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Citation for published version:

Aitchison, C 2012, TOURISM IMPACT of WIND FARMS: Submitted to Renewables Inquiry Scottish Government. vol. NA, NA edn, University of Edinburgh, Edinburgh.

Link:

[Link to publication record in Edinburgh Research Explorer](#)

Document Version:

Publisher final version (usually the publisher pdf)

Publisher Rights Statement:

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THE UNIVERSITY *of* EDINBURGH

TOURISM IMPACT of WIND FARMS

**Submitted to Renewables Inquiry
Scottish Government**

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University of Edinburgh**

April 2012

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1. PURPOSE AND SCOPE OF EVIDENCE

- 1.1 The evidence submitted here is designed to provide data, information and informed analysis of the actual and potential impact of wind farms on tourism.
- 1.2 This submission is intended to address concerns relating to tourism and raised in written and oral evidence submitted by a range of organisations and individuals to the Scottish Government's current Renewables Inquiry (2012).
- 1.3 The evidence presented here is divided into four sections which progress from the generic to the specific in order to relate the wider evidence available on tourism impacts of wind farms to the policy context of renewable energy development in Scotland.
- 1.4 This submission outlines both primary and secondary evidence of the impact of wind farms on tourism. The analysis progresses from a general introduction to tourism research and rural economic development through to detailed examination of previous research on the tourism impact of wind farms. In particular, section four draws on the findings of the two largest studies of the tourism impact of wind farms conducted to date (University of the West of England, 2004; Glasgow Caledonian University, 2008).
- 1.5 The University of the West of England study was commissioned by Devon Wind Power and designed and conducted by Professor Aitchison. The study formed the basis of Professor Aitchison's evidence as an Expert Witness at the Public Inquiry into the 66MW Fullabrook Wind Farm in 2006-07.
- 1.6 Particular significance is given to the findings of the two studies conducted by UWE and GCU and their relevance to the future development of wind farms in Scotland for the following reasons:
- the two studies form the largest academic studies conducted to date
 - the studies were conducted by highly qualified academic research teams that adopted rigorous research methodologies and used multiple research methods to triangulate findings, thus providing a high degree of validity and reliability
 - the studies were conducted in different areas of the UK but with similarities to many current proposed wind farm locations in Scotland in terms of landscape, access, visitor attractions, tourism patterns and tourist profile

2. EVIDENCE FROM PREVIOUS TOURISM STUDIES

2.1 Introduction

2.1.1 This section outlines evidence of the impact of wind farms on tourism and covers five aspects of tourism-related evidence. First, a general introduction to tourism research and rural economic development is presented in section 2.2. Secondly, a critical review of the research methods employed in previous studies of tourism impacts of wind farms is given in section 2.3. The results of previous major studies of the tourism impact of wind farms are discussed in section 2.4. Finally, section 2.5 examines in more detail the findings from the two largest and most rigorous studies conducted to date: Aitchison's (2004) University of the West of England's report titled *The Potential Impact of Fullabrook Wind Farm Proposal, North Devon: Evidence Gathering of the Impact of Wind Farms on Visitor Numbers and Tourist Experience*, commissioned by Devon Wind Power, and Glasgow Caledonian University's (GCU) (2008) report titled *The Economic Impact of Wind Farms on Scottish Tourism* which was commissioned by the Scottish Government.

2.2 Tourism Research

2.2.1 Tourism plays an increasingly important role in contributing to rural regeneration in the UK. New forms of rural tourism associated with landscape, culture and active recreation are increasingly important to rural tourism economies. Activities related to natural history and birdlife, cultural heritage and historic gardens, local food and drink and a range of active outdoor pursuits, including walking and mountain biking, are increasingly promoted as policy priorities through which wider agendas of sustainable development can be addressed. The prevalence of high wind speeds in these same coastal and upland areas means that they are also the preferred destinations for wind farm developments. In spite of this proximate and apparent inter-relationship between wind farms and tourism it is only recently that research examining tourists' attitudes towards the location of wind farms in or near areas that they visit for holiday and/or leisure has been conducted in any depth (UWE, 2004, British Wind Energy Association 2006; Glasgow Caledonian University, 2008; MORI Scotland, 2002; Starling, 2006).

