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# Financing Wind Beyond 2010

## Possible Solutions

Issued to BWEA Members 24<sup>th</sup> September 2003

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September 2003

This is an independent study commissioned by the British Wind Energy Association.  
**It DOES NOT REPRESENT the views of the BWEA, its members, or of those companies involved in the survey.**

This report is produced as part of a consultation and discussion process with industry and government.

### GUIDE TO THE STUDY, DISCLAIMER AND THANKS

This study was commissioned by the British Wind Energy Association. It must be emphasised that the views, opinions and analysis contained in this report are entirely those of the author. **This report does not represent the views of the British Wind Energy Association or its members.**

The main work of this study involved discussions with over 100 people during over 60 interviews conducted in July and August of 2003.

The study is issued in two parts:

- **Survey Results:** This attempts to capture the mood and sentiment in the industry as was observed during the study.
- **Possible Solutions:** Discusses possible changes to facilitate the financing of the wind business in the UK

The author would like to thank all those who participated in the study for giving so freely of their time and honestly of their views.

Interviews conducted in this survey were not recorded and no participant was asked to give a “Company position” or written response to our questions. Hence no list of those who participated is included in the study, and no reference is made to any specific statement made by individuals or companies except where they are in the public domain. Quotes without references should be considered to be things, which might have been said during the survey. This of course means I cannot provide credit for those whose ideas I put forward in the study – for that I apologise to those who proved more imaginative than me.

This report represents solely the views and analysis of the author and as such any errors or misrepresentations are entirely my responsibility.

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September, 2003

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### **SYNOPSIS**

The “Survey Results” report made the case that the timing of the 2005/06 was harmful to the development of the wind industry in the UK and that if change could be affected now, that would give the industry a clear run at the 2010 target.

This report discusses a range of changes to the financing and incentive regime for renewable energy in the UK. Most, if not all, of the ideas for change currently debated in the industry are discussed in this report, along with a number of entirely new suggestions.

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**“The 2005/06 review is right at the time when we expect the market might start to take off”**

**“We tend to be guided by the EU directive and the EU-level processes”**

## INTRODUCTION

This report looks at a variety of options for change in the following main categories:

- *Long-term incentive structures*: Enhancing the long-term incentive structure of the Renewables Obligation
- *Facilitating parallel development of onshore and offshore wind*: Closing the gap between the costs onshore and offshore to allow them to develop in parallel during this decade.
- *Stimulating investment in other renewable technologies*: Making sure that the system has a focus on bringing forward the development of other new renewable technologies.
- *Addressing the Consumer / Taxpayer*: Some suggestions, which address the concerns of these two key interest groups.
- *Other Suggestions*: Ideas worthy of mention or discussion, which came up during the study.

Well-established ideas are given more limited discussion than those which will be new to the reader. This should not limit the consideration which the reader gives to each individual idea.

**“The Renewables  
Obligation is a very nice  
system in theory, but it  
never was going to be  
bankable”**

**“Regulatory risk pervades  
the system”**

**“A radical over-haul of  
the system at this stage  
would be a disaster for  
confidence”**

### **Issues to consider**

The reader may wish to consider the following issues when appraising the various options for change:

- An idea must work within the constraints of the overall regulatory process, particularly at a EU level.
- The idea should address the lack of long-term incentives in the current RO.
- It should preferably reduce the dependence on the obligated suppliers providing a long-term incentive to build renewables, or it should make that trading decision less risky for them.
- The ability of a scheme to be grandfathered is extremely important in financing.
- The idea should reduce regulatory uncertainty particularly with respect to the 2010 target.
- Changes should stimulate innovation and entrepreneurship in ways, which bring forward offshore developments and drive delivery of the 2010 target.
- The scheme should deliver good value to the consumer.
- The scheme should encourage all genuine renewables.

Most importantly, any change to the scheme should promote confidence in the industry, the government, the targets and the ability to meet those targets.

It must be remembered that the survey, particularly of those in the financial community, showed that reform is needed but that radical change to the system would be unwelcome at this stage.

There is undoubtedly not one right answer, and hence a complementary set of the following measures (or measures like them) might eventually come to the fore.

**LONG TERM INCENTIVE STRUCTURES**

How do we extend the incentive horizon in the Renewables Obligation, and hence enable people to take the long-term ROC trading positions required to stimulate the growth of the market?

**Extension of the RO targets to 2020**

This involves the extension of the current RO scheme to 2020, as was much debated around the time of the publication of the White Paper earlier this year. Turning the aspiration into a target effectively.

**“We need an extension of the targets and buy-out price to 2020”**

This would roughly involve a 1% per year increase in the obligation to 2020. This would also involve a government commitment to the obligation to 2037.

**“The nature of the regime post-2010 is a major concern for us”**

This was an extremely popular idea, particularly in the City, during the survey conducted by this study.

The extension provides a much longer horizon for the obligation which means that obligated suppliers would be more willing to contract (issue PPAs or invest themselves) over the kind of horizons required for projects both onshore and offshore.

Extension to 2020 has the advantage that it does not require any change to the system. It is simply an extension of the current regime.

