EVALUATION OF THE IMPACTS OF ONSHORE WIND FARMS ON TOURISM

A Report Commissioned by Northumberland County Council

October 2014

Executive Overview

The increase in onshore wind farms in recent years as a strategy to shoulder some of the responsibility of generating renewable capacity has led to an often fierce debate about the desirability of further growth. Part of the debate is the concern about negative impacts of onshore wind farm development on the tourism sector.

Tourism is very important to Northumberland and there is a requirement for the County Council to have access to an objective assessment of the most reliable evidence on the actual impacts of wind farms on tourism in UK settings that may or may not offer useful comparability to Northumberland. A particular issue faced by planners and decision-makers is that there is much unsubstantiated or selectively derived opinion on the relationship between wind farms and tourism. This report offers a reliable pathway through such material, in a UK context, and critically assesses its own contribution to knowledge on the issues raised in relation to the Northumberland setting.

The report comprises findings from four pieces of research: a 'meta-study' of research that has been published on the impacts of wind farms on tourism throughout the UK; an online survey of potential tourists to Northumberland; an online survey of Northumberland based, tourism-related, businesses on the impacts of wind farms on them; and a focus group with twelve people who represent the voice of concern regarding the impacts of wind farms on tourism in Northumberland.

The desk-based meta-study

The desk-based meta-study consists of numerous steps that constitute a detailed and planned pathway for funnelling extant UK research studies toward a logical, overall and authoritative outcome or set of outcomes derived from evidence.

The overall conclusion from the desk-based meta-study is that there is no empirical evidence to-date that wind farms/turbines have a significant impact on tourism either positively or negatively in UK settings.

The research brief requested the team to consider whether any of the studies consulted had been 'effectively used to inform the statutory planning process'. There is no indication that any of the studies consulted have been effectively used to inform the statutory planning process.

A decision making framework based on the generalised UK findings is provided as a potential aid to planners when considering the potential impacts of wind farm development(s) on tourism in a given area.

The online survey of potential visitors to Northumberland

The overall conclusion of the online survey of potential visitors to Northumberland is: The impact of additional wind farms on visitor numbers to Northumberland is present but the majority feel that wind farms are not having an influence on their likelihood to visit the area. Only 11% said that the presence of wind farms would affect their decision to visit Northumberland. For those whose decision to visit would be affected this was primarily because of the impact on scenery and because they are unattractive but overall 61% of the total sample agree that a correctly sited wind farm does not ruin or intrude on the landscape.

The online survey of tourism-related businesses in Northumberland

The online survey of tourism-related businesses in Northumberland found that 63% of respondents said that wind farms had not impacted upon their businesses. However, the remaining 37% who said that they experienced negative effects is a significant minority. 33% of the respondents said their future investment decisions will be affected by future wind turbine development, again a significant minority of the Northumberland business community. Concerns about negative impacts on landscape and scenery and the effects of this on tourists are uppermost in these responses.

The focus group

The focus group with twelve people representing the voice of concern regarding the impacts of wind farms on tourism in Northumberland revealed a very deep scepticism of any voice or research that indicates wind farms are either neutral or beneficial in regard to tourism because, as this opinion has it, this does not square with day to day, real world experience of Northumberland. This is particularly the case regarding certain localities. Numerous qualitative comments in the tourism related business survey concur with this body of opinion.

Limitations of this report

The findings of the desk-based meta-study cannot be definitive with regard to Northumberland because of two key points: 1) there is a dearth of robust UK studies, particularly in recent years (when turbine sizes have tended to increase because of technological advances); and 2) there was no robust empirical research undertaken in Northumberland found and all the research findings in the report are drawn from empirical research undertaken in locations other than Northumberland. Therefore, the scope to extrapolate conclusions from extant UK research to the Northumberland setting is very limited indeed, and it is not recommend that concrete conclusions relating to Northumberland be drawn from any of the specific or general conclusions of the desk-based meta-study. The findings of the 'meta-study' are useful for information purposes.

The online survey of potential tourists to Northumberland does not assess the actual impacts of wind farms on tourism because of its geographical remoteness to Northumberland. It therefore only gives an indication of potential visitor intentions, not actual visitor intentions, to visit Northumberland in light of wind farm development there.

The online survey with tourism-related businesses is limited because, as Aitcheson (2012) indicates, surveying tourism-related businesses in such a way does not address the issue regarding the impacts wind farms have on tourism. Rather, such a survey reveals only how businesses assess the effects wind farms have had or are having on them.

The focus group cannot be considered as being representative in any statistical sense, but it does give some representation to the voice of concern regarding the impacts of wind farms/turbines on tourism in Northumberland.

Recommendations

Given these limitations, empirical research in Northumberland itself that specifically addresses the impacts of wind farms on tourism there is needed. Such research would draw robust conclusions

that would be timely, geographically specific, and therefore of significant use to planners and decision-makers in Northumberland on the relationship between wind farms and tourism there.

Furthermore, given the out of date nature and the varied quality of the extant UK empirical research on this issue it would be timely to conduct longitudinal research that revisits a selection of the cases in that research to undertake further empirical work that 'tests' the older findings and recommendations in the 'here and now'. This work would greatly strengthen the ability to build robust generalised conclusions on the impacts of wind farms on tourism in UK settings.

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Introduction

1. Purpose, scope and context

Purpose and scope

1.1 This report presents the findings of four studies that, together, evaluate the impacts of wind farms on tourism in Northumberland, both in a national and in a regional context. The studies are:

- A systematic desk-based, meta-study review of research studies which assess the effects of onshore wind farms on tourism in the UK.
- A survey of potential tourists' views on the effects of wind farms in Northumberland on their visitation intentions
- A survey of Northumberland tourism-related businesses on the impacts of wind farms on tourism in Northumberland
- A focus group with twelve representatives of groups or organisations that are interested in and/or concerned with the impacts of wind farms in Northumberland

Please note, any reference to wind farms or wind turbines in this document is a reference to onshore wind farms and/or turbines (excepting small scale domestic turbines) unless otherwise stated. Furthermore, the words 'tourist' and 'visitor' are used interchangeably. The phrases 'wind farms' and 'wind turbines' are also used interchangeably at times but the report endeavours to clarify any potential confusions of meaning either by direct reference or by making meanings clear in relation to the context in which these phrases are used.

The context: Northumberland, tourism and wind farms

1.2 The policy to increase onshore wind farms in recent years in Europe and the UK as a strategy to shoulder some of the responsibility of generating renewable capacity has led to an often fierce debate about the desirability of further growth. An important part of the debate is the concern about negative impacts on the landscape and its amenity value which in turn impacts on visitors and therefore the tourism sector. Moreover, the increasing diversity of ownership of wind energy projects and the government's spatial strategy for wind farms will see a concentration of development opportunities into further large scale projects in relatively sparsely populated rural

areas. This is a particular concern for Northumberland tourism because it is officially the most sparsely populated county in England, with only 62 people per square kilometre.

1.3 Northumberland is also a county blessed with many natural and cultural assets, and landscape is key to its draw for tourists. Tourism is an extremely important to Northumberland, making up 11.8% of the county's economy, bringing in £708 million per annum. Over 11000 jobs are supported directly by tourism expenditure and a further 2000 jobs are supported indirectly. Tourism also raises the profile of the county as a place to visit and invest in. Moreover, to build on success further, there is a 6% growth target set for tourism in Northumberland by 2016, which will result in 795 extra jobs and £42 million more in revenues (NCC tender document 2013; Northumberland Economic Strategy 2010-2015).

1.4 To achieve this Northumberland needs: more visitors; visitors to stay longer; visitors across the whole year and not just the summer; visitors doing more while they are here; visitors spending more in the county; and businesses to invest in more capacity and facilities (ibid.). All of which mean that the Northumberland landscape, which is so important to tourists, needs to be protected and, where possible, enhanced. It is therefore crucial that the County Council can support its decisions on whether or not to permit particular wind farm developments on the most up-to-date and reliable evidence on the *actual* impacts of wind farms on tourism in comparable UK settings to that of Northumberland.

1.5 A particular challenge faced by planners and professional researchers is the amount of unsubstantiated or selectively derived opinion on the relationship between wind farms and tourism which is publicly available – particularly on the internet. This comes from a variety of sources such as special interest websites and submissions to public enquiries that selectively quote findings from purported 'robust' studies. However, given that wind farms are a relatively new feature of the British landscape, few studies on this have been conducted in any depth or rigour (Aitchison, 2012). Moreover, what research there is is methodologically patchy and great care needs to be taken to interrogate the validity of these studies. It is this aspect which is of central concern to the desk-based meta-study in this report as it aims to identify the most reliable and appropriate research from which sound conclusions can be drawn. The online surveys with potential visitors and tourism-related businesses in Northumberland, and the focus group research, focus more directly on Northumberland itself and offer different, and useful, contextual comparisons to the desk-based study.

The desk-based research

2. Research design

2.1 This research is underpinned by the following statement in the tender document which states that the desk-based work should

> determine the evidence that already exists with regard to the impact of wind farms on tourism. This will include identifying and assessing the robustness of studies and research undertaken by tourism bodies, wind farm developers, opposition groups and independent organisations locally and in other parts of the country and whether any of this work has been effectively used to inform the statutory planning process. When analysing research, an assessment should be made of whether the findings are based on evidence before or after the wind farms were in place.

2.2 Simply put, the desk-based study requested in the tender is what is commonly termed in evidence based practice research (see below) as a 'meta-study' of research that has been done on the impacts of wind farms on tourism in any area of the UK. The tender document specifically requested that the evidence-base for the desk-based research be derived from searches of various UK sources, such as:

- Tourism bodies
- Wind farm developers
- Opposition groups
- Independent local organisations
- Independent organisations from elsewhere in the UK

In its response to the tender document the Northumbria research team made the case that comparable academic studies published in internationally respected academic journals should be included in the search. The blind peer review processes - in which a selection of experts in the field independently and anonymously review research papers submitted to learned journals - is the most thorough going quality control filter available for any published work. Indeed, because of this thoroughness it can take several years for research to appear in refereed learned journals. From

consulting such a research base the study can confidently build an assessment of the most authoritative studies in terms of validity of methods, their appropriateness to this study, and the reliability of data and findings. Furthermore, the research focus was kept to the UK in order to minimise the problems of inferring data and findings from places so removed from the Northumberland setting to that setting when in reality they have no relational value. Indeed, because of the age of the research reports and papers available and because no empirical evidence based research is available that covers Northumberland, this report is very cautious about extrapolating general conclusions to the Northumberland setting. At best general conclusions offer a useful backcloth but are not definitive or specific enough to do more with regard to the impacts of wind farms on tourism in Northumberland. Furthermore, there was no evidence in the studies consulted that they had been effectively used to inform the statutory planning process.

2.3 To start the meta-study process a wide net was cast in order to gauge the scale and scope of studies available, and to capture as much relevant data as possible from varied sources without too much pre-judgement of credibility at this stage. As stated above, identifying appropriate academic studies published in peer reviewed journals was the first priority and other information was drawn from a wide range of sources including: commissioned reports, policy documents, and public enquiry reports. 'Calls for evidence' where also sent out through varied academic and professional networks of interest to capture potentially important works not available through other search instruments.

2.4 It soon became apparent that a filtering process was needed not only to filter out unsubstantiated reports and commentary but to identify and rank the most reliable data from the most credible sources.

2.5 Once studies of sufficient rigour were identified issues of methodological inconsistencies between them became an important, and complicating, factor because it can be the case that the type of methods used in research can have great bearing on final outcomes. This is a far more important factor than, say, focusing on who commissioned the research because bias or skewed results can be eradicated by good research design regardless of who commissions the research, assuming that the data itself is collected with integrity. It therefore was essential to treat all research equally and assume data was collected with integrity, regardless of who commissioned it, and that the most appropriate research methods were identified to underpin a filtering of the research in a process of elimination of the weakest or inappropriate.

2.6 A further complication is that many studies, particularly large studies, attempting to definitively assess the impacts of wind turbines on tourism have used mixed methods approaches to

corroborate findings. While such triangulation is relatively common and an accepted part of research design, if done less than optimally it can trade off appropriately targeted methods against a catch-all approach that rounds results from a range of methods that are more or less appropriate than others. When this happens results can be of less value than they appear. This is another reason why the desk-based research focus has been on capturing the most methodologically reliable research available rather than, say, taking a more aggregate approach that quantifies results from varied research studies regardless of how they were derived. In so doing the most appropriate and reliable research, according to methods used, have been categorised accordingly. As an adjunct to this other studies were identified that may fall outside of the most appropriate and reliable category but for reasons of further completeness are included in this report and confidence in the findings of these studies is clearly articulated.

2.7 To anchor this approach a working definition of what constituted a 'research study' was developed in order to provide a consistent foundation from which the most appropriate studies can be identified, assessed and compared:

> A research study is either a written report or article that demonstrates credibility, is in the academic or public domain, and is derived from empirical data gathered in the actual field of study whether that be a place or a particular population or both.

Ostensibly, there are two sources of research study examined here: academic and non-academic. As already outlined, the process by which research is scrutinised and peer reviewed before publication in academic journals is far more rigorous to that of commissioned research reports. Therefore, it is logical that baseline control studies should be sourced from there before turning to non-academic research studies to build the evidence base.

2.8 The aim of this strategy was to identify research studies which represent the most recent, directly relevant and robust UK based academic studies and use them as a benchmark for identifying and assessing the most rigorous non-academic UK based studies.

3. Search results of most relevant academic research studies

3.1 The first significant observation was that there are only two academic research studies published in the last five years that, in different ways, assess the impact of wind farms on tourism in a UK context, and both of these are based on empirical evidence from Scotland. The studies are:

> Warren C and McFadyen M (2010) 'Does community ownership affect public attitudes to wind energy? A case study of south-west Scotland' *Land Use Policy* 27 pp. 204-213
>
> Riddington G, McArthur D, Harrison T and Gibson H (2010) 'Assessing the Economic Impact of Wind Farms on Tourism in Scotland: GIS, Surveys and Policy Outcomes' *International Journal of Tourism Research* 12 pp. 237-252.

These papers are very different in a number of respects. The Riddington et al (2010) paper's focus is purely on the economic impacts of wind farms on tourism, while the Warren and McFadyen (2010) focus is on residents' and tourists' expressed opinions on wind farm development. Moreover, the Riddington et al (2010) paper is based on GIS and internet survey data gathered for the GCU (2008) research study discussed in the next section of this report. That research will therefore be considered in its original context of the larger GCU (2008) study in section 4. This leaves only one meaningful paper to consider here, the Warren and McFadyen (2010) paper, which not only provides this study with useful (though relatively dated) data but, more importantly, provides **a validated methodological template** from which a robust assessment and categorisation of the non-academic research studies examined can be built (see sections 3.5 and 3.6 below).

3.2 Warren and McFadyen (2010) researched the attitudes of residents and tourists towards onshore wind farm developments in south-west Scotland in 2006.