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- 2.2.2 Although tourism research relating to wind farm developments is limited compared with that on policy, landscape, ecology and noise it is increasingly evident that there is an emerging consensus within the research examining the actual and potential impact of wind farms on tourism. The clear consensus is that there has been no measurable economic impact, either positively or negatively, of wind farms on tourism. Similarly, there is consensus among researchers of studies that have sought to predict the potential economic impact of wind farms on tourism. Here again, there is no evidence to support the assertion that wind farms are likely to have a negative economic impact on tourism. Moreover, all of the studies that have sought to predict impact have demonstrated that any negative impact of wind farms on tourism will be more than outweighed by the increase in tourists that are attracted by wind farms, by the increase in employment brought about by the development of wind farms and/or by the continuing growth of tourism.
- 2.2.3 However, it is clear that some local authorities, business owners and residents in rural areas that fall within Strategic Search Areas for wind farm developments continue to voice opposition to such developments, increasingly citing negative impact on tourism as a reason to reject planning applications. This submission therefore seeks to clarify the evidence relating to tourism impacts of wind farms so that remaining opposition to development is based on *fact* rather than unfounded, but nonetheless understandable, *fear*.
- 2.2.4 It is clear that tourism research data must be interpreted carefully. The care with which such research must be approached was highlighted by the Inspector to the Fullabrook Wind Farm Public Inquiry in 2007 when he stated that '*...the question of impacts on tourism is extremely nebulous and vulnerable to assessment by assumption rather than by evidence; it is an area where it is easy to hold opinions but harder to back them up with firm data. There is also the fact that in 15 years or so of wind farm development no evidence has emerged from developed sites that tourism has suffered as a result*' (The Planning Inspectorate, 2007: 48). This lack of evidence has been documented in reports from a number of previous Inquiries. A recent report recommending approval of the Middlemoor proposal in Northumberland stated in relation to tourism that '*Although attention is drawn to this matter by objectors, little or no evidence-based analysis is supplied*' (The Planning Inspectorate, 2008: 89).
- 2.2.5 The next section of this submission therefore highlights the need for careful and critical assessment of the methodology adopted, the research methods employed
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and the research conclusions drawn in each study when evaluating the 'evidence' from research designed to assess the impact of wind farm development on tourism.

2.3 Research Methods

- 2.3.1 Whereas the research methodologies designed to assess the impacts **of** tourism in rural areas have been developed and honed over many decades, the methodologies developed to evaluate impacts of other sectors of industry **on** tourism in rural areas are still in their infancy. As a result, when considering research into the impact of wind farms on tourism it is vital to be able to assess critically the methodology adopted, the research methods employed and the research conclusions drawn in each study when evaluating the 'evidence' from each piece of research. The lack of maturity of the field of study has, to date, resulted in a lack of rigorous peer review of research methodology, methods, analysis and findings resulting in some poor research and spurious findings being used in planning applications, inquiries and appeals.
- 2.3.2 Two major errors have been identified in previous research and, when primary research containing errors is used to inform secondary research, these initial errors can become compounded. The first error relates to survey methodology and sampling used in primary research and the second to the interpretation and extrapolation of data from secondary research.
- 2.3.3 The first major error relates to the survey methods employed in primary research where, in some cases, research commissioned by local authorities and tourist boards has adopted inappropriate and biased sampling methods that have distorted survey results. In a number of surveys, such as the survey undertaken by the Western Isles Tourist Board (2005), tourism businesses rather than tourists have been taken as the sampling frame. These research findings therefore provide some insights into *business owners'* views but offer wholly unrepresentative findings of *tourists'* perceptions of wind farms. In a number of other surveys, where tourists have provided the sampling frame, the actual sampling methodology has been fundamentally flawed. Such a shortcoming was identified by the Inspector in the Public Inquiry into Fullabrook Wind Farm in Devon where North Devon Marketing Bureau (NDMB) commissioned a public relations company, Bray Leino, to conduct a survey and then used the 'evidence' collected to support

their argument that the wind farm would have a detrimental impact on tourism. The validity of the survey was called into question by the Inspector who stated '*I have considerable reservations about the validity and usefulness of the NDMB survey. Under this, 5000 questionnaires were distributed to tourist accommodation and attractions in North Devon. 626 questionnaires were completed and analysed (giving a 13% response rate). First, I agree with Devon Wind Power [Aitchison, 2004] that there is simply no guarantee that the results of a self completion questionnaire can be representative of public opinion. Such questionnaires tend to be filled in by those who have strong opinions about an issue, and thus who are motivated to express those opinions, as opposed to those who may have more measured views. Secondly, the response rate was very low, again throwing into doubt the reliability of the results. In contrast, the methodology employed by UWE [Aitchison, 2004] was far more likely to provide a representative sample of views. Thus, 196 interviews were conducted in representative tourist locations in North Devon, by interviewers trained in tourism research techniques. The technique was to question tourists in order of their arrival ... The survey was supplemented by comparative studies at two existing wind farms in Cornwall and two others in Mid Wales. In total, 379 day visitors and tourists were interviewed at these locations...My conclusion is that of the various studies put before me, it is the findings of Devon Wind Power [Aitchison, 2004], supported by those of the Green Business Forum, that provide the most likely prediction of the overall impact upon tourism. That prediction is that tourist numbers, as well as income, would be maintained.*' (The Planning Inspectorate, 2007: 147-149).

- 2.3.4 The second major error relates to the interpretation and extrapolation of data where, instead of conducting primary research, conclusions have been drawn by extrapolating data, often in a selective or even biased way, in an attempt to demonstrate that conclusions reached in one study at one time and in one location will not only hold true in other temporal and spatial environments but can be applied to much larger areas with an exaggerated effect. Clearly, it is highly improbable that one wind farm, or even a group of wind farms, would impact across an entire region or nation. As the authors of the Glasgow Caledonian University research emphasised in relation to the economic impact of wind farms in Scotland, 'the total impact is not equal to all the local area effects added together' (2008: 6).

