Protecting The Landscape Of Highland Perthshire

Suggestions for future policy on wind farm development from the Amulree and Trochry community

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Contents

Summary and recommendations

- The need for energy from renewable sources is acknowledged, but this need should not be seen as of greater importance than other environmental and economic priorities.

- Scotland has many special landscapes, which are particularly sensitive to visual intrusion. They need to be safeguarded from inappropriate wind farm developments. This is recognised in the Scottish Executive's planning framework.

- Highland Perthshire is one of these special landscapes. Its sensitivity to wind farm developments is clearly stated in Scottish Natural Heritage's landscape guidance.

- The quality of Highland Perthshire's landscape is 'the fundamental reason for the tourist industry' and tourism is the major economic force in the area. Recent research by VisitScotland indicates that 26% of visitors would be less likely to visit an area where there were wind farms. The economic well being of Highland Perthshire could be severely damaged by large-scale wind farm developments.

- Construction of large-scale wind farms would create enormous disruption on the rural road network of Highland Perthshire. This would affect both local and visiting road users and would seriously disrupt local community life.

- We call on Perth and Kinross Council to recognise the importance of Highland Perthshire and its landscape in their planning guidance for wind farm developments. As large-scale, commercial wind farms could severely damage this valuable environmental asset, Council policy should ensure that the landscape of Highland Perthshire is protected from such inappropriate development and preserved for the future.

Introduction

Perth and Kinross is currently experiencing a large number of proposals for wind farm developments. This is a matter of very great concern to many people in Highland Perthshire. Some of these proposals are for developments of an industrial scale. We fear that Highland Perthshire's most important asset, its landscape, is in great danger from wind farm proposals, which are totally inappropriate in terms of size of turbine, number of turbines and, most importantly, location.

Although the *Perth and Kinross Structure Plan* outlines the criteria that will be used in assessing proposals for renewable energy, we understand that the Council are in the process of preparing further and more detailed guidance on this matter. As a community, we are anxious that our concerns relating to wind farm proposals are heard and given due consideration. To this end we present this submission to the Council.

Renewable Energy: Targets, Balance and Progress

As part of the initiative to reduce greenhouse gases, the Scottish Executive has set a target for 40% of Scotland's energy requirements to come from renewable sources by 2020. It is made clear in the Scottish Executive statement *"Securing a Renewable Future: Scotland's Renewable Energy"* of March 2003 that this target should be achieved by a diverse mix of technologies, and that there should be an emphasis on utilising marine sources.

However this target, combined with the clear financial incentive provided by the *Renewables Obligation (Scotland)*, has resulted in very large numbers of onshore wind farm developments being proposed. So many that, despite the Scottish Executive's clear expectation (see above) that the 2020 target should be met by 'a diverse mix of technologies', there are currently 363 on shore wind projects in the planning or pre-planning stages, which would generate around 8000MW of electricity (Sunday Herald 18th Jan 2004). When compared to Scotland's peak winter demand of less than 6000MW, it is clear that the current large number of applications and proposals is out of all proportion to the targets set.

The 2020 target of 40% equates to around 3500mw of capacity. Currently, according to the *Scottish Executive's Renewables Database* (www.scotland.gov.uk/enterprise/energy/), there is 207MW produced by onshore wind farms already in operation, with another 552MW of capacity, which has received consent. If you include the 180MW from the offshore wind farm at Robin Rigg in the Solway Firth, there is nearly 1000MW of consented renewable capacity already. These figures make it clear that by 2004 great strides have been made toward the 2020 targets by wind farms. It is evident therefore, that not every proposal for a wind farm is vital to the satisfaction of the 40% target, and consequently it is important that wind farm developments are not allowed to ride roughshod over other priorities, of equal or greater importance.

Renewable Energy in Perthshire

Perthshire has a long involvement with renewable energy through hydro-electric generation and is already well resourced with 359.3 Megawatts of operational hydro-electric generation, mainly belonging to Scottish and Southern Electricity, and 1.9 Megawatts from landfill gas. It has no generation from gas or coal fired power stations. The existing hydro-electric generation does not qualify for inclusion in Scottish Executive targets for *new* renewables generation. However, in assessing the region's capacity for additional renewable energy generation, it will be important to balance the landscape interest and existing renewable energy capacity against the requirements of the Scottish Executive.

N.B. Since this report was produced it has been established that existing hydro is included in Scottish Executive targets for renewable energy, but

does not qualify for payments through the Renewable Obligations Certificate scheme, except in exceptional cirrcumstances. Refurbished hydro-electric stations with installed capacity of 20 MW before refurbishment are now eligible for ROCs if they reduce capacity to below 20MW. According to Ofgem this has resulted in the loss of almost 60MW of installed capacity.

The landscape impact on the river valleys of the existing hydro-electric schemes was controversial at the time of construction. Although now generally accepted, these constructions are usually in low lying or extremely remote locations. The visual impact of wind farm development in Perthshire is likely to be far more extensive due to the hilltop location of the numerous large-scale proposals, which would involve using increasingly large turbines. This potential landscape impact should also be considered when considering the region's capacity for additional renewable generation.