> Specifically, it examines the socio-psychological effects which different development models have on attitudes to windfarms by comparing public pereceptions of a community-owned windfarm on the Isle of Gigha with attitudes on the adjacent Kintyre peninsula where several large (15MW) developer-owned windfarms exist. In addition, it investigates the perceptions of both residents and tourists concerning the impacts of onshore windfarms on landscapes and seascapes, including the cummulative effects of multiple windfarms (p. 204).

The research was not commissioned and comprised a survey of 106 residents and 5 face to face interviews with 'key stakeholders' supplemented with 38 face to face interviews with tourists on the Isle of Gigha and the Kintyre peninsula (see Table 1.).

Table 1. **Wind Farms Featured in the Warren and McFadyen (2010) Study**

Name	**Date commissioned**	**No of turbines**	**Turbine Height (m)**	**Capacity (MW)**	**Developer**
Deucheran Hill	2001	9	93	15.8	Powergen
Beinn an Tuiric	2001	46	63	30	Scottish Power
Beinn an Tuiric 2.	Under construction	19	100	38	Scottish Power
Tangy	2002	15	62	12.8	Scottish and Southern Energy
Tangy extension	Under construction	7	75	6	Scottish and Southern Energy
Gigha	2005	3	30	0.7	Gigha Renewable Energy Ltd.

3.3 The interviews with tourists were to specifically test the following hypothesis:

Extensive wind farm development makes a region less attractive to tourists.

The main findings were:

- Tourists expressed a wide range of concerns about wind farms
- Virtually all had seen wind farms during their visit and a quarter found them noticeable or very noticeable
- 20% of tourists had no concerns at all
- 23% were concerned about habitat disruption
- 22% were concerned about visual impact
- 79% were supportive of wind energy in Scotland as a whole and 64% in the locality
- 90% said wind farms would have no effect on them returning
- 50-50 split (5% and 5%) between those who said wind farms are more or less likely to make them return with strong views expressed at each end of the spectrum

- Overall, 'the presence of wind farms was not a significant factor for most tourists in their choice of destination' (page 209).

3.4 Warren and McFadyen (2010: 210) conclude the tourism aspect of their study thus:

> Critics of wind farms often assert that their landscape impacts will damage Scottish tourism, but the results reported here lend no support to such claims… Although the number of tourists interviewed was small, the results indicate that windfarms are, at present, having no net impact on tourism in this region. The fact that visitor numbers have been increasing since 2004, and that some tourists choose to visit windfarms (TIC, 2006), supports the conclusions of other studies that windfarms are unlikely to damage Scottish tourism (Scottish Government, 2008).
>
> Warren and McFadyen (2010) also make the general point that sensitive siting of wind farms is key and if done well will not only have a neutral effect on tourism but can help promote Scotland as an environmentally friendly country. On understanding public engagement and attitudes toward wind farm development, the main reason why the study was conducted, they conclude: public attitudes are more positive towards windfarm developments in areas where local communities have a direct involvement in them than in areas where they do not… [T]he results of this study show that community-ownership [of windfarms] does not transform an overall negative view of wind power into a positive one; attitudes in the wider population are already broadly positive. What it appears to have done is amplify these pre-existing positive attitudes and supress the negative ones' (p. 211).

They go on to state that given the rapid increases in turbine size and costs, large multinationals are the major players in the market, and significant public opposition has subsequently emerged.

Methodological lessons

3.5 The Riddington et al (2010) paper and the Warren and McFadyen (2010) paper offer two very different methodological means of addressing the impact issue. While both are robust in their own right - and are published in well ranked, international, learned journals as a testament to this - only one, the face to face interviewing of tourists in situ where wind farms are present in the Warren and McFadyen (2010) study, has been replicated to-date in non-academic studies. For practical reasons alone this method deserves consideration as a control mechanism against which to evaluate non-

academic research studies. However, more than this, there are sound methodological reasons to support this approach (also see Aitchison, 2012 for discussion). Its strengths are summarised below:

- The geographical context is real and immediate for those being interviewed
- The tourist experience at the time of interview is therefore embodied and involves all the senses as well emotions and intellectual processes
- It elicits situated knowledge and some dialogue in situ giving the data some contextual depth as well as good coverage of opinion
- It assesses tourism in process from the first-hand point of view of the tourist
- It is not overly technical or specialist and is therefore available to be replicated by all relevant empirical research

3.6 This methodological approach is therefore the primary control mechanism for assessing the viability of non-academic studies in the next section of this report. In this the first line categorisation, Category A, is an analysis of non-academic research studies premised on using substantial face to face interviewing with tourists in situ as the benchmark. For completeness, a further two categories of studies are included: Category B, which is based on studies using face to face interviews with tourists but which are less robust than those studies in Category A; and Category C, which is made up of studies that contain sufficiently reliable research that, while they may be inconsistent in terms of say methodology, methods used and/or research focus, are of sufficient rigour and insight to warrant inclusion and analysis in this report.

4. Search results of the most relevant research studies not published in international, peer reviewed academic journals

4.1 Because all of the studies, except part of one, assessed here are not published in learned journals and have therefore not gone through such a thorough, independent review process, their robustness cannot be assumed in any way. As such, and as explained in the previous section, the method of 'quality control' is to rank the studies in Categories A and B on the basis of their methodological rigour. Studies in Category C are not ranked in this way because of their diversity. Each category ends with a summary conclusion of findings. Moreover, **all findings are those of the studies and not those of the authors of this report.** The categories are as follows:

A. Studies based on substantial use of face to face interviews with tourists in situ - other methods may also have been used

B. Studies based on some use of face to face interviews with tourists in situ

C. Studies of interest and sufficient rigour even though their methodologies, methods or focus are not wholly consistent either with the definition of a research study, methodological control mechanism or with each of the other two categories

Category A.

4.2 Only two research studies meet the methodological rigour criteria set out in section 3. to be included in this category and are reviewed in descending order of significance and reliability. The GCU (2008) study is on existing wind farms - though it also includes proposed wind farms - while the other study, the UWE (2004) study, is on a proposed wind farm development. The full references for the two research studies are:

- Glasgow Caledonian University (GCU) (2008) *The Economic Impact of Wind Farms on Scottish Tourism: A report for the Scottish Government*.
- University of West of England (UWE) (2004) *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 North Devon Wind Power.

4.3 The most comprehensive and sophisticated study is the GCU (2008) research study which, as Regeneris (2014) acknowledge, is widely regarded as the most authoritative study on the impacts of wind turbines/farms on tourism in the UK. The UWE (2004) research study is a substantial piece of work which was submitted to the Renewables Inquiry by the Scottish Government about a proposed

development and commended by the Planning Inspectorate (2007) 'as a model of good practice in research design, implementation and analysis' (Aitchison, 2012 p. 10).

GCU (2008)

4.4 The GCU (2008) study is a very extensive and sophisticated research study that investigates the overall impact of meeting Scotland's wind energy targets on the tourism sector. By way of interviews with tourists, an internet survey with potential tourists, a GIS study of tourist movements, and economic modelling of potential changes in tourist expenditure and consequent changes in employment and income, the research was designed to:

- Identify the potential number of tourists affected by wind farms
- Identify the reactions of those tourists affected by wind farms
- Identify the economic impacts of those reactions

The study explored the actual effects of specific wind farm developments as well as national level impacts because, as other research has identified (e.g. Regeneris, 2014), the size and scale of the area under investigation is an important factor regarding the impacts wind turbines can have on tourism. In the following discussion of the GCU (2008) findings each research method is taken in turn before outlining the study's overall conclusions. This is important because, as already alluded to, in a large mixed methods study such as this the data need to be contextualised by the means through which they were derived to assess whether their triangulation is valid. Because of the level of sophistication of this study, it is the only one that receives an extended analysis of this kind. Details of the geographical case study areas, the numbers of existing wind farms/turbines in these areas, and number of wind farms and turbines seeking planning approval in these areas at the time of the research (2007/2008) are listed in Table 2. below.

Table 2. **Number of Farms and Turbines Considered in the GCU (2008) study**

	Constructed and Permitted		Applications		Total		
Area	**Farms**	**Turbines**	**Farms**	**Turbines**	**Farms**	**Turbines**	**% Scottish Capacity**
Caithness & Sutherland	6	60	8	125	14	195	4.4%
Stirling, Perth & Kinross	4	85	3	88	7	173	5.3%
Scottish Borders	7	157	6	217	13	274	5.4%
Dumfries & Galloway	8	134	10	246	18	380	8.2%
Total	25	436	27	676	52	1022	23.4%

4.5 Importantly, in terms of the control method, the GCU (2008) research conducted 380 face to face interviews with tourists in the four case study areas - Caithness and Sutherland; Stirling, Perth and Kinross; Scottish Borders; Dumfries and Galloway. Key findings are as follows:

- 75% of respondents felt that wind farms had a positive or neutral effect on the landscape (39% positive, 36% neutral, 25% negative)
- 10% of tourists (included in the 25% above) were very negative about the impact of wind farms on the landscape
- the overall figure of 25% of respondents who gave negative responses to the impact of wind farms on the landscape should be seen in context that 49% of respondents were negative about Pylons, 36% about mobile phone masts and 26% about power stations
- 68% agreed that a well sited wind farm does not ruin the landscape
- 48% agreed with the statement 'I like to see wind farms' with a further 24% neutral
- overseas visitors were more positive than domestic tourists about wind farms
- tourists who were active in the rural landscape/countryside tended to be less negative and more positive about wind farms than those who were not (19% negative against 25%, and 45% positive against 39%)
- the vast majority of respondents had seen a wind farm while on holiday and those that did were less hostile to wind farms than the small minority that had not
- 20 to 30% of respondents preferred landscapes without wind farms but only a very small proportion of these changed their intentions about revisiting Scotland because of wind farms

- 93 to 99% of respondents who had seen a wind farm were not affected by that experience
- 2.5% of respondents indicated they would not revisit an area if wind farm development was extended, at the national level this was 0.5%

4.6 The data derived from the GIS modelling and the internet survey was, to a large extent, combined to extrapolate and model findings. As pointed out earlier, this work was also published in an academic journal (Riddington et al, 2010), though not so much for the merits of its findings as for the novelty and argued efficacy of the methodology. The authors freely admit, however, that some of the data they used were 'far from perfect' and that some assumptions they had to make, because of lack of concrete information, 'could be subject to challenge' (p. 250). These issues are common with quantitative work of this nature and while these findings are somewhat speculative the issues do not disable their validity. Indeed, their triangulation with the findings of the face to face interviews strengthens them and adds value by casting further light on potential impacts, though they do need to be read in that context rather than being seen as absolute. Indeed, this is a major reason why it was chosen to assess the GIS and internet survey data here rather than in the previous section via the Riddington et al (2010) paper on its own.

4.7 The internet survey surveyed 600 potential tourists in the UK and 100 from the US for their opinions on wind farms/turbines. The key objective of the GIS modelling was to map tourist movements and position tourist accommodations against the location of wind farms in order to establish any correlated effects. The overall aim was to establish:

- patterns of visitor flows and accommodation location
- current and proposed future wind farm locations and their 'zones of visual impact'
- estimates of possible reduction in price of rooms affected by views of turbines and use this to extrapolate wider economic impacts
- the structure and linkages of tourism in the economy

4.8 The internet survey findings were as follows:

- The youngest respondents (16-25 years) in general thought wind farms have less of an impact than other respondents
- Foreign respondents were more favourably disposed toward wind farms than UK respondents

- 63% would prefer a hotel room without a view of wind turbines, 28% were neutral and 9% positively liked wind farms
- There is diminishing marginal loss of landscape value in relation to size of a wind farm once a wind farm is established
- There would be a drop in accommodation expenditure in each area by tourists of between 0.48% to 1.59% because of wind farm developments

Accommodations more directly exposed to wind farms are expected to be more therefore it is mooted in the report that they may have to alter their pricing accordingly.

4.9 Combining these latter two findings with the GIS data the following effects were calculated in the GCU report:

Table 3. **The Economic Effects of Wind Farm Developments on Tourist Accommodation in the GCU (2008) Study**

Area	**Tourists affected**	**Accommodation affected**	**Reduction in expenditure**
Caithness and Sutherland	81%	4.9%	0.48%
Sterling, Perth and Kinross	85%	6.6%	0.65%
The Scottish Borders	91.6%	6.7%	0.66%
Dumfries and Galloway	98%	16.2%	1.59%

4.10 For example, in the Scottish Borders it can be expected that 91.7% of tourists in that region will be affected by wind farms in one way or another, 6.7% of tourist accommodation bed spaces will be affected by wind farms, and the total net loss of accommodation expenditure in the region can be expected to be 0.66%, which represents a very small trade-off for wind farm development. It is important to note that these extrapolations are based on internet derived (self-selecting) perception surveys and certain assumptions built into the GIS survey. As the GCU (2008) study alludes, it is therefore crucial to note that even the strongest perceptions do not necessarily equate with real world impacts and, as it also finds, tourists who have seen wind farms in place are more disposed towards them.

4.11 It is also worth noting that the study found that price effects can operate independently of impacts on visitor numbers and as a result it is feasible that the number of visitors to an area could remain the same yet the value that they attach to a particular location and willingness to pay for certain activities and/or views may change. For example, some tourists may pay a premium for hotel rooms that do not look onto a wind turbine or wind farm. Concomitantly, rooms that do look out on to wind turbines could have to discount their prices. And, as the internet survey shows, accommodations closest to wind farms will be most affected and, the GCU (2008) study advises, may need to be adept with pricing policies because of this.

Table 4. **Estimated Reduction in General Expenditure of Tourists by Area in the GCU (2008) Study**

Area	**Tourists affected**	**Tourist expenditure reduction**	**Tourist Expenditure £m**	**Expenditure reduction £m**
Caithness and Sutherland	60.75%	1.54%	£37.35	£0.58
Sterling, Perth and Kinross	51%	1.3%	£657	£8.54
The Scottish Borders	62.29%	1.58%	£175	£2.77
Dumfries and Galloway	67.62%	1.72%	£359	£6.17

4.12 Again, taking the Scottish Borders as an example, a total of around 62% of tourists are likely to be affected in terms of overall spending, with a total reduction of 1.58% or £2.77 million in that spending because of wind farm developments.

4.13 The overall conclusion of the GCU (2008) study is that Scotland as a whole would lose a maximum of 211 full time equivalent jobs that would have been gained from tourist spending. This is the equivalent of less than 0.1% of tourism employment in Scotland and equivalent to £4.7 million of income at 2007 prices (page 282). On this the report reemphasises: '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' (p. 6).

