PERTH & KINROSS COUNCIL
Enterprise and Infrastructure Committee – 3 March 2004

WIND ENERGY POLICY GUIDANCE

Report by the Executive Director (Planning & Transportation)

This report briefs Members on the issues surrounding wind energy developments, proposes a target for wind energy generation in Perth & Kinross, identifies broad areas of search for major wind farms and detailed policy guidance for assessing planning applications for all scales of wind energy development and S36 notifications.

RECOMMENDATIONS

The Committee is asked to

i. agree that a fair target for Perth & Kinross' share of the Executive's commitment to renewable energy generation by 2010 is in the order of 100MW of wind energy generating capacity;

ii. approve the locational guidance contained in Diagram 1 and associated policy contained in Part B of this report as draft Planning Guidance;

iii. instruct the Executive Director (Planning and Transportation) to undertake consultation on the draft planning guidance with statutory bodies, adjacent local authorities, community councils, other interested community groups and the public and report back the results to a future meeting of the Committee;

iv. agree that once finalised, the planning guidance be submitted to Scottish Ministers as an Alteration to the Perth & Kinross Structure Plan;

v. agree that the draft planning guidance (in its current form) should be used as a material consideration, subject to any updating that may occur as a result of public consultation,

   a) when assessing planning applications
   b) when considering and responding to notifications under S36 of the Electricity Act 1989 and
   c) when commenting on proposals in adjoining local authority areas

vi agree that in the first instance all S36 consultations and proposals in neighbouring Council areas be considered by the Development Control Committee;

vi. agree that a 'landscape capacity' study of the Strategic Area of Search, including appraisals of the Ochils and Southern Highland Perthshire, be

undertaken to assess the capacity of these areas to accommodate wind energy developments;

vii. seek a further report from appropriate officers relating to community payments from wind farm operators and the establishment of a renewable energy trust.

INTRODUCTION

The purpose of this report is to provide additional policy guidance for the Council in assessing wind energy developments over and above the policies currently contained in the Structure and Local Plans. A lot of the background information was discussed at the Members' seminar held on 15 January. The report is divided into two parts:

Part A:

- Summarises national policy on wind energy development and the current state of technology
- Describes the wind resource in Perth & Kinross and recommends a target for wind generation
- Identifies different types and scales of wind energy developments:
    - 'Commercial' developments
    - 'Community' schemes
- Discusses how the policy guidance should be subject to consultation and formal adoption and how the Council should deal with notifications under S36 of the Electricity Act.
- Updates the current position on current and anticipated proposals.
- Summarises Viewfinder 8 conclusions views on the public perception of wind farms.
- Identifies the issues to be taken into account in developing detailed policy guidance
- Recommends that additional work be carried out in conjunction with Scottish Natural Heritage to examine landscape issues in the Strategic Area of Search, including the Ochils and southern parts of Highland Perthshire.
- Discusses the issues regarding community payments by wind farm operators and the potential for establishing a renewable energy trust.

Part B:

Proposes:

- Detailed policy guidance for different scales of wind energy developments
- A target for Perth & Kinross' 'fair share' of the national requirement
- A locational policy on Search and Sensitive Areas for wind farms
- Detailed policy guidance for assessing individual proposals

Maps 1 and 2 and Diagram 1 are to be found at the end of the report.

Additional information:

In addition, an information pack giving background information on the following issues has been placed in the Councillors' lounge and can be made available to individual Members on request:

- Summary of the national policy and technical background
- Viewfinder 8 detailed responses
- NPPG6 - Renewable Energy Developments
- PAN 45 – Renewable Energy Technologies

PART A: BACKGROUND

Scottish Context

The Scottish Executive supports the development of renewable energy as an integral part of the UK Government's climate change programme. While the UK target for electricity generation from renewable energy generation is 10% by 2010, the Scottish Executive has set a more ambitious target of 18% renewables generation by 2010. Beyond that target, the Scottish Executive has an aspirational target of 40% of Scotland's electricity generated from renewable sources by 2020 to make an equitable contribution to the UK's obligation under the Kyoto Protocol.

National Planning Guidance

Executive Planning Guidance is given in a revised version of NPPG6 – Renewable Energy Developments published in late 2000. This seeks to ensure that the planning system *"plays a full part by making positive provision for such developments"* and importantly ensures that *"development control decisions are taken efficiently, consistent with national and international climate change policy commitments and obligations"* while at the same time ensuring that the

environment and local communities are protected from inappropriate developments in inappropriate locations.

With regard to wind energy developments the NPPG recognises that the following issues need to be considered and where appropriate addressed. These relate to:

- Visual impact
- Landscape
- Birds and habitats
- Other considerations (these are dealt with in more detail in PAN 45 - Renewable Energy Technologies)

NPPG 6 also makes it clear that the Development Plan should set out the criteria against which developments will be assessed. This should also include guidance on a broad area of search where wind energy developments are likely to be permitted.

Electricity Act 1989

As Members will be aware, not all wind energy development will dealt with through the local planning process. Proposals for wind energy developments in excess of 50MW are dealt with under Section 36 of the Electricity Act 1989. When consent is granted for the generating capacity it usually carries with it deemed planning consent from Scottish Ministers under Section 57 of the Town and Country Planning (Scotland) Act 1997. The Council is a statutory consultee and any objection by it to a proposal within Perth & Kinross would lead to a public inquiry.

Wind Energy Technology

Renewable energy technologies are diverse and therefore, have very different effects upon the local environment. This paper and policy is directed to detailed guidance on wind energy developments. The Council's existing policies cover renewable energy in general rather than just wind energy, and it may be necessary in the future to provide additional guidance on other renewable technologies.

Wind has emerged as one of the more promising renewable energy sources in the UK and there is no doubt about its technical feasibility. The Scottish Executive expects established technologies such as on-shore wind and hydro to continue to play a major part in achieving the 18% target by 2010. However, it is of the view that the cumulative impacts of on-shore wind farms, coupled with the scarcity of suitable remaining hydro sites, make it unlikely that Scotland could achieve a substantially increased target by 2020 based on these technologies alone. Instead, it considers that key to exploiting Scotland's renewable energy future to the full, there is a need to promote the development of new technologies such as off-shore wind, biomass, wave and tidal power.

Wind turbines can offer a range of power ratings up to several megawatts (MW). The most common wind turbines are three-bladed, horizontal-axis machines. Typical rotational speed for a medium-sized wind turbine is in the range 30-50

revolutions per minute. The turbines usually have cylindrical steel towers supporting a nacelle, which contains the electrical and mechanical machinery and a mechanism which allows the machine to turn itself into the prevailing wind. The power produced by wind turbines depends on two parameters: the area swept by the rotor and, more important, the strength of the wind. However, due to physical laws operating, a relatively small increase in either parameter can lead to a significant increase in the power generated. For example, power output could approximately be doubled by a 40% increase in rotor blade length, or by an increase in mean annual wind speed from 6m/s to 8m/s. The height of turbines is increasing and current large turbines have heights to the blade tip (hbt) of over 100m, making them extremely large elements in the landscape, even as single turbines.

