

WIND POWER IN THE UK: HOW PLANNING CONDITIONS AND FINANCIAL ARRANGEMENTS AFFECT OUTCOMES

DAVID TOKE*

University of Birmingham, Edgbaston, Birmingham B15 2TT, UK

(Received 30 June 2004)

There is an examination of the planning and financial factors affecting outcomes of implementation of distributed generation in terms of wind turbines in the UK. On the planning side this emphasises the importance of influence of the people living nearest to the proposed windfarm. Developers can improve their chances of success by increasing public participation and local ownership of the schemes. On the financial side, the UK's version of a green certificate system is assuring onshore wind power developers achieve good rates of return. However, there are doubts whether this system is cost-effective in comparison with 'feed-in' tariffs, and, also, the system is failing to ensure speedy deployment of offshore windfarms.

Keywords: Windfarm; Local attitudes; ROCs; Feed-in tariff

This article reviews some planning and financial conditions facing wind power development in the UK. Overall the 2002–2003 period has seen a big increase in planning consents. In 2002, there were 450 MW onshore and 220 MW offshore planning permits issued. In 2003, these figures increased to 820 MW for offshore and 610 MW for onshore. In the first quarter of 2004, over 200 MW worth of onshore permissions were issued. There is enough, if all this consented capacity is constructed, to supply 3% of UK electricity from wind power, when account is also taken of the 700 MW that have so far been commissioned. However, for reasons that will be explained in the latter, financial section of this article, some of the offshore consented capacity is proving difficult to finance, and thus, construct.

I begin with a study of factors that influence the outcome of windfarm planning applications in England and Wales. I then move on to examine how the financial regime of the Government's Renewable Obligation is influencing wind power deployment in the UK.

Developers in the UK apply for planning permission to local planning authorities. Following a planning consultation which allows interested parties to make representations, the Planning Officer prepares a report in which he/she makes a recommendation to approve or refuse planning permission. The matter is then decided by the Councillors on the Planning Committee (now usually called Development and Control Committee). If the Council refuses permission,

* E-mail: d.toke@bham.ac.uk

TABLE I Recent onshore wind power planning history in England and Wales – Outcomes before appeal are given in brackets.

<i>Year</i>	<i>Outcome after appeal</i>		<i>Planning officer's opinion</i>	
	<i>Refused</i>	<i>Approved</i>	<i>Refused</i>	<i>Approved</i>
1999	12(14)	7(5)	11	8
2000	9(13)	9(5)	8	10
2001	7(7)	4(4)	5	6
2002	3(6)	14(11)	3	14
2003	5(7)	8(6)	2	11
Total	34(45)	41(30)	29	56
Percent	45(60)	55(40)	39	61

Sources: DTI, BWEA and own survey of planning officers.

the developer can take the matter to Appeal. The reason given by the planning authority for refusing wind power planning applications has invariably been on grounds of landscape impact. Decisions will be justified by reference to local plans. However, such legalistic language may act to obscure the main social and political factors, which I discuss in this article.

Overall, as can be seen in Table I, since 1999 around 40% of windfarm planning applications in England and Wales have been approved by the local Councils. As is shown in Table II, some more proposed schemes have been approved on appeal, taking the total of planning approvals to around 55%. These figures are rather higher in Scotland. The Scottish Executive (the devolved Government) has responsibility for adjudicating on appeals by developers against refusal of planning permission made by local councils. The Scottish Executive also makes final decisions regarding projects over 50 MWe. The Scottish Executive has, at least until the summer of 2004, had a very favourable attitude towards wind power meaning that over 90% of proposed wind capacity has been approved in Scotland.

In recent times, as can be seen from Table I, local planning officers have become more positive about windfarm planning applications. This is at least partly the result of the expectation that the Government is tasking a more pro-windfarm policy which would influence the Planning Appeal system. Altogether the approval rate, including appeals, has increased (at the time of writing) to around 70% for England and Wales. The outcome of appeals is shown in Table II.

TABLE II Decisions at appeals in England and Wales.

