

SAVING THE PLANET, BUT LOSING THE LANDSCAPE

The Impact of Renewable Energy Policies on Rural Britain

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1. Background

In accordance with certain global agreements¹ and European programmes², the British Government is committed to decreasing the country's present reliance on fossil fuels and encouraging instead a greater use of energy generated from renewable sources³. The framework for this is determined by the Renewables Obligation which defines the targets of change to be achieved and the means by which these may be secured. This comprises a combination of subsidies for new methods of producing fuel and energy and of regulation to ensure that suppliers then utilise them. There is a commitment to have 10% of electricity in Britain produced from renewable resources by 2010 and there is already a requirement on energy suppliers to take 3% of their power from such sources.

2. Energy Sources

The main purpose of this policy is twofold: (1) to slow the rate of consumption of the finite resources of fossil fuels and (2) to reduce the level of emissions thought to be harmful to the earth's atmosphere and contributing towards global warming, notably carbon dioxide. In the forefront of 'clean' and renewable sources of energy are the basic elements of sun, water and wind. For the first two of these, solar panels and hydroelectric power appear currently to have only limited potential within the UK and the harnessing of tidal power is still at a very early stage of development. The political emphasis in Britain has been on wind power and on generating electricity from turbines on industrialised windmills. These can be in the form of single units designed to service individual or local users or now frequently as clusters of turbines

that have been given the rustic sounding epithet of wind 'farms'. The size of these multiple installations varies according to circumstance from just two or three to over 20 on one site. These larger developments are now being described by the more commercial sounding name of wind parks.

2.1 *Wind Power*

Wind turbines have a major attraction in that, once constructed, they create no emissions and operate off a fully renewable resource. Among their disadvantages however is the fact that wind is not constant and is in fact available in sufficient force only in certain locations. They tend therefore to be sited on high ground or along the coast, which creates two further disadvantages. Firstly, such ground is remote from population centres and from the majority of consumers and consequently the electricity generated has to be transmitted over large distances. Secondly, these sites are by their very nature exposed, so that the turbines, now being built at over 100 metres high, are highly visible and intrusive and are located often in areas of great landscape value. There are questions too about the reliability of wind power and of its ability ever to provide a commercial alternative to other forms of energy⁴. On the other hand, the assumption that they spoil beautiful landscapes may not be universally held⁵ and needs to be evaluated.

The significance of these issues is recognised in the fact that there are proposals to construct wind turbines out to sea. There are a number of technical difficulties associated with this as well as a financial consideration in that offshore turbines are estimated to cost almost 25% more than those built on land⁶. If such installations are not to intrude upon the coastline, they need to be constructed at a recommended distance of more than 10 km from land. A number of projects are however planned within that distance and might therefore be described as near-shore rather than off-shore⁷.

2.2 *Energy Crops*

A further source of renewable energy can be derived from arable cultivation, notably biomass and cereal and root crops. Biomass comprises essentially fast growing timber such as willow or *miscanthus* (elephant grass) which are harvested in the form

of coppice. This material is used as fuel in power stations to generate electricity or alternatively steam heat. Such generators are also able to use forestry waste such as brush wood and bark chippings. The agricultural crops of wheat, oilseed rape, potatoes and sugar beet can be converted into ethanol and diesel for use in motor transport. Each of these processes is encountering problems at present in the UK that are primarily of a financial nature, as referred to further in Section 6 below.