The Wind Resource in Perth & Kinross

The UK has one of the windiest climates in Europe and it has been calculated that wind energy could theoretically supply more energy than the current UK demand for electricity. However, for practical reasons this resource could not all be exploited.

Significant areas of Perth & Kinross have mean annual wind speeds in excess of 7 metres per second (m/s), which is considered suitable for commercial wind energy generation. Less windy areas may become commercially attractive in the future but are currently only attractive to smaller schemes for community or individual use.

Map 1 shows the estimated mean annual wind speed for each 1 kilometre square across Perth & Kinross at 45 metres above ground level. This has been developed using an air-flow model which estimates the effect of topography on wind speed calibrated with data from the Meteorological Office. The map is not a definitive guide to the wind resource of the area but it gives a reasonable indication to those areas likely to be of most interest to developers. The wind speeds are notional averages for each 1 km square – in practice there are likely to be significant differences in wind speed within any one square.

The data from this map has been used to identify the ‘cut-off’ mean annual speed of approximately 7m/s, below which the resource is much less cost-effective and unlikely to be developed. This threshold is represented by areas coloured in cream. The green squares - the darker the colour, the stronger the average wind speed - have a mean annual speed of greater than 7m/s. It can be seen that the wind resource in Perth & Kinross is greatest on certain upland parts of Highland Perthshire, along the edges of the major Straths, the Ochils, the Sidlaws and the Kinross basin, all of which are open to the prevailing south westerly winds.

Perth & Kinross Contribution to National Target

Although targets have been set by both the UK Government and the Scottish Executive, the Executive has set no targets for generation at below the Scottish level, and it was clear from a recent meeting with MSPs that such targets are unlikely to be forthcoming. This is unsatisfactory for both local authorities and wind farm developers; local authorities have no indication as to whether the applications they must decide are necessary to meet national targets and developers throughout Scotland are having to bring forward significantly more proposals than are necessary to meet the Executive's target in the hope of gaining consents.

The Executive's policy statement 'Securing a Renewable Future: Scotland's Renewable Energy' published in March 2003, estimated a need to provide 1,000MW of additional renewable generating capacity by 2010 to meet the Executive's target of 18% of Scotland's energy need being met from renewable resources by that date. On the hypothesis that, very crudely, opportunities for wind farm developments are in proportion to land area, it could be argued that Perth and Kinross, having 7% of the land area of Scotland, should be providing at least 7% of this requirement, or 70MW of renewable energy by 2010.

The British Wind Energy Association (BWEA) has calculated the relative shares which should be provided by UK Regions (of which Scotland is one). To meet the UK government's target to 2010 (which is only for 10% renewables, rather than 18% set by the Executive). Taking account of the percentage of land suitable for wind farm development, they calculate that Scotland is capable of providing 39% of this requirement, equivalent to 973 1.5MW turbines. On the basis of that share, again based on the relative size of Perth and Kinross, we should be contributing at least 70 large turbines (1.5MW output) or a total of 105 MW by 2010.

Unfortunately, these two methods of calculation may not be directly comparable, since I understand that the Executive's figures are based on the installed capacity of turbines, whereas the BWEA's figures are based on a realistic output of turbines of 30% of theoretic capacity. On the other hand, the BWEA figure is based on a lower target for the UK as a whole, but this is balanced by their proposal that Scotland takes a higher percentage of the UK requirement. However, the 'bottom line' from both calculations is not too dissimilar.

As a very rough target, I would therefore suggest that Perth and Kinross seeks to provide at least 100MW of installed wind energy capacity by 2010. Based on the BWEA's assumption that 6 x 1.5MW turbines can be accommodated on a square kilometre, only 0.2% of the land area of Perth & Kinross would be required for wind turbines (although the visual impact would extend beyond that). To put this in perspective, there is current developer interest in Perth & Kinross in providing in excess of 600 MW of wind energy developments.

While there is no intention of proposing an absolute ceiling on wind energy capacity in Perth & Kinross, adoption of a target would indicate that Perth & Kinross is at least making a fair contribution to Scottish Executive policy in the short to medium term. Where a proposal is environmentally acceptable, it will not

usually be relevant to consider how important its contribution to national policy aims or other benefits is. The need to consider these matters arises where an adverse environmental effect or impact is identified.

Commercial and Community Wind Energy Schemes

Wind energy proposals vary considerably from single, small turbines to major wind farms covering several square kilometres. There is an important distinction to be made between developments that are primarily intended to supply electricity to the national distribution network – and meet the Executive's renewable energy targets - and those that are primarily intended to service a local demand or need (e.g. for an individual household, farm, business, institution or community co-operative). Although there is no mechanism in planning law to distinguish between types of development on the basis of who it is for, or to whom it belongs, in practice, the different scales of these proposals allows a distinction to be made in terms of planning policy; generally, it is expected that proposals for local users will be for small-scale schemes (in terms of numbers, size of turbines and output) which are likely to be much more acceptable visually, even in areas which may be sensitive to large wind farms. This is in line with the Structure Plan Environment and Resources Policy 14 which gives specific support to community based renewable energy schemes. Evidence from elsewhere suggests that such schemes are unlikely to have an individual turbine output of more than 750kW and contain more than 5 turbines, whereas the Balado proposal, which with three turbines was small for a commercial scheme, would have had an installed capacity of 6MW.

Locally owned wind turbines whether as individual installations or as clusters offer communities, co-operatives, small businesses and families the opportunity to harness the wind and thereby generate electricity, protect the environment and stimulate the local economy. Community based wind clusters can therefore provide a good rural development tool as they can help alleviate fuel poverty and provide an extra source of income which is particularly significant in rural areas.

However, most attention is given in this paper to commercial wind energy developments since they are the most challenging type of development to deal with and the one for which there is current development pressure. Such developments are likely to have little long-term local economic benefit unless the generator is also locally owned and managed, for example a community based scheme. However, if the development leads to some reinforcement of the local grid, this could have benefits for local customers. Commercial wind energy schemes can also provide a useful source of income to the landowner, whether as a partner or as landlord.

