

**INVESTIGATION INTO THE
POTENTIAL IMPACT OF WIND FARMS
ON TOURISM IN SCOTLAND
FINAL REPORT**

Prepared for: VisitScotland

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Summary Report

Introduction

The UK Government and the Scottish Executive are committed to increasing the proportion of electricity generated by renewable energy sources. In June 1997, the Labour Government announced that it wanted 10% of the UK's electricity to be produced from renewable energy by 2010. The longer term goal of the UK Government is to achieve 20% of the UK's electricity from renewable resources by 2020¹.

In Scotland a target of generating 18% of energy from renewable sources by 2010 has been set by the Scottish Executive and a consultation exercise regarding the potential of generating 40% of electricity from renewable sources by 2020 is currently taking place. The Scottish Executive estimate that in order to meet the 2010 target, 10% of energy will be generated from existing hydro sources and the remaining 8% will be generated from wind energy. On this basis, they believe that Scotland will require a total of 700-800 wind turbines to meet the 2010 target. There are currently around 200 wind turbines in Scotland, hence another 500-600 will therefore be required to meet this target.

This intention to increase the use of renewable energy is being promoted through the Renewable Obligations (Scotland) Act, which requires electricity suppliers to generate a specified proportion of the electricity they provide from renewable energy sources. Scotland has particular potential for the development of renewable energy, especially wind energy, due to its geography and climate.

Wind farm proposals have tended to generate controversy with concern about the visual impact of individual or groups of wind turbines a major obstacle in realising the potential for wind energy. Consequently, many planning refusals are for visual impact reasons.

As highlighted in a recent report by NFO System Three,² the scenery, wild landscapes and unspoilt environment are all regarded as key strengths of the Scottish tourism product amongst visitors to the country. Given the importance of tourism to the Scottish economy, the debate surrounding wind farm development is of great significance and therefore VisitScotland plan to produce a policy statement

¹ Government Energy Review, February 2002

² Tourism Attitudes Survey 2001 by NFO System Three on behalf of VisitScotland

on the development of wind farms and their impact on tourist experiences. Recognising the importance of this issue, Wales have already developed national tourism policy statements relating to the development of wind farms.

Aims and Objectives

To guide the development of a policy document, VisitScotland commissioned NFO System Three to undertake a programme of research. The aim of the research was to provide information on the potential impact of wind farms in Scotland in the context of the Government's renewable energy commitments and to make recommendations on the future development of wind farms in Scotland from the tourism perspective.

The specific objectives of the study are detailed below:

To establish the impact (both positive and negative) that the existing/proposed /anticipated development of wind farms in Scotland is likely to have on Scottish tourism. In estimating the impact, the following should be considered:

- The anticipated pace, scale and location of wind farm developments.
- The adequacy of the statutory planning guidelines and restrictions covering the development of wind farms in Scotland to ensure that any negative impact on tourism in Scotland is avoided/negated.
- Views and perceptions of the tourism business community, towards wind farm development in Scotland (both in affected and unaffected areas).
- Views and perceptions of visitors (both domestic and overseas) towards wind farm development in Scotland in terms of their current visit and their future decisions to visit Scotland generally and parts of Scotland where there are wind farms.
- Experience, in terms of the impact of tourism, in comparable tourism destinations, where the development of wind farms is currently more widespread than in Scotland or has been rejected because of concerns relating to the negative impact in landscape value and or tourism.

To identify and recommend key elements which a VisitScotland Policy statement on “wind farm development and its relationship to tourism” should include.

In order to meet the information requirements of the above objectives, a very detailed and comprehensive programme of research was undertaken. This programme consisted of the following six elements:

1. Desk research and literature review
2. Consultations with key players
3. Consultations with tourism trade
4. Overseas case studies
5. UK case studies
6. Survey of Visitors

A summary of the main findings from each element of the research programme is presented below. It should be noted that the desk research is presented in a separate report.

Summary of Key Findings of Consultations with Key Players

- In an attempt to establish the views and perceptions of tourism organisations and key bodies involved in wind farm development in Scotland, a programme of telephone and face-to-face consultations was undertaken. These 'key players' included Area Tourist Boards, the Scottish Executive, Scottish Natural Heritage, Scottish Enterprise, Highlands and Islands Enterprise, Local Authorities, Scottish Renewables, the British Wind Energy Association and the Macaulay Institute.
 - These consultations were very detailed, around 30 minutes in duration and were based on a semi-structured discussion guide, which was developed in close consultation with VisitScotland.
 - Respondents recognised a number of positive and negative impacts of wind farms on tourists and tourism businesses. The *positive impacts* were recognised to include:
 - The development of wind farms was regarded by many to enhance the reputation of Scotland as an environmentally friendly place to visit.
 - Wind farms were regarded by some as a tourist attraction in their own right. The development of visitor centres were also seen to promote the appeal of wind farms to tourists.
 - It was recognised that wind farms could have a positive impact on the local economy in terms of the jobs created in the construction process, maintenance and operation of the wind farm. Local businesses could also benefit if contractors were brought in for the
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construction process. However, most of these benefits were seen to be relatively short term.