2.3.5 Moreover, reliance is often placed on selective studies, the findings of which have been discredited or disproved by later research, rather than the whole body of research being considered. For example, the 2002 survey conducted by NFO System 3 for VisitScotland has been widely discredited as a result of its highly flawed and biased sampling technique which deliberately 'deselected' a number of groups of respondents and then used leading questions and prompts. The survey, carried out by the Western Isles Tourist Board in the Western Isles in 2005, used local tourist board members and *not* actual tourists as respondents. Selective references are also often made, such as emphasising from the 2008 Glasgow Caledonian Study that 'nearly 18% of respondents indicated that they would not visit an area if a wind farm was constructed' but ignoring the conclusion considering the economic impact of wind farms to Scottish tourism as representing a 0.18% reduction in *growth* prospects for tourism employment: '*It should be remembered that these are not job losses that will be felt instantaneously, rather it is a reduction in the number of jobs that will be created in future as a result of tourism spending*' (Glasgow Caledonian University, 2008: 6).

2.4 Tourism and Wind Farms

2.4.1 The findings of academic research on tourism impacts, together with the tourism policy priorities outlined by a range of public and commercial sector tourism organisations, informed the 2006 *Good Practice Guide on Planning for Tourism* which replaced *Policy Planning Guidance for Tourism* (PPG 21) (Department for Communities and Local Government, 2006). Much can be learned from this policy context from outwith Scotland. For example, the *Guide* informs planners of the economic, social and environmental significance of tourism and seeks to ensure they take due account of tourism in planning decisions. The guidance does not seek to limit other forms of development; rather, it emphasises that tourism development is compatible with a range of other economic, social and environmental objectives including the development of renewable energy. Such a conclusion is supported by other research including that by Gee (2005) who found that existing economic activities, such as farming, can continue unaffected by the development of wind farms. Within the *Guide* tourism is identified as a key element in promoting sustainable development through: rural farm diversification, aiding the revitalisation of market towns and villages, supporting important rural services and facilities and as a means by which environmental schemes and

improvements to the built and natural environment can be enhanced (Department for Communities and Local Government, 2006: 20-21). Moreover, the policies outlined in the *Guide* are intended to be consistent with the principles of *Planning Policy Statement 7: Sustainable Development in Rural Areas* which sets out national planning policies for the development of rural tourism and leisure (Department for Communities and Local Government, 2004).

2.4.2 Research undertaken by Young (1993), and subsequent research undertaken by Starling (2006), has similarly demonstrated that the development of wind farms is compatible with the development of other economic activities including the service industries of leisure, recreation and tourism.

2.4.3 Young's later research, conducted in relation to the development of Delabole wind farm in North Cornwall, found that concerns expressed by residents relating to both noise and visual impact fell significantly between pre- and post-construction questionnaires thus indicating that levels of concern can fall after construction of a development (Young, 2003). These findings were further supported by those of Eltham, Harrison and Allen (2008) who demonstrated in their study of residents' attitudes before and after a wind farm was constructed in Cornwall that 'No statistically reliable change in opinion was identified for the residents' general acceptance of the wind farm between 1991 and 2006. However, the majority of the population was in support of the development both 'before and after' (Eltham, Harrison and Allen 2008: 32).

2.4.4 Echoing Young's findings, Starling (2006) conducted a comparative study of the impact on residents of the existing wind farm at Delabole, Cornwall and a proposed wind farm at Red Tile, Cambridgeshire and concluded that residents living near to the existing wind farm (Delabole) were more accepting of wind farm development than those in Red Tile where the wind farm had yet to be constructed.

2.4.5 These findings are also similar to those highlighted in a range of earlier research surveys examining the impact of wind farms on tourism. The table below indicates the percentage of tourists that would *not* be discouraged from visiting an area if a wind farm was developed. There are two important points to note when drawing conclusions from these results. The first is that those surveyed are generally tourists visiting areas where wind farms do not yet exist but where there is a level of public anxiety as to the development and impact of proposed wind farms. As

outlined in 2.4.3 above, evidence has demonstrated that opposition to wind farms can fall markedly after they are developed and in operation. The second point to note is that the sampling frame is not all potential tourists but those tourists who have chosen to visit a particular area at a particular time, usually in the absence of a wind farm. To make an accurate assessment of the impact of wind farms on tourism requires that potential as well as actual tourists be taken into account. However, even among existing samples of tourists it is clear that a significant number of tourists are more and not less likely to visit an area if there is a wind farm. The research carried out in North Devon, for example, demonstrated that the majority of tourists (51%) thought that wind farms could also be visitor attractions for tourists and in research conducted by NFO in Wales 68% of tourists said they would be interested in attending a visitor centre at a wind farm development (Aitchison, 2004; NFO, 2003). More recently, the visitor centre at Whitelee Wind Farm run by ScottishPower Renewables has received 200,000 visitors since it opened in 2009 and an 'estimated 50,000 more have used the 90km of access tracks at the project site for recreational purposes' (renews, 2012: 16).