<i>Period</i>	<i>Upheld</i>	<i>Dismissed</i>
1991–1993	9	3
1994–1998	2	15
1999–2001	6	7
2002–present	9	4
Total	26	29
Percent	47	53

Note: Using a dataset concerning 51 (mainly recent) wind power planning cases in England and Wales, I have analysed associations between a number of variables using logistic regression analysis. For a more complete explanation and analysis of these results see Ref. [1].

Source: Office of Deputy Prime Minister.

LOCAL ATTITUDES

I have found an 80–84% correlation between the views of parish councils where windfarms are to be situated and Council decisions about whether to approve or refuse planning permission. Parish Councils do have some intrinsic influence, but their recommendations to the Council Planning Committees are also indicators of the direction of local opinion. Another indicator of the importance of opinion in the immediate vicinity of proposed windfarms is the finding that letters of objection come mainly from people living within around 5 km of the proposed sites. In some more celebrated controversies, the Country Guardian organisation has encouraged people to write-in from other parts of the country. Such efforts may have an impact on national perceptions and policy, but they do not influence local decisions.

Locally based action groups promote their objections by lobbying Councillors. It does seem that the closer people are to the windfarms then the more they are likely to become active organisers against the windfarms. Indeed, all four main movers of different local anti-windfarm campaigns, who I have interviewed have been among the closest half-a-dozen residents to the proposed site in question. This is in keeping with a ‘rational’ choice explanation for the apparent paradox between widespread support for wind power in opinion polls and high rates of planning refusal at a local authority level. Under Olsonian rational choice theory, a relatively small, ‘privileged’ group (such as anti-windfarm campaigners, who live next to proposed windfarm sites) will take action when they perceive that the benefits of taking action outweigh the costs of doing so. This is in contrast to the attitudes of the ‘latent’ majority whose individual actions in support of wind power will, on their own, do little to deliver the collective benefits in terms of emission reductions and reduced dependence on imports of natural gas [2].

There is a very close correlation between objections to proposed windfarms made by the Campaign for the Protection of Rural England and decisions to refuse planning permission by local planning authorities. The CPRE objected to 17 out of 42 English cases studied, and in all these cases the local authority refused to give planning permission, although a sizable proportion have been approved on appeal. However, this does not indicate great influence on the part of the CPRE. The CPRE says that it bases its decisions on a combination of a judgment about local attitudes and its own assessment of local landscapes. My research indicates that its assessment of local attitudes is based heavily on lobbying by local anti-windfarm groups. In effect, the CPRE attitudes are important indicators of, rather than major influences on, decisions to refuse planning permission. In fact the CPRE does not object to the majority of wind power planning proposals. The Council for the Protection of Rural Wales (CPRW) objected to eight out of nine cases (in this study) in Wales, and the CPRW seems to object to wind power planning proposals almost as a matter of principle.

LOCAL ECONOMIC ATTITUDES

What has surprised me is the extent that attitudes to windfarm proposals are tied in with local attitudes to the perceived economic impact of the schemes. In 13 (about a quarter) of the cases I studied impact on ‘tourism’ emerged as a significant factor according to the (statutory) reports made by planning officers. In 12 out of these cases the impact was perceived to be negative and in every one of these 12 cases the planning authority refused planning permission. Three were approved after appeal. It is thus rather difficult to separate ‘landscape’ considerations from economic ones. On the other hand, in the case of the Swaffham 2 proposal, the local parish council actually wrote to the developers asking for another turbine after the experience of the first turbine which had attracted many visitors. This was because the first turbine has a viewing

tower at the top of the turbine, which was a tourist attraction. In fact the new breed of ‘giant’ wind turbines offer an excellent possibility for providing viewing points for surrounding areas.

A comparison between a wind power planning case in Great Yarmouth and another a few miles along the East Anglian Coast at Lowestoft says a lot about how economic judgements have primacy over other considerations. The scheme at Great Yarmouth was refused planning permission by the Council Interviews with local Councillors suggests that it was a fear that the proposed windfarm of four turbines would adversely affect a proposed Harbour Development that persuaded the majority Labour Group to refuse planning permission. Forty five letters of objection had been received citing visual and other concerns.