The policy guidance in Part B therefore identifies two fundamental types of wind energy development which require different policy responses; **community schemes** and **commercial schemes**. The following is a suggested classification which could be used within the policy guidance to follow. In practice, commercial developments would be those greater than 2 (large) turbines or with an output of more than 750kW and connected primarily to the national distribution network:

Type	Scale	Example
Community	Domestic	single small turbine (typically up to 7m to hub height, and blade diameter of 4 m) [1]
	Single	Single 'standard' turbine (typically more than 20m to hub height and blade diameter more than 20m) [2]
	Cluster	2-5 turbines (typically more than 30m from ground to blade tip) in a single installation
Commercial	Cluster	2-5 turbines (current height up to 118m from ground to blade tip in a single installation) [3]
	Wind farm	6 or more 'large' turbines

Note: For example [1] the Zwetsloot horticulture business, Kinrossie
[2] the former Rannoch School
[3] Balado

Perth & Kinross Planning Policies

The Structure and Local Plans currently contain broad policies in support of renewable energy developments, in line with the guidance given in NPPG 6 and PAN 45. These policies are summarised in Appendix 1. In addition, both the Structure and Local Plans contain other policies on landscape, nature conservation etc which are relevant to the assessment of wind energy proposals. The Structure Plan, as Modified by Scottish Ministers, proposes that more detailed locational guidance should be provided through Local Plans. This process would take significant time and, in the interim, it is proposed that the detailed policy guidance given in Part B of this paper is:

- Approved as draft Supplementary Planning Guidance and published for public consultation and in the meantime is used as the basis for the consideration of wind energy proposals currently before the Council

- Following consultation, is ratified by the Committee as Supplementary Planning Guidance (which means it has status as a material consideration in the context of planning applications)

- Submitted in due course to Scottish Ministers as an Alteration to the Structure Plan (which requires Ministerial approval, but gives it more weight). This would be the most efficient means of achieving complete, formal policy coverage for Perth & Kinross

- Included in the review of Local Plans as they come forward.

Current Wind Farm Proposals in Perth & Kinross

As the Committee will be aware, there are currently a number of proposals for wind farm developments in Perth & Kinross which are likely to come forward in the near future either to the Council as planning applications or to Scottish Ministers

as applications under Section 36 of the Electricity Act. However, currently there is only one planning application and two notifications under the Electricity Act. The following table details the proposals as at 20 February 2004, but it must be noted that as proposals develop, the size and status of proposals is in constant flux. There are no current applications for small wind turbines (although one was recently approved at Kinrossie). A planning application for three large turbines at Balado, Kinross was refused on appeal.

Table 1: Current wind farm proposals in Perth & Kinross

Status*	Type**	Wind farm	Location	Operator	Turbines	Capacity (MW)
Planning Application	P	Drumderg	Alyth	Scottish & Southern	16	40
Notified proposal	E	Abercairney	Gilmerton	Force 9	24	66
Notified proposal	E	Calliacher	Amulree	I&H Brown	46	92
Scoping	E	Lochelbank	Glenfarg	National Wind Power	54	108
Scoping	E	Knowehead	Dunning	British Energy	22	60
Scoping	P	Snowgoat Glen	Dunning	National Wind Power	18	31
Scoping	E	Griffin	Trochry	Greenpower	75	206
Scoping	E	Greenknowes	Auchterarder	Scottish Power	42	63

Notes:

* Status
"Planning application" – current application
"Notified proposal" – Council being formally consulted under S36 of the Electricity Act
"Scoping" – a proposal is being developed and its impact scoped by the developer

**Type
"P" – planning application
"E" – dealt with by the Executive under Electricity Act

Generally, the major areas of interest are in the Ochils and the southern part of Highland Perthshire in the Crieff, Aberfeldy, Dunkeld triangle in addition to the Drumderg application to the north of Alyth.

Development Control Procedures

In addition to addressing the issue of detailed policy guidelines, it is necessary to decide how to consider proposals for wind farm developments which are submitted to the Council, whether as planning applications or as consultations on S36 proposals. Current indications are that the majority of proposals, by virtue of their size, will be the subject of formal S36 applications to the Scottish Ministers under the Electricity Act, in which cases the Council will be consulted by the Scottish Ministers. Although the Council as a consultee obviously cannot determine proposed S36 wind farm developments, it is in the unique position that it is the only consultee whose objections to a particular proposal will require a public inquiry to be held by the Scottish Ministers.

Proposed wind farm developments which are the subject of planning applications directly to the Council will be determined entirely in accordance with normal

planning procedures. The one exception is that almost all such planning applications will have to be accompanied by an Environmental Statement, as a result of which the Council will have four months in which to determine the planning application, unless an extended period is agreed with the applicant.

Proposed wind farms developments which are the subject of S36 applications made to the Scottish Ministers, (the Scottish Executive Energy Department) will be accompanied by an Environmental Statement. The Scottish Ministers are required to consult the Council as planning authority and a number of agencies (such as Scottish Natural Heritage), giving the Council four months to respond to the consultation (whereas other consultees only have 28 days). All such proposals will be assessed against the terms of the Council's policy guidance.

In responding to S36 consultations from the Scottish Ministers it will be necessary for the Council to consult with other appropriate agencies (such as SNH) as implied by the policy guidelines. Specialist consultants may also have to be appointed to advise the Council, for example on noise emission from the operation of wind turbines.

Although the Scottish Ministers formally advertise the proposal for public comment and normally these comments would be made direct to the Scottish Ministers, any public comments received by the Council will be taken into account, and forwarded with the Council's response to the Scottish Ministers.

In responding any consultation for a proposed S36 wind farm development which, following assessment against the policy guidance, is considered to be unacceptable, even if only in part, the Council should submit a formal objection with reasons for that objection. As the Council is only a consultee, this would be a more appropriate response rather than one which recommends amendments or which suggests "conditions" to be imposed by the Executive. A public inquiry would be a better vehicle for ensuring that these matters are taken into account, particularly if it were to be a conjoined inquiry dealing with a number of proposals.