4.14 Individual local areas would be more negatively impacted than the country as a whole. This is owing to a substitution effect in which tourists with more negative opinions on wind turbines could

and would switch destinations within Scotland. The size of the tourist area under consideration is therefore vital, and the larger that area the less any negative impacts will be. As with other studies, such as Warren and McFadyen (2010), the GCU (2008) study strongly suggests that careful siting of wind farms is the key issue rather than wind farms per se (though providing generally useable metrics regarding optimum siting in a given location in relation to impacts of wind farms on tourism is something that this and other research consulted abstains from). By way of a general conclusion the GCU (2008) study states:

> The research suggests that there is a need to make clear to the general public that in some "scenic/widerness" areas they will not see large commercial wind farms and that some other areas are marketed as green centres of renewable energy. In this context it should be noted that this research suggests that a few very large farms are better than a large number of small farms. A number of medium sized farms dispersed in a relatively small area so that they become contiguous, is also not desirable… Our overall conclusion is that the effects are so small that provided planning and marketing are carried out effectively, there is no reason why [renewable energy targets and tourism targets] are incompatible (p. 17).

UWE (2004)

4.15 The UWE (2004) was a large study designed to establish the specific impact on visitor numbers, tourist experience and tourism expenditure of the proposed onshore wind farm at Fullabrook, North Devon, commissioned by North Devon Wind Power. 279 face to face interviews were conducted with tourists in three locations: 196 interviews in North Devon (mainly in Ilfracombe, Woolacombe, Braunton and Barnstaple) relatively close to Fullabrook were supplemented with 93 interviews in Mid Wales (Bryn Titli and Carno) and 90 interviews in Cornwall (Bears Down and St Breock) where wind farms had been established for over a decade in order to triangulate data regarding possible future impacts with regards to Fullabrook with actual impacts in comparable locations with established wind farms. Key findings were:

- 94% of tourist would not be discouraged from visiting the area if there was a wind farm
- 4.1% stated that they would be 'marginally' discouraged from visiting
- 2% stated that they would be 'strongly' discouraged from visiting
- 7.2% stated that they would be more encouraged to visit if there was an onshore wind farm

- 87% of respondents stated that the presence of a wind farm would neither discourage or encourage them from visiting
- 58.2% of respondents thought that wind farms have 'no overall impact' on the visitor or tourist experience
- Wind farms could be a tourist attraction for some tourists and if accompanied by a visitor centre many tourists could be attracted

4.16 The overall conclusions were that the Fullabrook wind farm would have: no overall negative impact on visitor numbers, no overall detrimental impact on the tourist experience, and there would be no overall decline in tourist expenditure.

Overall conclusion of this section by University of Northumbria researchers

4.17 These studies do not suggest that wind farms significantly impact upon tourism either positively or negatively and wind farm development will not affect the vast majority of tourists' intentions to return. The small numbers that might be negative about wind farms are off-set by those who are positively disposed toward them. It is significant that those who see a wind farm while on holiday tend to be much more positively disposed toward them than those that had not – suggesting first hand familiarity is an important factor in their acceptance by tourists. Overseas and young visitors/prospective visitors indicated they are most favourably disposed towards wind farms.

4.18 The size and spread of wind farms are important considerations. The GCU (2008) study suggests there is a diminishing loss of landscape value in relation to wind farm size once a farm is developed and that it is better to have fewer larger wind farms than many smaller ones cumulatively spread throughout the landscape. It also suggests that accommodations sited closest to wind farms will be the most affected and may have to reduce prices if room views are directly affected by wind turbines. Views of wind farms on main transit routes are much better tolerated/received.

4.19 Although responses here indicate that wind farms accompanied by a visitor centre could make them part of the tourism economy and enhance the experience of tourists generally, this has not been verified in practice or by research findings as yet.

4.20 Economically, while certain directly affected areas may experience some small loss through displacement of tourists those tourists are unlikely to be lost to the wider region as they substitute affected places for those less affected within the region.

4.21 These considerations point toward the critical issue of the location of wind farms. Indeed, regardless of size, the research suggests that the location of wind farms is perhaps the most important issue and if done sensitively and strategically there is no evidence that tourism and wind farms cannot coexist in an area as long as saturation of the former does not reach a tipping point for the latter.

4.22 The larger the area in spatial terms of the tourism economy under question the greater the ability for it to absorb and manage wind farm impacts optimally whether they be positive or negative impacts.

4.23In general terms, the research here suggests that whether tourists are being questioned about existing wind farms or proposed wind farms, overall wind farms have no positive or negative affect on tourists and their actual or intended visitation behaviour.

Category B.

4.24 This section is made up of five studies: a 2002 Mori study undertaken in Scotland, a study by the Centre for Sustainability (2002) in Somerset, a study conducted by Leeds Metropolitan University (2003) in and around the Lake District National Park, and two somewhat controversial studies conducted by NFO (2002 and 2003) using the same approaches in Scotland and in Wales.

4.25 All the studies are now quite dated but use face to face interviews within the vicinity of wind farms, though not as robustly as those studies in Category A. In the Mori Scotland (2004) only 40% of tourists were aware of the presence of wind farms on their visit, it therefore does not meet the methodological criteria set out in section 3., and the Centre for Sustainability (2002) study on a proposed wind farm development in Somerset was only made available in an abridged form, it was therefore difficult to interrogate this study fully and it is apt that it features in this category. The Leeds Metropolitan University study (Campey et al, 2003) was commissioned by The Friends of the Lake District and was only made available by that organisation in incomplete form, although its main findings were fully available. This study was also not sufficiently well located 'in situ' to meet the methodological criteria set out in section 3. because most of the respondents were not aware of wind farms in the vicinity. It therefore sits well alongside the other studies in this section of the report because of its limitations. The NFO studies are often referred to by tourism-related interests that are anti, or sceptical of, wind farm development, and are somewhat controversial because of the way they use face to face interviews with tourists (discussed in more detail below). The

limitations of these NFO studies are recognised by the Northumbria research team but they are included here for magnanimity because they are referred to so often - though that has no bearing on their assessment and findings in this report. The full references for the five studies are:

- MORI Scotland (2002) *Tourist Attitudes Towards Wind Farms*. Research Study conducted for the Scottish Renewables Forum and British Wind Energy Association
- Centre for Sustainability (2002) *Martin's Hill Wind Farm Tourism Survey* undertaken on behalf of Wind Prospect
- Campey V. et al (2003) *A Study into the Attitudes of Visitors, Tourists and Tourism Organisations towards Wind Farms on the Boundaries of the Lake District National Park*, Leeds Metropolitan University for the Friends of the Lake District
- NFO/System 3 (2002) *Investigation into the Potential Impact of Wind Farms on Tourism in Scotland,* Final report prepared for Visit Scotland
- NFO (2003) *Investigation into the Potential Impact of Wind Farms on Tourism in Wales*, for the Welsh Tourist Board

MORI Scotland (2002)

4.26 In this research over 300 tourists visiting Argyll and Bute were interviewed face to face. There were three large wind farms in operation in the area at that time. Findings were as follows:

- 60% were not aware of the presence of wind farms and 40% were aware
- Of those aware of wind farms circa half could not recall where they were
- 49% had seen the wind farms (which, prima facia, seems to contradict the 60% figure above)
- 71% had visited areas close to wind farms
- 43% said that wind farms had no effect on Argyll as a place to visit
- 8% said that wind farms had a negative effect as a place to visit
- 43% said wind farms had a positive effect on Argyll as a place to visit
- 91% said the presence of wind farms made no difference on intentions to visit in future
- 4% said they were more likely to return
- 2% said they were less likely
- 80% said they would be interested in visiting a visitor centre at a wind farm
- 54% said they would be very interested in visiting a visitor centre

4.27 The conclusion was that wind farms are not seen as having a detrimental effect on tourists' visitation and would not deter tourists from visiting the area in future. Moreover, the majority of tourists viewed the prospect of having a visitor centre at the site of wind farms favourably.

The Centre for Sustainable Energy (2002)

4.28 This study was carried out in and around Brean, Sedgemor, Somerset in relation to a proposed wind farm development nearby. Although access to this survey report was not complete there was partial access and it is included here because it was based on 331 face to face interviews with tourists in order to ascertain whether or not the proposed project would have a negative impact on the number of tourists coming to visit the area. The main conclusion was that there would be no significant difference to the number of tourists visiting the area. The specific findings were:

- 91.5% said that the proposed development would make no difference to how often they visit the area
- 3.6% said they would visit less often
- 3.9% said they would visit more often
- 0.9% had no opinion
- The majority of respondents supported wind technology, with a total of approximately 8 out of 10 in favour or strongly in favour of wind power
- Approximately 7 out of 10 respondents viewed the proposed wind farm as a positive development for the area

Campey et al (2003)

4.29 These Leeds Metropolitan University researchers were commissioned by the Friends of the Lake District to examine views of tourists, tourism organisations and businesses on three wind farms located on the borders of the Lake District National Park at Lambrigg near Kendal, Kirkby Moor near Ulverston and the proposed development at Wharrels Hill near Bothel. 143 tourists were surveyed at Ambelside, Cockermouth, Grizdale, Keswick, Killington Lake Service Station and Windermere. However, the majority of visitors were not aware of the subject wind farms (see the main findings below), thus the survey was not sufficiently well located 'in situ' to meet the methodological criteria set out in section 3. for the study to be included in Category A. The survey does, however, cover a sufficient number of visitors to be of some plausibility within the limitations of this Category. The main findings, specifically in relation to tourists, were:

- 87% were positive about renewable energy
- There was little or no effect of wind farms on tourism within Cumbria
- The majority of visitors were not aware of the wind farms and after being made aware they did not feel the wind farms would impact upon their future visits
- 75% said that increases in the number of turbines in the next few years would not have any effect on them visiting in future
- 6% said wind farms looked attractive in the landscape
- 58% said that wind farms were more attractive than mobile phone pylons and telegraph poles
- 22% said that if the number of wind turbines increased considerably over the next few years, they would be discouraged from visiting the area
- Most (over 100) would prefer wind farms to be located offshore
- 47% said that visitor centres would make no difference to their opinion of wind farms though 31% said they would make them more positive and 31% said visitor centres would make them more inclined to visit

4.30 The study concludes by saying that overall responses were positive towards wind farms but that 22% said they could be discouraged by future wind farm development. There are no up-dated figures on tourist visitation to either support or refute this latter figure.

NFO (2002 and 2003)

4.31 The 2002 study was commissioned by Visit Scotland and used face to face interviews in what has come to be known as the Hall Test. Briefly, this involved inviting tourists to a hall in location for a 30 minute semi structured discussion of the issue at hand – in this case the importance of scenery to the tourist experience. There are issues with the selectivity of this approach because it distilled those tourists who described landscape and scenery as of prime importance to their visit to become the subject grouping. Other tourists who may have been visiting for business, VFR and even golf and fishing were filtered out and excluded from the research.

4.32 The Northumbria University research team is cautious about the findings of this study because of this selectivity and are not convinced at all by the stage management of the research process. Moreover, wind farms were not indicated as being the prime focus of the research, and neither tourists or researchers mentioned them until well into the process when respondents were prompted toward giving opinions on wind farms via questioning that could justifiably be interpreted

as being of a rather leading nature. Other reports such as Aitchison (2012), Regeneris (2014) and GCU (2008) have expressed similar concerns.

4.33 In all, the 2002 study selected 180 tourists for interview via 6 Hall Tests in locations across Scotland that where in the proximity of existing wind farms or planned wind farms. The locations were: Galashiels, Portree, Oban, Huntly, Dumfries and Stornoway. When the overt focus was on scenery generally wind farms were not identified as significant until that focus became more apparent in the questioning, which suggests that respondents needed a degree of prompting or leading before wind farms became an issue in the research. This compromises the validity of the research and its findings because it skews the data toward negative outcomes, and it should be noted that the findings presented below were gathered from that point in the research process when the issues surrounding wind farms appear to have been prompted:

- 40% of respondents were from Scotland, 38% were from other parts of the UK, 23% from overseas
- Just under half had seen a wind farm in Scotland
- 75% were neutral or positive about wind farms
- 21% were negative
- 31% stated that scenery and landscape would be spoiled by wind farms and a further 7% described the impact as 'awful/dreadful/appalling'
- A similar figure to the above indicated that wind farms in the landscape may change their planned behaviour
- Tourists favoured more smaller wind farms than fewer large ones
- Tourist with experience of wind farms were marginally less negative about them
- 49% said wind farms should be located offshore
- 63% said further wind farm development would not influence their decision to revisit, a further 2% said the impact would be minimal and 15% would 'steer clear of the area', 0% said they would be more likely to revisit because of wind farms

4.34 The 2003 study by NFO was commissioned by the Welsh Tourist Board and used the same approach as the Scotland study. 266 respondents were interviewed via 8 Hall Tests across Wales. The locations were: Aberystwyth, Machynlleth, Knighton, Rhyl/Colwyn Bay, Porthcawl, Rhayader, Welshpool and Hay-on-Wye. Main findings were as follows:

- 70% were UK based, 20% domestic and 10% from overseas
- 66% had seen an onshore wind farm in Wales
- 78% were neutral or positive about wind farms
- 21% were negative
- 33% thought wind farms would impact negatively on landscape and scenery
- 23% thought negatively about wind farms with 48% saying the same for pylons and 37% for phone masts. Wind farms were eighth on this negativity list
- Tourists favoured more smaller wind farms than fewer large ones
- Tourists with experience of wind farms were marginally less negative about them
- 83% said the most appropriate location for wind farms was offshore
- 68% said further wind farm development would not influence their decision to revisit, a further 9% said the impact would be minimal and 11% would 'steer clear of the area', 0% said they would be more likely to revisit because of wind farms

4.35 In the round, the NFO studies do not conclude that wind farms have a negative impact on tourism. Indeed, in both respectively, 75% and 78% of tourists were neutral or positive about wind farms while 25% and 22% where negative. It is also noteworthy that these studies indicate how those tourists who had seen wind farms during their visit were marginally less negative about them than those who had not. The issue of size of wind farms contrasts with the findings of the GCU (2008) study which concludes that fewer larger wind farms is the better development strategy. However, given that the GCU (2008) study is by far more robust, its conclusions need to be given more weight.

Overall conclusion of this section by University of Northumbria researchers

4.36 Even though the NFO studies are, often selectively, cited by those opposed to wind farm development as being an authority on the issue, and are compromised by the research design, overall they do not support the view that wind farms negatively affect tourism in any significant way. Indeed, some of their detailed findings – for example, on wind farms against pylons – fall in line very much with other studies to indicate the relatively benign nature of wind farms regarding their impacts upon tourism. Even though the methods used in these studies are not robust or valid enough (for the reasons explained above) for us to rely upon their findings, they hardly challenge the conclusions of the studies in Category A. The other studies in this category, Category B, concur with this, though they too have their limitations as pointed out.

4.37 However, there is suggestion in the NFO studies worth taking note of that small wind farms are preferable to tourists than large ones. This seems, to this research team, too simplistic a conclusion that is partially derived. Moreover, given that all the studies in this Category are around twelve/thirteen years old, and that wind farm technologies and development trajectories have moved on since they were conducted, and that there is more recent and robust UK research available, any findings and conclusions need to be seen in that light.

Category C.