Table 1 Percentage of tourists not discouraged from visiting an area with a wind farm

Date	Author	Survey Locality	% Tourists Not Discouraged
1996	Robertson Bell Associates	Cornwall	94
1997	Robertson Bell Associates	Wales	83
2000	Cornwall Tourist Board	Cornwall	81.5
2001	Wales Tourist Board	Wales	96
2002	Centre for Sustainable Energy	Somerset	91.5
2002	MORI Scotland	Scotland	95
2004	University of West of England	North Devon	93.9
2006	Whinash	Cumbria	91
2008	Glasgow Caledonian University	Scotland	93-99
Average			91.3

2.5 Relevant Findings From the UWE and GCU Studies

- 2.5.1 Two major academic studies of the impact of wind farms on tourism have been conducted in the UK: the University of the West of England's (Aitchison, 2004) study titled *The Potential Impact of Fullabrook Wind Farm Proposal, North Devon: Evidence Gathering of the Impact of Wind Farms on Visitor Numbers and Tourist Experience* and Glasgow Caledonian University's (2008) study *The Economic Impact of Wind Farms on Scottish Tourism*. Both of these studies address many of the shortcomings of earlier research in relation to weaknesses in the use of survey methods, sampling, interpretation and extrapolation of data as highlighted in section 2.3 above. The two university studies also meet the criteria of 'originality, significance and rigour' set out in the UK Government's Research Excellence Framework which is designed to identify high quality research in UK universities (Higher Education Funding Councils, 2011). The two studies arguably provide the most reliable knowledge base from which to draw conclusions about the impact of wind farms on tourism.
- 2.5.2 The UWE study formed the basis of Professor Aitchison's evidence at the Public Inquiry into the Fullabrook proposal in 2006-07 (The Planning Inspectorate, 2007). The evidence presented also considered the unreliability of alternative research findings published in the North Devon Marketing Bureau Wind Farm Research Report (North Devon District Council, 2006). The research methodology, analysis and presentation of the UWE study findings relating to the tourism impact of wind farms were fully accepted by the Inspector in his report and were seen as a model of good practice in research design, implementation and analysis (The Planning Inspectorate, 2007).
- 2.5.3 The UWE study was designed to establish the specific impact on visitor numbers, tourist experience and tourism expenditure of the proposed wind farm development at Fullabrook in North Devon. The tourism impact research conducted formed the largest academic study to date at the time of publication and had the following aims:
- To provide evidence and analysis of the attitudes of tourists towards renewable energy in general and wind energy in particular
 - To provide evidence and analysis of the impact of existing wind farms in areas popular with tourists
 - To provide evidence and analysis of the potential impact on visitor numbers of a wind farm at Fullabrook, North Devon

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- To provide evidence and analysis of the potential impact on the tourist experience of a wind farm at Fullabrook, North Devon
 - To provide evidence and analysis of the potential impact on the local tourism economy of a wind farm at Fullabrook, North Devon
 - To assess the views of tourists relating to the development of wind farms as tourist attractions

3.5.4 The research was designed to provide evidence of the potential impact of the proposed wind farm development on both visitor numbers and tourist expenditure. To provide additional data relating to the impact of existing wind farms comparative studies were conducted at Bears Down and St Breock wind farms in Cornwall and Carno and Bryn Titli wind farms in Mid Wales. The data gathered from the research in Wales and Cornwall is also of relevance to Northumbria, again because of the similarities in tourism environment and tourist profile between the areas.

2.5.5 A total of 379 day visitors and tourists were interviewed at the three locations during May 2004 using an interviewer-administered questionnaire with 21 questions. In North Devon 196 interviews were conducted in coastal towns and villages including Ilfracombe, Woolacombe, Braunton and Barnstaple in addition to tourist sites at a range of quieter locations inland that are popular with walkers and closer to the wind farm site. In Cornwall 90 interviews were conducted at various locations within a 10km radius of the two established wind farms at Bears Down and St Breock north east of Newquay. In Mid Wales 93 interviews were conducted near the two established wind farms of Bryn Titli and Carno.

2.5.6 Interviewer-administered questionnaires were used as interviewers could ensure that the sample of respondents was obtained from a representative range of tourism locations. Whilst it is not possible to guarantee a truly representative sample of respondents in such a survey as the total population of tourists is not known exactly, the sample obtained was deemed to be as representative as possible. Interviewer-administered questionnaires were completed at a range of sites visited by tourists in North Devon. The interviewers were all trained in tourism research techniques with each interviewer questioning tourists in order of their arrival as soon as the interviewer became free. This method of research is therefore preferable to self-completion or postal questionnaires which have entirely self-selecting samples, notoriously low response rates and are open to misuse.