There is no doubt from the survey that financiers would feel more comfortable backing projects in this circumstance, however they will certainly still require debt to be covered by a PPA.

There are issues of policy and effectiveness in this idea.

**“I am not sure if any extension to the RO beyond 2010 would stand up to any changes at an EU level”**

It is also constrained by the EU process such that any promise made for after 2012 is potentially meaningless.

**“The plausibility of the cost to the consumer is something which we look at”**

In NPV terms this extension adds about £5.5bn (at 10% cost of capital) to the commitment, which the consumer is making to the RO. Politically the fate of the annual escalator on Fuel Duty is a stark lesson to those who want to set an escalating environmental burden on the consumer.

The additional cost to the consumer in this change is simply making up for some of the deadweight costs inherent in the current scheme. This may not be seen as addressing the core issue.

What if the current RO scheme has significant deadweight costs and inefficiencies? Does simply extending the same underlying scheme resolve them?

#### **Rolling extensions to the targets**

Similarly some have suggested the rolling announcement of an RO extension say 10 or 15 years out.

Again this has the advantage of providing greater long-term certainty in the scheme, while not actually changing the mechanism itself.

*10 or 15 years?*

**“Offshore wind projects need 15 or more years of price certainty for financing purposes”**

10 years ahead is probably enough for onshore projects, but not for offshore. The obligation would have to be set at least 15 years out for the planning and financing horizons of offshore projects. This means that today we would know the targets to 2018 (and the government would be committed to the scheme to 2034).

The Spanish example possibly shows that 10 years would be enough, but this would have to be combined with a credible scheme for grandfathering and a reputation for stability and consistency in energy policy. The former is still not obvious and the latter may not be gained overnight.

This scheme potentially falls foul of the EU process, and by the time it is implemented it will be the same as implementing the 2020 target discussed above. Hence these two ideas, as viewed from today, appear to be the same.

The idea of rolling targets has the advantage that it commits the government to revisit the RO and re-affirm its commitment to the scheme every year. A simple extension to 2020, leaves open the question of when people start campaigning for the next review.

*The number or the whole thing?*

Under a rolling extension of the targets would it simply be the percentage of renewables, which would be set 10 or 15 years out, or would the rules for the whole RO (technology eligibility etc.) also be fixed at that point in time?

There are pros and cons to fixing the RO's rules as well as its targets. On the one hand it appears to reduce regulatory uncertainty by fixing everything. Certainly fixing the obligation without fixing the rules for meeting it seems to leave the door open to fiddling. On the other hand, will the markets believe a government promise to fix everything for 15 years?

Rolling targets have, over time, the potential to create a very positive and self-fulfilling cycle of target setting by government and target meeting by industry.

**“We need the government to guarantee the price of the ROCs over the project lifetime”**

#### **Caps and Floors**

What if the government were to affirm its commitment to the scheme by placing a floor on the ROC price, and protect the consumer by setting a cap?

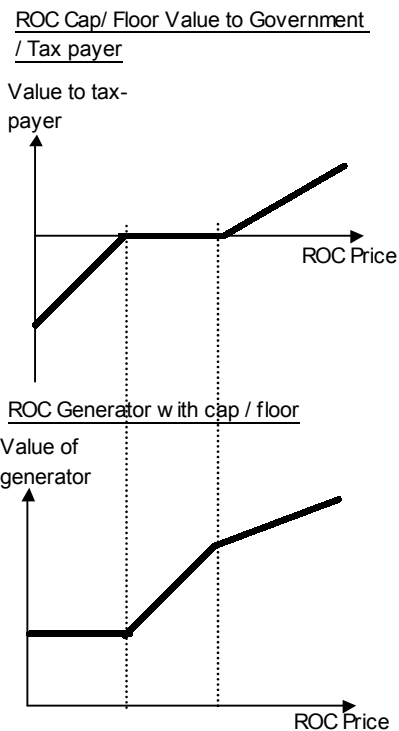
*Administratively set*

Setting an administrative level of maximum and minimum price in the ROC market itself is a near impossibility and hence this is not discussed further.

*Contractually set by project specific contract.*

The government could however issue guarantee contracts on a project specific basis.

This involves leaving the RO exactly as it is, but also awarding government backed guarantees of the ROC price for the duration of particular projects. Projects would have to bid to receive a guarantee,



**“There is limited scope for upside in the utility business”**

and along with that guarantee (floor) would come a cap or revenue sharing arrangement, which gave the taxpayer a share of the upside from the project.

Hence the cap pays for the floor, but no money actually changes hands.

*Risk and the Government*

One attraction of this is that it allocates risk to the party best able to control it. Most of the risk in the ROC price comes from regulatory risk and as such the government is best able to manage that risk.

It also mitigates one very difficult risk for the government. Renewable generators get paid the sum of the electricity price and the ROC price, but there is no link between these two markets. If prices were to rise significantly in both markets then renewable generators could make super-profits based on a “subsidy” from the electricity consumer.