Things were rather different when a very large wind turbine was approved at Lowestoft. The proposal was put forward by a local engineering company who wanted the project as a prototype to enable it to develop a platform which it could manufacture for sale to offshore wind power developers. There were positive letters to the local paper and no direct letters of objection. This was despite the fact that there were, as at Great Yarmouth, a large number of residential properties within a few 100 m, the closest being, as in Great Yarmouth only 300 m away. Indeed the machines to be used at Great Yarmouth are well known to be quiet, whereas the exact type of machine to be used at Lowestoft was not even stipulated at the time of the planning application. As the planning officer commented.

‘I would have recommended to the Committee, within reasonable limits – just a few decibels of excessive background noise levels. That’s a price worth paying for the economic well of Lowestoft. . . It’s something which the culture of the area has accepted as the price of keeping people in jobs (Andrew Norton interview – 27/08/2003).’

In 2003, a very large scheme near the Corus steelworks in Teesside, N.E. England, was welcomed by the local people, even though the scheme is relatively close to a densely populated area. However, the local perception of the economic impact of the scheme is very positive given the image (and reality) of industrial decline, pollution and job losses associated with the steel works and also chemical works which are next to the windfarm site. A Councillor for the area commented.

‘The windfarm will change the area’s image towards having a cleaner environment . . . it will enhance the future prosperity of the area. I would hope that decontaminated land will be cleared before the Corus steelworks is closed down’ (Councillor Cliff Holding interview – 05/09/2003).’

There is a similar story for a large windfarm proposed near Goole, in the East Riding of Yorkshire, which was also perceived as having a positive economic impact as well. The project was approved with relative ease and the local community saw the windfarm as an economic asset that could offset its relative economic decline.

More generally, farmers welcome windfarm proposals as it represents a potential source of income for them, whereas people living right next to the proposed windfarm sites often seem to worry about possible impact on house prices. When there is a perception that the scheme will bring general economic gains to the local community such fears about landscape impact or other fears seem not to materialise.

NATIONAL POLITICAL ENVIRONMENT

Opinion polls consistently report quite high levels of support for wind power. However, such general good intentions will be more likely to translate into a desire to overcome special interest objections to wind power schemes if wind power is seen to be essential for the national interest. Ironically, the threat of new nuclear power stations that arose on the horizon during the debate preceding the Government’s Energy White Paper [3] (issued in March 2003) seems to have

strengthened support for wind power as a necessary alternative to nuclear power. This is on grounds of achieving reductions in carbon dioxide emissions and in reducing dependence on natural gas. However, it has to be remembered that at the beginning of 1994 there seemed to be quite a backlash against wind power, and this fed through into a high proportion of negative Appeal decisions. This change occurred after the Government, in response to anti-windfarm protests, announced that it would curb wind power developments. This can be seen in Table II. Will history, to some extent at least, repeat itself? By the summer of 2004 anti-windfarm sentiment had increased significantly in the UK, and the opposition Conservatives had taken a hostile stance towards onshore windfarm developments.

NATIONAL POLICY

Decisions by the Appeal Inspectorate are very important, not only in themselves, but also because they influence the advice that planning officers give to local Councillors. In the 2002–2003 period local planning officers have been making largely positive recommendations about wind power schemes, largely, it seems, on the expectation that Government policy (and therefore decisions made by the Appeals Inspectorate) was becoming much more favourable towards the developers. The Government, led by the Office of Deputy Prime Minister, has proposed a new planning policy statement (PPS) 22 [4]. This is seen as being much more favourable towards wind power than the existing policy. However, it would be politically unrealistic for developers to expect that the Government can waive through any and every wind power planning proposal which emerges.

What the anti-wind power movement will attempt to do is to repeat the quite successful campaign against the Hebden Bridge proposal (in Yorkshire), which was conducted in the late 1993 to early 1994 period. This portrayed wind power as a ‘threat to the national heritage’. They will attempt to take Appeal decisions which uphold appeals by developers to judicial review. If the political environment is perceived as being quite hostile to a decision reached at appeal, they would hope to persuade the judges to strike down an Appeal decision. This would effectively neutralise the Government’s attempt, in PPS 22, to help wind power developers. It seems, that Conservative Party opinion has hardened against wind power. A Conservative Government is likely to take a rather less favourable attitude to onshore wind power in terms of planning. Government policy is very important, but it will only help an industry that, as they say ‘helps itself’ too.