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- 2.5.7 Because there are difficulties in measuring the impact of something that has not yet been constructed, the comparative studies undertaken in Cornwall and Wales were particularly important. It is significant that the findings from both Wales and Cornwall, where interviewees were questioned near existing wind farms, supported the findings in North Devon that wind farm developments do not have a detrimental impact on tourism.
- 2.5.8 The research findings revealed overwhelming support for renewable energy in general and the proposed wind farm in particular. The findings demonstrated that the construction of Fullabrook wind farm would not have a detrimental impact on visitor numbers, tourist experience or tourist expenditure in the area of North Devon.
- 2.5.9 The findings from the North Devon study demonstrated that the potential impact of a wind farm in North Devon on day visitor and tourist numbers would be as follows:
- A total of 86.7% (n=170) respondents stated that the presence of a wind farm would neither encourage nor discourage them from visiting
 - A further 7.2% (n=14) of those surveyed said that a wind farm would either marginally encourage or strongly encourage them to visit the area
 - A further 6.1% (n=12) said that the presence of a wind farm would either marginally discourage or strongly discourage them from visiting
- 2.5.10 The potential impact of wind farms on the tourist experience was as follows:
- The majority of respondents (58.2%, n=114) thought that wind farms have 'no overall impact' on the visitor or tourist experience
 - A total of 18.4% (n=36) of those questioned thought that wind farms have a positive impact on the visitor or tourist experience
 - A total of 14.8% (n=29) thought that wind farms have a negative impact on the visitor or tourist experience
- 2.5.11 The findings of the research therefore contradicted the argument that tourists would inevitably view the turbines as having a detrimental impact on the attractiveness of the landscape and would therefore be put off visiting North Devon as suggested by North Devon Marketing Bureau on behalf of North Devon District Council (2004). Indeed North Devon's own research reported that more tourists surveyed (33%) stated that 'the wind farm would be aesthetically pleasing' than stated that it would be 'a blot on the landscape' (25%). Moreover,

words such as 'graceful', 'elegant' and beautiful' were used to describe wind turbines/farms by respondents to the North Devon Marketing Bureau survey and, in a number of the studies that have adopted qualitative measures, respondents have referred to synergies between green energy and green (or sustainable) tourism (North Devon District Council, 2004: 28).

2.5.12 As the construction of the proposed wind farm at Fullabrook was found to have no adverse effect on day visitor or tourist numbers it could not be deemed to have a likely negative impact on day visitor or tourist expenditure.

2.5.13 When asked 'Do you think wind farms can be tourist attractions?' just over half of those questioned (51.0%, n=98) answered 'yes'. A total of 43.8% (n=84) respondents said that they did not think wind farms could be tourist attractions and a further 5.2% (n=10) stated that they did not know or had no opinion. Interestingly, the *Investigation into the Potential Impact of Wind Farms on Tourism in Wales*, by the Wales Tourist Board in 2003 found that 68% of those questioned would be interested in attending a visitor centre at a wind farm. At Rheidol the hydroelectric power station and wind farm, for example, receives approximately 10,000 visitors per year to the visitor centre (British Wind Energy Association, 2010). At Whitelee Wind Farm in east Ayrshire the visitor centre has become one of the most popular 'eco-attractions' in Scotland: The popularity of the wind farm as a visitor attraction for schools and families and outdoor sports enthusiasts has completely surpassed our expectations. The centre is managed exceptionally well by the Glasgow Science Centre team, and we are both encouraged by the number of schools who have visited to see the site and to learn about renewable energy. I have also been very encouraged by the genuine enthusiasm shown by so many members of the public to see for themselves firsthand what a wind farm looks and sounds like and to find out more about renewable energy. The creation of Whitelee has seen large sections of the countryside become accessible for the first time and the wind farm has been responsible for a major increase in people accessing Eaglesham Moor.' (Keith Anderson, CEO of ScottishPower Renewables at: http://www.whiteleewindfarm.co.uk/news/whitelee_windfarm_visitor_centre_re_opens_summer accessed 23 April 2012)

2.5.14 The findings related to the potential impact of the development of the proposed wind farm at Fullabrook in Devon indicated there would be neither an overall decline in number of tourists visiting the area nor any overall financial loss in

tourism-related earnings as a result of the wind farm. In fact, it is quite possible that the wind farm could result in an increase in visitor numbers and tourist-related expenditure. The wind farm became operational at the end of 2011 and summer 2012 will be its first 'tourism season'.

2.5.15 The findings from the UWE study in North Devon broadly accord with those of the other major academic study of the impact of wind farms on tourism; that conducted by Glasgow Caledonian University in 2008 into *The Economic Impact of Wind Farms on Scottish Tourism*.