For a breakdown of operational electricity generation in Perthshire please see Appendix 1.

The Planning Framework

The Scottish Executive's planning framework for renewable energy developments is provided by *National Planning Policy Guideline 6: Renewable Energy* (NPPG 6), with further relevant detail in *Planning and Advice Note 45* (PAN 45). The aim of these policies is that the land use planning system should play its full part in the process. *NPPG 6* requires Local Authorities to ensure that the planning guidance they produce should "facilitate and guide renewable energy developments, while at the same time ensure that existing environmental assets (in the form of designated areas, species and habitats) are protected from inappropriate forms of development and minimising the effects on local communities."

With the aim of not only guiding SNH staff, but also of assisting planning authorities when preparing development plans, Scottish Natural Heritage has compiled *Strategic Locational Guidance for Onshore Wind Farms in Respect of the Natural Heritage (2002)*. The advice brings together landscape, recreation, biodiversity and earth science sensitivities to provide an overview of natural heritage sensitivity to wind farms. The land with the greatest opportunity for wind farm development in natural heritage terms is identified as Zone 1, with Zones 2 and 3 indicating where natural heritage sensitivities would impose a medium or high level of constraint. This guidance clearly defines Highland Perthshire as having either high or medium natural heritage sensitivity to wind farm developments.

Zone 1	low natural heritage sensitivity	greatest opportunity for wind farm development.
Zone 2	medium natural heritage sensitivity	wind farm development depends on appropriate scale, location and design.
Zone 3	high natural heritage sensitivity	wind farm development unlikely to be acceptable

Modern Onshore Wind Farm Proposals

At this point it should be made clear that the wind farms in operation in Scotland today have relatively few turbines and those turbines are much smaller (see Table 1 below) than most proposals currently being submitted. Many of these proposals are for turbines 120m tall (twice the height of the 'first generation' turbines), and these turbines are being proposed in numbers of up to 100 or more. It should be noted, therefore, that as modern onshore wind farm proposals are of a scale far exceeding any presently seen in Scotland, current published guidance is somewhat out of date. SNH recognises this fact in its *Strategic Locational Guidance* and recommends that it should be reviewed in light of experience to ensure it remains relevant. As yet such reviewed guidance is not available. Consequently, when using any such guidance, it would be advisable to assume that any description of visual impact is likely to be an underestimate.

Table 1: LARGEST OPERATIONAL WIND FARMS IN SCOTLAND as at JAN 2004

Wind Farm	Number of turbines	Capacity of site	Overall height of turbines	Developer/operator
Hagshaw Hill, M.Lanarkshire	26	15.6MW	65m	Scottish Power
Windy Standard, Dumfries	36	21.6MW	53m	National Wind Power
Novar, Highland	34	17MW	55m	National Wind Power
Beinn Glas, Argyll and Bute	14	8.4MW	57m	National Wind Power
Hare Hill, Ayrshire	20	13MW	63.5m	Scottish Power
Beinn an Tuirc, Kintyre	46	30MW	63m	Scottish Power
Dun Law, Borders	26	17.16MW	63m	Scottish Power

Perthshire's Landscape

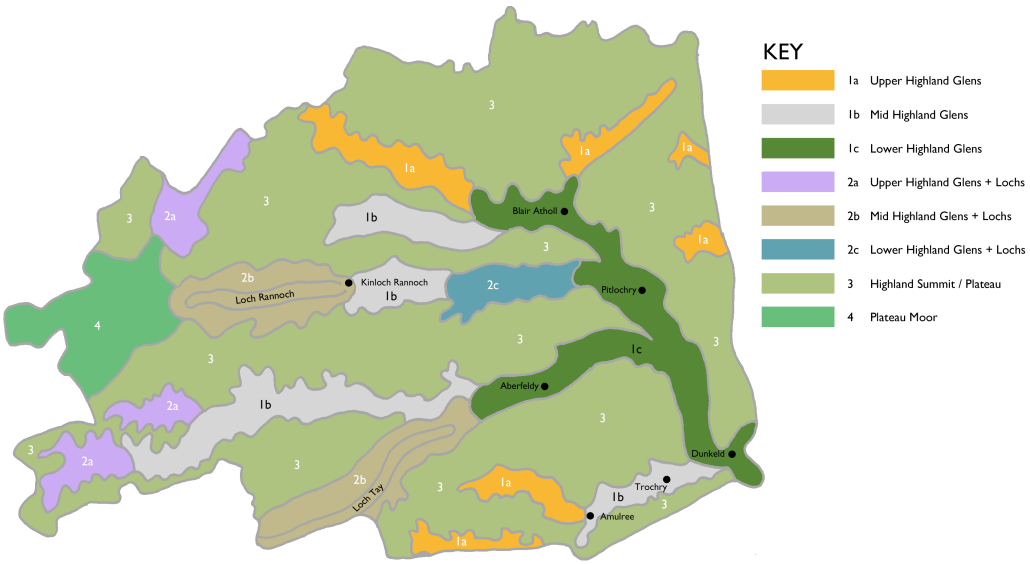
It is recognised in the *Perth and Kinross Council Environmental Policy* that "Perth and Kinross has the enviable position of being an area of outstanding scenic beauty", and that the "natural environment is an essential facet of the quality of life in Perth and Kinross, and in bringing tourists to the area." In caring for the natural environment the Council aims to "ensure development respects landscape character" and "maintain and enhance the natural heritage and landscape of Perth and Kinross".