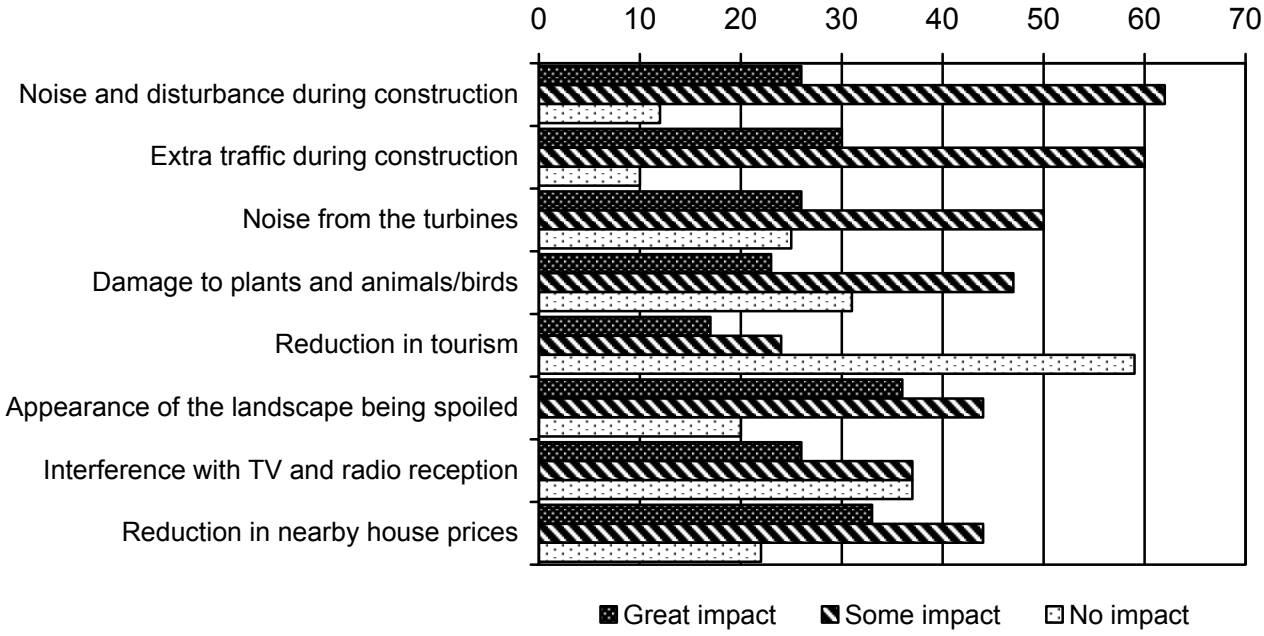
Another particular issue with all planning applications and consultations relates to the issue of cumulative impact – how proposals relate to each other, and how, once one wind farm consent has been granted, it will inevitably and fundamentally affect the potential impact of others within a wide radius – one poor decision could compromise approval of a better site in close proximity. The only solution is to attempt to deal with as many proposals as possible at the same time, but this is dependent on when proposals are submitted, on whether applicants are prepared to wait for a determination, and on whether the Scottish Ministers will co-operate on extensions of time. It may be that in practice the best that can be achieved is that all of the anticipated proposals will be determined or considered in a few "batches", with each report giving a full and up-to-date description of the comprehensive situation at that time. Cumulative impacts are also relevant to the consideration of wind farm proposals in adjoining local authority areas and this approach will assist in making the Council's response.

When considering the potential cumulative impact of proposals which individually, may or may not exceed 50 MW it is imperative that these should be considered by

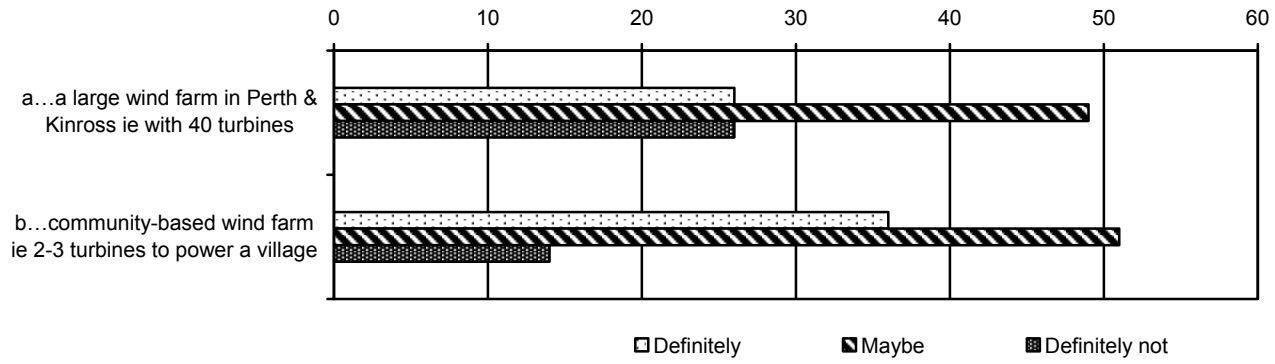
the same Committee. As the Enterprise and Infrastructure Committee has no authority to determine planning applications, then all formal consideration of wind farm proposals whether over or under 50 MW or in adjacent Council areas should be considered in the first instance by the Development Control Committee.

Public Opinion: Viewfinder 8

The current interest in wind farm developments has prompted strong responses from communities likely to be affected by such proposals. It is interesting to note that in 2001, Viewfinder 8 was used during the preparation of the Perth & Kinross Structure Plan to assist in the development of the strategy and what were likely to be controversial policy areas. Questions were asked on the area's potential for wind energy developments and the issues surrounding them. While there was general support for wind farm developments, particularly community based ones, most respondents considered that they would have some impact on the area. However, it is significant to note that 59% did not consider that a large wind farm would have an impact on tourism and only 36% considered that it would 'spoil the appearance of the landscape'. Most of the other concerns were about temporary matters or matters which could be dealt with through careful siting of the turbines or it was not a land use planning matter, for example - a reduction in house prices.



The chart below shows that around 75% of respondents thought that there was potential for the development of a large wind farm (i.e. 40 turbines) in Perth & Kinross. In addition there was support from some 87% of respondents for small community-based turbines.



The full results from Viewfinder 8 are included as background information in the Councillors' Lounge.

POLICY DEVELOPMENT ISSUES

Impacts

Any policy guidance, whether it be for locational or other forms of guidance needs to take account of a range of types of impact. In very general terms, **visual impact** is likely to be the most controversial issue for the **community at large,** including those directly affected by proposals; this matter is largely subjective but is none the less important. A detailed policy framework should therefore seek to:

- Minimise the visual impact of wind farms
- Keep them away from most sensitive landscapes
- Keep them at the correct scale
- Address issues of dispersal or clustering of turbines or developments
- Address the issue of cumulative impact of developments

'Locality' issues become equally important for those **directly affected** including:

- Noise
- Shadow flicker
- Access and construction
- Impact on local water supply
- Proximity/dominance of nearby turbines

In addition, issues of biodiversity and technical issues also need to be addressed. These issues are discussed in more detail below.

Wind energy developers are required to submit Environmental Statements where the generating capacity is greater than 50 MW and may be required if the generating capacity is less than this and the scope of these should allow all major impacts to be assessed.

The policy framework in Part B, in addition to setting a target for wind energy generation in Perth & Kinross discussed above, is based on:

- A broad locational policy indicating 'Strategically Sensitive Areas' and 'Strategic Areas of Search', particularly for major wind farm developments;

- Detailed policy guidance for assessing individual proposals of whatever scale.