- The *negative impacts* were recognised to be:
 - By some considerable margin, the main negative impact was regarded to be the visual impact. Given the importance of the natural environment to Scotland, which is recognised by many as a key strength of the tourism product, there is a view that the development of wind farms can be detrimental to the landscape;
 - The visual impact of associated developments with wind farms such as tracks and cabling were also mentioned;
 - The noise of the turbines and the flickering of the moving turbines, particularly in the sunlight were also regarded to be possible negative impacts by a minority of respondents;
 - If a tourism business such as an accommodation establishment was located in close proximity to a wind farm, it was believed that this could discourage visitors who were of the opinion that a wind farm had a detrimental impact on the landscape.
 - In summary, most respondents were of the view that as long as wind farms were 'sensitively sited' i.e. outwith designated areas such as National Parks and National Nature Reserves as well as those areas which are regarded as key tourist 'honeypot' locations then wind farms should have few negative impacts on tourists and tourism businesses. At the existing level of wind farm development in Scotland, the impacts of wind farms on tourists were felt to be relatively minimal.
 - However, with an increasing number of proposed developments and planning applications, there was considerable concern raised over the cumulative effects on wind farms on tourists and in particular, how an area was assessed to be at 'saturation point'.
 - Most respondents were of the opinion that VisitScotland should support the principle of renewable energies and wind farm development in their policy statement. However, given the importance of Scotland's natural environment in attracting visitors and the visual impacts associated with wind farms, the siting of wind farms was seen as critical. On this basis, it was felt that VisitScotland should highlight certain 'no-go' areas for development of wind farms. These were suggested to include designated areas such as National Parks, NSAs, SSSI but also other important tourist areas such as vista points.
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- On a more positive note, it was felt that they should promote the use of wind farms as a marketing tool to endorse Scotland's positioning as a 'green' and environmentally friendly country.

Summary of Key Findings of Consultations with Tourism Trade

- Around 20 representatives from the tourism industry were interviewed. The selection of organisations and businesses were chosen to ensure a wide geographical spread as well as across the different sectors of the industry. Attempts were also made to ensure coverage of a wide spectrum of opinion and not just those with polarised views.
 - These consultations were very detailed, around 30 minutes in duration and were based on a semi-structured discussion guide, which was developed in close consultation with VisitScotland.
 - Similar to the consultations with 'key players', both negative and positive impacts were expected by the tourism trade from increased development of wind farms in Scotland.
 - In general, the respondents tended to be more positive than negative towards the impacts of wind farms on tourism, although most of the views presented had a conditional aspect to them. A few could be said to be strongly in favour of wind farms and a similar minority three expressed views strongly against. The majority had more neutral opinions, where most of them tended to be in favour if certain conditions were met regarding, for example, the siting and scale of new wind farm developments.
 - The positive impacts cited were as follows:
 - Wind farms can be an attraction in themselves and indeed a nice feature in the landscape if they are sensitively sited;
 - They are perceived as having potential to attract new markets and those visitors which are attracted by environmentally friendly energy and new technology etc;
 - New developments of wind farms could also provide greater access to remote areas;
 - The development of wind farms were recognised as having a positive impact on the local economy in terms of short term benefits such as job opportunities and increased business for some tourism businesses-;
 - For some tourism businesses, the use of renewable energy from wind farms was seen as facilitating the 'green' credential of businesses.
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- The negative impacts mentioned were as follows:
 - The visual impact was the main negative impact mentioned by the majority of respondents. The development of wind farms in some rural, undeveloped areas was recognised to be intrusive and therefore detract from the visitor experience;
 - The creation of a mental 'barriers' for further exploration of the hills;
 - The impact on wildlife, especially birds;
 - There was a concern that developing wind farms in important tourism areas could have a negative impact on tourism businesses in terms of a decrease in income due to fewer visitors.
- If wind farms were to be supported in VisitScotland's policy statement, respondents would like to see them situated away from areas of historic value, tourism areas, view points, wild life areas and places of natural beauty.
- A majority of the respondents were of the view that VisitScotland should support promote Scotland as a "green" country with renewable energy.
- The tourism trade would like more knowledge about wind farms and other developments in terms of their production of energy and impacts on tourism.

Summary of Key Findings of Overseas Case Studies

Sweden

- There are approximately 600 wind turbines in Sweden, accounting for 0.5% of the country's annual energy production. There are plans to increase this target to 7% by 2015.
 - Sweden covers a geographical area approximately 5-6 times the size of Scotland. The existing wind farms are located in both remote and more developed areas.
 - The most important impact of wind farms and tourism is the visual impact with the siting regarded as crucial. Similar to Scotland, many tourists come to Sweden to experience the unspoilt scenery.
 - To date, there have been more positive than negative impacts reported about wind farms however, there is particular debate about wind farms located in the mountains and coast.
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- There are strict guidelines for the siting of wind farms and they not allowed in areas of 'national interest' (e.g. areas already protected with historical heritage, coastal areas and mountain), national parks and nature reserves.
- The planning process in Sweden is very 'open' and developers have a duty to consult more at the local level with local consultation groups which seems to work relatively well.

Finland

- There are around 60 wind turbines in Finland which account for 0.1% of the country's annual energy production. There are plans in the future to increase this target to 1% by 2010.
- Finland has a population similar to Scotland but its geographical area is around 8 times the size of Scotland. It is a vast country with wind farms located in large remote and underdeveloped areas.
- There have been more positive than negative impacts recorded on tourism although there is more debate about the wind farms situated in the archipelagos
- Wind farms are used in parts of the country for tourism marketing and also marketing to investors.