The conversion of biomass into energy needs generally to be done in purpose-built power plants, although in the USA such material is also processed through existing coal-fired stations. These generating plants should ideally be situated within an economic distance of no more than about 65 km of land upon which the fuel material is grown. That tends to be within a rural area and some local planning authorities have resisted such developments on the grounds that these plants are of an industrialised nature and should not therefore be sited in the countryside⁸. Are wind turbines then not industrial and somehow more natural to the landscape in which they are constructed? To date the provision of biomass plants has also been hampered by the cost of development and by an inflexible pricing tariff for electricity that limits the potential return. The production of biofuels has also been hindered largely by being currently uncompetitively priced against conventional fuels. These situations are both blamed on a lack of sufficient Government support during the initial development stage. Biomass and biofuels may be considered less attractive than wind power in the context of meeting environmental targets in that they both produce emissions during use. In fact for biomass the carbon emissions are at only about 7% of the equivalent from oil or gas⁹ and bioethanol is reckoned to produce less than 50% of the carbon dioxide arising from petrol¹⁰. Furthermore crops such as biomass are defined as being carbon neutral in that the plants absorb and store carbon dioxide whilst they are growing. They do also offer an opportunity to cultivate farmland at a time when the national production of food crops has become harder to sustain. Growing crops for energy and fuel can therefore help resolve the problem of how the British landscape can continue to be properly managed during a period when it is expected that returns from farming will continue to decline. This is already recognised within the revised CAP in that grants are available not only for the establishment of Short Rotation Coppice (under the Woodland Grant Scheme) but also for the cost of setting up biomass producer groups (through the Energy Crop Scheme).

2.3 *Waste*

Many forms of household and other waste are disposed of in landfill sites in which the organic material then decomposes to create a methane-rich gas. This can be collected and used to drive turbines in power stations or burnt off and distributed to local consumers as heat. Current policy is however aimed more at reducing the amount of such waste rather than on promoting gas collection which is still a relatively expensive process.

3. *Political Factors*

Targets are set by governments in response to public concern about energy conservation and environmental damage. This political involvement is necessitated by the fact that the preferred alternative forms of fuel cannot yet be produced commercially in competition with existing systems and therefore need a degree of public funding. The manner in which such funding is offered is determined by a number of factors beyond the basic economics of the production systems themselves, notably the anticipated cost to the national exchequers in terms of both the subsidies paid and the loss of tax revenue that results from fiscal incentives that may have to be made. These assessments fail however to take proper account of some highly relevant considerations regarding the wider costs and values of renewable energy schemes and create furthermore anomalies within the planning system.

3.1 *Planning*

Unlike other public projects, such as the construction of new road or rail routes, there is in the case of wind farms little or no reference made to the loss or gain in value of not only the land upon which the development is to occur but also the surrounding area that may be affected by it. This should concern landscape factors as well as market property values.

Planning policies within sensitive rural locations such as Areas of Outstanding Natural Beauty (AONBs) are normally rigorously applied so that even small individual developments are often denied or controlled. In contrast to this, the

construction of a wind farm may well be permitted even though its impact upon the local landscape is massive in comparison to all other types of planning applications.

A further important factor that seems also to be excluded from decisions about renewable energy concerns the ongoing management of the rural landscape and the economic welfare of the agricultural and other communities within it. The proposed changes to the CAP and the continuing decline in farm incomes within the UK are likely to lead to a deterioration in the countryside as farmers become unable to maintain their land. The conservation and diversification schemes offered under Pillar 2 of the CAP is not expected to provide more than a partial solution to this problem and areas of dereliction could therefore occur. The growing of biofuels would however use the skills and resources of farmers and introduce a significant inflow to the rural economy. The cost of Government support for biofuels in the form of reduced duty on ethanol and diesel should therefore be assessed in terms of the economic contribution that it would make not only to rural communities but also to the maintenance of the countryside. This then needs to be evaluated against the equivalent impact or otherwise made by the alternative policy of developing wind energy.

The implementation of a renewable energy programme within Britain is currently hampered by a conflict of cultures. The principle of reducing consumption of fossil fuels is established under global treaties such as the Kyoto Protocol. These then provide the reference by which individual countries (or groups of countries in the case of Europe) set targets for fulfilling their commitments to the agreed policy. If those targets are to be achieved at national level, they will need to be adopted into local policy frameworks, involving particularly planning and finance. In Britain, however, that final link has only been partially made.