Broad Locational Policy

The broad locational policy, as required by Scottish Executive guidance contained in NPPG6, was developed by sieving out major constraints at a Perth & Kinross level to identify the Sensitive Areas identified in Map 2 and the broad area of search shown in Diagram 1. Table 2 below identifies the key impacts and indicates in the third column those constraints which were included in the sieve mapping exercise for the preparation of location guidance. Map 2 gives a 'busy' picture, but a general pattern emerges that most of Highland Perthshire is the most sensitive over a range of constraints to major wind energy developments. (it should be noted that it is possible to view this map with an Ordnance Survey base to identify specific locations, but this has been omitted for clarity). Map 2 has been simplified to give the indicative areas shown on Diagram 1 (contained in Part B of this report), on the basis that this is strategic guidance and that each proposal will need to be assessed against detailed policy guidance as well. Within the broad area of search there are will still be some constraints to wind energy developments, most notably Historic Gardens and Designed Landscapes.

It should also be noted that these maps do not sieve out the wind information given in Map 1 above; this means that although significant lowland areas such as Strathearn, Strathmore and the Carse of Gowrie do not appear to have major constraints, they are unlikely to be favoured for large commercial schemes since the average wind speeds in these areas make them unfavourable to operators given current technology.

In addition to the wind resource itself, the feasibility of developing wind energy resources also depends on the availability of the necessary infrastructure; wind farms require a connection to the Scottish and Southern electricity distribution or transmission network. The Background Information describes some of the issues with regard to the grid, but generally it should be noted that grid constraints are being dealt with at a National level. Although the transmission network is reaching its capacity, a major reinforcement between Beauly and the Central Belt is proposed, in order to allow further generation to connect. The initial planning work for this is underway and the route, which, will pass through Perth & Kinross, will provide additional capacity in the area. Therefore, grid constraints have not been taken into account in Map 2 or Diagram 1.

Detailed Policy Guidance

The impacts listed in Table 2 and discussed in more detail below, form the basis of the detailed policy guidance and the fourth column of the table summarises how the specific issues can be assessed as part of a planning application or S36 consultation.

When the draft policy guidance is published for consultation, it is intended to include with the policy statements in Part B, Table 2 and the paragraphs which follow it on specific impacts to provide:

- the **justification** for individual policy guidelines
- detailed guidance on the **interpretation** of the guidelines
- an indication on how proposals should be **assessed** against the guidelines

Table 2 Summary of Impacts, Locational Constraints and Assessment Criteria

Issue	Specific Criteria	Locational Constraint	Assessment
Landscape	Landscape capacity	National Scenic Areas National Park Designed Landscapes Areas of Great Landscape Value Green Belt	ES/EA Landscape Appraisal Proximity to NSA, AGLV etc. with significant adverse impact avoided Standard of siting and design Unlikely large-scale proposal can be accommodated
Visual	Visual impact Dominance Landscape Capacity		ES/EA Landscape Appraisal(Study to be commissioned jointly with SNH/PKC and undertaken by early summer) Zone of Visual Influence maps Ability to modify proposal to avoid significant impacts
Cumulative	Visual impact Landscape capacity		ES/EA Landscape Appraisal Zone of Visual Influence maps Ability to modify proposal to avoid significant impacts
Biodiversity	Habitat Species Water	Natura 2000 Sites Ramsar Sites National Nature Reserves Sites of Special Scientific Interest Carbon sinks	ES/EA Standard of design and layout in relation to impact on biodiversity Unlikely large-scale proposal can be accommodated Peatland hydrology sensitive to change Ability to modify proposal to avoid significant impacts
Technical	Construction/access tracks Telecommunications Aviation		ES/EA Ability to modify proposal to avoid impacts on equipment or the line of the route

Issue	Specific Criteria	Locational Constraint	Assessment
Locality	Dominance Noise Shadow Flicker Water Supply		ES/EA Noise Assessment (including low frequency) Shadow flicker assessment Ability to modify proposal to avoid significant impacts

Note: **ES** Environmental Statement (Undertaken by the developer)
EA Environmental Assessment (Undertaken by the Council)

Landscape/Visual Impacts

Perth & Kinross is endowed with a wide variety of landscapes of great beauty including high mountains, lochs, glens, and straths as well as large areas of less dramatic but most attractive lowland farmed countryside. There are 5 National Scenic Areas, 2 Areas of Great Landscape Value, a green belt around Perth (the detailed boundaries of which have yet to be established) and one National Park in Perth & Kinross (although Loch Lomond and the Trossachs National Park Authority is the local planning and development control authority for the part of Perth & Kinross within the National Park, this Council remains the Structure Planning authority for that area). For the locational strategy, formal landscape designations were sieved out.

At a more local level, more detailed analysis of landscape capacities to absorb wind energy development is likely to be required and discussions have taken place with SNH to commission a landscape capacity study, starting with the Ochils and southern Highland Perthshire which are the areas of currently of greatest interest to potential developers and are also areas with some opportunities. Unfortunately, many Scottish landscape architects are already working for wind farm applicants and developers and are either not available or have clients with conflicting interests, but a specialised landscape consultant, who did a study for the Council on the Perth greenbelt, could undertake this work, but not until early April. This would still be helpful in terms of assessment of proposals in these areas as and when they come forward. His work would include:

- Evaluation of the degree of sensitivity of each area with a significant wind resource, identifying areas of least constraint

- recommendations on the height, size and layout or developments appropriate to the landscapes affected

- providing an indication of the landscape carrying capacity (ie the appropriate spacing and number of sites)

Height, Dominance and Visual Intrusion

Turbine size (height, bulk and blade length), is tending to increase and whereas 5 years ago they were 50m they are now routinely 95m and getting higher (for example Crystal Rig in the Scottish Borders) and can be twice the height of 123 kV electricity pylons. There may be different size thresholds appropriate for turbines in different local contexts; smaller turbines may be acceptable in some locations where larger ones would be unacceptably out of scale. Accordingly the height, bulk and blade diameter should be related sensitively to the local environment.

Turbine height is important both for the distance over which a development might be visible and the sheer dominance of such large structure to people and buildings close to them, although dominance is not just a question of height, but also of the relative angle of elevation. This depends not only on the turbine, but also the local topography. Dominance is not necessarily a problem in itself but it can become oppressive when it affects residential or other high occupancy buildings and locations. A further aspect of dominance is the effect created by placing turbines adjacent to or on another significant element in the landscape. The turbines may then appear to 'dwarf' a historic building or landmark or to 'shrink' a local hill or range of hills. Experience elsewhere suggests that these and other issues may be largely addressed by keeping turbines a distance of at least the equivalent of 30 height to blade tip (hbt) lengths away from buildings and other sensitive locations to protect their setting.

Colour

No satisfactory solution has yet been found as to turbine colour, which is an aspect often attracting adverse comments. On the basis that most if not all turbines will be seen against the sky, colours chosen so far have ranged from white to light grey. The common view is that the light colour of most turbines looks right when seen against the sky. However, dark coloured or grey turbines should be considered for small scale domestic turbines where they are going to be seen against a landscape background, or are in close proximity to buildings.