The sharing of the upside in this arrangement would mitigate this risk for the government. The alternative in such a situation would be to expropriate the super-profits, which would badly damage confidence in the system.

*Some Detail*

While not included here we have conducted an analysis of the incentives of a project under this scheme and it turns out that to make it effective the following should actually be the case:

- *The floor:* This is set at a level of £/MWh per ROC actually produced.
- *The upside sharing:* This should again be on a £/MWh produced basis, but it should apply to total revenue of the project (i.e. electricity plus ROC revenue).

The above probably means that the project has to be placed in a SPV by the developer, but this need not be project financed or off-balance sheet, so this is not a significant issue. It might however restrict the refinancing options of the developer.

*Technology differentiation*

Such a scheme also has the potential to allow for projects using different technologies to be given

**“The government already takes part of the upside in taxes”**

different levels of guarantee, hence allowing the promotion of a variety of technologies under the RO scheme.

#### *Advantages*

The scheme involves no change to the current ROC scheme, and implicitly grandfathers the scheme on a project specific basis. It also allocates risk where it is best managed, which is very appealing from a theoretical financial perspective.

This idea reduces deadweight costs in the scheme (as guarantees could be issued out to 2027) and reduces the reliance on supplier PPAs to back debt-financed projects. The guarantee itself provides a hedge, which generates sufficient debt capacity in the project that it may not need a PPA (or at least not one which provides for price certainty).

This means that the government is taking back from the suppliers the role of guarantor of the ROC scheme.

The government guarantees would have government credit, vastly reducing the credit issues in the industry.

Furthermore the guarantee contracts may go beyond the point where EU harmonisation may occur, but the RO itself need not be extended, hence this idea may not fall foul of the EU process.

#### *Problems*

**“Under NFFO projects just didn’t get built”**

While good on the surface this system is likely to suffer from many of the problems of the NFFO system, due to the bidding process for the guarantees. An industry would develop in manipulating the rules for the schemes and lobbying for special treatment. There would also be no guarantee that guarantees lead to projects.

There is also the potential for the government to have a significant liability if ROC prices fall and there is no obvious place within the industry from which to hypothecate the funds to cover this liability.

**“The difference between financing under PFI and under the RO is that financing under PFI involves a direct contract with the government”**

**“PFI style” deals**

This is a radical change to the system.

Given that the market-based system has potentially large deadweight costs, perhaps it makes sense for the government simply to issue contracts for the construction of wind farms, as it does for schools, hospitals and prisons?

The government can “bank” the funds in the RO in a way that the private sector is currently incapable of doing.

The PFI contracts would be of government credit and hence this issue is made simpler, and there is no reliance on the suppliers to create the long-term incentive for renewables. Under the current scheme only the government is capable of banking sufficient of the funds available in the RO to meet the 2010 target by 2010.

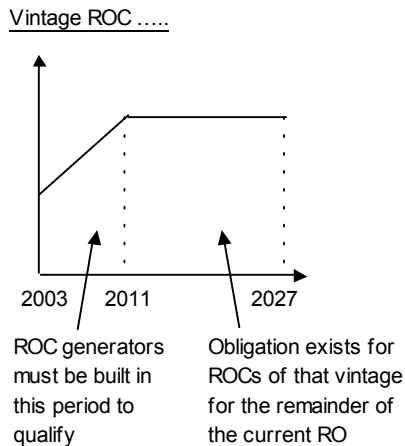
This type of scheme gives the government the greatest control over the volume and the cost of renewable energy in the UK.

In all other forms of scheme, the government generally sets the volume or the price and leaves the other factor to the market. The RO loosely sets bounds for price and volume and then allows the market to determine both, to some degree. This can leave government very nervous of the possibility of a low volume / high price outcome.

This idea is, of course, almost certainly politically unacceptable.

**Vintage ROC ‘n’ Roll (RO banded in time)**

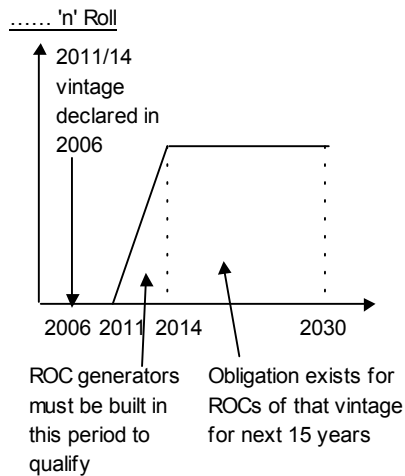
As far as the author is aware this is an entirely new idea and hence the length of discussion which follows.



This is a change to the RO, but it does not involve change in the system for the rest of this decade, or the need for the government to make a promise into the following decade.

The proposal is that the “vintage” of the ROC generator should matter after March 2011.

Any generating station accredited to be operational prior to 31<sup>st</sup> March 2011, would be of “Pre-2011 Vintage”. For the rest of the period of the current obligation (to 2027) suppliers would be obliged to purchase 10.4%<sup>2</sup> of their electricity sales from renewable sources of a Pre-2011 Vintage or pay the buy-out price.