Denmark

- There are approximately 6,000 wind turbines in Denmark which account for 17% of the country's annual energy production. There are plans to increase this target to 20% by 2004.
- Denmark is a small country (about half the area of Scotland) but has a high density of turbines. It is a fairly urbanised and developed country and tourists are not visiting for the wilderness experience and unspoilt nature of the country.
- To date there has been no major positive or negative impacts recorded on tourism.
- The coastal area is the main tourist area in Denmark and hence there are strict planning policies around the coastline.
- Wind farms are used in promoting Denmark as a modern country with renewable energy. Denmark is a major exporter of turbines and knowledge of wind farms to other countries.

Summary of Key Findings of UK Case Studies

Cornwall

- There are around 7 operational wind farms in Cornwall, consisting of around 100 wind turbines. The first UK wind farm was established in Delabole, Cornwall in 1991.
- There are a number of new proposals for wind farms in the area which is causing concern amongst some of the tourism industry. There is less potential in the area for large scale developments due to the settlement patterns in Cornwall.
- There is a recognition that the visual impact of wind farms can degrade the landscape, although at the current levels of wind farm development these impacts are believed to be negligible.
- There is anecdotal evidence to suggest there is a novelty factor attached to wind farms. A good example of this is the Gaia Energy Centre which opened in 2001 and is an exhibition of renewable energies.
- Cornwall County Council are about to review their policy guidelines on the development of wind farms in the area and in particular address the cumulative impacts.

Cumbria

- There are 10 operational wind farms in Cumbria with around a total of 80 wind turbines.
- Once again, there is an opinion that if wind farms are sited in areas of high scenic value they can have a negative impact on visitors. However, as most of the existing wind farms are located away from key tourist sites there would appear to be few negative impacts.
- There is also a view amongst some that wind farms can be an attraction in their own right. For example, the latest wind farm to be developed in the area will include a 45 metre viewing platform and visitor centre.
- A resident survey undertaken near an existing wind farm established that 71% of residents thought the wind farm had no effect on people visiting the area. 11% were of the view it had increased the number of visitors and 3% thought it had reduced visitor numbers.
- The Council believe that some areas of Cumbria may be reaching saturation point and have therefore recently commissioned an assessment of capacity for new wind farm developments in the area.

Wales

- There are 16 operational wind farms in Wales, with a total of 362 turbines. Approval has been given recently for a 30 turbine off-shore wind farm. There are also planning applications for at least 30 more wind farms. There has been some concern over the number of new developments and also the increasing size of the turbines.
- Wales Tourist Board is of the opinion that the current levels of wind farm development have had no notable impact (positive or negative) on tourism.
- Wales Tourist Board has published a policy statement on wind farm development in which they oppose development in primary designated areas i.e. National Parks, Heritage Coast, National Marine Nature Reserves and Areas of Outstanding Natural Beauty. They also oppose wind farm development in locations that are visible from such areas.