Within the UK, planning issues such as new developments in rural areas are implemented largely at local level by County and District Councils who work within guidelines set by the national parliaments. Those guidelines are defined in a series of Planning Policy Guidance Notes (PPGs) which, as the name implies, do no more than give direction to local authorities rather than impose specific measures upon them. In England and Wales the issue of renewable energy installations comes under PPG 22

which is currently under review, while in Scotland the relevant instrument is NPPG6. Although there is, in such matters, a system whereby interested parties can appeal to the relevant Minister in the national Government against a decision made by the local authority, there is no ready means whereby the Government can ensure that particular developments are permitted. This situation can of course make it difficult to meet targets that were agreed at international level but which then rely largely on autonomous local institutions for their implementation.

3.2 *Energy Policy*

There are however two other factors that a Government can use to its advantage: regulation and financial inducements. The Renewables Obligation Order imposes a requirement on suppliers to produce an increasing percentage of their electricity from recognised renewable sources. Failure to meet these targets will incur a fine, but there are also within these regulations opportunities to raise prices to meet the higher cost of production. These arrangements, together with start-up grants towards the initial investment¹¹, provide a sufficient incentive for energy companies to become involved in wind power and to commit the necessary resources to argue their case and secure planning consent.

These considerations are made on the basis of identifying a commercial return on capital employed, relying on Government support under the Renewables Obligation. There is some anomaly in this in that the current Obligation runs only for another seven years whereas the economic life of wind turbines and therefore the period over which the investment is made in them is much more than this, at probably around 20 years¹². There is another anomaly too, in that these Government subsidies account only for the initial cost of development and price of electricity. There is no recognition of capital values, particularly in terms of loss whether to local properties, as would be the case for a new road or rail development, or to the landscape.

These issues may well be covered by Environmental Impact Assessments which can be required by either local or national governments. The effect of development on the landscape is of course a factor to be considered within such assessments but it is not usually one of the more important aspects, which tend to focus on such matters as

pollution, damage to fauna and flora, traffic and waste disposal. In most reckonings, wind turbines cause few problems on these latter points. Indeed in the final analysis, or Environmental Statement, that is submitted with the planning application, it will seem as if the proposal 'passes' on most counts, in that a development of turbines creates no waste, causes very little increase in traffic, does not disturb nesting birds and has only limited pollution in the form of noise over a restricted area. Noise pollution can be measured scientifically in terms of decibels and then checked against certain industrial guidelines, but pollution of a visual nature such as the erection of a cluster of massive masts remains a matter of emotive judgement and can then be argued to either conclusion.

The main anomaly in this is that planning constraints are normally very strict in the sort of areas where wind turbines can operate, such as hills and coastlines, especially where these sites are already designated as being of special importance as, for example, an AONB. In these situations, if a local farmer seeks permission to erect a modern extension to a barn it may well be refused because of the damage that it would be deemed to cause to the surrounding environment, even though the new structure would be within an existing development and often in a sheltered and secluded location. On the other hand, a proposal to construct a cluster of wind turbines may be accepted even though they are of a massive size that is quite out of proportion to the natural landscape and have to be sited in the most exposed, and therefore most visible, position. An example of this occurred in July 2002 when a farmer at Lambrigg in Cumbria was required to demolish an extension that had been built onto the rear of the farmhouse without planning approval. The irony of the situation was that the property and the surrounding landscape had been dwarfed by a development of five turbines which made a far greater impact on the locality than the addition of a domestic extension that was hidden from public view. In the event it was the principle of seeking retrospective permission that determined the outcome of the case, but it did also suggest that wind farms were almost literally way above ordinary planning practice¹³.