This means that the option to build the 2010 target after 2010 is removed. The current vintage becomes about building the 2010 target by 2010 (March 2011 actually).

Nothing else need be done now. However in say 2006 or 2007, the government would declare the terms of a new vintage covering some period after 2011<sup>3</sup>. If this were say, a three year vintage<sup>4</sup>, with an obligation of 3%, then for the 16<sup>5</sup> years following March 2014 obligated suppliers would be required to purchase 3% of their energy from the “2011/14 Vintage” of RO (as well as 10.4% from the previous vintage until 2027).

<sup>2</sup> Obviously it wouldn’t actually be 10.4% of current sales in a given year, as the aggregate volume of sales would rise over the period to 2027. Hence the yearly percentage of obligation for this vintage would have to be revised slightly each year for the growth in aggregate demand.

<sup>3</sup> For those wondering, this rolling announcement of ROC vintages is where the ‘roll’ comes from in the name.

<sup>4</sup> There will be reams of reports written on the optimum length of time for a vintage. It is likely to be set as much by the potential milestones for EU harmonisation of renewables schemes as by any other considerations.

<sup>5</sup> There is potentially an argument for a shorter period under the vintage RO scheme; ten years, for instance, might be enough. This is an issue for debate.

**“Some form of long-term, bankable price market is required to secure the funding of these projects”**

*Why it works*

The rolling vintage idea works because the market will turn the prevailing short-term ROC price in 2011 into a long-term bankable price to 31<sup>st</sup> March 2027.

No target has to be announced beyond 2011, and the financial commitment of the government does not have to be extended beyond 2027.

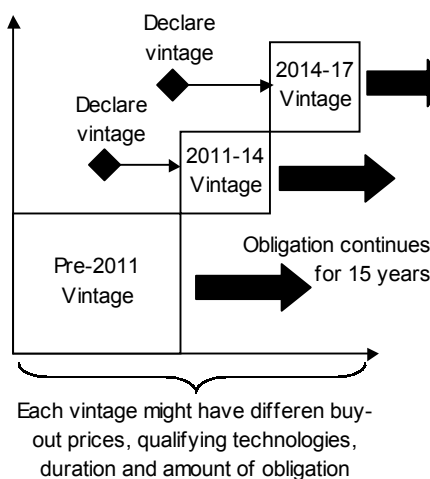
This minor change reduces the risk involved in obligated suppliers contracting in the ROC market.

Post March 2011 the supply and demand of Pre-2011 Vintage ROCs is well known in the market, and hence even if the supplier adopts the approach of simply being a processor of ROCs for a fee then the remuneration for the generator is almost certain from that point on. That means that a PPA which is almost riskless from the supplier’s perspective, might be bankable for the developer beyond 2010<sup>6</sup>.

**“Regulatory risk is a fact of life in an industry which requires its own support mechanism”**

This reduces the suppliers’ role as the long-term guarantors of the RO mechanism.

The policy flexibility which comes from the discontinuity between vintages



*Future policy flexibility*

For policy makers this idea provides a means of giving a long-term incentive whilst not having to commit to a policy long into the future.

Policy for instance is constrained by the EU process, which could potentially see harmonisation of renewables schemes in the EU by 2012.

By announcing new vintages say 3, 4 or 5 years ahead, the government is also better able to manage the convergence of the wind sector such that it eventually does become viable based solely on electricity price and the cost of carbon.

One might foresee in the long term, a situation where a vintage was declared which did not have wind power as a qualifying technology<sup>7</sup>.

<sup>6</sup> i.e. A PPA that gives the ROC generator (buy-out + smear back – admin fee) is probably bankable as the smear back is pretty certain.  
<sup>7</sup> If the introduction of emissions trading puts up the price of electricity sufficiently and technology continues to improve over the next decade, one can even imagine that the next vintage after 2011 might not include onshore wind as a qualifying technology.

Note that the vintage concept makes such policy changes possible. Under the current system if a technology were at risk of removal from the RO in the future that would be disastrous for investments in that technology today. In the vintage scheme, as long as the rules for the current vintage are never changed once declared, then the fate of a technology in future vintages makes no difference to investments made today.

**“Confidence in the grandfathering of rights under lapsed schemes is essential”**

#### *Grandfathering*

If the renewables incentive structure were to be changed in the future, then the final vintage would simply be allowed to expire and no more declared. At the end of the vintage, the price of ROCs for that vintage for the next 15 years is known (because both supply and demand for the vintage are known). Hence contracts can be easily grandfathered using this scheme (in fact it grandfathered itself)<sup>8</sup>.

Policymakers may be uncomfortable with the idea that this scheme sets an almost guaranteed price for ROCs for the 15 years after the end of the vintage. What if this price appeared to be politically unpalatable or provided a guaranteed windfall for a few generators (if the target was not met)?

**“We need a period of regulatory certainty in order to get projects financed”**

#### *Regulatory Certainty*

If the “Pre-2011” vintage were declared soon, then the government could, if it wished, also announce that this vintage would not be discussed in the 2005/06 review of the Renewables Obligation.