4.38 In this category relatively recent studies which add value to this report are discussed even though they fall outside the strict definitions set to distinguish research that is directly relevant to the report's purpose. There is no overall consistency in these studies in terms of authorship, methodologies and methods used, empiricism (or otherwise), and audience; but in their various ways they have valid things to say that are of significance to this report. The studies are:

> Eltham DC, Harrison GP, and Allen SJ (2008) 'Change in public attitudes towards a Cornish wind farm: Implications for planning'. *Energy Policy* 36 pp. 23-33
>
> Aitchison C (2012) 'Tourism Impacts of Wind farms: a discussion paper' Submitted to Renewables Inquiry Scottish Government.
>
> The Tourism Company (2012) 'The impact of wind turbines on tourism – a literature review' Prepared for Isle of Anglesey County Council
>
> Regeneris Consulting and the Tourism Co (2014) 'Study into the potential Economic Impact Wind Farms and Associated Grid Infrastructure on the Welsh Tourism Sector'. Commissioned by the Welsh Government.

Eltham et al (2008)

4.39 This academic study is useful even though it did not survey or interview tourists for its primary evidence gathering. It does mention tourism, however, and is arguably the best study available on assessing public attitudes towards wind farm development in a setting potentially comparable to Northumberland **pre and post development**. It is therefore included for comment here.

4.40 Using face to face interviews, the study was designed to assess how and whether opinions of residents of St Newlyn East, Cornwall had changed on the development of the Carland Cross wind farm between 1991, prior to its development, and 2006, after they had lived with the development for 14 years. Press coverage of the development during the early 1990s was also consulted as a comparative reference point for the interviews. Eltham et al (2008, p. 25) describe the geographical circumstances of the 6 MW Carland Cross wind farm as 'offering a more rural location over other Cornish wind farms' and that:

> The wind farm has 15 turbines (each 30m high)constructed upon the highest hill in the area at an altitude of 149m and surrounded by sparsely vegetated moorland and downland. The village of St. Newlyn East, 2 and 1/4km from Carland Cross, with a population of 1230 (Cornwall County Council, 2000) was used for questioning due to uninterrupted vistas of the wind farm across the Lappa Valley.

4.41 The study's main findings and recommendations are as follows:

- No statistically reliable changes in the opinion of residents on the acceptance of the wind farm were ascertained
- The majority of the population was in support before and after the development in 1991 and 2006 respectively
- A significant decrease in the proportion of residents unable to identify a positive impact of the wind farm over the period was recorded
- Significant increase in residents finding wind turbines visually attractive and the wind farm being a valuable asset was recorded
- The above may imply that up to three times the total installed wind capacity in the UK between 1999 and 2002 was unnecessarily declined. On this the paper says:

> underpinning such objections is often a selection of social and institutional factors, such as disbelief in the planning system, distrust of the developer or the persuasive opinion of local opposition groups (p. 32).

4.42 The paper concludes by saying that local populations need to be engaged early in the decision making process so that concerns about wind farms can be addressed through dialogue between stakeholders. Furthermore, appropriate empirical evidence needs to inform/underpin such dialogue to mitigate the proportion of residents responding negatively to wind farm developments. Overall,

the study supports the 2007 White Paper *Planning for a Sustainable Future* proposals that community engagement should happen early in the project process and that the requirement for infrastructure be debated at the national level.

Aitchison (2012)

4.43 This is an analysis of primary and secondary studies to date relating to the wider evidence available on tourism impacts of wind farms. Aitchison (2012) outlines a number of conditions in terms of quality, validity and reliability that may determine the legitimacy of findings of previous research. She concurs with the approach taken in this report that face to face interviewing of tourists in situ is the most appropriate research method in this regard.

4.44 As this report does, Aitchison (2012) also concludes that the GCU (2008) study and the UWE (2004) study are the most reliable studies (up to the point when she wrote her report). She summarises the general issues with extant research as follows:

- Much primary research to date contains errors in survey methodology and sampling and the use of inappropriate and biased sampling has been identified.
- In some instances local businesses rather than tourists have been used as the sampling frame and therefore their views as proxy evidence for tourism impacts. This is inappropriate for assessing impacts on tourism but useful for gauging business owners' opinions on tourism impacts.
- The use of self-administered questionnaires is commonplaces but is problematic because they tend to have low response rates and be completed by those with strong (often negative) opinions. Therefore, such motivated responses can be more about (political) opinion than actual impacts.
- Many reports and various correspondences appear as valid analyses of secondary sources of data. However, the use of such data is often selective, poorly extrapolated or even biased.
- Some apparently credible primary studies have subsequently been discredited because of issues around bias and selectivity. A study for The Western Isles Tourist Board by *Hamilton: The Market Specialists* in 2005 is one such example but others too fall into this bracket such as the 2002 and 2003 NFO studies included in this report.

4.45 In conclusion the Aitchison (2012) report states 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 to result in 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.

The Tourism Company (2012)

4.46 This study reviews literature on onshore wind farms and tourism both in the UK and abroad. It does not include a consistent analysis of methodologies but does identify the lack of peer reviewed (academic) literature and discusses results of non-academic studies. It also highlights issues around the impartiality of some research on the impacts of wind farms on tourism. It concludes with the following 'observations' of relevance:

- Most tourists are positive about green energy although this may change over time
- Only a minority of tourists appear to be negative about wind farms, although this is a significant minority
- Tourists prefer small wind farms to large ones but may prefer to see them in one place rather than everywhere
- Wind turbines are not seen as negatively as other structures in the countryside – notably pylons
- A relatively small minority of tourists may stay away because of wind turbines though this may be damaging to markets in certain locations
- The negative effect of existing wind farms on tourism may not be as great as people fear. More longitudinal evidence is needed, however.

Regeneris Consulting and the Tourism Company (2014)

4.47 This study undertakes an analysis of visitor economies in nine areas of Wales affected by wind farms. It looks at extant impacts from three case study areas already affected by wind farms via

local research where available and structured consultations with local tourism trade associations and local authority tourism officers. Key relevant findings are:

- Negligible impact on the national tourism sector
- Limited evidence of local tourism impacts to-date
- The majority of tourists are neutral about wind farm development and the presence of wind farms will not affect their visiting behaviour in future
- Even those tourists who say that wind farms do or would affect their tourist experience do not always change their visiting behaviour in practice
- Reactions to wind farms are complex and may change over time
- There is higher sensitivity to wind farms for certain visitor markets - e.g. older people
- No evidence that wind farms on visitor routes deter tourists
- No drop in visitor numbers during wind farm construction
- Pylons and other associated grid infrastructure more negatively viewed than wind farms

4.48 In conclusion, Regeneris (2014) states that areas under consideration are 'unlikely to experience a significant change in the volume and value of tourism' though some will be more sensitive to impact than others (p. 121). Even though there is little evidence of impact to date the most sensitive areas could be subject to large scale wind farm development over the next 10 years. These areas attract older visitors who come for the natural scenery, landscape and feelings of tranquillity, and it is these markets that may be most sensitive to large scale wind farm development. This said, the other visitors to these sensitive areas are not likely to change their visiting behaviour and therefore it is 'concluded that the overall change in visitor numbers in these [sensitive] areas would be low, but may be moderate for certain visitor markets' (p. 121). These moderate changes may be impactful upon businesses that rely on such visitors and there 'may be a particular challenge for them replacing those visitors which are deterred' (p. 121).

Concluding comments for this section by University of Northumbria researchers

4.49 While these studies vary to significant degrees, collectively they add weight to the pattern of findings from other sources that suggest that the impacts of wind farms have on tourism are nominal at most. There is strong suggestion that first hand familiarity of wind farms brings greater public acceptance of them. Here there is consistency with findings in other sections of the report

that suggests tourists who have been exposed to wind farms are less critical and are more accepting of them than those who have not – including potential tourists who have been surveyed remotely via online surveys. Once again, wind farms are viewed more positively than other grid infrastructures, such as pylons, in the landscape. However, when considering future developments a degree of caution is often expressed in studies and this tends to relate both to the extent and location of wind farm developments. Furthermore, the age of extant studies makes it even more problematic to speculate about future developments. Closely related to this is: understanding current and likely visitor markets in a given area and whether particular market segments may be affected by wind farm development, what the trade-offs are, and whether any displacement of certain tourists will be substituted and/or offset by others.

Concluding discussion of the desk-based meta-study by University of Northumbria researchers

5.1 The findings in this desk-based report are indicative rather than definitive because the research to date is far from mature, extensive, or much of it current. Methodologically, there is significant variation in the way much research has been conducted. Moreover, there is research that is overly selective or not well constructed and there is a plethora of comment that either deliberately or otherwise assembles empirical evidence teleologically to support a pre given position, usually one which is negative about wind farm development. Such reports and commentary are discounted here here by targeting and identifying the most reliable work available that is built on empiricism or what some would call firm evidence. For balance, however, some studies are included that some (lobbying) groups on either side of the argument often draw upon but they are used in an appropriate context by recognising and accounting for their limitations. The inclusion of such studies does not detract from the overall conclusion that to-date there is no evidence to suggest that the development of wind farms has either a significant negative or positive impact on tourism in UK destinations. For completeness, a third category is included of studies that do not hold together neatly but do, in their various ways, add significantly to an understanding of the potential impacts of wind farms and they too concur with the overall conclusion.

5.2 That is not to say there are no risks attached to wind farm development but where negative effects do occur these are often in the form of displaced tourism rather than an absolute loss of tourists to an area. This is particularly the case the larger the area under question. Therefore, at

regional or county level it could be more confidently expected that the impact of wind farms on tourism would be neutral.

5.3 The majority of tourists tend to be positive or indifferent about wind farm development and its effects on their ability to enjoy their visit. Their intentions to return are not significantly affected by wind farm development.

5.4 There is some evidence to suggest that older visitors who value remoteness, landscape and scenery are the most sensitive regarding the visual effects of wind farm development on the landscape. However, in locations where this market is significant the potential negative effect on overall visitor numbers may still be low or at worst moderate.

5.6 Young people and overseas visitors are generally well disposed toward wind farms and tourists exposed to wind farms are less negative about them than those who have not been exposed to them – such as potential tourists surveyed through internet studies (see section 6.). There is also evidence that the general public are more accepting of wind farms as they become accustomed to them, and that initial opposition to wind farm development can turn toward support after construction (also see Braunholz, 2003 on residents' greater acceptance of wind farms after construction in Scotland).

5.7 Moreover, wind farms are becoming more of a feature in the everyday lives of many people across the world, not least in Europe, and this may desensitize the issue further. By contrast, this factor also could enhance the tourist appeal of 'pristine' landscapes devoid of wind farms if such landscapes become something of a rarity.

5.8 There are indications that wind farms accompanied by visitor centres could not only allay the concerns of tourists, potential or otherwise, who express negative feelings toward wind farm development but positively attract others – such as, for example, young and overseas tourists. There is no empirical evidence to support this however, and as Regeneris (2014) state, there is little or no evidence from practice whether or not this would be the case

5.9 The size of wind farms both in terms of scale and number of turbines is a major issue in regarding impact mitigation. The most robust study on this, the GCU (2008) study, suggests that larger and fewer wind farms is optimal. This issue needs to be viewed in the context of what the evidence suggests is an absolutely central consideration: the siting of wind farms. In this regard, wind farms need to be sited in relation to the most appropriate topographical, landscape value and tourism economy contexts.

5.10 The scale and rate of wind farm development in future could change the value judgements of tourists, especially if a tipping-point is reached whereby valued landscapes are felt to be saturated by wind farm developments. There is no evidence in the research examined in this report to suggest this has happened or will happen in practice but this is a potential risk worth pointing out (see Regeneris, 2014).

5.11 With regard to the effects on main arterial routes, there is no evidence to suggest that there would be any significant change in visitor numbers because of tourists using routes in close proximity to large concentrations of turbines to reach their destinations. While small numbers of tourists might be discouraged others would be encouraged to use such routes. The GCU (2008) study, for example, states that long lasting views of wind farms, as those that may be had from a hotel bedroom window, are much more impactful than, say, views from a moving car's windscreen. As a consequence, tourist accommodation that faces on to significant wind farm developments might be the most negatively affected tourism infrastructure type and may have to use pricing strategies in mitigation of those impacts.

5.12 It is something of a truism to stress the importance of clear, open and effective planning on this issue and that the earlier the public are included in dialogue with the decision making process the better (also note Warren and McFadyen, 2010, on this issue). Robust evidence is the keystone to this, not least because it is necessary in order to bypass the unsubstantiated opinion and selective reporting that can easily mislead and disrupt consultative and effective decision making.

Limitations

5.13 The findings of the desk-based meta-study are limited with regard to Northumberland because of three key reasons: 1) there is a dearth of robust UK studies, particularly in recent years; 2) there is no empirical evidence-based research on Northumberland itself on onshore wind farms and tourism; 3) to extrapolate conclusions from extant UK research to the Northumberland setting is inappropriate because it is a unique location with its own geographical, historical, economic, social and cultural circumstances. We therefore do not recommend that concrete conclusions regarding Northumberland be drawn from any of the specific or general conclusions of the desk-based meta-study.

Recommendations

5.14 Given these limitations, empirical research in Northumberland itself that specifically addresses the impacts of wind farms on tourism there is needed. Such research would draw robust conclusions that would be timely, geographically specific, and therefore of significant use to planners and decision-makers in Northumberland on the relationship between wind farms and tourism there.

5.14 In relation to this, it is worth noting here that the research with local businesses and interest group representatives featured later in this report indicates that wind turbine size, and related issues, is an important consideration in today's Northumberland because recent technological advances allow much larger wind turbines to be erected than in the past. This is a material consideration for current and future impacts, but the retrospective view of this meta-study cannot directly address the issue of turbine size. This could, however, be a focus of any future research with tourists in Northumberland itself.

5.16 Furthermore, given that a good number of the studies consulted in this report are more than ten years old, it would be timely and useful for their conclusions to be 'tested' in the field by further empirical work in the locations they were conducted. Such longitudinal research would add significantly to current knowledge and offer perhaps more reliable guidance for future wind farm development in relation to the actual impacts or otherwise on tourism in the UK.