Highland Perthshire – a special place

The landscape of Highland Perthshire is characterised by a sense of remoteness and wildness, and is largely undeveloped with generally scattered and sparse settlements. The high quality of the landscape of Highland Perthshire is also reflected by a large proportion of its area being designated as a National Scenic Area: Loch Rannoch and Glen Lyon NSA (48,000 hectares); Loch Tummel NSA (9,200 hectares); and River Tay (Dunkeld) NSA (5,600 hectares). Appreciation of this valued landscape is gained not only from the road network within Highland Perthshire but from the many significant peaks and viewpoints, including Ben Lawers, Schiehallion, Beinn a Ghlo, Ben Vrackie, Birnam Hill, Kinnoull Hill and the Knock of Crieff.

Scottish Natural Heritage, in the *Tayside Landscape Character Assessment* (SNH Review 122 - 1999) has classified the majority of Highland Perthshire as Upper Highland Glens, Mid Highland Glens and Highland Summits and Plateaux. All these types of landscape are described as being sensitive or very sensitive to proposals for tall structures including wind turbines. (See map below.)

Tayside Landscape Character Assessment - Highland Perthshire



The *Tayside Landscape Character Assessment* provides the following guidelines for the development of detailed management strategies in relation to tall structures, including wind turbines.

Landscape Type	Guidelines
• Upper Highland Glens • Upper Highland Glens and Lochs	• Discourage proposals for aerials, masts or wind turbines because of their likely impact on the harsh, undeveloped character of the Upper Highland Glens. • Ensure that any proposals are subject to rigorous landscape impact assessment. • Where new power or telephone lines are proposed or required, ensure that operators adopt underground cable solutions.
• Mid Highland Glens • Mid Highland Glens and Lochs	• Discourage proposals for aerials, masts or wind turbines because of their likely impact. • Ensure that any proposals are subject to thorough landscape impact assessment. • Where new power or telephone lines are proposed or required, ensure that operators adopt underground cable solutions.
• Highland Summits and Plateaux • Plateau Moor	• Discourage proposals for aerials, masts or wind turbines or additional pylons because of their likely impact on the harsh, undeveloped character of the Highland Summits and Plateaux. • Ensure that any proposals are subject to rigorous landscape impact assessment. • Where new power or telephone lines are proposed or required, ensure that operators adopt underground cable solutions.

Landscape in the context of National Planning Guidance on Renewable Energy

The importance of these areas and their settings is recognised in the Scottish Executive's national planning guidance relating to renewable energy developments.

National Planning Policy Guidance 6 – Renewable Energy Developments (para 21) requires planning authorities to ensure that "development proposals should avoid significant adverse impact on the character, quality, integrity and setting of a designated resource."

PAN 45 – Siting in the Landscape (para 71) accepts that the wind farms would introduce "a new and distinctive feature" into the landscape, and that given the Scottish Executive's commitment to renewable energy developments society will have to accept them as a feature of many areas of Scotland for the foreseeable future. In para 72 it continues

"This is not to suggest that areas valued for their international or national landscape and nature conservation interest will have to be sacrificed… on the contrary, it emphasises the need for account to be taken of regional and local landscape considerations."

PAN 45 – Renewable Energy Technologies Para 75 states that "A cautious approach is necessary in relation to particular landscapes which are rare or valued, such as National Scenic Areas and proposed National Parks and their wider settings. Here, it may be difficult to accommodate wind turbines without detriment to natural heritage interests."

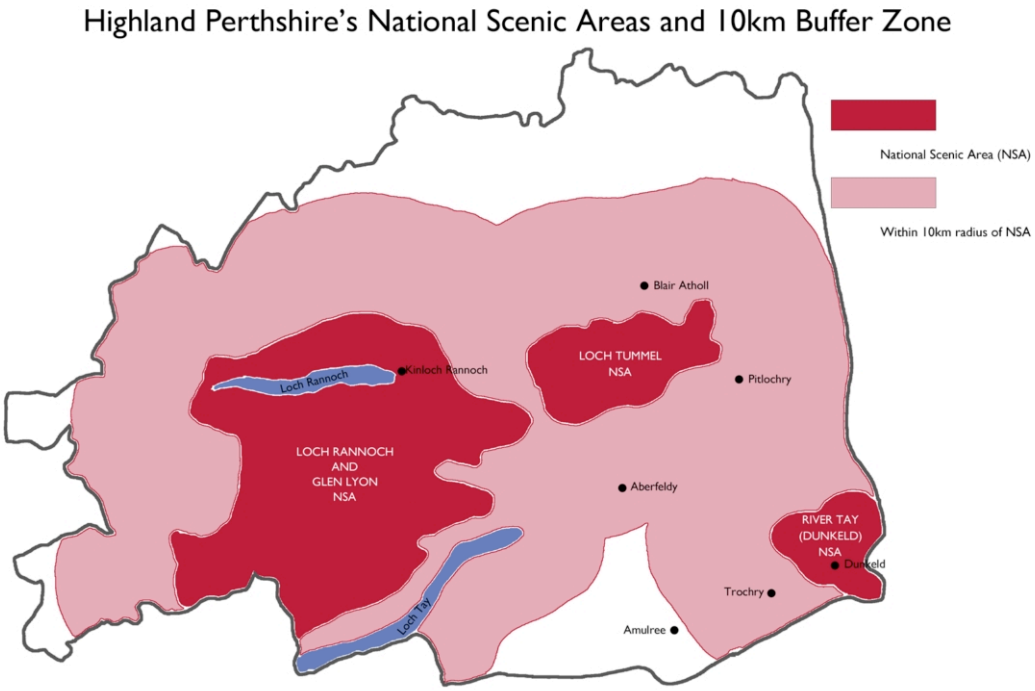
PAN 45 (para 76) highlights SNH's Landscape Character Assessments as being useful in identifying landscapes which may be sensitive to wind farm developments.