In other words the review in 2005/06 would be about responding to the EU report on harmonisation (no effect before 2012) and about the terms for future vintages. The uncertainty with respect to reviews of the obligation is then completely removed from investments made before March 2011.

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<sup>8</sup> This is exactly analogous to the situation with the NFFO contracts and the fossil fuel levy. The fossil fuel levy continues despite the fact that it underpins a system, which is now superseded. If something replaced the RO in 2012, then trading of the Pre-2011 Vintage would continue until 2027 despite the fact that it supported a now obsolete support mechanism.

**“Changes to the rules in the future make us very nervous”**

Similarly, as future vintages will be of relatively short duration (say between 2 and 5 years) investors and developers could be certain that, once set, the rules for a vintage would not be changed. Policy makers, on the other hand, would know that if a mistake was made in a given vintage then that mistake could be rectified in future vintages without increasing regulatory risk and damaging investor confidence.

In essence this mechanism allows the government to clear a path for the industry through the regulatory jungle, without having to make any assurances as to what may lurk further ahead in the undergrowth.

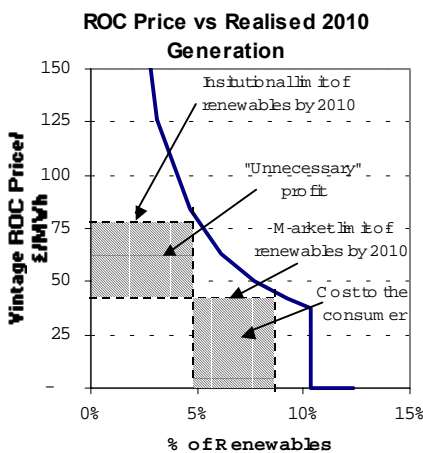
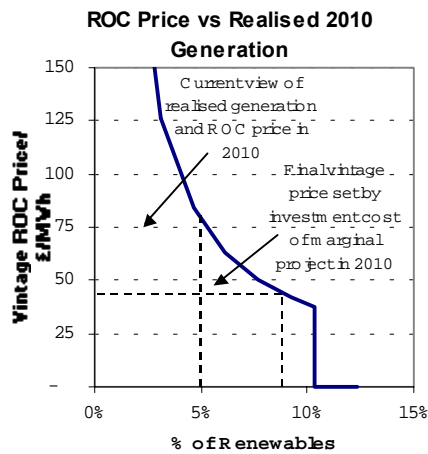
*Innovation and Entrepreneurship*

**“In the long run this is obviously a utility return business. In the short to medium term it needs to attract innovators and entrepreneurs”**

Under the Vintage RO scheme, those who, over the next 7 / 8 years, establish a renewables industry in the UK of credible size, and who make the first risky advances in exploiting the potential of our offshore resource, do have an upside which is unusual in the utility industry. This very incentive is required for the innovators in the industry to make those advances at the speed required.

In financial terms the heightened incentive to develop before 2010 has the potential to attract high-risk equity to the market (to fund development say). It also provides that type of equity with an exit strategy, as the period after the expiry of the vintage in 2011 provides for steady and reliable cash flows to projects which debt financiers and institutional equity providers would be most comfortable with.

What, however, if the heightened incentive to build before 2010 lead to a situation where the market was over-built and the ROC price crashed to nothing after the expiry of the vintage? This might make some players nervous of developing in a given vintage for fear that the actions of others might wipe out all the value of their investment.



**“Something needs to be done soon”**

*Banking the RO*

The Vintage RO scheme means that as at March 2011 unless the industry is deeply irrational, the whole of the funds under the current vintage of the RO should be “banked” in projects.

As is shown opposite the Vintage RO system truly establishes the price of the marginal renewable energy project by March 2011, and makes that project realisable.

*Institutional Incentives*

Under this scheme the amount of renewables built by March 2011 will be constrained by one of two factors. An unconstrained market will settle at the price of the marginal project, which can be built before March 2011. If the market is constrained by institutional factors then the amount of renewables will be determined by these factors.

Those with it in their gift to reduce institutional barriers to renewables can therefore calculate exactly the cost saving to the consumer, which a particular measure might achieve. This makes for a quantifiable cost-benefit analysis of the issues, which constrain renewables in the UK.

*Problems*

This is a change to the current scheme.

The Vintage scheme does not directly affect the short-term possibility of generators making excess returns from the RO scheme. This is inherent in the current RO system, of course.

Probably its most important weakness is that this scheme requires swift action. The Vintage RO may not impact the achievement of the 2010 target if implemented after the 2005/6 review.

2003 or early 2004 however is almost certainly enough lead-time to, for instance, accelerate the development of Round Two offshore wind sites into this decade.

**“Green groups hail wind farm growth”**  
- FT, 15<sup>th</sup> July, 2003

#### **FACILITATING PARALLEL ONSHORE AND OFFSHORE DEVELOPMENTS<sup>9</sup>**

The UK government has initiated the licensing of a large amount of offshore wind projects at a time when there is still significant potential for onshore development.