5.17 More immediately, a guideline framework is offered (rather than recommended) - which is a modification of the framework proposed by Regeneris (2014) - in order to aid planners in their decision making on proposed wind farm developments in Northumberland (see Table 5.). The framework is premised on the key considerations extrapolated from the most significant studies reviewed here as well as those identified by Regeneris (2014). The key considerations are synthesised by Regeneris (2014) into three grouped factors which provide something of a platform for assessing wind farm proposals in areas popular with tourists and are built into the framework. These factors are:

- Scale and characteristics of existing and proposed wind farm developments in the area
- Characteristics of the local visitor economy and its offer
- Characteristics of visitors

Table 5. **Framework for Considering Sensitivity Factors Regarding Potential Negative Impacts on Tourism from Wind Turbine Developments**

Type of Factor	Indicator	Explanation
Characteristics of Development	Scale of development – especially larger scale wind farms with more than 10 turbines Location of development	The scale of development is strongly linked to physical presence and visibility in and on the landscape. Topography will also affect visibility, and other location attributes will be an important consideration in determining the most appropriate scale of development.
	Clustering of multiple wind farms in close proximity to main tourist hubs and facilities.	As above
	Proximity to major routes to tourist hubs	As above, although evidence suggests that physical and visible presence is more tolerated while people are in transit and that people, generally, do become accustomed to the sight of wind farms with first-hand experience of them, and over time.
	Extent to which wind farms are located within or close to highly valued landscapes	Valued landscapes in this context tend to be unencumbered by development rural landscapes which have widely accepted scenic value. Locating wind turbines in and around such landscapes would need to be extra carefully considered. Important factors are the predominant tourism market in the locality and the ability of the wider area to accommodate tourists substituting one affected location for others. Other landscapes that draw tourists – e.g. beaches, heritage sites etc. – need similar levels of consideration.
Characteristics of Tourism Areas	The extent to which an unencumbered rural landscape is central to the tourist experience.	Visual attribute can be the major draw in key tourist areas and therefore siting of wind turbines in such areas may need to be considered a 'last resort' in a broader location strategy. Offshore locations may provide an alternative.
	Diversity of the tourism offer	The greater the diversity of attractions and therefore tourists visiting an area the less potential sensitivity regarding wind turbines impacting upon tourism

	The popularity and capacity of the tourism area	As above plus such areas may have a greater ability to adapt to wind turbines and any perceived negative impacts. If large enough, such areas could offer attractions away from wind turbines/farms without loss to the tourist economy.
Characteristics of Tourists	The diversity of tourist types. Particularly with regard to proportion of older tourists who may be less tolerant of wind farms, young and/or overseas tourists who may be more tolerant or appreciative of wind farms	Linked to the diversity of the offer in an area and its size. A mix of tourists in such an area may contain those who are negatively sensitive to wind turbines, those who are positive, and those who are indifferent. The overall effect, therefore, may range from indifferent to mildly positive.
	Long standing visitors and repeaters	Regular tourists may be more sensitive to change and if the area is heavily reliant on such visitation extra caution may be needed when considering wind turbine/farm development. Some of these tourists may welcome wind turbine/farm development and a good proportion may be indifferent. However, the demographic and origin (whether local, UK or overseas) of such tourists/visitors needs to be set alongside their propensity to visit.

(Adapted from Regeneris, 2014)

5.18 All the factors, indicators and explanations in the framework are to a greater or lesser extent interrelated and/or interdependent but worth separating out in it so the level of importance given to each can be seen to be applied consistently and clearly on a case by case basis.

Public Knowledge survey of potential visitors

6. Research approach and main findings

6.1 Northumberland County Council commissioned this study with Public Knowledge consultants to evaluate the effect of existing and planned onshore wind turbines on potential visitors to the county. The study identified potential visitor views on whether the existence of wind farms has an impact on their decision to come to a rural tourist area (and to Northumberland in particular). Areas the research covered are:

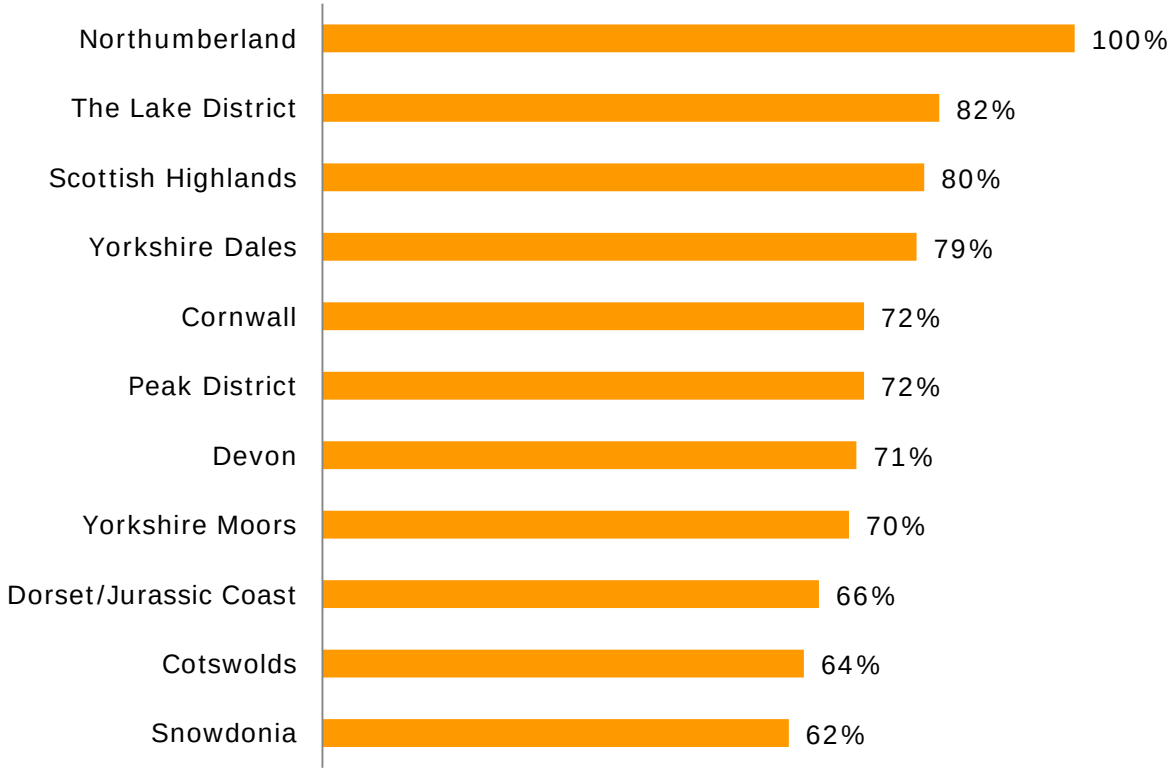
- Whether the respondent is familiar with large-scale wind turbine development.
- The importance of natural scenery and landscape to potential visitors.
- The factors affecting a potential visitor's decision to visit or stay in the county.
- Where else in the UK potential visitors have stayed/plan to visit.
- Whether the presence of wind farms would affect a potential visitor's decision to visit or stay in the county.
- Whether wind farms would be viewed as an added attraction for visiting the county.
- Whether the presence of wind farms in a destination has had an effect on their holiday decision-making process to date and why.

To evaluate the effect of existing and planned onshore wind turbines on the tourism industry within Northumberland, quantitative data was collected via an online methodology. A questionnaire (approximately 10 minutes in length) was designed in collaboration between Public Knowledge and Northumberland County Council.

6.2 Online data was collected via Public Knowledge's in-house online panel, panelbase.net, which has over 200,000 registered members and this resulted in 410 interviews. A sample of 410 is considered to be robust with a margin of error of +/-4.84% at the 95% confidence level. The survey ran from the 27th March to 7th April 2014.

6.3 In order to qualify to take part in the survey all participants were required to select Northumberland as a place they would consider visiting in the next 2 years.

Figure 1: Destinations considered



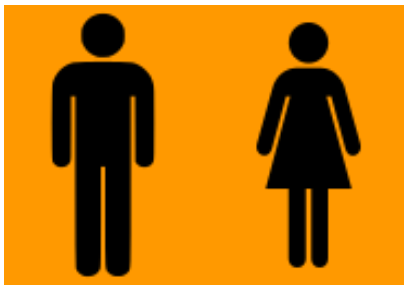
S1. Which of the following areas would you consider going on holiday to/visiting in the next 2 years?
Base: 410

Other places participants would consider visiting in the next two years in addition to Northumberland include the Lake District (82%), the Scottish Highlands (80%), and the Yorkshire Dales (79%).

6.4 Quotas were imposed on the sample to ensure that 20% were from the North East (excluding Northumberland) with the remaining 80% from a spread of regions across the UK. Quotas were also

imposed on the sample to ensure a spread of responses is achieved according to age and gender. The final sample profile according to age and gender is shown in Figure 2 and Table 1.

Figure 2: Sample Gender



50% **50%**

As Figure 2 shows, the sample was split equally between genders. Age was also fairly evenly spread across the sample, although fewer 16-24 year olds were represented.

Table 1: Sample by Age

Age	N	%
16-24	24	6%
25-34	67	16%
35-44	78	19%
45-54	84	20%
55-64	86	21%
65+	71	17%

Table 2: Regional Breakdown

Region	N	%
North East	79	19%
South East	51	12%
London	40	10%
North West	38	9%
West Midlands	33	8%
Yorkshire	32	8%
East Anglia	32	8%
South West	32	8%
Scotland	28	7%
East Midlands	24	6%
Wales	17	4%
Northern Ireland	4	1%

There was a maximum quota set against respondents being from the North East of 20% and nobody lived within Northumberland. The breakdown of North East respondents' home areas is shown in Table 3.

Table 3: North East Breakdown

Region	N	%
County Durham	21	27%
Newcastle upon Tyne	14	18%
Sunderland	13	16%
North Tyneside	7	9%
Gateshead	6	8%
South Tyneside	3	4%
Middlesbrough	3	4%
Stockton	3	4%
Redcar and Cleveland	2	3%
Hartlepool	2	3%
Other	5	6%

6.3 Below the findings of the Public Knowledge survey are summarised to evaluate the attitudes of potential tourists (those who would consider visiting Northumberland in the next two years) towards onshore wind turbines/farms development in Northumberland (see Appendix A. for the full report).

6.4 The main findings were:

Visit requirements

- The most popular type of holiday amongst participants, all of which would consider visiting Northumberland in the next 2 years, were seaside and coastal holidays (29%) followed by countryside holidays (27%).
- Respondent's main considerations when booking a holiday are scenery (31%), price (25%), activities (20%), weather (20%), distance (18%), and accommodation (17%).
- The main reasons for considering a visit to Northumberland is the scenery (24%) followed by the coastline (16%).
- It is the countryside, coastline beaches, historic sites and peace and quiet that drew people to Northumberland in the past.

Impact of wind farms on visiting decisions

- 11% of respondents would be discouraged from visiting Northumberland due to wind farms and of those two thirds are male.
- 19% of respondents select that their decision to visit Northumberland is likely to be affected by wind farms.
- 42% of the sample support onshore wind farm development, a further 22% claim to have no real opinion leaving 21% to be opposed and 5% not knowing what to think.
- 87% of respondents would feel comfortable seeing some form of wind farm in Northumberland.
- There is dispute with regards to wind farms but it is agreed by more than half that if correctly sited they do not intrude or ruin the landscape and that the farms are a necessary means of generating renewable energy.
- When prompted with a list of barriers, electricity pylons and quarrying are more of a deterrent than wind farms. Of the 11% who select wind farms, two thirds of them are males in comparison to only a third being females. There is no significant variance across the age groups of those selecting wind farms.
- There are more respondents who agree that wind farms add character to an area (31%) and can enhance the natural landscape (29%) than there are agreeing that wind farms would discourage them from visiting an area (26%).
- 4% of respondents have been discouraged to visit Northumberland in the past due to wind farms, the same percentage have however visited the area because of the wind farms.
- 30% of respondents will definitely or may be encouraged to book a holiday/visit to somewhere other than Northumberland in the future because of the presence of wind farms.
- 41% of respondents think Northumberland has a sufficient number of wind farms, 43% believe that the area could support more wind farms, leaving 16% who think Northumberland already has too many.

Conclusions of the survey:

6.5 The main reasons for visiting Northumberland are the scenery and the coastline and it is recognised that these two areas will be affected most by the development of wind farms. A minority group believe that Northumberland already has too many wind farms but generally opinion is divided as to whether there are sufficient already or whether the area can support more.

6.6 The impact of additional wind farms on visitor numbers to Northumberland is present but the majority feel that wind farms are not having an influence on their likelihood to visit the area. Only 11% said that the presence of wind farms would affect their decision to visit Northumberland. For those whose decision to visit would be affected this was primarily because of the impact on scenery and because they are unattractive but overall 61% of the total sample agree that a correctly sited wind farm does not ruin or intrude on the landscape.

6.7 Power stations and electricity pylons and wires were likely to have a greater impact on respondents' decision to visit Northumberland than wind farms. 6.8 There are demographic variances in opinions about wind farms, males and the eldest age group of 65 years plus are more negative towards wind energy. The presence of wind farms has more of an effect on these two groups.

Concluding comments by University of Northumbria researchers in relation to the Public Knowledge survey

6.7 The first observation to make regarding the Public Knowledge survey is that, notwithstanding the limitations of such work as indicated earlier in this report that such surveys are too remote to determine actual impacts, the findings here are, overall, consistent with those of the extant research reviewed. Furthermore, when allowances are made for the tendency of remote surveys such as this to deliver more sceptical, cautious and negative views on wind farm development than those that interview tourists in situ, the consistencies are even more evident.

6.8 There is nothing to suggest in this survey that Northumberland is in anyway a special case with regard to the effects of wind farm development on tourism in comparison to the other UK regions where research on this issue has been carried out. The only new finding in the survey, compared to other research consulted, is that male respondents tended to be more negative toward wind energy, this appears significant in the context of this particular study, but whether that would hold up more

generally would need to be verified by further research and its significance or otherwise be assessed in light of that.

Survey of tourism-related businesses in Northumberland

7. Introduction

7.1 As an adjunct to the desk-based study the Northumbria University research team undertook an online survey with tourism-related businesses in Northumberland to ascertain their views on the impact of wind turbines on their businesses. This was in response to the project brief that states:

> the study will also require contact with local tourism businesses to obtain evidenced based views on:
>
> - Whether there has already been an impact on tourism from the wind farms currently in Northumberland (in terms of visitor numbers, occupancy rates, turnover etc).
> - Whether the presence and anticipated presence of wind farms will affect their investment decisions.

The survey was distributed via Northumberland County Council's newsletter in May 2014 and 159 responses were received overall. It should be noted that, as Aitcheson (2012) indicates, surveying tourism-related businesses does not address the issue regarding the impacts wind farms have on tourism. Rather, such a survey reveals only how businesses assess the effects wind farms have had or are having on them. Furthermore, assuming that many, if not most, respondents will live in Northumberland, as well as run businesses there, it is uncertain to what extent responses are purely business-related responses, residency-related or a balance between the two. The following should, therefore, be read in the above contexts.

