and does and does not adequately take account of the behavioural and perception issues which always affect markets.

3.1 Small scale generation (up to 10MW)

It is harder for smaller generators to interact with the market, for these scales it might be more appropriate to support them under the small scale fixed FIT. Clearly the transaction costs involved in dealing with a larger number of smaller generators (many of whom are intermittent) are higher, than with a smaller number of (dispatchable) larger generators.

Until the market is more liquid and agents take on a role, Government should explore the possibility of extending the small scale FITs to at least 10MW (or a level to be determined). Those technologies that are not currently covered by the FIT scheme will also need to be included.

3.2 Accreditation

A major problem with the RO, and potentially any new support mechanism, arises because accreditation is only at the time of commissioning. This gives rise to a number of problems:

- Considerable uncertainty for the developer and funder through the process of project development and build,
- Creates a development hiatus in the years ahead of any signalled change in the level or working of the support mechanism, which
- Gives rise to the need for extended periods between (banding/support level) reviews

This results in an imprecise and cumbersome mechanism that cannot respond to the market (whether over or under development), and higher than necessary cost as a result of increased risk.

For a new 'contract based' mechanism to avoid these pitfalls we would suggest a contracting process with two commitment stages:

- Reservation of capacity (and fixing of the support level) at a first (technical) 'gate', such as planning permission having been obtained, and

- The project then contracts with the support mechanism (CfD/FiT) at the second (financial) 'gate', when it has reached 'Financial Close'.

4 Auctions are fundamentally flawed as a price discovery mechanism

The auction structures mentioned in the EMR will not lead to reliable price discovery. In competitive market segments there will be a tendency to bid over-enthusiastically, impairing

project delivery whilst in uncompetitive markets there is the potential to abuse market power. In pre-commercial market segments, such as marine renewables, there will be a small number of competing firms and a number of other non-financial barriers to be overcome prior to power production – including planning, and project technology. Under such a scenario, a single developer would have the potential to skew the price offered and block the market to all other early-stage developers. It will become a 'race to the bottom.'

In order to mitigate these risks the Government has proposed to enter all low carbon technologies into a single auction and hints at penalties for non-delivery. Neither of these options works. The single auction approach overlooks the fundamentally different financing, operational and investment characteristics of different technologies, at different stages of development, whilst the penalty for non-delivery is not suited to the UK's protracted planning and grid development regimes and significantly increases the risk adjusted development cost as well as acting as a barrier to entry to new market players.

It is instructive to examine the experience of using the Non Fossil Fuel Obligation in the UK. The introduction of the NFFO in the 1990s provided a price support mechanism for renewable energy developers to compete for premium priced energy contracts. The NFFO scheme was implemented in 1990s and was originally intended to support nuclear energy as part of a move to privatise the industry. In total there were five NFFO funding tranches during the decade which attracted bids from renewable and nuclear project developers. Bidders competed primarily on price; the lowest prices received government allocated capacity first. The development of the wind energy sector in the UK is illustrated in Figure 1.

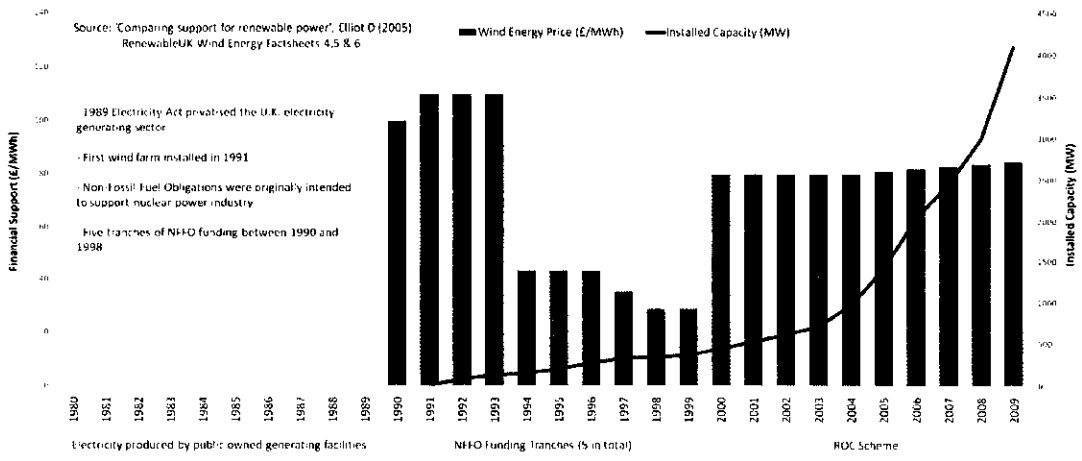

Figure 1: Financial Support and Installed Capacity in the UK over Time (DTI, 2001; Elliott, 2005) NB: The higher, consistent ROC prices resulted in an exponential growth in wind power capacity. An approximate electricity market price of £50/MWh has been assumed

While the NFFO funding rounds assisted in advancing the competitiveness of renewable energy with fossil fuels, contracts awarded under NFFO -1 and 2 expired in 1998 and therefore developers had a fixed period of time to maximise energy production under premium prices.

This restriction put a strain on existing manufacturing facilities, forcing developers to import turbines that could be rapidly installed and commissioned. At the same time, a focus on oil and gas exploration diverted UK attention away from developing a wind energy sector.

Foreign wind turbine manufacturers were also reluctant to establish a UK presence due to the inconsistency in allocated wind energy capacity in each NFFO funding round. This insecurity was compounded further by an average three-year consenting period, which reduced the

amount of time available during which energy could be produced under contracted premium prices. Over the five NFFO rounds, contracts for 2,680MW of wind power capacity were awarded; by 2000 only 395MW were operational (DTI, 2001)

We do not see how an auction system can be effectively implemented, and an ineffective auction system will seriously undermine the ability to deliver the Government's carbon and renewable objectives.

In the absence of an obligation on suppliers, FIT levels must be set sufficiently high to incentivise investment in higher risk early-stage technologies. If the FIT is too low, there will be no investment; if set sufficiently high, there will be the potential to accelerate the development of marine energy. The concern of 'volume overshoot' could be overcome through the implementation of a cap at say 500MW, or a banding review at a future date.

5 Issues to be resolved in the Energy White Paper

We believe it is unlikely the White Paper can clarify all the detail generators might wish to see and have been asked to set out what is essential in order to maintain the momentum in project development. It is essential that the White Paper covers the following:

- Clarification what FIT mechanism will be introduced in 2013 (a CfD or Premium FIT)
- Time periods (duration of support and reviews)
- Transition arrangements and details of the vintaging of the RO
- Whether the FIT will be banded by technology, and any cap
- Definitions of renewable technologies supported under the scheme
- What reference price index will be used (whether it will be varied by technology, although what index is used for different technologies can be clarified in secondary legislation)
- How will the strike price be set
- How will the off-take issue be solved (will there be an obligation on suppliers, will there be a central buyer, or will generators have to sell into the market).