This is entirely prudent as it stimulates learning in the offshore environment, and hedges the UK against the possibility that the onshore or offshore business does not deliver in the volumes, which we all hope for.

**“Offshore wind, even in Round Two, will be more expensive than onshore wind”**

However in a market based system the price should rise to the cost of the marginal project. It is well documented that Round One and Round Two offshore projects are more expensive and riskier than onshore developments. If the onshore business sets the marginal price then it is difficult for offshore projects to be economic (particularly as they are of higher risk).

Therefore the strategy of establishing the offshore wind industry in parallel with the onshore wind business justifies some further support for offshore projects over the coming years.

Two ways are described of helping to close this gap between the onshore and the offshore costs.

#### **Enhanced Capital Allowances**

Offshore wind farms licensed under Round Two and constructed by a certain date (say 2011 again for the sake of argument) would qualify for enhanced capital allowances on their investments.

ECAs are more reliable and less administratively burdensome than the application process for capital grants.

The introduction of such a scheme for offshore wind would also appear equitable in the wider scheme of capital allowances.

**“Without some additional support, it might be that Round Two proves to have been announced a little early”**

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<sup>9</sup> More detailed work has been performed on this issue for the BWEA as part of the study.

**“Allowances are more reliable and less expensive to administer than grants”**

Enhanced capital allowances have proved an effective tool in other parts of the government’s climate change programme. For instance businesses can claim 100 per cent FYAs on their investment in designated energy-saving plant and machinery under the enhanced capital allowances scheme. Enhanced allowances also apply to low emission cars and gas re-fuelling infrastructure. It would appear equitable for investment in renewable generating machines (offshore wind farms) to be treated in the same way.

### **Capital Grants**

**“We needed the grants for Round One”**

Capital grants went some way towards bridging the gap between the onshore and offshore costs for Round One projects. The grants were considered important for Round One offshore wind farms.

Capital grants for Round Two projects would, of course, help close the gap between the costs of onshore and offshore wind.

However, while no developer turns away money, capital grants were not a popular mechanism in the survey.

They are not and never will be guaranteed and so they are difficult to plan for. They also do not radically change the risk of the remaining cash flows and hence while reducing the amount of investment required they do little for the risk (more on grants for other technologies later).

## STIMULATING INVESTMENT IN OTHER TECHNOLOGIES

Whilst this study is about wind, it is important that in trying to steer policy for wind, we do not compromise the potential of other renewables in the UK.

How should we ensure that other, less well-established technologies, continue to get the incentive to develop as the RO scheme grows?

### Is the RO the right scheme?

The Renewables Obligation is a large-scale (10% of the UK electricity supply is large) system aimed at commercial renewable technologies. Pre-commercial technologies should therefore perhaps be dealt with via other means.

The RO is not necessarily yet the right mechanism for the financing of pilot projects in wave, tidal flow or other technologies. Furthermore the contribution of such technologies in the near term may not justify changing the RO to satisfy their needs.

### Banded Renewables Obligation

A “Banded RO” is the term used to encompass a range of changes to the Renewables Obligation, which deal with the issue of technology differentiation. There is concern that, as the RO does not differentiate on technology as the NFFO did, then new pre-commercial technologies such as wave, tidal flow and others do not benefit sufficiently from the incentive.

This idea is also aimed at closing the gap between the costs of onshore and offshore wind, again to facilitate the parallel development of the two technologies.

**“Different technologies need different levels of support. One-size-fits-all will always just favour one technology”**

**“Offshore wind needs more support than onshore wind and may do for some time”**

A banded RO might mean:

- the obligated suppliers have a range of distinct obligations to buy ROCs from different forms of renewable generation (say by 2010: 6% wind, 2% genuine biomass, 1% wave, 1% tidal). Each band of this obligation might have a different buy-out price.
- that 1MWh of electricity production “generates” a different number of ROCs depending on the type of technology used to generate that electricity (say 1.3 ROCs for offshore wind, 1 ROC for onshore wind, 0.5 ROC for co-fired biomass, 2 ROCs for wave, etc.). This way the price of a ROC would be the same in the ROC market, but renewable generators would be remunerated differently depending on their technology.

**“Support to get offshore wind (and other technologies) through the early years would be welcome”**

Another element of such a scheme might be that it was time limited. For instance, offshore wind might get a premium for the next 5 or 10 years (or perhaps it would only be applicable for Round Two offshore etc.).

In our survey the idea of a banded RO system got a cool reception. Many in the City felt that the added complexity would give their credit committees great cause for concern.

**“Explaining the RO to my credit committee is difficult enough”**

There were people in the survey who liked the idea, but in all cases they were in a position to benefit financially from the scheme (i.e. offshore wind developers tended to like it).

**“This is the kind of fiddling that makes me want to stop investing in the UK”**

Also, and most importantly, setting the parameters of this scheme relies on civil servants setting the spread of costs between different technologies, and they can never have sufficiently good information in order to do this effectively. Such a system could destroy the incentive for companies to make technological advancements and cost savings.