Q 1. 1. What type of business do you own in Northumberland?				
#	Answer		Response	%
1	Hotel		13	8%
2	Self-Catering accommodation		56	36%
3	Guest House/Bed & Breakfast		36	23%
4	Camping & Caravanning		5	3%
5	Pub or Inn		4	3%
6	Restaurant or cafe		5	3%
7	Visitor Attraction		18	12%
8	Activity Operator/Provider		7	4%
9	Retail		17	11%
10	Other (please specify)		18	12%

Other (please specify)
• guide book publishing
• tourist guide
• Crafter at craft fairs/shows/events
• Hostel
• Design and marketing
• Gallery & Pottery
• Guide
• Youth Hostel
• Tourist Information Centre
• Web Publishing
• golf club
• adventure activity guide
• inn with rooms
• estate with various attractions/activities/accommodation
• Blue badge guide
• giftware supplier
• Craft
• Booking agency self catering accommodation

2. How long has your business been running in Northumberland?				
#	Answer		Response	%
1	Less than one year		5	3%
2	1-5 years		30	19%
3	6-10 years		42	26%
4	11 or more years		82	52%
	Total		159	100%

3. Has your business turnover in the last 3 years?

#	Answer		Response	%
1	Increased		54	34%
2	Decreased		47	30%
3	Stayed the same		58	36%
	Total		159	100%

4. If your turnover has increased, what do you attribute this to? Please rank in order of importance by dragging and dropping the options.

#	Answer	1	2	3	4	5	6	7	8	9	10	11	Total Responses
1	Investment in your business	31	13	0	4	2	2	0	0	0	0	0	52
2	Quality/accreditation attainment	5	10	14	2	6	3	4	1	4	1	2	52
3	Investment in staff	0	5	6	7	5	4	3	6	10	3	3	52
4	Business marketing	7	12	16	5	5	2	2	3	0	0	0	52
5	Cost of overseas holidays	0	0	1	4	11	7	12	8	7	2	0	52
6	Presence of wind turbines in Northumberland	0	1	1	0	0	6	3	5	4	23	9	52
7	Northumberland marketing campaigns	0	2	6	6	10	9	12	3	4	0	0	52
8	Knock-on effects of nearby popular attractions	1	2	3	9	3	6	8	10	6	4	0	52
9	Increased significance of social media	2	3	2	6	2	8	6	5	11	6	1	52
10	Northumberland TV/media exposure	2	3	3	7	8	5	2	11	4	7	0	52
11	Other (please specify)	4	1	0	2	0	0	0	0	2	6	37	52
	Total	52	52	52	52	52	52	52	52	52	52	52	-

Other (please specify)
• High retail standards
• Our great property and our sea views
• Providing services others don't
• Repeat business building up
• Providing value for money
• Quality provision
• High retail standards
• The Weather

5. If your business turnover has decreased, what do you attribute this to? Please rank in order of importance by dragging and dropping the options.

#	Answer	1	2	3	4	5	6	7	8	9	10	Total Responses
1	Bad weather	10	10	6	8	6	1	1	0	1	0	43
2	Recession	20	11	7	3	0	0	1	0	1	0	43
3	Competition from other UK destinations	2	6	10	9	5	6	1	1	2	1	43
4	Cheap holidays abroad	2	2	6	9	7	9	5	3	0	0	43
5	Broadband speeds	0	1	1	5	8	5	4	12	6	1	43
6	Lack of public transport	0	1	0	1	5	13	13	6	3	1	43
7	Presence of Wind turbines in Northumberland	7	4	5	2	2	3	6	3	9	2	43
8	Cost of fuel	1	3	5	3	5	4	4	15	3	0	43
9	Lack of low season visitors	0	2	3	1	5	1	8	3	18	2	43
10	Other (please specify)	1	3	0	2	0	1	0	0	0	36	43
	Total	43	43	43	43	43	43	43	43	43	43	-

Other (please specify)
• Difficult to tell as we supply other tourist bodies
• We are taking it a bit easier, both getting old!
• Lots of fellow jewellers/competition
• Lack of National advertising
• Bad weather forecasting
• Only recession
• Wind Turbines will have an effect. I travel Europe widely and the areas where tourists go to are not the areas where wind turbines dominate. For instance the flatlands of northern Germany are covered in wind turbines, this is seen as a corridor to the tourist destinations which incidentally do not have wind turbines. Areas near the Mosel have wind turbines but you will not see them from the Mosel, this cannot be said about Northumberland which it seems is 'becoming that corridor'!!!
• Competition due to an increase in the number of self-catering
• Money to spend
• Local competition
• Customers closing or cutting back on demand

6. Have your visitor/customer numbers in the last 3 years:

#	Answer		Response	%
1	Increased		50	31%
2	Decreased		49	31%
3	Stayed the same		60	38%
	Total		159	100%

7. If your visitor/customer numbers have increased, what do you attribute this to? Please select all that applies.

#	Answer	1	2	3	4	5	6	7	8	9	10	11	Total Responses
1	Investment in your business	30	10	1	1	1	1	0	1	0	0	0	45
2	Quality/accreditation attainment	2	23	6	2	3	1	2	4	2	0	0	45
3	Investment in staff	0	2	12	8	2	7	3	3	4	2	2	45
4	Business marketing	5	3	13	14	4	1	4	0	1	0	0	45
5	Cost of overseas holidays	0	0	1	3	12	10	5	6	7	1	0	45
6	Presence of wind turbines in Northumberland	1	1	0	0	3	7	2	2	2	19	8	45
7	Northumberland marketing campaigns	1	1	3	3	9	7	16	4	1	0	0	45
8	Knock-on effects of nearby popular attractions	1	2	2	3	2	7	7	14	4	3	0	45
9	Increased significance of social media	1	0	3	2	2	4	4	9	15	5	0	45
10	Northumberland TV/media exposure	1	2	3	9	7	0	2	2	9	9	1	45
11	Other (please specify)	3	1	1	0	0	0	0	0	0	6	34	45
	Total	45	45	45	45	45	45	45	45	45	45	45	-

Other (please specify)
• Repeat business building up
• Investment in business
• Positive reputation
• Customer loyalty and word of mouth
• 1 and 2
• Quality of the landscape
• The Weather

8. If your visitor/customer numbers have decreased, what do you attribute this to? Please select all that applies.

#	Answer	1	2	3	4	5	6	7	8	9	10	Total Responses
1	Bad weather	15	9	7	5	0	1	1	2	2	0	42
2	Recession	17	14	4	2	2	0	2	0	1	0	42
3	Competition from other UK destinations	2	4	15	11	1	8	1	0	0	0	42
4	Cheap holidays abroad	2	2	4	12	9	6	5	2	0	0	42
5	Broadband speeds	0	0	2	1	9	5	7	8	8	2	42
6	Lack of public transport	0	0	0	1	3	14	13	9	1	1	42
7	Presence of wind turbines in Northumberland	6	4	3	1	2	4	9	2	8	3	42
8	Cost of fuel	0	6	5	4	6	3	1	15	1	1	42
9	Lack of low season visitors	0	1	2	1	10	1	3	4	20	0	42
10	Other (please specify)	0	2	0	4	0	0	0	0	1	35	42
	Total	42	42	42	42	42	42	42	42	42	42	-

Other (please specify)
• We are slowing down
• Everything closes in winter
• Lack of National and International Advertising
• Bad weather forecasting
• Just recession
• Lack of County based marketing
• Competition from increase in number of self-catering
• vvv
• Local competition

9. Have your staffing levels in the last 3 years:

#	Answer		Response	%
1	Increased		18	11%
2	Decreased		15	9%
3	Stayed the same		126	79%
	Total		159	100%

10. If your staffing levels have increased, what do you attribute this to? Please select all that applies and rank in order of importance by dragging and dropping the options.

#	Answer	1	2	3	4	5	6	7	8	9	10	11	Total Responses
1	Investment in your business	10	3	0	0	0	0	0	0	0	0	0	13
2	Quality/accreditation attainment	0	5	2	2	1	0	1	0	2	0	0	13
3	Investment in staff	1	4	3	2	3	0	0	0	0	0	0	13
4	Business marketing	0	1	3	5	3	1	0	0	0	0	0	13
5	Cost of overseas holidays	2	0	0	1	4	2	0	2	0	2	0	13
6	Presence of wind turbines in Northumberland	0	0	1	0	0	3	0	0	1	4	4	13
7	Northumberland marketing campaigns	0	0	1	1	0	4	7	0	0	0	0	13
8	Knock-on effects of nearby popular attractions	0	0	2	2	0	0	4	4	1	0	0	13
9	Increased significance of social media	0	0	0	0	1	1	1	4	6	0	0	13
10	Northumberland TV/media exposure	0	0	1	0	1	2	0	2	3	4	0	13
11	Other (please specify)	0	0	0	0	0	0	0	1	0	3	9	13
	Total	13	13	13	13	13	13	13	13	13	13	13	-

Other (please specify)
Investment in business

11. If your staffing levels have decreased, what do you attribute this to? Please select all that applies and rank in order of importance by dragging and dropping the options.

#	Answer	1	2	3	4	5	6	7	8	9	10	11	12	Total Responses
1	Bad weather	4	5	0	0	2	0	0	0	1	0	0	0	12
2	Recession	7	3	2	0	0	0	0	0	0	0	0	0	12
3	Competition from other UK destinations	0	1	6	4	0	0	1	0	0	0	0	0	12
4	Cheap holidays abroad	0	0	1	4	4	2	0	1	0	0	0	0	12
5	Broadband speeds	0	0	0	0	3	3	2	2	1	0	1	0	12
6	Lack of public transport	0	0	1	2	0	4	3	1	1	0	0	0	12
7	Presence of wind turbines in Northumberland	1	3	0	1	0	0	3	0	1	1	2	0	12
8	Cost of fuel	0	0	1	0	2	1	1	7	0	0	0	0	12
9	Lack of low season visitors	0	0	1	1	0	1	1	0	6	1	0	1	12
10	Availability of suitable training opportunities	0	0	0	0	0	1	1	0	2	8	0	0	12
11	Difficulty in attracting skilled staff	0	0	0	0	1	0	0	1	0	2	8	0	12
12	Other (please specify)	0	0	0	0	0	0	0	0	0	0	1	11	12
	Total	12	12	12	12	12	12	12	12	12	12	12	12	-

Other (please specify)
• Cut in budget by NCC
• Moving from area

12. Do you consider that the presence of onshore wind turbines in Northumberland has benefitted your business?

#	Answer		Response	%
1	Yes		10	7%
2	No		143	93%
	Total		153	100%

13. Do you consider that the presence of onshore wind turbines in Northumberland has negatively impacted your business?

#	Answer		Response	%
1	Yes		59	37%
2	No		99	63%
	Total		158	100%

14. Please explain any negative impacts in your opinion

Text Response
• visual impact
• Visitors do not like wind turbines in such an area of outstanding beauty they are noisy and ugly to look at
• Visitors have commented that it is very sad to see such large turbines in the area and they all say how sad it is that the view from the Farne Islands has been spoilt
• Visitors do not want to come to Northumberland because of Wind Turbines blighting the previous beatiful landscape and the noise
• People say they don't like them and we are ruining the countryside. They can't believe it.
• Most people we meet hate wind turbines
• TOURISTS come to Northumberland for beautiful unspoilt countryside, not to see huge wind turbines in every direction.
• People are still coming but are less satisfied with the natural environment because of all the turbines
• Construction traffic and road closures restricted visitor access to the business premises, during construction. Part of the visitor experience was coming to unspoilt countryside, the turbines have changed visitors perception of the area.
• Last year 99% of my guests were against wind turbines defacing the Northumbrian landscape and 50% said they would be reluctant to return to Northumberland and the Borders as a holiday destination if the building of wind turbines continued. I find this very worrying as my business relies on returning guests, tourism in Northumberland will end if they continue to build wind turbines.
• People interested in booking my properties have indicated that if there was a development of turbines near property they would not have booked the property
• Northumberland is now notorious in the UK for its excess of wind turbines
• Potential visitors are put off because the inland areas they visit have been blighted by wind turbines
• Customer feedback
• At least 2 tourism businesses that were planning to start have cancelled projects due to the potential effect of nearby windfarms - Wingates & Greenrigg. The overburden of onshore windfarms is damaging the asset of the county as a tranquil and unspoilt area.
• People's perception of Northumberland is of a wild and beautiful place and the wind terbines have immediately destroyed this perception and are an ugly intrusion into the lone of the last wildernesses in England
• As our Bird of Prey Centre is a small local charity, our numbers are difficult to quantify and we do not employ staff. However, many of the visitors to us who are almost invariably tourists, comment very adversley on the proximity of online wind turbines, and their very large presence in Northumberland generally. One couple said that they would never come back to the County after 30+ years as annual visitors because they were so distressed by the plethora of turbines north of Alnwick. Many comments are along the lines of an amazement that we do not appreciate the amazing landscape that we have and seem prepared to intrude turbines into many of the most iconic views.
• This county's assets - namely tranquility/peace/landscapes is blighted by more than fair share of windfarms. Def a turn off for visitors
• Has spoilt the landscape
• It hasn't impacted yet - but there are proposals to site enormous turbines just near us and we are already getting feedback from visitors who are appalled by the proposal and consider it would ruin

the landscape around here, so would not be coming back.
• Customers have commented on amount of turbines in this county
• The recession has played a part in the decrease. However, repeat business is adversely affected by the sight of an almost unbroken line of wind turbines from Morpeth to the Scottish Border.
• People comment on the fact that they are there and impact on the area visually
• A lot of negative comment from customer feedback
• Regular guests have said they won't return because of the number of wind turbines has spoiled the landscape
• Visitors as a whole remark how the wind turbines are spoiling the Northumberland countryside - particularly close to us at Ellington
• Horse holidays - I surveyed visitors in advance of local windfarm development, they said they wouldn't come if turbines came. Turbines came. The horse element of our business has folded.
• Who wants to see wind farms when on holiday
• The question is too simplistic given the number of reasons people do and don't choose where to holiday. Last year people started to comment in a surprised and negative way on the wind farms at Middlemoor. It's clear that teh enthusiasm they would usually recommend the area to friends will be tempered and this will lead to fewer people coming.
• Visitors do not like wind turbines in such an area of outstanding beauty they are noisy and ugly to look at
• Cannot answer this question as in our area turbines are only recent and impact is yet to be ascertained. A new development on our door step at Barmoor is being built as I write and it's impact will be carefully observed by local businesses such as B&B and self-catering cottage owners.
• The number of bookings have decreased over this period
• vv
• Cannot give actual figures, but the visitors who came ALL complaint about the turbines along the A68!!
• Repeat business customers now going elsewhere, and new business customers have heard about the impact of OWTs on Northumberland

Statistic	Value
Total Responses	37

15. Is your business near an onshore wind turbine?

#	Answer		Response	%
1	Yes, within 1 mile		20	13%
2	Yes, within 5 miles		61	38%
3	Yes, within 10 miles		45	28%
4	No		33	21%
	Total		159	100%

No
• Will be soon!
• 20 miles
• Will be within a mile when the Barmoor development is built
• But will be in a year also 5 miles
• 15 miles
• From an unblemished Holy Island horizon - they appear like ugly, menacing distant Triffids...
• Not yet - but will be soon (within 5 miles)

16. If you have answered 'Yes' to question 8 and your business is near an onshore wind turbine, do you know when the onshore wind turbine was constructed?
Text Response
• last 24 months
• 2011
• Approximately 18 months ago
• 2013
• no
• 3Yrs ago
• 2 years ago
• 2013, near Bellingham turn off on the A68
• 2012
• 2013
• Not sure
• Within the past 2 years.
• 2012
• In the last five years
• 2013
• 2 years
• It was constructed in April 2014
• 2012-3
• 1yr
• ?
• no
• 2013
• 2011
• not exactly
• One a couple of years ago, the other a very long time ago
• 2012
• Approx 12 months
• 2013
• 2012/13
• year jan 2013
• 2 years ago
• One is curently waiting planning approval for 1.5 miles away
• 2013
• no
• our own 12 years ago the others nearby 18 months
• 2011/2012
• 2012
• approx 2 -3 years ago
• 2014
• 2012
• 2103
• no
• last 5 years
• Last year
• around when Alcan closed. Q10 & Q11 needs a not sure option as I am not sure as depends where they are or are build.
• 2013
• Not sure
• 4 YEARS AGO
• 2013
• Yes - within the last year & a half we've had turbines constructed at Bellingham and for the last couple

of years we have been fighting a proposal to site turbines much nearer here.
• Connected May 2014
• No
• Within last 6 months
• 2011
• Within the last two years
• 2011
• no
• 2013
• Within the last two years
• 18 mths agp
• 2011
• 2013
• Within the last 2 years
• 2012
• One year ago. And one in construction now.
• 2013
• 2013

Statistic	Value
Total Responses	67

17. Will the existence of onshore wind turbines in Northumberland affect your future business investment decisions?

#	Answer		Response	%
1	Not at all likely		36	28%
2	Unlikely		24	19%
3	Neither likely nor unlikely		27	21%
4	Likely		14	11%
5	Very likely		28	22%
	Total		129	100%

18. Will any future development of further onshore wind turbines in Northumberland affect your future business investment decisions?