Summary of Key Findings of Survey of Visitors

- **METHODOLOGY:** In total, some 6 Hall Tests were undertaken with visitors to Scotland during July 2002. Not only were the locations chosen based on their proximity to existing and planned developments, but it was also important to obtain a geographical spread across Scotland and to take account of different environments. Consequently, the 6 locations reflected these factors – Galashiels, Portree, Oban, Huntly, Dumfries and Stornoway. A total of 180 interviews were achieved.
 - The specific subject matter of the research – wind farms – was not revealed to the respondents when they were recruited. Respondents were simply told that they would be asked some questions about visiting the Scottish countryside. All respondents recruited for hall tests described the natural landscape and countryside scenery as important factors when deciding to visit an area. In addition, quotas were set to ensure that there was a balance of staying visitors vis-à-vis day trippers, overseas visitors vis-à-vis Scots and other UK visitors, and ‘active’ countryside visitors as opposed to those who were more ‘passive’ in nature.
 - Almost half the sample had actual experience of a wind farm in Scotland, with 46% indicating they had seen a wind farm development in Scotland, either on this visit or a previous trip. Further details are presented later in the survey findings.
 - **AGE:** Overall, some 22% of respondents were aged under 35 years, 17% were aged 45-54 and the remaining 61% were aged over 45.
 - **PRESENCE OF CHILDREN:** Reflecting the relatively older age profile, only around one in five respondents had any children with them on their trip (20%).
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- **LIFECYCLE STAGE:** The largest proportion of respondents fell within the 'empty nester' categorisation (53%), whilst just over a quarter were young independents (27%) and one fifth were families (20%).
 - **PARTY COMPOSITION:** The largest proportion of respondents were on the trip with their partner only (43%). A further one third were there with other members of their family (32%), whilst 11% were with friends. One in ten respondents were on their own.
 - **ORIGIN:** The sample was split fairly evenly between Scots residents (40%) and visitors from other parts of the UK (38%). The remaining 23% were from overseas countries of origin - predominantly Europe (16%).
 - **PURPOSE OF TRIP:** Just under four in every five respondents were on holiday away from home (78%), whilst a further 7% were visiting friends and relatives on holiday. The remaining 15% were on a day trip from home.
 - **ACTIVITIES UNDERTAKEN:** Three quarters of respondents were sightseeing on their trip, either from a car or coach (73%), making this far and away the main activity undertaken overall. Meanwhile, around two in every five had gone on short walks in the countryside (41%). Those respondents who undertook either or both of these activities, but none of the others listed were then categorised as 'Passive' countryside visitors – 61% of the respondents fell into this category. Just under a quarter of visitors went for longer walks in the countryside (24%), and this was the main active pursuit undertaken, whilst a further 16% went hill walking. A further 16% of respondents undertook other active pursuits such as those listed. Those respondents who undertook any of these more active pursuits were categorised as 'Active' countryside users – in total, 39% of the sample fitted this criteria.
 - **LENGTH OF STAY:** On average, visitors who were staying overnight were away from home for around twelve nights (11.9 nights overall). The average number of nights spent in Scotland by overnight visitors was 9.9 nights.
 - **PREVIOUS VISITS TO SCOTLAND:** For four in every five visitors in the sample, their Scottish holiday did not represent their first ever holiday in Scotland – 80% had visited prior to this. On the other hand, some 20% were on their first ever holiday in Scotland.
 - **TYPE OF TRIP TO THE AREA:** The sample was split fairly evenly between those respondents who were primarily visiting the one destination on their visit and those who were visiting several destinations (44% and 47% respectively). Only 8% were just passing through the area en route elsewhere.
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- **MAIN ATTRACTIONS OF THE AREA:** Respondents were asked to indicate what the main attraction of the area had been that had persuaded them to visit on this trip. A wide range of responses were received, with only two being mentioned by 10% or more respondents. Interestingly, the scenic qualities of the area were clearly important – 11% mentioned the scenery generally, 9% were attracted by the fact the area was remote or unspoilt, whilst 7% mentioned the hills and mountains. In common with other surveys of tourists to Scotland, other strengths mentioned revolved around the friendly people, visiting family, never having been (and conversely, been before and wanting to come back), and history and heritage.
 - **ASPECTS IMPORTANT IN DECISION TO VISIT THE AREA:** When provided with a prompted list of aspects which might be important in deciding to visit the area, one particular aspect emerged as a key influencer – the beautiful scenery. Overall, four in every five respondents indicated that this was particularly important when they were deciding to visit the area (81%). The friendly people also emerged as an important element – three in five mentioned this (61%), whilst four other reasons were provided by around half of the respondents: good place to get away from it all and relax (51%), interesting history and culture (48%), nature and wildlife (48%) and unspoilt environment (48%)
 - **ATTITUDE STATEMENTS:** Respondents were then provided with a series of attitude statements each based around a different aspect of the countryside. In each case, they were asked to indicate how important each aspect was when they were taking a holiday of day out in Scotland.
 - *“Chance to experience unspoilt nature”*
61% of respondents described the chance to experience unspoilt nature as very important. A further 34% described it as quite important.
 - *“See only a few other visitors”*
There was a mixture of opinions on the importance of this aspect of the countryside with 41% describing it as an important factor whilst 32% described it as unimportant.
 - *“Complete absence of built facilities for visitors”*
There was a mix of opinions from respondents regarding whether or not the complete absence of built facilities for visitors in the countryside was important or unimportant. Whilst 34% agreed and felt this was important, a slightly larger proportion disagreed.
 - *“See only a few other visitors”*
There was a mixture of opinions on the importance of this aspect of the countryside with 41% describing it as an important factor whilst 32% described it as unimportant.
 - *“Complete absence of built facilities for visitors”*
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Whilst 34% agreed and felt this was important, a slightly larger proportion disagreed (40%).

- *“Wide variety of things to see and do”*

There was fairly strong agreement amongst respondents that a wide variety of things to see and do in the countryside was an important factor – 35% described it as very important, whilst 46% described it as quite important.

- *“Wide range of different types of landscape”*

A wide range of different types of landscape was important for most of the respondents interviewed. Some 40% described it as very important and a further 43% described it as quite important – only 8% felt it was unimportant.

- *“Peace and quiet”*

The attraction of peace and quiet in the countryside is clear amongst those interviewed. Three in every five described it as a very important factor (60%), and a further 28% described it as quite important.

- *“Large amount of interpretation of scenery and wildlife”*

The high degrees of interest in the scenery and wildlife on offer is illustrated by the fairly high levels of interest in interpretation of this area. Around three quarters of respondents felt that it was important (76%).

- *“Abundant natural wildlife”*

An abundance of natural wildlife was an important feature for most of the respondents surveyed. Some 42% described this as very important and a further 39% described it as quite important – only 6% felt it was unimportant.

- *“Lots of trails and walks”*

Just over seven in ten respondents described lots of trails and walks as an important element of the appeal of countryside areas (71%).

- **APPEAL OF PARTICULAR ASPECTS OF THE COUNTRYSIDE:** The hills and mountains were the main aspects of the Scottish countryside which held particular appeal and interest to the largest proportion of respondents – almost three in every ten mentioned this (28%) as an aspect which they found especially appealing or interesting. Four other aspects held a great deal of appeal to over 10% of visitors – the unspoilt/remote nature of the Scottish countryside (20%), the scenery generally (19%), beaches and coastline (16%) and lochs and rivers (15%).

- **ASPECTS OF THE COUNTRYSIDE PARTICULARLY DISLIKED:** Respondents were then asked to indicate any particular aspects of the Scottish countryside which they had particularly disliked –
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either on this trip or previously. The main criticism of the Scottish countryside amongst visitors related to refuse and litter (12%). All of the other criticisms were mentioned by fewer than 5% of respondents and featured a variety of different types of development or criticism – the roads, housing estates, deforestation etc. This question resulted in the first mention of wind farms in the questioning process to this point – one respondent claimed that wind farms were an aspect of the Scottish countryside that they particularly disliked.