NPPG 6 (para 44) refers to the Landscape Character Assessments and states that 'the character of the landscape and its ability to accept this type of development, including associated infrastructure, will be an important consideration.'

Landscape element of SNH's Locational Guidance

In *Scottish Natural Heritage's Strategic Locational Guidance for Onshore Wind Farms in Respect of the Natural Heritage* (Policy statement 02/02) it is clearly stated that the "nature and scale of most commercial wind farms means that it is unlikely to be possible to locate them within most NSA's without significant adverse impact on the qualities for which the NSA has been designated". It goes on to state that "Wind farms outwith but adjacent to NSA's may have an impact upon the landscape experience within them…… The potential for such impacts on the character and enjoyment of NSA's is likely to require particular consideration in the surrounding area up to 10km from the boundary of and NSA." Such proximity would result in land otherwise classified as Zone1 being reclassified as Zone 2.

(Note that this guidance was based on first generation wind farms – see above – and one could reasonably assume that with turbines twice the height and in greater numbers this 10km buffer zone would require to be increased.)



In Conclusion

The above evidence makes it clear that the landscape of Highland Perthshire is widely recognised as being not only of immense value and nationally important but also acutely sensitive to large-scale, commercial wind farm developments. The National Planning Guidelines recognise this sensitivity and require planning authorities to ensure that environmental assets such as nationally important landscapes are safeguarded.

Wildlife in Highland Perthshire

The remote and relatively undeveloped upland landscape of Highland Perthshire provides important habitat for a wide range of flora and fauna. Important bird species found in the area include Golden Eagles, Ospreys, Peregrine Falcons, Hen Harriers, various types of Owl, Black Grouse, Red and Black Throated Divers. Some of these species breed in the area. Important mammal species in the area include Otters and Water Voles, around the river systems, Mountain Hares, Stoats, and Red Squirrels particularly around Craig Vinean Forest and Strathbraan.

The *Tayside Biodiversity Action* Plan identifies the following sites as key upland heath sites:

- Forest of Clunie (SSSI SPA) and neighbouring areas.
- Strathbraan Glen Quaich and Logiealmond Grouse Moors
- Kynachan, Strathtummel
- Forest of Atholl
- Forest of Alyth
- Drummochter Hills (SSSI SPA)
- Angus Glens Grouse Moors

These areas of upland heath provide habitat for a number of important species, Black Grouse, Red Grouse, Twite, Golden Plover, Ring Ouzel, Hen Harrier and Merlin, and are rich in bryophytes and lichen communities. In addition, watercourses in these areas provide habitat for Water Voles. The importance of many of the species mentioned above is also recognised.

We are concerned that the construction period for large-scale sites, with the movement of large numbers of heavy goods vehicles and concrete production would pose a threat to wildlife. Species that depend on watercourses are particular vulnerable to any contamination or alteration of the nature of their habitat. SNH's *Strategic Locational Guidance for Onshore Wind Farms in Respect of the Natural Heritage (2002)* indicates that the presence of significant populations of four or more species from a list of ten sensitive bird species, (including those mentioned above) would result in a Zone 1 area (lowest natural heritage sensitivity) being reclassified as Zone 2 (medium natural heritage sensitivity). This is particularly important, as the wildlife of Highland Perthshire is an increasingly valuable feature of the area's tourism industry, see below.

The importance of wildlife issues in respect of potential wind farm developments should be recognised. Significant impact on certain sensitive bird species is seen by reputable power companies as a reason for not developing otherwise suitable sites.

Tourism in Perthshire

Visitors from the whole of the UK and all over the world treasure the landscape of Highland Perthshire. Tourism is a major contributor to the economy of rural Perthshire. In 2002 it had a value of £221 million, £192 million coming from visitors from the UK and £29 million from overseas visitors. In *The Scotsman* 10 February 2004, Carolyn Baird, Chair of Perthshire Tourist Board, stated the value of tourism in Perthshire as £350 million in total, with 8,700 people (nearly 15%) in Perthshire in tourist related employment, an increase from 12% in 2000.