2.5.16 Previous research has demonstrated that the development of sustainable tourism, and the attraction of tourists with an interest in the environment, natural heritage and culture, is wholly compatible with the development of renewable energy including wind farms. Predictions outlined in the GCU research examining the impact of wind farms on tourism are that 'If the renewables target (to generate at least 50% of Scotland's electricity from renewable sources by 2020) is met via substantial wind farm development, Scottish tourism revenues in 2015 are forecast to be 0.18% lower (£7.6 million) than they would have been if there were no wind farms in Scotland (Glasgow Caledonian University, 2008: 1). It is vital to note here that the authors of the report emphasise that this figure of 0.18% does not represent a reduction from current levels of tourism revenue but a reduction in the predicted level of growth between 2008 and 2015. Moreover, as the authors of the study stress, 'Those areas with fewer wind farms are likely to see greater increases in tourism than they would otherwise and this will act to offset slower growth in other parts of the country. Only a negligible fraction of tourists will change their decision whether to return to Scotland as a whole because they have seen a wind farm during their visit' (Glasgow Caledonian University, 2008: 6).

2.5.17 Indeed, the authors of *The Economic Impact of Wind Farms on Scottish Tourism*, concluded that 'Overall the finding of the research is that if the tourism and renewable industries work together to ensure that suitably sized wind farms are sensitively sited, whilst at the same time affording parts of Scotland protection from development, then the impacts on anticipated growth paths are expected to be so small that there is no reason to believe that Scottish Government targets for both sectors are incompatible' (Glasgow Caledonian University, 2008: 8).

2.5.18 Similarly, the research conducted by GCU stated that 'Importantly, respondents that had seen a wind farm were less hostile than those who had not' (Glasgow

Caledonian University, 2008: 3). Starling's and Glasgow Caledonian University's findings therefore lend support to Young's research; namely, that opposition to wind farms tends to fall after construction.

2.5.19 The GCU research also reiterates findings from the research conducted in North Devon by Professor Aitchison and discussed in detail above. In particular, the Scottish research found that 'The vast majority (93-99%) of tourists that had seen a wind farm in the local area suggested that the experience would not have any effect on their decision to return to that area, or to Scotland as a whole (Glasgow Caledonian University, 2008: 4).

2.5.20 The UWE and GCU studies are therefore consistent in their conclusion that the development of wind farms will not result in a reduction in tourist numbers, tourist experience or tourism revenue. Given the similarity between North Devon, Mid-Wales and Scotland in tourism landscapes, visitor attractions and tourists themselves, it is possible that the planned and sustainable development of wind farms in Scotland, will induce no overall financial loss in tourism-related earnings.

2.5.21 In fact, as was indicated in the UWE research, it is possible that the planned and sustainable development of wind farms in Scotland could result in a small increase in visitor numbers and tourist-related expenditure. This is most likely to be the case where renewable energy projects are developed in tandem with the development of visitor attractions.

2.6 Lack of Evidence of Negative Impact

2.6.1 Previous research from other areas of the UK has demonstrated that wind farms are very unlikely to have any adverse impact on tourist numbers (volume), tourist expenditure (value) or tourism experience (satisfaction) (Glasgow Caledonian University, 2008; University of the West of England, 2004). Moreover, to date, there is no evidence to demonstrate that any wind farm development in the UK or overseas has resulted in any adverse impact on tourism.

2.6.2 The Inspector's Report into Middlemoor in Northumbria emphasised both the lack of general evidence relating to any detrimental impact to tourism as a result of wind farm development and the lack of any specific negative impact in the Northumberland area. He stated in paragraphs 478-480 '*There appears to be no evidence from other parts of the country or abroad to suggest that the presence*

of wind farms in open countryside has harmed the tourist industry. Both Cumbria and Cornwall have experienced a rise in tourist numbers since the first wind farms were installed. According to the presentation prepared by the British Wind Energy Association to the All-Party Parliamentary Group on Tourism, 24 May 2006, surveys and reports investigating wind energy and tourism demonstrate that the effect on tourism is negligible at worst, with many respondents taking a positive view of wind farms'. The inspector went on to find that the distance of Middlemoor from the major centres of tourist activity in Northumberland would mean that 'there would be no adverse cumulative effects on tourism, beyond consideration of visual impact' and that 'there is no reason to suppose that local businesses would be affected by the wind farm development' (The Planning Inspectorate, 2008).

2.6.3 In circumstances very similar to those of a number of existing and proposed Scottish wind farm developments, the Inspector stated that *'In the case of the Middlemoor proposal, tourist provision, in terms of attractions and accommodation, appears to be concentrated in the coastal strip to the east; Rothbury and Coquetdale well to the south west of Alnwick; and the fringes of the national park to the west, including Wooler, Ford and Etal. Middlemoor lies between and relatively distant from these areas and this is one of the reasons North/South Charlton was assessed as a Broad Area of Least Constraint (BALC) in the RSS'. (The Planning Inspectorate, 2008: 89).*

2.6.4 In summary, drawing on related evidence from studies in similar rural locations such as Devon, Cornwall, Northumbria and Mid Wales, from the conclusions drawn from Inspector's reports where tourism has been discussed in detail (Fullabrook in Devon and Middlemoor in Northumbria), and from the decision by Berwick-Upon-Tweed Borough Council not to contest the Wandylaw proposal on the grounds of tourism impact, it can be concluded that there is no evidence to support the assertion that the development of wind farms will have a detrimental economic impact on tourism in Scotland.