- EXTENT TO WHICH SPECIFIC ASPECTS OF THE COUNTRYSIDE ENHANCE OR DETRACT FROM EXPERIENCE (SPONTANEOUS): One particular type of development was most frequently mentioned as something which enhanced the enjoyment of the Scottish countryside – visitor and information centres; some 19% of respondents mentioned this spontaneously. Four types of development were mentioned by 5-6% of the respondents - outdoor activities and activity centres, museums, gardens/parks/forestry and Scottish crafts/produce. All other suggestions were provided by fewer than 5% of respondents.
 - EXTENT TO WHICH SPECIFIC ASPECTS OF THE COUNTRYSIDE ENHANCE OR DETRACT FROM EXPERIENCE (PROMPTED): As a means of establishing the initial and spontaneous views of respondents about wind farms relative to other types of development and facilities in the countryside, the tables below provides a summary of the proportion of respondents who felt that each development detracted from the experience and the proportion who felt that each development enhanced their experience when they visited the countryside:
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Summary Table – Proportion of Respondents claiming that each facility/development DETRACTED from the experience (%)

Base: All respondents (N=180)

	ALL VISITORS
Electricity pylons and wires	51
Mobile telephone masts	35
Quarries	33
Planted, geometric forestry	32
Wind farms and turbines	29
Telephone wires and poles	29
Hydro electric and other power stations	22
Fish farms	20
Hydro electric dams	12
Chairlifts/gondolas on mountain sides	9
Funicular railways on mountain sides	8
Ski slopes	7
Planted forestry – mixed species, non geometric	6
Trails and tracks across open upland areas	5
Waymarking signs – on low ground	4
Waymarking signs – on high ground	3

- Over half of the visitors claimed that electricity pylons and wires had detracted from the experience of visiting the countryside making this the most negative type of facility/development in the eyes of most visitors (51%). Some 29% of respondents felt that wind farms and turbines had detracted from the experience – a similar proportion to those mentioning telephone wires and poles (29%).

Summary Table – Proportion of Respondents claiming that each facility/development ENHANCED the experience (%)

Base: All respondents (N=180)

	ALL VISITORS
Planted forestry – mixed species, non geometric	66
Trails and tracks across open upland areas	42
Planted, geometric forestry	32
Funicular railways on mountain sides	22
Waymarking signs – on low ground	22
Waymarking signs – on high ground	21
Fish farms	21
Hydro electric and other power stations	19
Ski slopes	19
Wind farms and turbines	18
Chairlifts/gondolas on mountain sides	16
Quarries	7
Hydro electric dams	7
Mobile telephone masts	2
Telephone wires and poles	2
Electricity pylons and wires	1

- Planted forestry containing mixed species and in a non-geometric format was the most positive type of development with two-thirds of the sample stating that planted forestry with mixed species in a non-geometric format had enhanced their experience of visiting the Scottish countryside (66%). Planted geometric forestry was also rated fairly positively with approximately a third of the sample indicating this type of development enhanced their experience (32%). Some 18% of respondents felt that wind farms and turbines had enhanced their experience – a similar proportion to those mentioning hydro electric and other power stations (19%) and ski slopes (19%).
- WORD ASSOCIATION WITH WIND FARMS:** Respondents were asked to indicate what words and phrases come to mind when they hear the term 'wind farm'. The most common individual response related to the energy production role of the wind farm – natural energy/environmentally friendly (21%). Some 19% of respondents simply said 'windmills', whilst 14% said 'turbines'. Their perceived scale and location on hills were mentioned by 12% of respondents whilst reference to the blades/propellers and pole was made by 9% and 8% of respondents. In terms of initial reactions, it is worth noting that 7% (13 respondents) made reference to unsightly structures, detracting from the beauty of the countryside and the skyline, whilst 6% described them as ugly and 4% as noisy.

- **EXPERIENCE OF WIND FARMS IN SCOTLAND AND ELSEWHERE:** Overall, just under half of the respondents interviewed claimed to have seen a wind farm development in Scotland either on this trip or on a previous trip (46%). Around half had not seen one (49%), whilst the remaining 5% were unsure. Two-thirds of respondents had seen a wind farm in Scotland or elsewhere (66%).
 - **VIEWS OF WIND FARMS AS A POWER SOURCE:** The vast majority of the respondents were fairly positively disposed towards wind farms as a means of generating power. The largest proportion felt that they were a good idea because they were ecologically friendly (39%), whilst 11% made reference to the fact that they would save digging for fossil fuels.
 - **REACTIONS TO IMAGERY:** Six 'mock-ups' were produced of Scottish landscapes 'before' and 'after' a wind farm development. The images were verified by Scottish Executive planning officials as an accurate visual representation of location and scale in relation to wind farm developments and proposals in Scotland. In each case respondents were asked to indicate their views and initial reactions to each 'before and after' image. The first image shown produced the strongest negative reaction, mainly it would appear because of the scale of the proposed development and the close proximity of the turbines to the camera lens. Two of the other images provoked reactions which were rather more negative than positive/neutral on balance (56%-43% and 52%-47% respectively), whilst two others had an almost equal split between negative and positive/neutral responses. The other image shown produced the most positive reaction of all six images – only 30% were clearly negative whilst 68% were neutral/positive.
 - **GENERAL REACTIONS ON WIND FARM DEVELOPMENT:** Having looked at all the images, respondents were then asked to provide their overall views on wind farm development in Scotland. Firstly, they were asked to provide general views and reactions and then their views on the impact of wind farms on scenery. This was followed by a question related to the preferred scale of the development, the distance viewed from and finally the environmental location. Overall, three quarters of respondents were positive or at least neutral towards wind farm development (75%), whilst 21% were clearly negative. Some 3% claimed to have no real feeling either way.
 - *Impact on scenery:* The largest proportion of respondents were negative towards the impact of wind farms on scenery and landscape – 31% of them said that the scenery and landscape would be spoiled by wind farm developments. Meanwhile, a further 7% described the impact as 'awful/dreadful/appalling'. Some 11% of respondents did not feel that there was a problem or that they did not notice them, however most other responses were rather more neutral or their views
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would be dependent on other factors – the location/area (22%), if they were camouflaged (7%), provided there were not too many turbines (4%) etc.