Key tourist destinations in the area include Dunkeld, its Cathedral, Bridge and the River Tay, The Hermitage, the Beatrix Potter Exhibition, Loch of Lowes Wildlife Centre and its extensive network of local walks. Aberfeldy is similarly popular, with attractions such as The Birks of Aberfeldy, Menzies Castle, Bolfracks and Cluny House Gardens, the nearby Crannog centre and the distillery in Aberfeldy. Pitlochry is a successful tourist town, with many visitors to the Festival Theatre, Faskally Dam and Fish Ladder, the Edradour Distillery, Queen's View, Blair Castle at Blair Atholl and the nearby visitor centre at Killiecrankie. As well as these there are many visitors who enjoy the mountains, with Schiehallion and Ben Lawers amongst Scotland's most popular mountains, or smaller hills like Ben Vrackie and Birnam Hill. All of these visitors make use of the network of country roads away from the A9.

Perth and Kinross Council recognise the importance of tourism and the Structure Plan states a clear intent to support and develop tourism in the area. The *Highland Area Local Plan 2000* recognises the "world renowned scenery" of the area and describes tourism as "the most important economic activity in the area". It contains policies "To protect and enhance the landscape and natural and built heritage of the area" which it describes as "the fundamental reason for the tourist industry", and "To encourage the existing tourist industry to improve the quality and range of its facilities". Throughout it advocates application of the precautionary principle where the likely effects of developments are unclear.

Why tourists come to Perthshire

VisitScotland has produced a number of reports on tourism in Perthshire and Scotland, *Tourism in Perthshire 2000* and *Tourism in Scotland 2002*. Holiday makers account for 75% of UK visitors to Perthshire, a higher figure than for the rest of Scotland (65%). The difference is more marked among overseas visitors, 70% in Perthshire against 53% in Scotland as a whole. This suggests that there is something particularly special about Perthshire. Other reasons for visiting include visiting friends and relatives, business or conferences, and "other". According to their research, people's reasons for visiting Scotland are its "beautiful scenery", as a "good place to relax", as being "good for hiking or walking" and for its "unspoilt environment". In VisitScotland's report *Investigation Into The Potential Impact of Wind Farms on Tourism in Scotland*, Scotland

is seen as appealing particularly to "those who enjoy outdoor activities" and "those interested in nature and wildlife". The *Tayside Biodiversity Action Plan* endorses this:

> "Ask any visitor to Scotland in general, or Tayside in particular, what they enjoy about the area and they are likely to highlight stunning scenery, its wildlife and the unique historical heritage."

Adventure tourism and wildlife tourism play an increasingly important part in Perthshire's tourist economy. The *Tayside Biodiversity Action Plan* identifies "Eco-Tourism" as a steadily growing part of the tourism industry, worth £57 million in Scotland, and predicted to continue growing. In 2003 VisitScotland ran campaigns, including television advertising, to promote outdoor pursuits in Scotland. A number of companies in the area provide wildlife safaris, white water rafting, canoeing, gorge walking, rock climbing, mountain biking, walking and mountaineering experiences, as well as established country sports such as shooting, stalking and fishing. The success of these businesses and the economic importance of these activities depend on the area's natural and unspoilt appearance. Even man made aspects of the area, such as conifer plantations, appear natural to most visitors and are valued features of the landscape. The intrusion of man made objects on the scale of the proposed wind farms into the natural environment will certainly be off-putting to many of these visitors.

Other important initiatives to develop tourism in Perthshire include the Big Tree Country scheme, which includes a number of sites right across Highland Perthshire. Extensive, waymarked path networks have been created around Dunkeld and Birnam, as well as Pitlochry. Both of these are well promoted in the area. The *Highland Area Local Plan* indicates an intention to expand the Dunkeld and Birnam network and to develop links between Dunkeld, Aberfeldy and Pitlochry for walkers and cyclists. The nature of the surrounding landscape has great importance for these ventures.

Good transport links have made this area a popular destination for day and weekend visits for people living in the central belt. Many visitors make use of the network of smaller roads in the area, most travelling by car but others on coach tours. They use these roads because of their scenic nature, the views they offer and the rural character of the roads themselves. They often wish to escape the busier major routes with bigger and faster vehicles. In 1999 84% of visitors to Perthshire undertook "general sightseeing", (Local Visitor Survey Tayside 1999), most will have done so by car or coach.

MORI Scotland Research

The promoters of wind energy play down the adverse effect of wind farms on tourism. The MORI study for the British Wind Energy Association and Scottish Renewables Forum on tourist attitudes to wind farms in September 2002 suggests that they are not seen as having a detrimental effect on tourist enjoyment of an area. It should be noted

that this was a study of first generation wind farms with fewer and smaller turbines, which may not be applicable to second and third generation larger scale developments. The MORI study examined Argyll and Bute, which has the greatest concentration of existing wind farms in Scotland. The largest site included in the study, and the one most noticed by tourists, was Beinn an Tuirc. This site has 46 turbines with a blade tip height of 63.5 metres. Proposals are being developed for sites in Highland Perthshire with greater numbers of turbines, up to twice the height of first generation turbines. Some of these sites will occupy dominant situations in central Perthshire with a larger footprint than the first generation sites, due to the large numbers of turbines proposed and because larger turbines need to be spaced further apart. In the light of these points it would be unwise to apply the findings of the MORI survey to current proposals in Perthshire.