DEVELOPERS

Developers need to adapt their tactics if the future of onshore wind power is to be assured in England and Wales. It is quite clear from the authors own research that the minority of developers who are prepared to put resources into lobbying parish councils and in promoting better (and more consistent) local public relations are much more successful in achieving planning consent than are other developers. Wind Prospect (the main proponent of a ‘community’ approach) has a much higher planning success rate than other developers. They claim planning success in thirteen out of their last fifteen planning applications. Even when Wind Prospect lose at the Council level their tactics make their cases much more winnable when they take cases to appeal. Wind Prospect and their allies are also keen to select sites on sociological grounds. As David Farrier of PowerGen renewable has commented, they try to avoid sites which are next to ‘chocolate box villages’ [5].

Wind Prospect is just starting schemes involving sales of shares in the wind power schemes to local people. This is a practice which has been associated with much higher levels of local support for wind power in Denmark and Germany where the wind power industry gained initial political support through widespread ownership of wind power schemes by co-operatives and local farmers [6]. The value of selling shares to ordinary people is to create friends, (that is wind power shareholders) who will feel motivated to campaign for future wind power proposals in the area.

FUNDING UK WIND POWER – THE RENEWABLE OBLIGATION AND ITS CERTIFICATES

Although planning controversies steal the headlines about wind power in the UK, the financial system used to encourage deployment of wind power has a dominant influence on policy. Indeed, if there was no system of allocating subsidies for wind power, there would be very little wind power developed in the UK at all.

During the 1990s, the UK Government gave out about 2500 MW of wind power contracts. This was done through five rounds of auctions at which developers competed with each other to win long-term contracts to supply wind power and other renewable fuels. They had to bid sufficiently low prices to wind bundles of capacity. However, a large proportion of the contracts given under this process seemed uneconomic [7]. In the end, less than half of the contracted capacity was the focus of a meaningful planning application [8], and only about 15% of the contracts issued were turned into ‘live’ projects.

In 2001, a different system was put in place which also was intended to be competitive, but more successful in leading to developments. The Government’s ‘Renewable Obligation’ procurement system is based on the operation of an artificially created market of renewable obligation certificates (ROCs), whereby electricity suppliers seek these ‘green’ certificates for electricity production from renewable developers in order to meet their Renewable Obligation targets. These targets rise to 10% of electricity from renewable sources by 2010, and 15% by 2015.

The central incentive in the system is that suppliers pay a penalty of 3 p/kWh (£30 per MWh) in respect of each unit of electricity that they do not supply to meet their share of the renewable obligation. These penalties are paid into a fund. The penalties in this fund are then ‘recycled’ as a reward to suppliers in respect of each unit of renewable electricity that they do supply. The effect of this system is that as the proportion of the Renewable Obligation that is being supplied rises, so the value of the ROCs falls. If the proportion of the obligation being supplied is low, then the price of ROCs will be high. This mechanism is supposed to give extra incentives to developers to bring renewable electricity on-line, if the supply is relatively low.

The UK Government has always refused seriously to consider the sort of fixed tariffs for given periods (set by Government agencies) for wind power that have been the hallmark of ‘feed-in’ tariff systems employed in Germany and Denmark. Supporters of ‘competitive’ systems like the British ROCs system claim that having prices set by market competition will reduce the tendency towards ‘windfall’ profits for some developers that is said to be an effect of the ‘feed-in’ tariff type of procurement mechanism. Therefore, a key question is whether the Renewable Obligation does, in fact, achieve these objectives compared with ‘feed-in’ tariff regimes.

Renewable Obligation in Operation

The most important question about a procurement mechanism is whether it will produce the capacity. It does seem that the Renewable Obligation is as good as providing adequate finance

to allow construction of onshore windfarms as 'feed-in' tariffs. However, there are doubts whether it is more cost-effective compared with 'feed-in' tariffs, and there are problems with financing some offshore schemes that have won planning consent.