Impact on Biodiversity

Large parts of Perth & Kinross have been given statutory protection because of their nature conservation interest and these designations are likely to impose constraints on the location of wind turbines and wind farms. These designations include: Sites of Special Scientific Interest (SSSIs), National Nature Reserves (NNRs), Special Areas of Conservation (SACs), Special Protection Areas (SPAs), and Ramsar sites. In addition, the size and depth of the foundations may have implications for ground water and aquatic habitats generally.

There is speculation about the particular risks to birds from wind turbines. The evidence to date would seem to suggest that the hazard to birds is no greater than other tall installations, although the cumulative impact of wind turbines on bird populations is an issue that needs to be considered.

Locality Impacts

Noise

Noise associated with wind turbines is perceived as an issue, and in quiet rural areas such levels of noise may give rise to local concern. Wind turbines produce a distinctive sound which, in certain circumstances, can be an issue at some distance from the site. This, to some extent, depends on the turbine design. Low frequency sounds are an issue of concern and research is currently being undertaken for DEFRA with the results of the research being published in the later part of this year. As indicated above, evidence suggests that it is likely that this issue may be largely addressed by keeping turbines at least 20 hbt away from occupied dwellings and other sensitive locations.

It should be noted that the Executive Director (Environment Services) has indicated that he does not have the specialist skills in-house to provide the necessary advice on assessing noise impacts of proposed wind farm developments, and that it may be necessary to engage specialist consultants in certain circumstances.

Electromagnetic Interference

Wind energy developments can also interfere with radio signals, especially TV and the microwave bands, and with radar signals. Solutions can usually be found by changes to the design, layout and location of the turbines, or by the installation of repeater stations or other technical solutions.

Flicker

Wind turbines in certain circumstances may cause local problems of shadow flicker to occupants of neighbouring buildings, but this can usually be avoided by careful siting. Also, glinting as the blades rotate in fine weather is rarely likely to affect a single viewpoint for a long period, and this might also be mitigated by attention to blade finish.

Water Supply

Wind turbines require a substantial concrete base together with a track network and these have the potential to affect the hydrology of an area. Consequently, potential impacts on water abstraction and private water supply need to be identified together with the protective/preventative measures proposed. Methods for achieving this should be included in the Environmental Statement together with contingency plans for ensuring that private water supplies are maintained.

Technical Impacts

Aviation

There are basically two ways in which the construction of a wind turbine or wind farm may impact on aviation operations:

- The physical obstruction caused by a tall structure; and

- The effects that the supporting structure and rotating turbine blades can have on communications, navigation and surveillance (CNS) systems (including radar) and other equipment.

There is a need therefore to safeguard aviation interests against developments which would impact on the safe use of aerodromes (Dundee, Edinburgh, Leuchars and Portmoak) or CNS systems (Perth DVOR at Perth Airport).

In addition to the hazard posed to aircraft in approaching or departing from an airfield, wind turbines can also pose a potential danger to aircraft flying at low level for other reasons. In the UK this is largely (although not entirely) restricted to military aircraft conducting low flying training but Perth & Kinross does not contain a Tactical Training Area.

Access

Construction and decommissioning will usually be the most significant periods for traffic generation. Where existing roads and tracks are not already adequate, sites are less likely to be developed unless the scale of the development is enough to bear the additional costs of improving the access or restoring damaged roads.

Maintaining 'Carbon Sinks'

Blanket bog is one of the most extensive semi-natural habitats found on land in the UK and is common on upland parts of Perth & Kinross in areas of search for wind farm locations. These bogs act as 'carbon sinks', holding carbon dioxide, but their development as wind farms, in terms development of access roads and particularly deep foundations would release the carbon dioxide held within them and would negate any advantage gained from wind farm developments and the consequent reduction in carbon dioxide emissions from thermal power stations.

Cumulative Impact

Landscape

Cumulative impact is a complex and variable issue which will be increasingly relevant to the assessment of wind energy schemes as more developments are proposed in the parts of Perth & Kinross with the best wind resource and fewest technical constraints – and as developments are approved in neighbouring local authority areas.

It is suggested that the approach to be adopted in relation to cumulative impact is to ask whether a proposal or proposals will merely create a new feature within a landscape which otherwise retains its essential characteristics, or whether, by virtue of the presence of other wind energy developments in the area, the new proposal(s) would lead to a fundamental change in the character of the landscape.

There are three potential thresholds.

- The first is when there are a number of visible turbines which are an isolated feature within a landscape, ie *there is a wind energy development in this landscape*

- The second is when the number of visible turbines reaches a point where a wind energy development becomes a significant characteristic of that landscape, ie *this landscape contains a number of wind energy developments*

- The third is when the number of developments is such that they become the dominant characteristic by which the landscape would be described, ie *this is a wind energy landscape*

Cumulative impacts begin at Stage 2. It may or may not be adverse, depending on the landscape in question. The visual influence of a wind energy development will vary according to whether it is a single turbine, a cluster, or a large wind farm. Assuming reasonably clear visibility then large wind turbines:

- Appear visually dominant up to 2km (this can be dramatically enhanced if they are sited on a hill, or are seen from a lower viewpoint, or if they are the focal point of a vista)

- They are noticeable and intrusive in many situations up to 5km

- They are particularly noticeable when the blades are turning, at distances of up to 10km in clear weather, and can just be seen by the naked eye at over 20km. At such distances their visual impact is not significant in the wider landscape.

It will usually be appropriate to require cumulative impact assessment where proposals are within 30km of each other, unless the developer can reach prior agreement with the Council that it is not necessary in a given situation.

The frequency with which wind farm developments are seen while travelling through a landscape will affect the perception of the landscape as a whole, even if only one development is noticeable at any given moment. This is true for walkers, riders and cyclists as well as motorists or rail travellers. The required cumulative impact assessment should take into account:

- The importance and frequency of use of sites

- The duration of the views of the various developments (having regard to landscape character)

- The extent to which more that one development is visible at the same time

- The extent to which, taken together, a significant proportion of resident and visitor experiences will be significantly changed, should be summarised in the assessment.

There is a need to encourage developers to co-operate over exchange of information, where cumulative assessment has been identified as important and data outwith the Environmental Statements is needed in order to make such assessments.

The total dominance of a significant tract of the countryside of Perth & Kinross by wind energy developments would be unacceptable.

Birds

The assessment of cumulative effects on birds is a complex and specialised process. It is likely that only species considered to be of high conservation value or vulnerable to wind farms by virtue of their behaviour will be considered. A cumulative assessment can apply at a number of levels, for example:

- an individual pair, or birds occupying a single breeding site;
- the qualifying interest of a Special Protection Area
- a regional or local population
- a national population

However, assessing cumulative effects on a national population would require widespread consideration of wind farm developments nationally, and this would normally be too onerous a task to expect of a developer of a proposal which on its own is unlikely to have more than a marginal effect. Therefore, assessment of impacts on national populations is likely best undertaken by SNH or RSPB and would not be required in the context of assessing a single proposal.