This sort of situation is likely to be exacerbated in the future as the pressure for suitable sites for wind farms intensifies. There are currently 78 such installations throughout the British Isles, comprising a total of 999 turbines¹⁴. It is expected

however that a further 2,300 turbines will be developed on land by 2010, with an estimated 3,300 being constructed on installations offshore¹⁵. Each of the onshore sites will need to be in a sufficiently windy location, and in many cases these are likely to be in specially designated areas such as National Parks. Alternative sites may not have the same level of wind force and would thereby be less efficient. This lesser efficiency would make the project less economic and possibly unviable under the prevailing pricing structures. That might be overcome by increasing efficiency through the construction of yet taller turbines, requiring presumably a greater capital cost and longer pay off period, or it may lead to a review of planning policy so as to enable wind farms to be built in National Parks and AONBs. For the present, this lesser efficiency can also be accommodated by the easier terms under which projects may be funded through the Renewables Obligation. This is leading to plans for smaller clusters of turbines being built on ordinary individual farms throughout the country, thereby extending the proliferation of these structures.

4. *Capital Values*

4.1 *Wind Farms*

The question of capital value appears to remain quite open. The rationale for harnessing wind power is based primarily upon a commitment to produce energy from renewable resources which in turn is converted into the financial incentives mentioned previously. In general, planning consent for property development gives rise to an enhancement in value to the applicant and occasionally also to a possible devaluation or blight to others in the vicinity who may be adversely affected by it. The enhancement in value is often very considerable so that consent is given only against certain conditions requiring the developer to invest in public projects within the local community¹⁶. There is no market evidence of either enhancement or blight occurring in the case of wind farms.

Market value is the equivalent of the price that would be agreed for a property when sold by a willing vendor to a willing purchaser. Where there is no evidence for a transaction of that kind, the matter has to be judged on a hypothetical basis. In this case, one would need to establish the basis on which a purchaser would acquire a property that had upon it a facility to generate electricity from wind or which had,

alternatively, the benefit of a valid consent to erect the necessary turbines. That would normally be done on the basis of the financial return expected from the investment, either in terms of regular income or anticipated capital growth or a combination of the two. The rate of return tends to be linked to the perceived degree of risk attributed to the venture; higher risk requiring a higher return and therefore a lower capital value, and vice versa. In other forms of rural diversification, the non-agricultural venture may be seen as providing a value over and above the normal farm value, so that the two are then just added together. In some circumstances this may be counterbalanced by a diminution in value for the original farm. An example of this would be when buildings close to a fine farmhouse are converted to industrial use so that the enjoyment of the house and possibly of the remainder of the farm itself are reduced, with a corresponding reduction also in value.

The erection of a wind farm may encounter a number of these factors. The investment return will come from the income from sales of electricity, whether direct or through rent or royalties. This in turn depends on the strength and consistency of the wind and on the price paid for the power thus generated. That price currently depends on support under a Government policy which is guaranteed for a set term (until 2010). This overall scenario compares unfavourably with other forms of property investment such as the conversion of barns into offices where there is an ongoing income from rents and market precedents for capital growth. If assessed in these terms, a wind farm would not attract the same level of financial interest as other forms of diversification. Wind Power does however now benefit from a statutory obligation requiring suppliers to use an increasing amount of wind power over the coming years. This could provide an element of comfort to investors that they would not find in the case of office conversions and should furthermore provide a special source of demand for the future. These various factors may in time determine what if any property value is attributable to a developed wind farm. The land upon which it stands may either retain its former agricultural value as it can continue to be farmed virtually as before or it could be devalued on two basic counts. Wind farms are mostly sited on high ground which is restricted to relatively marginal stock farming but that may also comprise grouse shooting or deer stalking which command higher values but which could also be adversely affected by the presence of turbines. Similarly, a highland estate with an attractive house tends to be worth more than its

basic farming value, due either to its sporting facilities or to the fact that its situation appeals to a wider range of potential purchasers or to a combination of the two. That premium would be eroded if the charm of the property were compromised by the appearance of wind turbines in an otherwise natural and unspoilt setting.