VisitScotland's findings

VisitScotland has serious concerns about these issues. Their report *Investigation Into The Potential Impact Of Wind Farms On Tourism In Scotland* is not as positive as the MORI research. In general they indicate most tourists' preference not to see wind farms in the Scottish landscape and the likelihood that wind farms will result in a reduction in tourist visits.

In VisitScotland's research 38% of respondents thought that wind farms "spoiled the scenery", 21% had negative views of wind farms in the Scottish landscape. The research revealed greater negativity towards wind farms amongst Scots, which is significant because 64% of visitors to Perthshire come from Scotland. Although more than three quarters expressed positive or neutral views, most of these were only "conditionally positive", conditions mostly relating to the location of sites:

> "…wind farms should not be sited in or near designated areas of outstanding scenery such as Areas of Outstanding Natural Beauty (AONB), National Parks, National Scenic Areas, Sites of Special Scientific Interest etc. In addition however, there was a general consensus amongst visitors that, wherever possible, wind turbines should not be located in or near popular 'tourist areas'. Their visual impact was generally felt to be sufficiently negative, that as far as possible wind farms should be sited in areas away from those popular with tourists – ideally there was a preference to avoid having to see them at all on their visit."

Consumers were also more likely to prefer smaller wind farms in a larger number of locations, although "it would appear however that the largest proportion of consumers would simply rather not see any wind farms at all when in the Scottish countryside". Furthermore, 26% of visitors surveyed said that they were less likely to visit a tourist area with wind farms, and only 1% said they would be more likely to return.

Perthshire Tourist Board

Investigation Into The Potential Impact Of Wind Farms On Tourism In Scotland concludes by recognising that each wind farm proposal should be considered on its own merits and recommends that VisitScotland should avoid implementing a blanket policy on wind farm developments. Perthshire Tourist Board's policy is to oppose large-scale wind farm development in scenic areas, although they are not opposed to wind farm developments in all circumstances. They have also requested that they be consulted about any proposals within the area of their jurisdiction.

Perthshire Tourist Board has indicated that they object to the application for the Abercairny wind farm development "due to its proximity to the A822 National Tourist Route, which I would consider to be an area of particular tourism interest." It also notes that the number of proposals in this area "would be wind farming on an inappropriate industrial scale that would undoubtedly impact upon tourism businesses in the surrounding areas." (*Personal correspondence, 4 February 2004*)

NPPG 6 on Tourism and Recreation

NPPG 6 recognises the economic importance of tourism and recreation in many parts of Scotland and the importance of the landscape to these activities. In paragraph 31 it says "sensitive siting can successfully minimise adverse impacts, particularly visual impacts, but it is unrealistic to expect such developments to have no effect at all". This guidance again relates to the first generation wind farms with fewer and smaller turbines.

PAN 45 On Tourism and the Rural Economy

Para 172 recognises the importance of tourism in the rural economy and its association with "Scotland's natural and scenic and cultural heritage". It continues, "It is therefore important that the role of tourism in the rural economy and the assets on which it is based should be reconciled with the need to promote renewable energy generation".

Experience from other tourist areas

Promoters of wind energy look to other areas of the UK for evidence that wind farms have little or no detrimental effect on tourism. Cornwall, which has had wind farms since the early 1990's, is a popular example. It is worth noting again that these sites are first generation sites, with smaller and fewer turbines. In addition, as is pointed out in *Investigation Into The Potential Impact Of Wind Farms On Tourism In Scotland*, these sites are located in "corridors of high density which cannot be seen from the coastline, which is where most tourists are to be found". According to the report: "Overall, there is a view that wind farms should not be located in areas of outstanding beauty, vista points etc as they can be detrimental to the landscape, which is a key strength of the

Cornish tourism product." Consequently it is important "not to interfere with the landscape in tourist 'honeypot' areas".

Investigation Into The Potential Impact Of Wind Farms On Tourism In Scotland also looks at the situation in Cumbria, one of the most important tourist areas in England. Existing sites here are again first generation small sites with small turbines and mostly located near the coastline, away from the main tourist destinations. Recent research amongst residents close to Lambrigg Wind Farm indicates that 29% of respondents thought that it "spoils the scenery". Cumbria County Council appear to be growing increasingly cautious in respect of new proposals for wind farms.

The situation in Wales is similar, where in spite of recognition by tourists of the overall environmental and economical benefits of wind farm development, most are concerned about their impacts on scenery and views. The Wales Tourist Board, like Cornwall, opposes the development of wind farms in areas of "high scenic value". The Countryside Commission for Wales feels that "contracts for wind farm developments are awarded under the Non-Fossil Fuel Obligation (NFFO) programme which, in their opinion, favours the most cost effective proposals without taking sufficient account of landscape or other environmental issues."