Donations to Affected Communities

A major criticism of current wind farm developments is that they are neither community owned or operated and as a consequence offer little benefit to local communities. Indeed, the perception is that the renewable energy companies involved are despoiling the countryside for private gain while the community pays the price through the loss of its amenity. While Perth & Kinross does not have any wind farm developments in the area at present, the experience gained elsewhere in Scotland can help inform this Council's approach to community benefits. Developers have been making contributions to local communities of around £1,500 per megawatt per year. While there may be arguments about whether this is adequate recompense for the perceived loss of amenity the principle seems to have been well established. The money has generally gone to communities.

It may be worth exploring other ways to provide long-term benefits to the wider community of Perth & Kinross, although the Council needs to take a view on whether these matters are a planning consideration, or a private arrangement between developers and the local community.

A ‘renewable energy trust’ could be established which would separate this matter from the planning system thereby creating a more transparent partnership approach involving the operators, community and the Council. This could remove the argument that developers were ‘buying planning consents’ by separating its regulatory and economic/community development functions in a transparent and accountable way. The trust could be used to develop community based renewable energy schemes with the funds being used to ‘pump prime’ such schemes. For example wood fuel schemes could be supported in Highland Perthshire, employment opportunities developed or energy conservation measures implemented. A further report by officers would be needed to explore this further.

PART B: POLICY AND GUIDANCE

Introduction

Planning applications for wind energy developments, and consultations under S36 of the Electricity Act will be assessed by the Council against:

- Renewable energy and other relevant policies in the Structure Plan
- Renewable energy and other relevant policies in Local Plans
- The following wind energy policy and guidance (which will be) approved by the Council as Supplementary Planning Guidance and submitted in due course as a Structure Plan alteration.

Scales of Wind Energy Development

There is considerable potential for wind energy developments in Perth & Kinross, although they have the potential to make a significant impact on landscape and local amenity. The impact is often in proportion to the size and number of the wind turbines and this policy makes a distinction between small scale, community schemes and large, commercial wind energy developments.

Community wind energy schemes are those owned and operated by local individuals or the local community, with the power output of individual turbines being less than 750kW and providing power primarily to off-mains properties, small-users and local communities (although surplus power may be sold to the distribution or national transmission network).

Commercial wind farms are those with more than 2 turbines with hub heights greater than 25m or with an output of more than 750kW and principally contributing to the national distribution network.

The following table indicates the scales of development referred to in the detailed guidance below.

Type	Scale	Example
Community	Domestic	single small turbine (typically up to 7m to hub height, and blade diameter of 4 m)
	Single	Single 'standard' turbine (typically more than 20m to hub height and blade diameter more than 20m)
	Cluster	2-5 turbines (typically more than 30m from ground to blade tip) in a single installation
Commercial	Cluster	2-5 turbines (current height up to 118m from ground to blade tip) in a single installation
	Wind farm	6 or more 'large' turbines

Wind Energy Target

The Council will encourage the development of community wind energy schemes to provide local electricity needs, and also commercial schemes which assist in achieving the Council's target of 100 MW of electricity generated from wind by 2010 in locations least damaging to visual amenity in Perth & Kinross.

Strategic Policy on Siting of Wind Energy Developments

The Strategic Area of Search shown in Diagram 1 must be used with the descriptive paragraphs and detailed guidance below. The guidance below gives an indication of the type(s) of wind energy development that may be acceptable within the Strategic Area of Search - but it does not mean that such a development will be acceptable on any given site. Diagram 1 only establishes the principle that an individual wind energy proposal may be acceptable. It will still be necessary to consider the proposal at the chosen location against the detailed guidance below and whether there may be any cumulative impact with other proposals.

Commercial wind energy developments should be located within the Strategic Search Area but avoiding unacceptable cumulative impact. Applicants must demonstrate that the proposal is acceptable at the chosen location and meets the detailed guidance below. Community schemes will also be acceptable in these areas.

Within the Strategically Sensitive Area there is a presumption against commercial wind energy developments. Wind energy developments will normally be limited to community schemes subject to them meeting the detailed guidelines below.

Landscape Guidance

The landscape impact of wind energy development is likely to be the greatest concern, due in part to the scale of large turbines, particularly their impact on the most sensitive landscapes and when viewed by large numbers of people.

- Commercial wind farm/clusters are unlikely to be acceptable on prominent ridges, hills or sensitive skyline locations where visible within 5km of:
    - the Perth Greenbelt
    - NSAs
    - AGLVs
    - Historic Gardens and Designed Landscapes
- Wind farms and clusters should fit within their wider landscapes to minimise visual impact and medium and long range views and avoid adverse cumulative impacts when viewed from:
    - major roads, including tourist routes
    - the rail network

    - popular public viewpoints and recreational paths

- The wind energy development should be of the correct size and scale for its location, in terms of the height, number and size and positioning of turbines in relation to its landscape setting.

- The siting and layout of wind turbines (in the case of clusters or wind farms) should take advantage of existing screening within the landscape, where possible, and should respect the natural grain and texture of local topography.

- Turbines should be grouped as tightly as possible within the site and should be of a colour appropriate for their landscape/skyline setting.

- Access roads, associated buildings and power lines should be appropriately sited and detailed.

Visual Guidance

In many locations, aspects of local visual impact may be as important as wider landscape considerations and wind energy developments should not dominate significant surrounding features.

- The wind energy development should be of the correct size and scale for its location, in terms of the height and positioning of turbines in relation to the visual importance in the landscape of locally prominent or valued landforms and features (including popular recreational paths).

- In locations of significant visibility or ‘dominance’, clusters are unlikely to be allowed within a radius of 30 times the height to blade tip (hbt) of:

    - the setting of locally prominent and/or valued buildings
    - Scheduled Ancient Monuments, archaeological sites, Conservation Areas and Listed Buildings

- Domestic scale turbines may be accommodated beside existing buildings if visually and functionally related to and in proportion with them.

Biodiversity Guidelines

Wind energy developments, by virtue of their scale, preferred location and construction, may impact on biodiversity to a significant degree.

- Winds energy developments which would have a significant adverse effect on any of the following sites will not be acceptable:

    - Natura 2000 sites
    - Ramsar Sites
    - National Nature Reserves
    - Sites of Special Scientific Interest

- Applicants will have to demonstrate that proposals will not have significant adverse impacts on important bird species and important non-designated habitats and species identified in the Tayside Biodiversity Action Plan (notably semi-natural woodland). Where there is uncertainty about the potential impact, the ability to monitor and control the operation of turbines will be important when considering any proposal.