These are basic considerations of property valuation, which are as yet untested in the market place. There are additionally questions of how far the presence of wind turbines may impact on property values. Being so tall and built on such exposed sites, they can be seen from a much greater distance than probably any other form of development. There is no evidence yet as to whether property values are affected by being within sight of a wind farm. It is possible that this might be the case as they are often located in areas where the natural beauty of the landscape is a major factor in attracting people from other regions, whether as house purchasers or as visitors. If these people were to be put off by the fact that the landscape was now dominated by turbines, there would be a downturn in certain property values as well as in tourist income.

4.2 *Energy Crops*

The issue of how farmland values may be affected by being able to grow energy crops is complex. There does not seem currently to be any clear link even between land values and ordinary agricultural productivity in the UK. One might expect the price of land to reflect changes in the returns obtained from farming, but in fact during the last 10 years when farm incomes fell by 46%¹⁷ the average price of farmland rose by 84%¹⁸. This arises from an excess of demand for farms over the amount being offered for sale. In certain areas, such as in southern England, some of this demand comes from 'lifestyle' buyers who are attracted to owning a home in a rural environment and are able to fund such a purchase from resources derived from outside agriculture. In other instances, farmers find that one way of countering falling incomes is to seek economies of scale and buy in extra land, justifying if necessary in order to gain the right opportunity premium prices which can then be spread over a larger total area. The vendors in such situations may not have the same opportunities or aspirations and so, in order to reduce any loss being made on their farms, are prepared to sell or let the land to neighbours. When such land is tenanted in this way,

it effectively takes that property out of the market and adds to the imbalance between supply and demand. Meanwhile, other landowners whose gross income will have fallen heavily, are able to stave off having to sell or let their farms thanks to the unusually low level of bank interest rates which allows them to service their debts even with a reduced income. Furthermore, the statistics give a rather theoretical position, being based on total national income figures and average land prices.

This overall situation is likely to change as new policies are introduced in Europe limiting the amounts of support payments¹⁹ and thereby eroding the purpose and ability of farmers to expand their production, especially at premium prices. There is reason to believe that land prices could spiral downwards in some areas as land is forced onto the market as owners are unable to find buyers or tenants other than at discounted prices or rents and are unable also to make a worthwhile return from the farming themselves. If however it were possible to replace or supplement the income that is being lost from producing crops for food by growing instead industrial crops for fuel, a new equilibrium might well be found. It is not possible to make any realistic estimate as to what that effect might be across the country, given that it is already so hard to interpret land values in the present market, but the opportunity to use farmland to grow energy crops at a commercial return would introduce a greater stability into the market.

5. *Landscape Management*

The British countryside is largely man made in that it has been moulded over the centuries by the needs of farming and forestry. Even the most traditional features such as hedgerows and pastures have been created and maintained by farmers and their continuing survival still depends on those farmers being able to work the land. Agricultural systems have previously also caused a loss in some of these features, with for example the enlargement of fields or the introduction of mono-culture. That trend has latterly been halted and even reversed thanks to controlling regulations²⁰ and financial incentives²¹ and to a change in attitude and working practices²². Generally however, the public perception of farmers is still that they are being paid subsidies to produce a surplus of food by insensitive and damaging methods so as to achieve maximum returns. The new emphasis of European policy is now to redirect subsidies

away from production and to focus instead on conservation and other rural benefits²³. A number of grant schemes have already been available for this, notably the Countryside Stewardship Scheme and the Farm Woodland Premium Schemes, together with other, more regionally specific schemes, such as the National Forest or the Challenge Funds. Generally however these initiatives have had only limited success and there is now concern that even the newly expanded schemes will have little effect²⁴. This is due to the restricted amounts of grant paid and to the level of bureaucracy and public interference that can be involved. It seems likely then that the revised Common Agricultural Policy will do little towards providing a viable means of maintaining and improving the landscape, but will instead reduce still further the financial ability of farmers to fulfil their traditional role as stewards of the countryside.