A problem with the Renewable Obligation is that there is only a short term, annual, market in sales of ROCs. This puts the effective control of the renewable electricity market in the hands of an oligopoly of the five or six largest electricity suppliers. These companies dominate the market and they are the only electricity suppliers who have the credit-worthiness with banks to offer credible long-term power purchase agreements contracts to wind power developers. Wind power developers cannot raise bank loans necessary to develop schemes without power purchase agreements from suppliers recognised as being credit-worthy. In fact, almost all wind power developers derive their financial backing from the large electricity suppliers, or in a small number of cases, multinational companies in related areas of business.

However, the electricity supply companies also have a vested interest in ensuring that the targets set out in the Renewable Obligation are not fully achieved. If the targets are met then the price of ROCs will fall, hence, endangering the returns on the investments in renewable energy that they do make. The Renewable Power Association has already warned that because the incentives for renewable electricity suppliers decline as the target becomes closer to being met, there will be only 7% of electricity from renewable sources on-line by 2010. A spokesman for one of the leading electricity suppliers told me that

'You need a hedge against ROC prices going sky high, but on the other hand we don't want to spend too high an investment in generating capacity ... It's a balancing act ...' (unattributable interview with spokesperson of leading electricity supplier 30/3/2004).

There have already been some specific complaints made about manipulation of the ROCs system. In Scotland, where Scottish Power has nearly half of the electricity market, there have been complaints that the company has been game-playing the ROCs system (which is divided between Scotland and England) to maximise its own returns [9]. This outcome is, arguably, inevitable under oligopolistic competition.

Prices Paid for Wind Power

Because the terms of power purchase agreements made between electricity suppliers and wind power developers are subject to commercial confidentiality, there is a considerable amount of opacity surrounding prices paid to wind power developers. This contrasts with the transparency that comes with 'feed-in' tariff arrangements. Nevertheless, discussions with different developers and financial advisors allows me to paint what I believe is a broadly accurate picture of pricing deals. These deals have to make allowances for future fluctuations of the price of ROCs, and these come with different terms. A developer may be offered a reasonably fixed, long term, 'basement' price for the electricity whose main purpose (for the developer) will be to convince their banker than at least the money they have lent will be safely repaid. However, the actual money that the developer receives will often depend on a relatively complex formula surrounding the future value of ROCs. Therefore, for example, a developer may have a power purchase agreement to buy the electricity at the baseload price for intermittent suppliers which is about 1.7 p/kWh. They will also receive part of the 'climate' change levy (total 0.4 p/kWh) from which renewable electricity is exempt from paying. They will then receive a high proportion of the value of the ROCs (say 85% of 3 p/kWh), and a smaller proportion of the value of the recycled ROCs (say 50% of 1.5 p/kWh). The electricity suppliers will take a big cut in the value of ROCs and other incentives in return for giving the developers (often their own subsidiaries) power purchase agreements.

If we assume that the overall share of the renewable obligation that is met is two thirds, then under this formula (*note*: there are different contract formulae available), the developer might receive, say, $1.7 + 0.3 + 0.85 \times 3 + 0.5 \times 1.5 = 5.3$ p/kWh. In fact, a few contracts appear to be for a 'fixed' price of up to 15 years of about, say 4.9 p/kWh. It will serve developers with a high amount of debt compared with equity to have a deal more like a fixed price, whereas if a developer has a high equity portion of investment (which needs much higher rates of return than bank loans), then it will serve their interests to have a formula giving them a high proportion of the ROC income. Indeed, because ROCs are traded only on an annual basis, selling ROCs through the market is appropriate for a developer who is funding most of the investment out of their own pockets or balance sheets. This, essentially, seems to be the way most offshore windfarms are being financed, a point to which I shall return later.

It can be seen from this that a typical price actually paid by electricity suppliers to developers for wind power may be around 5.3 p/kWh (2002 prices) In fact, the electricity suppliers themselves will receive around 6.7 p/kWh for wind power at the current level of partial achievement of the renewable energy target. This has been criticised as a rather inefficient way of funding wind power [10]. We can see that the uncertainty about future prices of ROCs acts, in effect, to put-up prices paid for onshore wind power beyond which would be paid in a fixed 'feed-in' tariff. The ROCs system does not eliminate so-called 'windfall' profits resulting from some sites having more wind than others. Windfarms on windy Scottish hillsides with good grid connections have been put in place for around 3 p/kWh under the UK's earlier renewable energy programme. In contrast, windfarms in East Anglia will need to be paid around 4.5 p/kWh if they are to be viable. Yet, under the ROCs system they will have deals available which will allow them to be paid something like the 5.3 p/kWh discussed earlier. One manager of a windpower development company commented.