The scheme has the potential to be self-defeating. If the parameters are set such that one technology represents a better investment than the others then this will dominate. Fiddling with parameters would

**“The wind industry should show solidarity with other forms of renewable energy ”**

**“Despite their faults feed-in tariffs do get projects built. Fixing the price stimulates the volume. In pre-commercial technologies getting the early volume of projects is more important than getting them at the right price”**

be difficult due to its effect on confidence. Hence this would potentially become just a more limited RO for a given favoured technology.

#### **“NFFO Style” Schemes**

Some have suggested that a limited “NFFO style” scheme might be most appropriate to get pre-commercial projects operational for new technologies.

One way of funding this scheme would be for the NFPA to issue new “NFFO style” contracts to projects, then sell the ROCs which they produce, and fund any deficit from its cash reserves.

The problem with this idea is that the NFFO scheme did not always lead to projects, and for small projects the cost of bidding can be high.

#### **Volume Limited Feed-In Tariffs**

A similar idea is to have a feed-in tariff for given technologies for a limited amount of volume (say 20MW for wave, 20MW for tidal etc.).

Feed-in tariffs are proven to generate volume of projects in new technologies – unlike NFFO-style schemes.

Again, the cash generated by the NFPA from the sale of ROCs could potentially be used to underwrite such schemes. The NFPA cash presents an opportunity to apply a volume limited feed-in tariff for new technologies in a way, which would otherwise be difficult and cumbersome within the competitive energy market.

Contracts could be awarded on a competitive basis, but based on a business plan, rather than via a price-based auction.

Note that a feed-in tariff for a demonstration or pilot project is almost certainly superior to grant aid (unless the grant aid pays for the whole project, see below).

One potentially difficult element of having the NFPA underwrite the scheme with its cash reserves

is that it is hard to know what the deficit between the ROC price and the feed-in tariff will be. One solution to this is to have the NFPA auction the ROCs for the duration of the feed-in contract (see later) and hence lock-in the cost of providing the feed-in tariff at its commencement.

This provides price certainty and frees up funds for the next project.

### **Capital Grants**

**“Grants do not change the risk of the remaining cash flows”**

If the developer still has to raise finance for the remaining investment in a pilot project then grant aid may do little to reduce the costs of raising that capital; the cost of that capital; and the time and effort taken to raise it. Grant aid does nothing to reduce the risk of the remaining cash flows of the project.

In effect grant aid probably goes largely towards compensating for disproportionately high transaction costs for small projects.

Fixed price contracts make the financing easy, cheap and boring, and allow the innovators and entrepreneurs to focus on developing the technological solutions to the problems of alternative forms of renewable energy.

Arranging the financing of risky cash flows for small projects is not an economically efficient use of the time of those leading the development of, for instance, tidal and wave power technologies.

**“Extra debt brings tax advantages with it”**

Fixed tariffs also increase the debt capacity of the project (due to reducing the risk of the cash flows). This means that sponsors have to find less equity. It is the costs and difficulties of small companies finding equity, which often justifies issuing grant aid in the first place, despite the fact that grant aid may not actually reduce those costs.

Higher debt capacity in projects also leads to a tax benefit (interest tax shield), hence by issuing a fixed tariff contract the government is helping the project take an additional benefit from avoiding corporation tax.

**“The long term cost to the consumer needs to be addressed”**

#### **ADDRESSING THE CONSUMER / TAXPAYER**

What about the people who ultimately fund all this?

#### **Addressing the Cost to the Consumer**

By 2011 the cost of the Renewables Obligation to the UK energy consumer will be over £1bn per year.

In order to have a credible policy in the next decade, this cost must be addressed.

Under a number of the schemes proposed earlier the government could signal a desire to address the cost to the consumer in the next decade (or reserve the right to).

Under the Vintage RO scheme it could for instance indicate its desire to see the buy-out price (and hence the cost to the consumer) fall for future vintages.

The 100% Obligation scheme does not require more funds to be promised by the consumer at this stage.

#### **Community Investment Funds**

**“It was very frustrating that we just didn’t have an answer for the ‘What’s in it for us?’ question”**

The goodwill of the local community is essential in developing a wind farm. Some developers in the survey voiced frustration that in a number of cases projects could not practically be made to make a large contribution to the local community.

Many of those surveyed also noted the success of the German system of tax credits for local investors in wind farms.

Hence consideration should be given to a scheme where tax relief is given to those individuals who invest in wind farm projects in their area. This might involve tax relief on the actual investment or on the income from investments.

**“Tax incentives for local investors has worked extremely well in the German market”**

Some developers had tried local share ownership schemes, but had encountered high administrative costs. Tax relief provides some funds for administration.

**“In some circumstances this might be hard for a project to implement ”**

#### *Practicalities*

There would obviously be a range of rules on such investments. A cap on the proportion of the project investment to be funded in this way, and on an individual investment would make sense. The rules for investment eligibility would also have to be defined.

**“Once this is law, we would have to offer it on all projects whether appropriate or not ”**

#### *Problems*

Some developers who develop on balance sheet noted that it was often difficult to include such instruments in a project’s capital structure. Others noted that for a portfolio player, cash flows are less easy to attribute to a particular farm. Such schemes might also place restrictions on a company’s ability to refinance projects, particularly if it were to be done on a portfolio basis.