#	Answer		Response	%
1	Not at all likely		33	26%
2	Unlikely		23	18%
3	Neither likely nor unlikely		24	19%
4	Likely		13	10%
5	Very likely		36	28%
	Total		129	100%

19. If you have answered 'likely' or 'very likely' to any of the above two questions, please explain how onshore wind turbines will affect your future investment decisions with regards to your business?
Text Response
• mm
• visual impact
• Already have the self-catering business up for sale
• Detracts from the inherent natural beauty and hence discourages tourism
• We will have to wait and see what the impact of the Barmoor turbines are
• I will not invest in something where visitors do not want to come because of the prescence of wind turbines
• Impact on views and therefore the selling point of our location.
• It they continue, we will consider selling and moving to another part of the U.K
• Will not invest
• Obviously, our business relies on tourism which is not compatible with the development of windfarms.
• Ruins the beauty of the area
• We are considering selling our business because of the proposed wind farm in Redesdale
• Without onshore wind turbines we will not have the electricity we all need, we would rather see more turbines and less climate change as the long term impacts of climate change will far exceed any visual impact from wind turbines, for instance imagine the effect of just 0.5 metre sea level rise on Holy Island and the coastal birdlife.
• If tourists dont like them and numbers decrease why invest? I would rather invest in a Gite business in France!
• Further turbines will totally change the landscape in which the attraction is located, and will be of detriment to the visitor experience, as some visitors have already stated
• As previously stated visitors have voiced their concerns, as a small business I could not afford to invest should visitor numbers diminish
• No point investing in our property if values will be affected.
• People booking holidays in rural areas are looking for peace and quiet. The biggest risk with wind turbines is noise pollution the noise levels provided by developers are frequently inaccurate and unreliable.
• If there was a wind turbine near my business, I think the business would suffer
• I am likely to relocate elsewhere, to follow former visitors. Northumberland has been blighted.
• My guests come here for its peace, tranquility, silence and fantastic vistas. Ugly, useless turbines spoiling that will not help to attract business
• Will direct investment to other parts of the country
• we are highly dependent on tourists appreciating the countryside
• Any business next to or visually within range will be decimated and quite likely to close
• We have built our business primarily by marketing the county to customers. Our clients include the Alnwick Garden, Bamburgh Castle, Doddington Dairy, Katherine Tickell, Shepherds Walks, etc. etc. etc. As well as a multitude of small tourism businesses such as B&Bs and self-catering cottages. We have also attracted national clients by communicating the unique aspect of the county - the wide open spaces, "Far horizon" etc. This has given us a unique place in a crowded marketplace that clients from London have bought into. We have bought and renovated a redundant farm building in the heart of the county as our base. By eroding the very asset of the region by the needless industrialisation of the countryside, we have discussed seriously the merit in remaining in our rural location. We have built our business over 16 years in a high-tech industry located in a very rural area with poor communication infrastructure, terrible roads, no public transport, needing to attract and recruit talent from a distance, winter travel problems, etc. and despite all of these negatives, it has made business sense because of the unique asset of our landscape. By industrialising this asset it makes little business sense to put up with ANY of the problems stated let alone all of them!
• The problem is it depends on where they are build and so whether they would impact on the area where we operate. The correct answer to Q10 and Q11 would be not sure. The problem is Northumberland is a very big county so a development near Wooler would probably not impact on Amble or Hexham for example. Personally I think your questions have simplified the problem and so

will not give a true picture.

- People come to Northumberland tp see the fabulous undeveloped countryside not look at vulgar man made monstrosities
- We have reached a stage where the turbines are affecting the landscape, more will make this a less desirable destination not worth investing in!
- Further development of turbines will make me consider moving my business elsewhere. There are already too many.
- We have no intention of expanding our bird of prey centre whilst we are surrounded by land subject to planning applications for onshore wind turbines, eg.: Parkhead/Raeburn. We all feel too unsettled to plan expansion for what is essentially a countryside attraction when it is possible that turbines at least 3 x the size of The Angel of the North are the subject of a Planning Application. These would overlook our current site and may well lead to us closing down completely.
- My business is audio CD drive guides to lesser known but beautiful places in the county. Windfarms will be impossible to avoid and are an anachronism to those coming to enjoy big skies and landscapes.
- There's absolutely no point in putting money into a holiday property indeed into our own home as we'll never get the value back when we sell if an array of turbines are built as proposed near our village.
- Turbines are unsightly like tall buildings in the countryside
- We don't plan to incest further in the business until we see if the latest application os approved. This will put us within a mile of another development, on top of the two already in place within 5 to 10 miles.
- Onshore wind farms are ruining the natural beauty of Northumberland, our guests will go elsewhere for a proper rural escape
- They are an eyesore as we live in the country at the moment we have fabulous views. if a wind farm was to set up. We would close our wedding business, sell up and 22 jobs would be lost. This would be because no one would want to get married with a view to those ugly things. You would kill our business off, devalue our property and ensure that jobs are lost in an area where there are few jobs to begin with. The knock on effect of our business on other local businesses such as B&B's would be devastating. There is little tourism in Otterburn. The B&B's are full because of my wedding guests staying. I oppose any further development of wind farms other than off shore on perhaps old disused platforms.
- Sale of holiday cottages likely to be hit by purchasers not wanting to see turbines in a beautiful holiday area
- Spoils landscape, no proven benefits
- There is a giant wind turbine in the planning process, just a mile from our 15 holiday cottages, and we will be forced to sell the business and lay off all of our staff if it is approved.
- We would consider buying property elsewhere to develop as tourism accommodation but not in any area where there is a windfarm.
- Signed survey from horse riding visitors stating they will not come if turbines nearby.
- We were going to develop a second self-catering holiday home, but cannot risk the investment now until the turbine development 1 mile from us complete and the impact it has on business is carefully monitored
- More difficult to promote the area as a tourist destination if the landscape is blighted by turbines
- If there will be more onshore wind turbines planned in this area, we don't know if we want to stay here anymore/move the business elsewhere.
- North Northumberland no longer offers the OWT free landscape required by many visitors

20. Are you or your business connected in any way to the onshore wind energy industry?				
#	Answer		Response	%
1	Yes		4	3%
2	No		125	97%
	Total		129	100%

21. If you have answered yes to the above question and are connected to the onshore wind energy industry please state how?
Text Response
• mo
• We have a small turbine at another business site.
• The wind turbine powers the hostel electricity
• Our holiday cottage is on our farm which may receive one turbine (subject to planning)

Statistic	Value
Total Responses	4

Concluding comments by University of Northumbria researchers

7.2 According to these responses the impact of wind turbines on business turnover over the last three years has been neutral. With 34% of businesses saying turnover had increased and 36% saying turnover had stayed the same this suggests that tourism in the county is at least stable overall. The increases and stability ratios in terms of visitor numbers and staffing levels are also consistent with a stable (at least) tourism sector in Northumberland and the figures suggest that the development of wind farms has been broadly neutral in these regards.

7.3 37% of respondents did, however, state that wind farms had negatively impacted upon their businesses. This is a significant figure and the qualitative comments indicate the depth of feeling that wind farms blight the landscape and reduce tourist numbers. These responses and their magnitude do not correlate with the responses on business turnover, visitor numbers and staffing levels that suggest wind farm effects are broadly neutral, nor do they concur with the findings of the desk-based meta-study.

7.4 63% of respondents said that wind farms had not impacted upon their businesses, This said, as stated in 7.3, the remaining 37% is a significant minority.

7.5 When considering investment decisions a similar pattern emerges by which 68% of respondents said that their investment decisions will not be affected by the existence of wind turbines in

Northumberland. When adding the prospect of future wind turbine development that figure drops a to 63%. Again, comments by those 33% who said their future investment decisions will be affected by future wind turbine development reveal the concern that exists within this significant minority of the Northumberland business community. Once more, concerns about negative impacts on landscape and scenery and the effects of this on tourists are uppermost in these comments.

7.6 It is clear that Northumberland tourism-related businesses are more negative about wind farm developments than the potential tourists to Northumberland surveyed online by Public Knowledge.

Summary results of the 'special interest' focus group

8.1The focus group was conducted on June 10th 2014 at Northumberland County Hall with twelve representatives from a variety of interest groups ranging from the North Pennines AONB, the Northumberland National Park, the National Trust to local community groups, businesses and others with an interest in Northumberland's landscape and heritage. The focus group constituted a discussion of issues raised by members of the group on the impacts of wind farms and wind turbines on tourism in Northumberland and lasted for a little over two hours.

Summary of issues and viewpoints (in no particular order)

8.2 A major concern was a lack of systematic evidence and knowledge about the actual and potential impacts of wind farms on tourism in Northumberland and comparable locations. There was also a certain scepticism relayed by some members regarding the findings of research that had been done in the UK to-date. This was because findings from studies that suggest the relationship between wind farm development and tourism is benign do not accord either with the expressed opinions of many tourists in Northumberland or through local survey work some members had conducted. Some members of the group also expressed concern about the methodological rigour of publicly available research on this issue in the UK and were keen to understand how this particular study had been approached in that context.

8.3 There was also scepticism among some members about the efficacy of wind energy in terms of its ability to deliver clean, efficient and sustainable power, believing that if tourists were disabused of the common belief that wind energy is sustainable their responses to surveys in the extant research would be more appropriately balanced. Others in the group were less exercised by this issue but wanted information on wind farms that is reliable so they could make informed decisions on how wind farm/turbine development would (not) or could (not) impact upon their business.

8.4 Some reference was made to learning from experiences in other countries although it was also recognised that drawing meaningful comparisons beyond the UK could prove difficult. Similarly, the view was expressed that Northumberland is unique, even in a UK context, and that it is particularly sensitive to wind farm development because of the quality of its landscape and the value of its

natural and cultural heritage. Therefore, research findings gleaned from elsewhere in the UK would not necessarily speak for Northumberland.

8.5 There was concern about the increasing size of wind farms and of wind turbines themselves with a general belief that the larger the development the greater the negative impacts. Much concern was voiced that the more visible the turbines are the greater the negative impact on the Northumberland landscape with concomitant negative impacts on tourism and the rural economy more generally. Concern was expressed beyond these factors however, with comments stressing that the landscape, the natural and cultural heritage are worthy of protection in and of themselves beyond any economic or touristic value they may have.

8.6 The cumulative impact of individual wind farms/turbines was a concern and it seemed to some members that development decisions in Northumberland might be too piecemeal and not strategic enough.

8.7 There was considerable concern expressed about existing wind turbine developments in the north of the county where there is a curtain of turbines. This, it was felt, is very visually intrusive, and there was further concern that there seems to be a march toward such development in the county.

8.8 In similar vein, what might be termed as the 'parallax of development' needs more attention because the view of wind farms from one locational perspective can be quite different to that of another. By way of example, the cumulative visual effect of wind farm/turbine developments might be less obvious or intrusive while viewing them from inland but looking at the same developments from the coast or the Farne Islands the visual impact is much worse and therefore more damaging to tourism there.

8.9 There was particular concern that highly valued landscapes were being impacted by wind farm/turbine developments in and around them. This is partly so because Northumberland has so much landscape of high quality that a significant portion of it is overlooked for special designation and wind turbine development is allowed to take place in and around places that should be development free.

8.10 There was a good degree of scepticism about grants and the commercialism of wind energy. Some members were particularly critical about short term business and economic gains overriding

the sustainability of Northumberland's environment and economy. On this the case was strongly made, and repeated a number of times during the session, that preservation and/or conservation of the environment equates to economic wellbeing.

8.11 Again it was mooted that Northumberland is special and its uniqueness needs to be taken into account when wind farm development decision are made. Indeed, Northumberland's landscape was seen as a national asset and that land owners had a duty to manage the land for future generations.

8.12 Some questioned whether the planning system truly appreciates the above and that senior planners do not realise or appreciate the full extent of the issues, and that more understanding of the connectivity between landscape quality, the use of landscape, the cultural and natural heritage, quality of life in the region and economic prosperity needs to be better planned for.

8.13 Again it was repeated that tourists in Northumberland do not like the idea of being surrounded by wind farms and that visitor numbers will suffer as more wind farm/turbine development takes place. Indeed, the statement was made that it is not about whether wind farms impact negatively on tourism in Northumberland, because they do, but about the degrees of adversity. This view was not unanimous in the group however.

8.14 Group members did recognise that climate change is a major issue and that wind turbines are not necessarily permanent structures. However, it was expressed that planners need to be cautious and take informed decisions because it seemed that Northumberland could not take more density and that the cumulative effect of wind farm/turbine is greater here than elsewhere.

8.15 The point was also made that given the capital and fixed costs of many tourism-related businesses that even small drops in visitor numbers would result in significant cost to these businesses and on that count special caution needed to be exercised about the development of wind farms/turbines in the county.

8.16 It was said by one member with some expertise in business that local level economic impacts quickly aggregate up to county level impacts and that losses will not be off-set by tourists substituting one locality for another or by one visitor market replacing another in areas affected by wind farms.

8.17 In general, but to varying degrees, opinion in the group ranged from uncertainty about the impacts of wind farms/turbines on tourism to downright certainty that wind farm/turbine development in Northumberland could only be bad for tourism. What was unanimous is that more robust information is needed on this issue that would be of use both at a local and county level.