- It may be possible in some instances to accommodate community wind energy developments within some types of SSSI if they are of a scale that allows them to be sensitively sited and designed to avoid adverse biodiversity impacts.

Locality Guidelines

Wind energy developments may cause impacts on people by virtue of their location and operation beside houses or settlements.

- No wind turbine (as part of a wind farm development) shall be erected closer than 20hbt from any existing occupied dwelling (unless it is under the ownership of the operating company).

- Wind energy proposals should avoid serious adverse impact on nearby properties and settlements with regard to:

    - Noise
    - Shadow flicker
    - Disturbance to TV and radio reception
    - Impact of construction traffic
    - New vehicle access tracks to be formed and new junctions to the road network
    - Construction traffic

Technical Issues

- Wind energy developments must avoid interference with aviation interests and the safe use of aerodromes (Dundee, Edinburgh and Leuchars) or of communications, navigation and surveillance (CNS) systems (including radar and other equipment including the air navigation beacon (Perth DVOR) at Perth Airport.

- Wind energy developments and their access roads must not be located on areas of raised bog, to avoid the release of greenhouse gases.

- Wind energy developments must avoid adverse impacts on drinking water supplies and their catchments.

Decommissioning

Proposals will be required to provide a 'decommissioning statement' to illustrate how the site will be re-instated when the development ceases – this may be enforced by a condition or the use of a Section 75 Agreement. A bond or similar mechanism may also be required to ensure that the site can be reinstated.

Protection of the wind energy development

Where a site has been developed for a single turbine, cluster or wind farm the Council will safeguard the site from development which would inhibit its efficient operation.

CONSULTATION

The Chief Executive, the Executive Director (Environment Services), Head of Legal Services, and the Council Secretary have been consulted in the preparation of this report.

RESOURCE IMPLICATIONS

Capital

None

Revenue

Detailed landscape studies are likely to cost around £10,000 in 2004-5 and will be met from the Planning and Transportation revenue budget. The assessment of proposals may require specialist advice, not available within the Council, and the use of specialist consultants – particularly noise consultants. However, at the present time it is difficult to quantify these costs. It should be noted that much of the assessment work will have to be done for the S36 applications from which the Council will not derive any fee income. In addition there may well be costs associated with the Council's appearance at future Public Inquiries. The employment of Consultants and the costs of appearing at Public Inquiries could easily amount to tens of thousands of pounds not budgeted for. The Strategic Policy and Resources Committee will be regularly updated on this matter.

STRATEGIC PRIORITIES

- To maximise opportunities for creating wealth and jobs
- To protect and enhance the environment

SERVICE PLAN STRATEGIC OBJECTIVES

- The safe and optimal use of land and buildings in the interest of the community and the environment.

- Supporting the Economic Development of Perth & Kinross.

CONCLUSION

Wind farms are a major concern for the community at large and an issue which the Council as development control authority will shortly have to address. In addition to the existing Structure and Local Plan policies, it is suggested that the identification of search areas for major wind farms and detailed guidelines for assessing proposals for all scales of wind energy development will assist the Council in dealing with both planning applications and S36 consultations. In addition, the identification of a broad target for wind energy development in Perth & Kinross will hopefully be useful in assessing Perth & Kinross' 'fair share' of government targets primarily in circumstances where proposals and environmental considerations come into conflict.

FURTHER INFORMATION

Please contact: Roland Bean ext 5305 or Graham Esson ext 5383

J F IRONS
EXECUTIVE DIRECTOR (PLANNING & TRANSPORTATION)

The following background papers, as defined by Section 50D of the Local Government (Scotland) Act 1973 (and not containing confidential or exempt information) were relied on to a material extent in preparing the above Report:; (list papers concerned)

03 December 2004

Appendix 1: Structure and Local Plan Policies

Extract from Perth & Kinross Structure Plan

Sustainable Economy Policy 3
Support will be given to measures which promote an integrated flexible and innovative approach to rural development which encompass economic, social and environmental considerations and which:

- maintain or enhance local employment opportunities.
- promote diversification.
- help sustain viable rural communities and services.
- introduce new technologies to rural areas (including information and telecommunications technology and renewable energy schemes.

Environment and Resources 14
Proposals for the development of renewable energy schemes will be supported where they are considered environmentally acceptable and where their energy contribution and benefits in reducing pollution outweigh any significant adverse effects on local environmental quality. Community based renewable energy developments in particular will be encouraged. Proposals for renewable energy schemes will be assessed against the following criteria:

- The immediate and wider impact of the proposed development on the landscape and wildlife resource.
- The need to protect features and areas of natural, cultural, historical and archaeological interest.
- The specific benefits that the proposal would bring to the local community and/or Perth and Kinross.
- The cumulative effects of similar developments on the local area.

An environmental assessment will normally be required for large-scale schemes and Local Plans will provide more detailed locational guidance particularly for wind farm developments and other renewable energy technologies.

Extract from Highland Area Local Plan

Renewable Energy
Policy 11 The Council will encourage, in appropriate locations, renewable energy developments. Once accepted for renewable energy purposes, sites and installations will be safeguarded from development that would prevent or hinder renewable energy projects and could be accommodated elsewhere. Renewable energy developments, including ancillary transmission lines and access roads, will be assessed against the following criteria:

(a) *The development will not have a significant detrimental effect on sites designated at national, regional or local level for nature conservation interest or archaeological interest;*

(b) *The development will not result in an unacceptable intrusion into the landscape character of the area;*

(c) *The development will not result in an unacceptable loss of amenity to neighbouring occupiers by reasons of noise emission, visual dominance, electromagnetic disturbance or reflected light.*

Note: Developers will be required to enter into an agreement for the removal of the development

NB Each Local Plan except the Perth Area Local Plan contains similar policies and the 'finalised' Kinross Area Local plan contains the additional policy detailed below

Extract from Kinross Area Local Plan

POLICY 17. The Council will encourage, in appropriate locations, renewable energy developments. Renewable energy developments, including ancillary transmission lines and access roads, will be assessed against the following criteria.

a. The development will not have a significant detrimental effect on sites of nature conservation interest or sites of archaeological interest.

b. The development will not result in an unacceptable intrusion on the intrinsic landscape quality of the area.

c. The development will not result in a loss of amenity to neighbouring occupiers by reasons of noise emission, visual dominance, electromagnetic disturbance or reflected light.

Windfarm developments will not be permitted on the Lomond Hills, Benarty Hill or along the ridgeline of the Cleish Hills, Ochils or Lendrick Hills, as viewed from the principal roads of the area.

Developers will be required to enter into an agreement for the removal of the development and the restoration of the site, at the end of the development's useful life.