These considerations have a bearing also on the relative merits of wind power and energy crops. Wind turbines make no contribution to the environment other than facilitating a reduction in carbon emissions. This apparent benefit is however only limited. Even if the projections for 2010 are fulfilled and a total of 3,300 turbines are operating across the British Isles, the electricity generated by them is expected to meet only 3% of the country's requirements²⁵. On the other hand, energy crops provide wildlife habitats, particularly in the case of biomass which is grown on a three yearly rotation. There are furthermore few physical or technical constraints as to the amount of fuel that can be produced by these means.

6. *Fiscal Policy*

This situation could be remedied in some degree by enabling farmers to cultivate crops for processing into fuel and energy. That will be possible only if farmers can gain a financial return from growing such crops. This will depend upon being paid an adequate price for the crops or being supported, as in the past for food production, with grants or subsidies. The changing emphasis of European policy makes it unlikely that such subsidies would be forthcoming, so that growers of energy crops would have to rely on the other option, of being able to receive a commercial price. This would in turn depend upon whether processors could buy in crops at that price, convert it into fuel or energy and then sell those products in competition with fossil

fuels. At present the cost of growing and processing these crops is higher than that for conventional fuels. A large element of the retail price of fuels is tax (currently 46p per litre in the case of petrol) and it has been suggested by those engaged in this sector that the tax levied on fuels produced from renewable resources should be reduced so as then to lower the retail price to a sufficiently competitive level. The British Government has accepted this in principle and proposed in November 2002 a reduction in road fuel tax for biodiesel of 20p per litre²⁶. The industry claims however that the tax reduction needs to be between 26 - 30p per litre if biofuels are to be competitive in the present market²⁷. Indeed in Spain and Germany, the authorities have recognised this position and have waived tax on biofuels altogether²⁸. In Britain, the loss of revenue to the Exchequer from reducing duty on biofuels needs to be balanced against the costs committed to supporting the development of wind power. Such an assessment should then really look not only at the actual financial costs to the Government but also at the relative efficiency of these alternative sources of energy and to the wider costs in terms of landscapes, livelihoods and land values.

There is a precedent for using public funds to support vulnerable rural communities, since Hill Farm Allowances under the CAP have the prime purpose of ensuring that farmers are able to remain in the uplands and to manage the countryside around them. Now in lowland areas a similar input may be needed in the form of reduced duty on fuels. As it is, the European Commission makes annual payments to arable farmers just to leave 10% of their land uncultivated in setaside as a means of controlling surplus food production.

There can be wider ramifications too. One of the crops from which biofuel can be made is sugar beet which has for some time now been seen as competition to refined sugar cane from the developing world. If some beet were to be used for making ethanol instead, it would provide a secondary benefit of improving Britain's capacity for buying in more sugar from abroad.

7. *Energy Saving*

These considerations are all to do with the production of energy from renewable sources. Government policy seems also to be focused more on achieving targets of

generating a certain percentage of total demand from such sources rather than on reducing the consumption of energy and helping thereby to reduce the problems of emissions and of exhausting mineral resources. There are some measures in place to encourage and enforce the more efficient use of energy, such as in the compulsory use of double glazing²⁹, but there is little progress being made in crucial areas such as improving public transport and so reducing the growing reliance of road traffic or in using less lighting and heating. Do street lights all have to be left on throughout the entire night even when, in the small hours, there is hardly anyone out and about? Do people in offices and shops have to feel able to work in shirtsleeves even in winter when their customers are uncomfortably hot being more heavily clad having come in from the cold outside? One wonders how many wind farm projects could be saved by having alternate street lights go out in the small hours of the night or by arranging for internal temperatures to be better matched to the outside weather and season.

8. *Conclusion*

The development of renewable energy is driven largely by political factors aimed at reducing harmful emissions and conserving natural resources. In response to international commitments, the British Government appears to have given preference to wind power which involves the least cost and has the shortest development period. This has sparked controversy and debate that focus particularly on the relative inefficiency of wind power as against other options and on the visual damage that is being caused to the landscape through the construction of turbines. The question of impact upon the landscape has been argued largely on emotive terms, even to the extent of obscuring the traditional positions held by environmental bodies such as Greenpeace and Friends of the Earth who see wind power as an instrument of conservation. This is in marked contrast to the likely opposition they would show if any other structure were proposed in many of the sites upon which wind farms are being developed.