'With a multiplicity of players, in theory, competition should reduce prices. However, the Renewable Obligation does not actually produce a downward pressure on prices. Prices for wind power are negotiated with suppliers rather than set by Government, but there is no allowance for different windspeeds' [11].

It should not escape our attention that a 'feed-in' tariff which offered the wind power operators a fixed tariff could fund all of these schemes for not more than 5 p/kWh. The 'cost of capital' for many developers would fall since they would be able to finance a higher proportion of their investment from bank lending rather than share equity. Furthermore, the ROCs system seems to be actually increase typical prices paid to wind power developers by 5% or more in comparison with a 5 p/kWh 'feed-in' tariff. However, developers are happy with a system that gives them a good return. Developers are pretty unanimous in demanding that no major changes be made to the ROCs system, for fear of harming deals already made, and also harming general confidence in the system.

Offshore Funding Issues

So far, 11 offshore windfarms have been given planning consent in what has been called 'Round 1' of the offshore programme. A couple of other Round 1 schemes are still undergoing the consultation process and raft of other proposals are on the horizon in the massive 'Round 2' list of projects. There are financial problems with the Round 1 schemes, although these will be reduced to an extent when Round 2 schemes are implemented in 2–4 years time.

So far, two schemes, North Hoyle and Scroby Sands have been built. Other three schemes Kentish Flats, Barrow and Gunfleet Sands seem likely to follow soon. However, there are still varying degrees of question marks over the other schemes. North Hoyle 2 is now being packaged as part of Round 2, a similar fate may apply to Lynn and Inner Dowsing, a tender decision is awaited on Robin Rigg and both Cromer and Burbo Bank are looking unlikely.

Round 1 offshore windfarm costs are said to range from 5 to 6.5 p/kWh, although even this makes the assumption that money is reasonably cheap because banks are willing to lend the bulk of funds. This is not happening in most cases. On the other hand, Government capital grants are available worth around 10% of capital costs, which reduces some of the financial problems, and at least gives some hope of allowing the cheapest offshore projects to go ahead.

Because banks have been unwilling to lend to offshore schemes under the Renewable Obligation, this means that offshore windfarms have to be financed directly by electricity suppliers (and other corporate players) directly off their balance sheets. The cost of this money is very high, effectively raising the cost of capital from around the current market rate of about 7% in well-g geared onshore schemes to 15% or more. If the price that needs to be paid for a project is 5 p/kWh at a 7% discount rate, then this rises to 7 p/kWh at a 15% discount rate.

Three things become clear. First, that those actors funding the schemes that are going ahead have to trade ROCs directly on the market to obtain their full value. This full value was, at the end of the year 2003 (including their recycled value), about 4.7 p/kWh. The developers can thus make some of the schemes viable (along with Government capital grants) at an income of 6.5 p/kWh. Second, it is clear that the major electricity suppliers have an incentive to limit the amount of renewable capacity that comes on-line in order to maintain the price of ROCs that are crucial to the viability of these investments. Third, they must have some other motive other than a short term profit in commissioning even the cheaper Round 1 schemes – maybe to keep in with the UK Government.

It does seem clear that conditions for funding offshore wind power will improve, to an extent, in the future since the reliable operation of the British schemes will, hopefully, induce banks to lend money in future (so reducing the cost of capital finance). The larger Round 2 schemes will be cheaper, even if the decline in offshore wind costs is not as rapid as some would wish. What does seem clear is that any claims that the so-called ‘competitive’ renewable obligation system is especially cost effective are misplaced, and the system is, in fact, much less adaptable to the needs of funding offshore wind projects compared with a ‘feed-in’ tariff which can be set at a defined, and appropriate, level. The Danes have funded offshore wind with a feed-in tariff. The Horns Reef project has experienced technical problems, but at least the state system of financial procurement has worked reasonably well.