- *Number of turbines*: On balance, the responses tended to indicate that, in terms of the number of turbines, there was a preference for small scale wind farm developments rather than large scale developments: three in ten claimed that they would be better on a small scale (29%), whilst 13% said that they preferred not too many together. One respondent in every nine expressed a preference for a large scale development (11%).
 - *Distance viewed from*: For half of the respondents, there was a preference that wind farms should be located as far away as possible, rather than close up (49%). Others indicated that they felt they should be located away from houses and roads (9%), away from areas of beautiful countryside (3%), or out at sea (2%). That said, 14% felt that the distance viewed from made no difference one way or the other.
 - *Environmental location*: Some 16% of respondents felt that wind farms should be located as far away from people and wildlife as possible, making this the most common response. One in ten felt that they should be as remote as possible (10%), whilst 8% would prefer that they were located out at sea. 7% of them indicated that they should be away from tourist attractions.
 - **PREFERRED TYPES OF ENVIRONMENTAL LOCATION FOR WIND FARM DEVELOPMENT**: Two types of location were mentioned by just under half of the respondents as the most appropriate locations for wind farm development – offshore (49%) and remote, rural areas (47%). It is worth noting that feedback from the interviewers suggested that this latter category was generally interpreted in terms of ‘remoteness’ and distance away rather than in terms of a scenic designation of ‘remote rural’. Mountainous areas were next most popular (27%) followed by forested land (20%) and the coast (19%).
 - **ATTITUDE STATEMENTS**: Respondents were then provided with a list of ten attitude statements about wind farms and asked to indicate the extent to which they agreed or disagreed with each of them on a scale from ‘Agree Strongly’ down to ‘Disagree Strongly’.
 - *“At the moment, one of the main attractions of wind farms is that they are relatively unique – and few and far between”*
This statement received the largest degree of support in its favour – 62% of respondents agreed with it. Just under one in five respondents disagreed (19%)
 - *“Wind farms spoil the look of the Scottish countryside”*
-

Some 58% of respondents agreed with this statement and although 29% disagreed, this would tend to suggest that in the eyes of visitors, wind farms have a negative visual effect.

- *"I would prefer to see 20 wind farm developments each with 10 turbines, rather than a single large development with 200 turbines"*

The responses based on the six images suggested that most respondents would prefer to see a larger number of smaller wind farms rather than one major wind farm. This is confirmed in the response to this attitude statement – some 55% agreed with it, compared to 30% who disagreed.

- *"I would be interested in visiting a wind farm development if there was a visitor centre"*

The responses to this statement suggest that there would be a fair degree of interest in visiting a visitor centre at a wind farm development – 61% would be interested in visiting, although it should also be noted that over a third would not be interested (34%).

- *"I would prefer to see wind farms in areas already developed for agriculture rather than in the 'wilderness'"*

Some 43% agreed with this statement, however a similar proportion disagreed (39%) suggesting a division of opinion amongst respondents regarding their preference between agricultural land and 'wilderness land'.

- *"I would tend to avoid an area of the countryside if I knew there was a wind farm there"*

Just over a quarter of respondents claimed that they would be likely to avoid any parts of the countryside with wind farms (28%), however a significantly larger proportion would not (58%).

- *"I have no strong opinions one way or the other on the development of wind farms"*

The level of interest in the subject matter is highlighted by the responses to this statement – almost two thirds of respondents disagreed, illustrating that they had some form of opinion, one way or another (65%). Only around one in every five tended to agree (22%).

- *"Using wind farms in the promotion of Scotland to tourists would provide an added appeal to visitors"*

There would appear to be fairly limited potential to use wind farms in the promotion of Scotland to tourists generally. Only 15% agreed with this statement whereas as many as 65% disagreed.

- *"Seeing a wind farm would add to my enjoyment of the Scottish countryside"*

62% disagreed. Generally speaking, seeing a wind farm would not provide most tourists with any added enjoyment on a visit to the countryside.

- *"It would be an added attraction if wind farms were located in popular tourist areas"*
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This statement received the largest amount of disagreement – only 9% of visitors felt that wind farms would be an added attraction in tourist areas – 74% disagreed. This would tend to suggest that their location should ideally be away from tourist areas.

- **IMPACT OF WIND FARMS ON FURTHER HOLIDAYS IN THE SCOTTISH COUNTRYSIDE :** The largest proportion of respondents claimed that it would make no difference to their likelihood to take holidays in the Scottish countryside if the number of wind farms increased (63%). A further 2% claimed that any impact would be minimal. On the other hand, a significant minority would be affected: 15% would 'steer clear of the area' and 10% would be 'less likely to come back'. This would tend to suggest that a wind farm development could have a negative impact on future visits – none of the respondents replied that they would be MORE likely to return for example.
- **IMPACT ON FURTHER HOLIDAYS TO THE CURRENT AREA IF A WIND FARM WAS DEVELOPED:** Overall, 1% of respondents claimed that they would be more likely to return to the area if a wind farm was developed. On the other hand, as many as 26% claimed they would be less likely to return. For the majority however, the development of a wind farm would make no difference on whether or not they would come back (70%).