Meanwhile, as more energy is consumed and as more of that energy has to be produced from renewable sources, it is important to weigh up the full implications of the various options that are currently being pursued. This encompasses not only how

financial resources should be used for the best good of the countryside but also the longer term consequences.

The implementation of renewables policies depends on regulation and financial support and cannot be left to free market forces, due to the fact that it is still more expensive to produce energy from renewable sources than from fossil fuels. Within currently available technology this focuses on wind power, given that nuclear power is now meeting growing public resistance and is being scaled down. Alternative forms of energy, whether for electricity or motor fuels, currently receive less Government support and are unlikely therefore to become competitive on price to either wind power or to the continuing use of fossil fuels.

Meanwhile, the British Government in common with others in the European Union, is facing unsustainable costs in supporting agriculture which is still the mainstay of the countryside and its communities. Current proposals for reviewing the CAP are expected to produce a further decline in the agricultural industry with the likelihood that some areas of farmland will become derelict. That same land could however be used for the production of energy crops that would not only help fulfil the Government's obligations for renewable energy but also provide a means for sustaining our rural environment. The present situation lacks 'joined up thinking'. Funds that are committed to the development of on-shore wind power produce a limited and unreliable amount of electricity and result in lasting damage to some vulnerable landscapes. On the other hand, financial assistance to the growing and processing of fuel crops, in the form of rebates on duty on biodiesel and ethanol, would lead to an enhancement in landscape through new agricultural activity, together with a possible saving in CAP support payments.

When future generations still see massive turbines dominating what was once fine open landscapes will they understand how it was once thought necessary to use such invasive technology in the name of conservation? Will they know of the early 21st century as a period of agricultural and rural decline when land was considered to be usable only for the production of food and for occasional recreation, rather than as a resource also for providing truly renewable energy? It may seem to them that we

allowed the very surface of our land to be ruined for the sake of preserving the minerals beneath it and the atmosphere above.

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References

- ¹ Kyoto Climate Change Protocol 1997
- ² European Climate Change Programme 2000
- ³ The Renewables Obligation Order 2002
- ⁴ A Kelly, Faculty of Building Journal, October 2000
- ⁵ Mori Scotland
- ⁶ Daily Telegraph, 3 December 2002
- ⁷ Countryside Guardian, Open View, October 2002
- ⁸ Town & Country Planning, December 2002
- ⁹ Forestry Commission Research Division, 1994
- ¹⁰ Energy Technical Support Unit (ETSU) 1996
- ¹¹ New Opportunities Fund
- ¹² British Wind Energy Authority (BWEA)
- ¹³ Farmers Weekly, 9 August 2002
- ¹⁴ BWEA
- ¹⁵ BWEA
- ¹⁶ Town and Country Planning Act 1990, Section 106
- ¹⁷ DEFRA
- ¹⁸ RICS Landprice Index
- ¹⁹ Modulation and Decoupling
- ²⁰ Tree Preservation Orders
The Hedgerow Regulations 1997
Environmental Impact Assessment Regulations 2002.
- ²¹ Woodland Grant Scheme

Farm Woodland Premium Scheme
Countryside Stewardship Scheme
Environmentally Sensitive Areas Scheme

- ²² LEAF (Linking Environment and Farming)
- ²³ Agenda 2000 and the European Rural Development Programme
- ²⁴ Royal Institution of Chartered Surveyors, July 2002, et al.
- ²⁵ BWEA
- ²⁶ HM Treasury. Financial Statement. 14 November 2002.
- ²⁷ British Sugar. December 2002.
- ²⁸ Country Land & Business Association
- ²⁹ Building Regulations Order 1991, Schedule 1, Part L.