CONCLUSION

As regards planning, there is certainly a lot that the developers could do not only to improve their own chances of winning planning permission, but also in improving the position for the whole of the industry. I do see a lot of evidence of short term attitudes among developers, the large majority of whom regard the pursuit of parish council politics and the setting up of local share ownership schemes as being too expensive to implement. Such an attitude does not stand up to a rigorous cost-benefit analysis.

In addition to engaging in parish council politics and ensuring local ownership engagement, my research suggests that more attention needs to be paid to the people who live the closest to wind turbines. It may, in many circumstances, be a good idea to think about offering some material incentives to the half-dozen-or-so closest residents. In general, developers also need to think about presenting how wind power can help, not hinder, the local economy. In many cases, putting up a viewing platform at the top of a turbine may prove to be a draw for visitors, and thus encourage support for future projects.

The financial procurement system, in the shape of the renewable obligation or ROCs system, has only served to entrench corporate control of the wind industry. This is directly in conflict with the locally owned, community-friendly strategy that is necessary to improve the rate

of planning success. However, there are also doubts whether the ROCs system (as practised in the UK) really does increase cost-effectiveness of delivery of renewable energy, as the protagonists of ‘green certificate’ trading systems tend to suggest. A central problem with the ROCs system is that it does not seem to have any compensating advantages compared with ‘feed-in’ tariff systems. The UK’s ROCs system seems expensive, it is prone to manipulation by the oligopolistic electricity suppliers, and it is too inflexible to allow offshore wind schemes to be easily financed. That having been said, the overriding need to ensure continuity in the British wind power programme means that it cannot now be scrapped without damaging the programme. However, a feed-in tariff could be usefully introduced to fund both small onshore schemes and the offshore schemes that otherwise prove difficult to fund.

Acknowledgement

The research discussed in this article has been carried out under the project ‘Accounting for the Outcomes of Windfarm Planning Applications’ which has been funded by the Economic and Social Research Council under the ‘Sustainable technologies Programme’. Award Number RES332250001.

References

- Q1
- [1] Toke, D. (2004). Explaining wind power planning outcomes, some findings from a study in England and Wales. *Energy Policy*, In press.
 - [2] Toke, D. (2002). Wind power and rational choice theory. *Environmental Politics*, **11**(4), 83–100.
 - [3] Department of Trade and Industry. (2003). *Our Energy Future – Creating a Low Carbon Economy*. London: HMSO.
 - [4] Office of Deputy Prime Minister. (2003). Consultation on Draft New Planning Policy Statement 22 (PPS22), Office of Deputy Prime Minister.
 - [5] Speech to British Wind Energy Planning Conference, Hull, 30/09/03.
 - [6] Toke, D. and Elliot, D. (2000). A fresh start for wind power? *International Journal of Ambient Energy*, **21**(2), 67–76.
 - [7] Mitchell, C. (2000). The England and Wales non-fossil fuel obligation: history and lessons. *Annual Review of Energy and Environment* 2000, **25**, 297.
 - [8] Toke, D. (2002). Sky brightens for UK wind power – But No Thanks to NFFO. *RENEW*, **140**, 19–20.
 - [9] Massy, J. (2004). Scottish Power caught out – Action to stop abuse of market power. *Wind Power Monthly*, **May** 2004, 41–42.
 - [10] Milborrow, D. Prices that are far too high. *Wind Power Monthly*, **20**(4), 45.
 - [11] Interview with Colin Palmer, Development Director, Wind Prospect, May 13th 2004.



Journal ...**International Journal of Sustainable Energy**

Article ID ...**GSOL 041001**

TO: CORRESPONDING AUTHOR

AUTHOR QUERIES - TO BE ANSWERED BY THE AUTHOR

The following queries have arisen during the typesetting of your manuscript. Please answer the queries.

Q1	Please update Ref. [1].	

Production Editorial Department, Taylor & Francis Ltd.
4 Park Square, Milton Park, Abingdon OX14 4RN

Telephone: +44 (0) 1235 828600

Facsimile: +44 (0) 1235 829000