Positive impact on tourism

The report identifies a "novelty value" of new sites and limited potential for attracting tourists, but this appears to be dependent on the provision of visitor facilities including a visitor centre. The use of the term "novelty value" implies that this advantage would be short lived.

In Conclusion

The landscape of Highland Perthshire is recognised as its key asset in respect of tourism. Recent research by VisitScotland has found that a large proportion (38%) of tourists consider that wind turbines 'spoil the scenery' and that 26% of people would be less likely to visit an area where there were wind farms. A 26% reduction in tourist revenue in Perthshire would equate to £91 million, using the latest figures. This would be catastrophic to the economy of Perthshire and to employment in the area. It would be unwise to interfere with the landscape in such a popular tourist area and risk damaging the rural economy to such an extent.

Local Communities

Local communities are concerned about the visual impact of wind farms and its effect on their enjoyment of their homes and neighbourhood. Most residents in Highland Perthshire place a high value on the natural and unspoilt environment surrounding their homes, as do visiting tourists. Many work in the immediate area, others use it for recreation purposes, or simply enjoy the scenery while going about their daily business, travelling to and from their homes. The local landscape is part of their lives and a significant reason for choosing to live and remain here. In considering an area's suitability for wind farm development, the importance of the landscape to rural communities must be carefully considered.

Construction traffic for Wind farm developments has the potential to cause considerable disruption to small rural communities in Highland Perthshire, both in the quiet enjoyment of their homes and in the use of the local road network. The length of proposed construction periods varies according to size of the proposed development, but twelve months appears to be the average. Some developers have indicated that it might be necessary to temporarily close smaller roads when delivering the wind turbines, each turbine would require as many as eleven abnormal loads. This would completely prevent access by or to emergency services for local residents, especially in areas where there are no practical alternative routes. Issues relating to roads are considered in more detail below.

The construction period for wind farm developments, involving the creation of road networks, use of large quantities of concrete, and the presence of numerous construction vehicles, creates potential for contamination of local watercourses. In the rural areas of Highland Perthshire many residents depend on private water supplies from local springs, burns and rivers. It will be necessary to safeguard the purity and reliability of these supplies during this period.

Roads Impact

Guidance on assessing the traffic impact of new development

Advice on the transportation impact of proposed developments are contained with National Planning Policy Guidance 17 (NPPG 17), and Planning Advice Note 45 (PAN 45). The Institute of Highways and Transportation recommends that the Institute of Environmental Assessment's (IEA's) 'Guidelines for the Environmental Assessment of Road Traffic' should be used to assess the impact of a development.

The IEA's guidelines recommend that two potential impacts are looked at:

- Potential impact on local roads and the users of those roads.
- Potential impact on land uses and environmental resources fronting those roads, including the relevant occupiers and users.

The IEA's guidelines define an increase in traffic flow as significant if:

- Traffic flows are predicted to increase by more than 30% (or where the number of HGV's is predicted to increase by more than 30%)
- Traffic flows are predicted to increase by more than 10% in specifically sensitive areas.
- Residential areas are generally considered to be sensitive areas.

The road traffic impact of wind farm development

The road traffic impact of wind farm development is most noticeable during the construction period. Most credible developers will attempt to mitigate the use of public roads in the construction process by directing vehicles off public roads or onto unclassified roads as far as this is possible.

There are two main impacts during the construction period:

- The transport of concrete for turbine bases to the site and the return journey by Heavy Goods Vehicles (HGV)
- The transport of abnormally sized loads containing the turbine component parts.

Other impacts result from the delivery by HGV of:

- Substation equipment
- Reinforcing steel
- General plant and equipment
- Cabling and bush rings
- Mobile cranes and removal of mobile cranes

In terms of the transport of concrete for turbine bases, each 'second generation' size turbine (approximately 2MW – 2.75MW) will require around 600m^3 of concrete. This equates to 100 loads of concrete and 200 total HGV trips (100 trips each way) to build each turbine. Technical constraints require the concrete for an individual turbine to be delivered and poured in one day. This creates a short but disproportionate impact of 200 HGV trips in a 24-hour period on the proposed route for wind farm construction traffic, for each turbine being constructed. This impact can be reduced by a different route being used for return traffic.

The second main impact during the construction period is the transport of abnormal sized loads containing the turbine component parts. Arrangements for turbine delivery are likely to vary depending on size of turbine used and choice of access route. In their Environmental Statement for the proposed Abercairny Wind Farm, the developers indicate that eleven vehicles are required to deliver the components for each 'second-generation' size turbine (one for nacelle, three for blades, four for the tower, one for the blade hub and two for the generator/controller). These loads are abnormal / oversized loads and will require a traffic management plan to identify the most appropriate times and routes for construction traffic.

(Figures and technical information extracted from the Environmental Statement for the proposed Abercairny wind farm, which will use 2.75MW turbines, 600m3 of concrete per turbine and an assumed average HGV capacity of 6 m3.)