Some in the survey pointed out that, whether such a system was appropriate for a project or not, if it was available in law, then it would be very hard for a developer not to offer it as part of all projects.

These are genuine issues, which mean that such a scheme might reduce economic efficiency. Hence this idea requires further consultation and consideration.

**“Isn’t the easiest thing just to have us pay business rates locally?”**

#### **Business Rates Paid Locally**

An easier way to institutionalise the transfer of the global benefit of wind farms to the local community is to have the Business Rates, which wind farms pay, be paid locally.

These funds would go to the local council, which would use them either to improve services or reduce council tax, hence benefiting the wider community.

By its nature this scheme is progressive in a taxation sense (the poorer get proportionately more out of it), the above tax incentive scheme is potentially regressive (the rich do disproportionately well out of it).

Hence this might be considered the preferred approach on the basis of fairness and ease of administration.

## OTHER IDEAS

This section includes suggestions which were discussed or suggested during the study, but which did not fit well into any of the previous categories.

**“There must be quite a cost to the industry of participating in the auctions ”**

### Long term NFPA auctions

Some have suggested that the 6-monthly (soon to be 12-monthly) NFPA auctions should be replaced by a one-off auction of all remaining ROCs under the NFFO/SRO contracts.

This would provide a transparent long-term price marker for the PPA market, which is the market most relevant to the development of new renewable projects. Hence the price discovery, which the auctions facilitate, would be more valuable over this time horizon.

**“A long term price marker for PPAs is more valuable than the 6 monthly marker which the auctions currently provide ”**

This would also remove a short-term supply of ROCs and hence focus the attention of obligated suppliers on long term trading opportunities.

Some in the survey also noted the administrative costs this would save both at the NFPA and at the suppliers.

One problem with this approach is that it might exclude some small suppliers from participation due to credit considerations. This would reduce competition in the auctions.

### Mandatory Contracting

**“Suppliers should be forced to contract for a certain percentage of ROC demand with independents”**

Some have suggested that obligated suppliers be “forced” to enter into contracts with third party developers. It is difficult to see how the government could implement this without indemnifying suppliers against the risks of those enforced contracts.

Others have suggested that it should be mandatory for the prices of long term PPAs to be published. However, as PPAs are generally highly structured, the whole contract would have to be published to be meaningful and this obviously contravenes the rights of companies to negotiate and contract in confidence.

**“Anyone should be able to retire a ROC.”**

### **Wider participation in the ROC market**

Some people have spoken about trying to increase the participation in the ROC market, however no one in the survey could explain how this might work.

Some suggested that industrial and commercial customers might be made to buy ROCs independently of their supplier. This would obviously be administratively difficult and such customers are less, not more, likely to contract for ROCs in the long term.

**“This would stimulate wider participation in the ROC market.”**

Others suggested that anyone should be able to retire a ROC and get paid the buy-out price. This would lead to a very complex feed-in tariff, and if there were more ROCs than the obligation in a given year it is unclear what the payment would be and where the money would come from to fund the payments.

In general for a supplier obligation to work, it requires the suppliers to remain obligated.

**“Credit issues have the potential to undermine confidence in the ROC market”**

### **Credit Issues in the ROC Market**

The belated discovery by some in the market that there was the potential for £20m of buy-out payments not to be made by the administrators of TXU, has shaken confidence in an already difficult market.

There are a number of one-off lessons, which need to be learned, and then appropriate changes made to the RO in order to remedy the problems, which this situation has exposed. Such remedial action is being discussed at length by others and so will not be discussed here.

The ongoing issue of credit could be addressed by ensuring that obligated suppliers made margin payments on their anticipated buy-out contribution at intervals (say quarterly or more frequently) during the year.

This has a funding cost associated with it which would mean that suppliers would discount the ROC price, but it also enhances the credit of the whole

system, and hence means that they will not discount the prospect of another issue such as the TXU one.

Such a system would also potentially incur additional administration costs at the suppliers and at Ofgem.

The costs and benefits of such market wide credit enhancement should be assessed.

**THERE ARE TARGETS, AND THERE ARE TARGETS**

The word “target” is used liberally in the renewables industry, and it has been used similarly liberally in this report.

It does however mean different things in different contexts. In this report it has been used solely to describe the figures which define the amount of the Renewables Obligation in each year.

Obviously the UK has an aspiration, to have 20% of electricity consumption supplied by renewables by 2020; and has the longer term target of migrating to a low-carbon economy, with a reduction of carbon emissions of 60% by 2050 (as recommended by the RCEP).

This long-term set of targets need to be extended and solidified as time progresses and as we realise successes in the early objectives. Hence in this study’s focus on the medium term objective for the industry, and financing it, the reader should not lose sight of the wider strategic context in which this study sits.

**“We need to ensure we maintain a long term vision for the industry”**

**“Meeting short term goals makes our longer term objectives increasingly credible”**