Conclusions and Recommendations

- It is important to remember that all of the findings are based on the impact of wind farms on Scottish tourism, rather than a wider investigation of the environmental, economic and social impacts. Whilst most opinions expressed were done so within this wider context, it must be emphasised that respondents were asked to comment on the *tourism impact* of their development. Amongst the trade respondents, this impact revolved around the perceived effect on their tourism business, whilst amongst visitors, the impact of wind farm development on a future holiday to the area was the main concern.
 - One of the key confirmations from the research is the emotive nature of the whole issue of wind farm development. On both the trade and consumer sides, the overwhelming majority of respondents had fairly strong opinions, one way or another, on the development of wind farms. On balance, amongst the trade bodies interviewed, the majority were either clearly positively disposed towards wind farm development, or at least conditionally so. That said, those who were more negative tended to have very strong reasons for this opinion. Amongst visitors, the picture is rather more mixed with a large proportion commenting on the visual intrusion on the landscape. Undoubtedly, this visual impact represents the main concern to be expressed – some 38% felt that they 'spoiled the scenery', and most others felt that the visual intrusion of wind
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farms needed to be taken account when they were being sited. That said, when asked for their overall views on wind farm development, the majority of respondents – over three quarters – were either positive or at least neutral towards wind farm development. At the same time, a significant minority (21%) of visitors held much more negative views towards wind farm development.

- Overall therefore, the majority of visitors were at least conditionally positive towards wind farm development from a tourism perspective. Individual reactions to specific examples of development were rather more negative however, and this more positive overview tends to reflect a recognition amongst consumers of the need to move towards more sustainable and renewable power sources; the survey highlighted that the vast majority of respondents were positively disposed towards wind farms as a means of generating power. The use of the term 'conditionally positive' is important however in terms of wind farm development and its impact on tourism. Only a relatively small proportion of visitors were positive towards wind farm development without any conditions. A much larger proportion were more likely to qualify their acceptance using phrases such as 'it depends', 'so long as', and 'provided that' in their responses.
 - Most of these conditions related to the siting of the wind farms and a recognition that, for most people, they are seen as being visually intrusive. Consequently, a common theme amongst both the trade and consumers was that 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.
 - There was also a feeling amongst visitors that if anything, wind farms held some appeal at the moment because of their 'novelty value'. For most visitors, it was still fairly unusual to see a turbine or a wind farm in the countryside and as such, when they were seen, they held a degree of curiosity. This would tend to suggest that there could be a danger of cumulative development of wind farms throughout the countryside where one of their present appeals – uniqueness and the fact that they are unusual, is lost. The issue of the preferred sizes and scales of individual wind farm developments from the tourism industry point of view is rather more difficult to determine. Whilst the trade were more likely to prefer the idea of a smaller number of larger wind farm developments, consumers were rather more likely to choose the option of a larger number of smaller scale developments. It would appear however that the largest proportion of
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consumers would simply rather not see any wind farms at all when in the Scottish countryside. Given their other responses however, their apparent preference for a larger number of small scale developments rather than a smaller number of large scale developments is likely to be based on the feeling that if they had to see any wind farms at all, the smaller and less intrusive the development, the better.

- Across all of the visitor markets surveyed, it is interesting that Scots tended to be significantly less positive towards wind farm development and its impact on tourism than was the case amongst visitors from elsewhere in the UK and especially compared to visitors from overseas.
 - Attitudes towards wind farms tends to be slightly more positive amongst those who have actually seen and experienced them than amongst those who have not done so. This tends to suggest that a number of the perceived negative associations with wind farms – visual and noise pollution – are seen to be less problematic amongst those respondents who have actually seen them ‘in situ’. This and the previous observation regarding the more negative attitudes amongst Scots, leads on to a particular conclusion which is worth noting – there is an obvious need for more information on wind farm development – aimed both at the visitor and at the tourism industry. At present, many opinions seem to be based on rumour and often ‘misinformation’ and to ensure that a rational and objective debate on wind farm development can be conducted at a local level, this must be addressed by accessible and unambiguous information.
 - Based on the results of the consumer Hall Tests, the longer term impacts of wind farm development needs to be recognised. As many as 26% of visitors claimed that they would be less likely to visit an area if a wind farm was developed there in future – 1% would be more likely to return, and 70% claimed that it would make no difference. Although it is difficult to determine the extent to which this would actually be the outcome of a wind farm development, it does appear to offer some clear evidence that such a development would be likely to result in a reduction in the number of visits made by the existing visitor markets. This again illustrates that from a tourism perspective, the siting of wind farms is particularly crucial.
 - Several countries and areas, notably Denmark, have used wind farm developments and individual turbines in their tourism marketing. They have been used to highlight the ‘green credentials’ of the area, particularly when targeted at specific markets where such issues tend to be particularly important (e.g. Germany). In a Scottish context, on balance, there was a degree of support from amongst representatives of the tourist trade to use such imagery in a similar way within the tourism marketing of the Scottish countryside. Other trade respondents were less enthusiastic however, citing the negative visual impacts of such developments on the scenic qualities of the Scottish landscape and this view would appear to be supported by the majority of
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the visitors who were interviewed. Only 15% of them felt that using wind farms in the promotion of an area would provide added appeal – 65% disagreed. Hence, this would tend to suggest that any use of wind farms in the marketing of Scotland should be undertaken very carefully. One possibility might be to link such developments to the Green Tourism Business Scheme – several trade respondents commented on the suitability and linkage between the GTBS and the sustainability of wind as a power source.