3. CONCLUSIONS

3.1 Although tourism research relating to wind farm developments is limited compared with that on policy, landscape, ecology and noise it is increasingly evident that there is an emerging consensus within the research examining the actual and potential impact of wind farms on tourism. The clear consensus is that there has been no measurable economic impact, either positively or negatively, of

wind farms on tourism. Similarly, there is consensus among researchers of studies that have sought to predict the more specific potential economic impact of wind farms on tourism. Here again, there is no evidence to support the assertion that wind farms are likely to have a negative economic impact on tourism.

- 3.2 The opposition to wind farms on tourism grounds is informed more by fear than fact. The research conducted by GCU stated that 'Importantly, respondents that had seen a wind farm were less hostile than those who had not' (Glasgow Caledonian University, 2008: 3). Starling's and Glasgow Caledonian University's findings therefore lend support to Young's (2003) research; namely, that opposition to wind farms tends to fall after construction.
- 3.3 It is possible, however, to gauge the potential impact by drawing on evidence from a range of relevant sources. This analysis and extrapolation of data to reach legitimate conclusions must be undertaken with care and requires an understanding of and experience in research methodology and tourism impact analysis in rural areas.
- 3.4 A number of conditions must be borne in mind when determining the legitimacy of the findings of previous research that has sought to determine the impact of wind farms on tourism as the quality of the research is highly varied:
- The research should take the form of a survey of tourists rather than tourism businesses
 - The survey methodology and sampling frame must be rigorous, reliable and valid
 - The findings obtained from the survey should not be extrapolated across broad geographical areas that will not be impacted to the same degree by any wind farm development
 - The findings of all tourism research should be seen within the context of tourism as a growth industry and thus any limited negative impact is likely to be an impact on growth rather than on current levels of tourism
 - The research should acknowledge that the tourism business is dynamic and self-generating such that when a particular type of tourist ceases to visit an area they are frequently replaced by a different type of tourist thus continuing 'the tourist lifecycle' of destinations and resorts

- 3.6 Taking the above factors into account in a critical review of previous research, and contextualising such research in relation to both the tourism geography of Scotland and wider VisitScotland tourism policy, it can be concluded that:
- A managed and sustainable approach to wind farm development in Scotland is likely to have little or no impact on tourist numbers (volume), expenditure (value) or experience (satisfaction)
 - Any impact is as likely to result in more tourist visitors as it is fewer tourists
 - Although a very small number of current visitors might choose not to repeat their visit because of the presence of a wind farm this number is likely to be off-set by additional tourists who visit irrespective of the presence of a wind farm, return because of the wind farm or visit for the first time because of the wind farm
 - Tourist numbers are likely to increase significantly if the wind farm is accompanied by a visitor attraction
- 3.8 In conclusion, the findings from both primary and secondary research relating to the actual and potential tourism impact of wind farms indicate that there will be neither an overall decline in the number of tourists visiting an area nor any overall financial loss in tourism-related earnings as a result of a wind farm development.

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Appendix 1: PROFESSOR CARA AITCHISON: QUALIFICATIONS AND EXPERIENCE

- i.i This submission has been compiled by Professor Cara Carmichael Aitchison. Professor Aitchison holds an MA (Honours) degree in Geography (Edinburgh), specialising in integrated rural development, a Postgraduate Diploma in Recreation and Leisure Practice, a Certificate in Education, a postgraduate MA in Social Science and a PhD in Geography and Leisure Studies (Bristol).
- i.ii Professor Aitchison is an Academician (Fellow) of the Society for the Social Sciences, elected in 2003. She has been a member of the Leisure Studies Association since 1989 and was Chair of the Association from 2001-2004. She is a Fellow of the World Leisure Academy and held the position of Commission Chair of one of the eight World Leisure Research Commissions from 2002-2008. In 2004 Professor Aitchison was appointed as the tourism and leisure expert to the UK government's Research Assessment Exercise (2008) to assess the quality of research in UK universities between 2001 and 2008. In 2010 she was appointed as Chair of the subsequent Research Excellence Framework (2013) Sub-Panel for Sport and Exercise Sciences, Leisure and Tourism to lead the assessment of research between 2008 and 2013. This Sub-Panel is one of 36 covering all areas of research in UK universities, is the only panel to explicitly include tourism within its remit and, of the 36 Chairs from UK universities, Professor Aitchison is the only Chair from a Scottish university.
- i.iii Professor Aitchison is an Associate Editor of *Annals of Tourism Research*, recognised as the leading international peer reviewed tourism research journal. She is an Editorial Board member of the *Journal of Leisure Studies*, recognised as the leading international peer reviewed leisure research journal. She is regularly invited to review research papers and research proposals for major research funding bodies including the UK Research Councils. She was a member of the Arts and Humanities Research Council (AHRC) Peer Review College from 2004-2007 and is currently a member of the Economic and Social Research Council (ESRC) Peer Review College, having been nominated by the UK Association of Tourism in Higher Education (ATHE).
- i.iv Professor Aitchison has been employed in higher education tourism education and research for 23 years. She was the Programme Leader of the UK's first BA (Honours) Leisure and Tourism Management degree and the Programme Leader of the UK's longest established Masters degree in Leisure and Tourism Studies at the University of North London where she was a Senior Lecturer and then Principal Lecturer in Leisure and Tourism Studies between 1990 and 1997. She developed her research career to become the Head of the Leisure and Sport Research Unit at the University of Gloucestershire in 2001 where she was also a Reader in the world-renowned Countryside and Community Research Institute under the Directorship of Professor Nigel Curry. In 2003 she was appointed Professor in Human