The Perthshire Tourist Route

The Perthshire Tourist Route runs for 45 miles from the north of Dunblane to Ballinluig near Pitlochry, and is well signposted in the Highland area of Perthshire on the A9 at Dunkeld and Pitlochry. National Tourist Routes are promoted as an alternative to main trunk roads and motorways, which are enjoyed for their scenic views and as a means of avoiding heavy traffic on the main roads. .

Wind farm developments which propose using this route for construction traffic would seriously interfere with tourist use and enjoyment of this route in two ways:

- Construction traffic is likely to result in a material increase in traffic and in particular heavy goods traffic using the route.
- New turbine component parts, particularly the turbine blades and towers (second-generation turbines are approximately 2MW-2.75MW) are too long to be transported on this route without widening the road at critical 'pinch points'. Such widening will undoubtedly result in some of the very attractive characteristics of this route such as trees, dry stone walls and bends being removed.

Use of A9 for Construction Traffic

The A9 trunk road is Highland Perthshire's main road artery. Over the last 20 years A9 traffic has almost doubled in volume, and the growth continues. Developments close to the A9 must comply with the Scottish Executive's policy not to interfere with the use of the A9 as a high speed road. In particular developments must not result in "an increase in the number and type of vehicles entering, leaving and manoeuvring within the traffic stream on a high speed section of the [A9] route thus increasing the risk of interference with the safety and free flow of traffic on the trunk road."

(Scottish Roads Minister Sarah Boyack 6 December 1999 in response to the Duntanlich Mining Proposal.)

Careful consideration therefore needs to be given to the use of the A9 for construction traffic, particularly in cases where this would involve crossing the traffic flow on the A9 either when leaving or re-entering this truck road. Access points with slip roads would reduce the potential impact and this may require alternative routes to be used for inbound and outbound construction traffic.

Lessons learned from the Duntanlich Public Inquiry

The Duntanlich barytes mining proposal involved a number of road access issues, which will be similar to those involved in wind farms proposals, particularly if those proposals involve construction access using routes passing through conservation areas or NSA's. Planning permission was refused for the development following a Public Inquiry.

The Reporter's findings

> "The environmental consequences of the traffic generated by this development are a material consideration"

The Duntanlich proposal would have resulted in 38 daily movements of HGV's on the cross country route through Caputh and Spittalfield. The traffic flow survey on the A984 at Caputh in May 1991 counted the equivalent of 1 HGV per 6 minutes. Duntanlich traffic would have increased that to one HGV every 3.9 minutes. This was agreed to be a noticeable increase.

The Reporter's recognition that the route, although classed as an A class road, falls well below the standard that implies, is relevant to many of the A class roads in Highland Perthshire.

"I find as matter of both fact and degree that the A984 does not come close to the standard reasonably to be expected of a contemporary A class road. In view of the potential impact of generated traffic on road safety; other road users; and the character and appearance both of the 3 conservation areas and the NSA through which it passes I find its use by traffic from this development cannot be sustained on environmental grounds within the terms of the draft NPPG."

In Conclusion

Developers identifying access routes for wind farm construction traffic should seek to avoid:

- **The Perthshire Tourist Route**
- **Interfering with the flow of traffic on the A9 trunk road**
- **A material increase in traffic or alterations, which interfere with the scenic quality of other roads within Perth & Kinross jurisdiction, particularly in relation to those roads which fall within NSA's.**

Appendix 1

OPERATIONAL RENEWABLE ENERGY GENERATION IN PERTHSHIRE

Name	Company	Technology	Capacity	Commission
HYDRO				
Breadalbane (Lubreoch)	SSE Generation Ltd	Hydro	4	1958
Breadalbane (Cashlie)	SSE Generation Ltd	Hydro	11	1959
Breadalbane (Lochay)	SSE Generation Ltd	Hydro	47	1958
Breadalbane (Finlarig)	SSE Generation Ltd	Hydro	30	1955
Breadalbane (Lednock)	SSE Generation Ltd	Hydro	3	1961
Breadalbane (St. Fillans)	SSE Generation Ltd	Hydro	21	1957
Breadalbane (Dalchonzie)	SSE Generation Ltd	Hydro	4	1958
Stanley Mill	Innogy	Hydro	1	
Tummel (Gaur)	SSE Generation Ltd	Hydro	6.4	1953
Tummel (Cuaich)	SSE Generation Ltd	Hydro	2.5	1959
Tummel (Loch Ericht)	SSE Generation Ltd	Hydro	2.2	1962
Tummel (Rannoch)	SSE Generation Ltd	Hydro	42	1930
Tummel (Tummel)	SSE Generation Ltd	Hydro	34	1933
Tummel (Errochty)	SSE Generation Ltd	Hydro	75	1955
Tummel (Clunie)	SSE Generation Ltd	Hydro	61.2	1950
Tummel (Pitlochry)	SSE Generation Ltd	Hydro	15	1950
WASTE				
Binn Farm	Sita	UK landfill gas	1.9	18-Jun-01
TOTAL			**361.2**	

From Scottish Executive Renewable Energy Database
http://www.scotland.gov.uk/about/ELLD/EN-CS/00017058/page1711523477.aspx