- One of the areas where wind farms would appear to offer some potential for the tourism industry would be as visitor attractions in their own right. Both trade and consumer respondents reacted quite favourably to the possibilities of creating visitor centres or developing viewing platforms at new wind farm developments. For example, some 61% of visitors claimed that they would be interested in visiting a wind farm development which had a visitor centre. Whilst this offers a degree of economic potential for a local area, it should also be recognised that the wider and longer term potential for such developments is fairly limited. As indicated in 5 above, one of the attractions of wind farms at present is based on their novelty value and the fact that they are still rather unusual within a context. If their numbers increase and they become a more recognised element of the Scottish landscape, it could be argued that the appeal of individual visitor centres may diminish.
 - Clearly therefore, the research has highlighted a mix of different messages and conditions related to wind farm development which makes a general, all-encompassing tourism policy fairly impractical. Most respondents, both on the trade and consumer sides, felt that each case should be judged on its own merits rather than attempting to define an overall policy which suggested that VisitScotland was either 'for' or 'against' wind farm development. Therefore, our recommendation would be to devise a policy which was set within the overall context of the recognition of the importance of sustainability and renewable energies but which would allow judgement on individual wind farm applications, taking account of all of the key factors and elements indicated in the preceding paragraphs.
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A. Background and Introduction

Background

The UK Government and the Scottish Executive are committed to increasing the proportion of electricity generated by renewable energy sources. In June 1997, the Labour Government announced that it wanted 10% of the UK's electricity to be produced from renewable energy by 2010. The longer term goal of the UK Government is to achieve 20% of the UK's electricity from renewable resources by 2020³.

In Scotland a target of generating 18% of energy from renewable sources by 2010 has been set by the Scottish Executive and a consultation exercise regarding the potential of generating 40% of electricity from renewable sources by 2020 is currently taking place. The Scottish Executive estimate that in order to meet the 2010 target, 10% of energy will be generated from existing hydro sources and the remaining 8% will be generated from wind energy. On this basis, they believe that Scotland will require a total of 700-800 wind turbines to meet the 2010 target. There are currently around 200 wind turbines in Scotland, hence another 500-600 will therefore be required to meet this target.

This intention to increase the use of renewable energy is being promoted through the Renewable Obligations (Scotland) Act, which requires electricity suppliers to generate a specified proportion of the electricity they provide from renewable energy sources. Scotland has particular potential for the development of renewable energy, especially wind energy, due to its geography and climate.

Wind farm proposals have tended to generate controversy with concern about the visual impact of individual or groups of wind turbines a major obstacle in realising the potential for wind energy. Consequently, many planning refusals are for visual impact reasons.

As highlighted in a recent report by NFO System Three,⁴ the scenery, wild landscapes and unspoilt environment are all regarded as key strengths of the Scottish tourism product amongst visitors to the country. Given the importance of tourism to the Scottish economy, the debate surrounding wind farm development is of great significance and therefore VisitScotland plan to produce a policy statement on the development of wind farms and their impact on tourist experiences. Recognising the

³ Government Energy Review, February 2002

⁴ Tourism Attitudes Survey 2001 by NFO System Three on behalf of VisitScotland

importance of this issue, Wales have already developed national tourism policy statements relating to the development of wind farms.

Aims and Objectives

To guide the development of a policy document, VisitScotland commissioned NFO System Three to undertake a programme of research. The aim of the research was to provide information on the potential impact of wind farms in Scotland in the context of the Government's renewable energy commitments and to make recommendations on the future development of wind farms in Scotland from the tourism perspective.

The specific objectives of the study are detailed below:

To establish the impact (both positive and negative) that the existing/proposed /anticipated development of wind farms in Scotland is likely to have on Scottish tourism. In estimating the impact, the following should be considered:

- The anticipated pace, scale and location of wind farm developments.
- The adequacy of the statutory planning guidelines and restrictions covering the development of wind farms in Scotland to ensure that any negative impact on tourism in Scotland is avoided/negated.
- Views and perceptions of the tourism business community, towards wind farm development in Scotland (both in affected and unaffected areas).
- Views and perceptions of visitors (both domestic and overseas) towards wind farm development in Scotland in terms of their current visit and their future decisions to visit Scotland generally and parts of Scotland where there are wind farms.
- Experience, in terms of the impact of tourism, in comparable tourism destinations, where the development of wind farms is currently more widespread than in Scotland or has been rejected because of concerns relating to the negative impact in landscape value and or tourism.

To identify and recommend key elements which a VisitScotland Policy statement on “wind farm development and its relationship to tourism” should include.

In order to meet the information requirements of the above objectives, a very detailed and comprehensive programme of research was undertaken. This programme consisted of the following six elements:

1. Desk research and literature review
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2. Consultations with key players
3. Consultations with tourism trade
4. Overseas case studies
5. UK case studies
6. Survey of Visitors

The first stage of this programme of research involved a review of literature and other sources of information available on wind farms and their impacts on tourism. However, due to the extensive nature of this review it is presented in a separate document. This report presents the main findings from each of the other elements of the research programme.