Geography at the University of the West of England and subsequently established and became the Director of the Centre for Leisure, Tourism and Society.

- i.v In 2008 Professor Aitchison was appointed Dean of the Faculty of Education, Sport and Tourism at the University of Bedfordshire and Professor in Leisure and Tourism Studies where she managed a Faculty of over 4,000 students and over 100 permanent academic staff. The University of Bedfordshire was judged to have 'world leading research activity' in tourism in the Research Assessment Exercise (2008) and was one of only three UK universities to achieve the highest grade for tourism in the previous Research Assessment Exercise (2001).
- i.vi In 2010 Professor Aitchison was appointed to the role of Head of Moray House School of Education at the University of Edinburgh where she also took up an established Chair in Social and Environmental Justice. Moray House is the largest School of Education in Scotland and one of the largest in the UK with over 200 permanent staff, over 200 fixed term, seconded and visiting staff and approximately 3,500 students, including over 100 PhD students. The University of Edinburgh is Scotland's premier research university and was graded 6th among UK Universities in the national Research Assessment Exercise (2008). Research, including tourism and leisure studies, submitted by Moray House School of Education to the RAE (2008), received the highest award of all Education submissions in Scotland and the second highest in the UK.
- i.vii Professor Aitchison's research focuses on three areas:
- Sustainable rural economies and communities: the development and impact of tourism, leisure and recreation and their integration with other sectors of sustainable rural development
 - Social inclusion, equality, diversity and identity: the integration of social, cultural and spatial theories and policies to enhance equality, diversity and inclusion in and through leisure, sport and tourism
 - Sociology of education: epistemology, methodology and pedagogy within leisure, sport and tourism education and wider social science
- i.viii Professor Aitchison's assessment of the tourism impact of wind farms draws on her extensive academic and theoretical research in tourism studies together with her knowledge of research methodology to inform her applied research and consultancy in rural tourism. She has taught tourism studies and research methods at postgraduate level, has supervised eight doctoral students to completion and has published research on qualitative research methods in tourism. She has an international reputation for her research in tourism and leisure with almost 200 research outputs including: nine books; 49 refereed academic research papers and book chapters; 58 invited presentations and lectures including keynote papers at international tourism and leisure conferences in Australia, Brazil, Iran, Latvia, the Netherlands, the UK and the USA; 46 peer reviewed presentations

at national and international conferences and over 60 other non-refereed research reports and published articles.

- i.ix Professor Aitchison has an interest in developing both original conceptual research and theory-informed applied research that contributes to policy and practice in leisure, sport, tourism and rural development. As Principal Investigator she has managed over 20 funded research projects including needs analyses, community consultations, feasibility studies, impact assessments, policy evaluation studies and research networks. These projects have been funded by the ESRC, British Academy and national, regional and local bodies in the public, commercial and third sectors including the Countryside Council for Wales, local authorities in England and Scotland, the Forestry Commission, renewable energy companies, a number of national disability organisations and professional bodies in leisure, sport and recreation including the Institute for Sports, Parks and Leisure.
- i.x Professor Aitchison's experience in research specifically examining the tourism impact of wind farms has been developed over the last eight years. In 2004 she undertook extensive survey research of the tourism impacts of existing wind farms in Mid Wales and Cornwall and of a proposed wind farm (Fullabrook) in Devon. She then acted as an Expert Witness at the Public Inquiry into the Fullabrook Wind Farm proposal in North Devon in 2006-2007. In 2009 she undertook research into the potential tourism impact of proposed wind farms in Northumbria, focusing particularly on the Moorsyde Wind Farm proposal by Your Energy Ltd. She then acted as an Expert Witness at the Moorsyde Planning Appeal in 2009. In 2011 she undertook research into the potential tourism impact of Bryn Llywelyn Wind Farm in Carmarthenshire in Wales and she is currently examining the tourism impact of a further wind farm in Powys in Wales. Her research has been disseminated in documentary form for academic and policy audiences and through her appearances as an Expert Witness. This research has been scrutinised at the highest level in academic, planning and legal fora including the High Court. In all cases her research has been found to meet the highest standards of originality, significance and rigour as specified by assessment criteria of the UK Research Excellence Framework. In addition, the Planning Inspector for the Fullabrook Wind Farm Public Inquiry drew particular reference to the quality of Professor Aitchison's research relative to other tourism research that had been presented at the inquiry.