Concluding comment by University of Northumbria researchers on the focus group

8.18 While this focus group cannot be considered as being representative in any statistical sense, it does represent the voice of concern regarding the impacts of wind farms/turbines on tourism in Northumberland. The value of the focus group is therefore the way it articulates and records that voice so it, and the range of opinions within it, can be heard alongside the findings in the other studies that make up this report.

Conclusion

9.1 The separate pieces of research that make up this report do not tie together to make a neat conclusion. Rather, they illustrate the lack of robust studies on the issue both in a Northumberland and a UK context. Tourists to UK destinations where wind turbines are present, as well prospective tourists to Northumberland, appear to be more positively disposed toward onshore wind farms than Northumberland tourism-related businesses. Moreover, they are certainly more positive toward onshore wind farms than the voices from Northumberland that speak with the greatest concern, and which insist they are also speaking on behalf of Northumberland tourists as well others in the county. However, none of the tourist voices in this report have come from Northumberland tourists because to-date they have not been systematically and independently surveyed on issues relating to wind farms and tourism there. Furthermore, the local opinions from Northumberland itself, as reported here, are at variance in a number of ways to the extant UK research that suggests over time members of the public are more accepting of wind farm development.

9.2 Given such complexities, and the dearth of reliable research available, as well as the limitations of this report and its component parts, the overarching conclusion is that more work needs to be done on the relationship between current and proposed onshore wind farm development and tourism in Northumberland - and elsewhere in the UK. The nature of that work needs to be thoroughly thought through and well proposed in order to overcome the weaknesses and gaps in knowledge identified here.

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Appendix A: Findings of the survey of potential visitors

Public Knowledge
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NORTHUMBERLAND
COUNTY COUNCIL

Effect of Wind Farms on Tourism in Northumberland

May 2014

Report prepared by:

Dr Judith Welford, Head of Public Knowledge

Public Knowledge

Part of Dipsticks Research Limited
The Mill
Hexham Business Park
Burn Lane
Hexham
Northumberland
NE46 3RU

Tel: 01434 613273
Email: judith@publicknowledge.eu
Web: www.publicknowledge.eu
Twitter: @PKresearchNE46

Contents

1. Executive Summary

- The most popular type of holiday amongst participants, all of which would consider visiting Northumberland in the next 2 years, were seaside and coastal holidays (29%) followed by countryside holidays (27%).
- Respondent's main considerations when booking a holiday are scenery (31%), price (25%), activities (20%), weather (20%), distance (18%), and accommodation (17%).
- The main reasons for considering a visit to Northumberland is the scenery (24%) followed by the coastline (16%).
- It is the countryside, coastline beaches, historic sites and peace and quiet that drew people to Northumberland in the past.
- 11% of respondents would be discouraged from visiting Northumberland due to wind farms and of those two thirds are male.
- 19% of respondents select that their decision to visit Northumberland is likely to be affected by wind farms.
- Opinion towards renewable energy is positive with just 9% selecting that they feel negatively towards it.
- Males and the eldest age group of 65 years plus are significantly more likely to feel negatively towards renewable energy sources.
- Wind farms are regarded as the second best form of renewable energy, second to hydroelectricity. Males and the two eldest age groups 55 years plus prefer hydroelectricity.
- 42% of the sample support on shore wind farm development, a further 22% claim to have no real opinion leaving 21% to be opposed and 5% not knowing what to think.
- 87% of respondents would feel comfortable seeing some form of wind farm in Northumberland.
- Most choose for them to be off shore so that they do not spoil the scenery, coastline or wildlife.
- There is dispute with regards to wind farms but it is agreed by more than half that if correctly sited they do not intrude or ruin the landscape and that the farms are a necessary means of generating renewable energy.
- There are more respondents who agree that wind farms add character to an area (31%) and can enhance the natural landscape (29%) than there are agreeing that wind farms would discourage them from visiting an area (26%).
- 4% of respondents have been discouraged to visit Northumberland in the past due to wind farms, the same percentage have however visited the area because of the wind farms.

- 30% of respondents will definitely or may be encouraged to book a holiday/visit to somewhere other than Northumberland in the future because of the presence of wind farms.
- 41% of respondents think Northumberland has a sufficient number of wind farms, 43% believe that the area could support more leaving 16% who think Northumberland already has too many.

2. Background and Methodology

Northumberland County Council commissioned a study to evaluate the effect of existing and planned onshore wind turbines on the tourism industry within the county with specific regard to visitor perception in the medium and long term.

To ensure that robust policies can be developed to guide future decisions on wind farm planning applications, the study identified potential visitor views on whether the existence of wind farms has an impact on their decision to come to a rural tourist area (and to Northumberland in particular). Areas the research covered are:

- Whether the respondent is familiar with large-scale wind turbine development.
- The importance of natural scenery and landscape to potential visitors.
- The factors affecting a potential visitor's decision to visit or stay in the county.
- Where else in the UK potential visitors have stayed/plan to visit.
- Whether the presence of wind farms would affect a potential visitor's decision to visit or stay in the county.
- Whether wind farms would be viewed as an added attraction for visiting the county.
- Whether the presence of wind farms in a destination has had an effect on their holiday decision-making process to date and why.

(Source: Northumberland County Council's brief)

To evaluate the effect of existing and planned onshore wind turbines on the tourism industry within Northumberland, quantitative data was collected via an online methodology. A questionnaire approximately 10 minutes in length (see Section 7 for reference) was designed in collaboration between Public Knowledge and Northumberland County Council.

Online data was collected via our in-house online panel, panelbase.net, which has over 200,000 registered members and this resulted in 410 interviews. A sample of 410 is considered to be robust with a margin of error of +/-4.84% at the 95% confidence level. The survey ran from the 27th March to 7th April 2014.

3. Data Processing and Analysis

Throughout the report the research findings have been illustrated using easy to read colour charts, which provide an immediately accessible graphical overview of the answers given by respondents. The charts are clearly labelled and the corresponding question from the questionnaire included at the bottom of each chart for ease of reference, in addition to the 'base' or sample size for each question.

Within this report any mention of 'significance' refers to statistical significance. Statistical significance is used to refer to a result that is unlikely to have occurred by chance and in this case is tested using Pearson's chi-square. Significance can be calculated to different percentages, with higher percentages representing more noteworthy responses.

Survey data was assessed for statistical significance according to the following variables:

- Gender
- Age
- Regional location of respondent
- Previous holidays/trips to Northumberland in the last 3 years

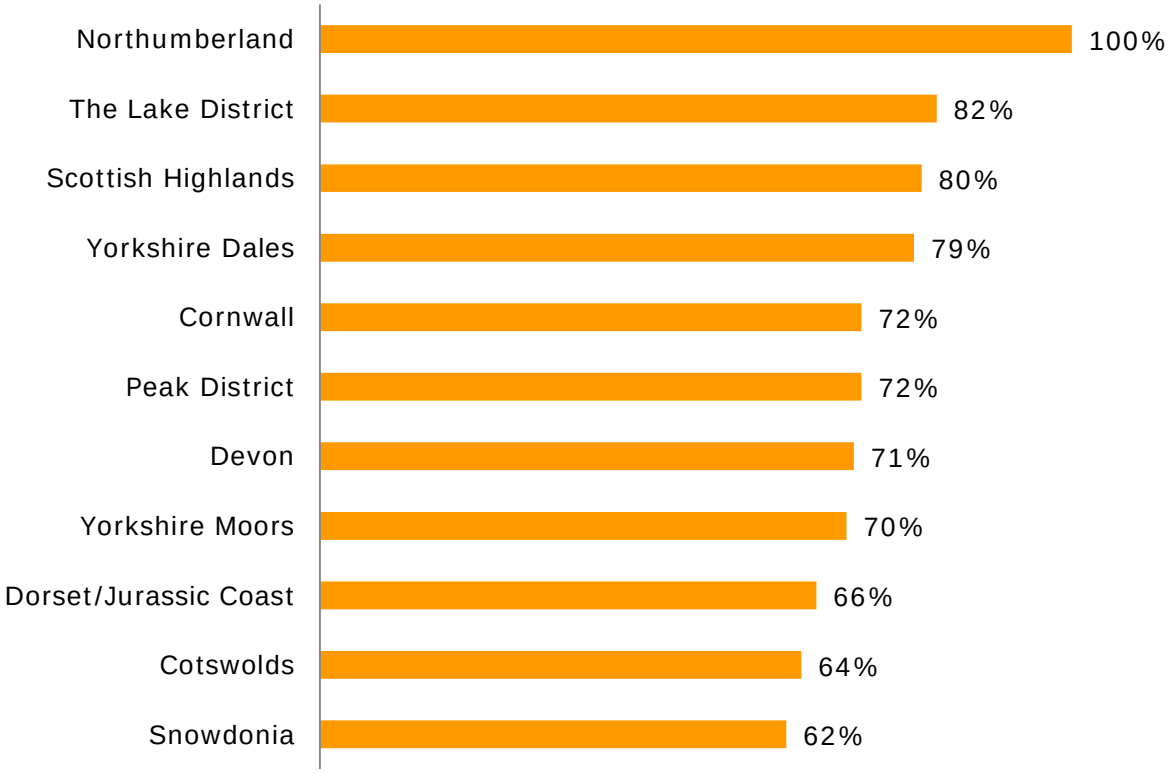
Please note, where 0% is charted this represents a number of respondents less than 1% of the sample.

This report is accompanied by data tables and raw data files where further information can be found, if required.

4. Sample Profile

In order to qualify to take part in the survey all participants were required to select Northumberland as a place they would consider visiting in the next 2 years.

Figure 1: Destinations considered

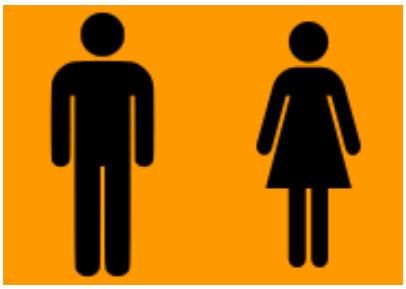


S1. Which of the following areas would you consider going on holiday to/visiting in the next 2 years?
Base: 410

Other places participants would consider visiting in the next two years in addition to Northumberland include the Lake District (82%), the Scottish Highlands (80%), and the Yorkshire Dales (79%).

Quotas were imposed on the sample to ensure that 20% were from the North East (excluding Northumberland) with the remaining 80% from a spread of regions across the UK. Quotas were also imposed on the sample to ensure a spread of responses is achieved according to age and gender. The final sample profile according to age and gender is shown in Figure 2 and Table 1.

Figure 2: Sample Gender



As Figure 2 shows, the sample was split equally between genders. Age was also fairly evenly spread across the sample, although fewer 16-24 year olds were represented.

Table 1: Sample by Age

Age	N	%
16-24	24	6%
25-34	67	16%
35-44	78	19%
45-54	84	20%
55-64	86	21%
65+	71	17%

Table 2: Regional Breakdown

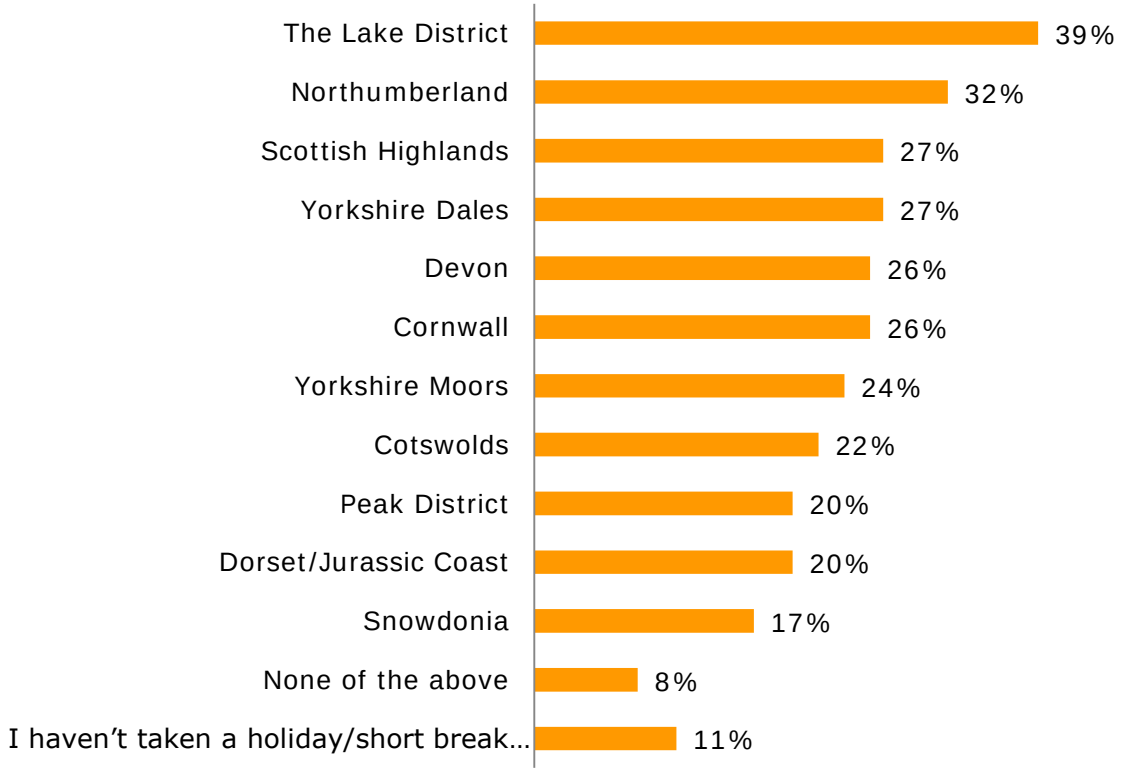
Region	N	%
North East	79	19%
South East	51	12%
London	40	10%
North West	38	9%
West Midlands	33	8%
Yorkshire	32	8%
East Anglia	32	8%
South West	32	8%
Scotland	28	7%
East Midlands	24	6%
Wales	17	4%
Northern Ireland	4	1%

There was a maximum quota set against respondents being from the North East of 20% and nobody lived within Northumberland. The breakdown of North East respondents' home areas is shown in Table 3.

Table 3: North East Breakdown

Region	N	%
County Durham	21	27%
Newcastle upon Tyne	14	18%
Sunderland	13	16%
North Tyneside	7	9%
Gateshead	6	8%
South Tyneside	3	4%
Middlesbrough	3	4%
Stockton	3	4%
Redcar and Cleveland	2	3%
Hartlepool	2	3%
Other	5	6%

Figure 3: Destinations visited



S2. Which of the following areas of the UK have you visited/been on holiday to in the last 3 years?
Base: 410

There are regional variances on where people are visiting depending on their home location. Respondents in the North East are significantly more likely to have visited The Lake District (58%), Northumberland (66%), Yorkshire Dales (41%) and the Yorkshire Moors (38%) whereas those living outside of the North East are significantly more likely to have visited

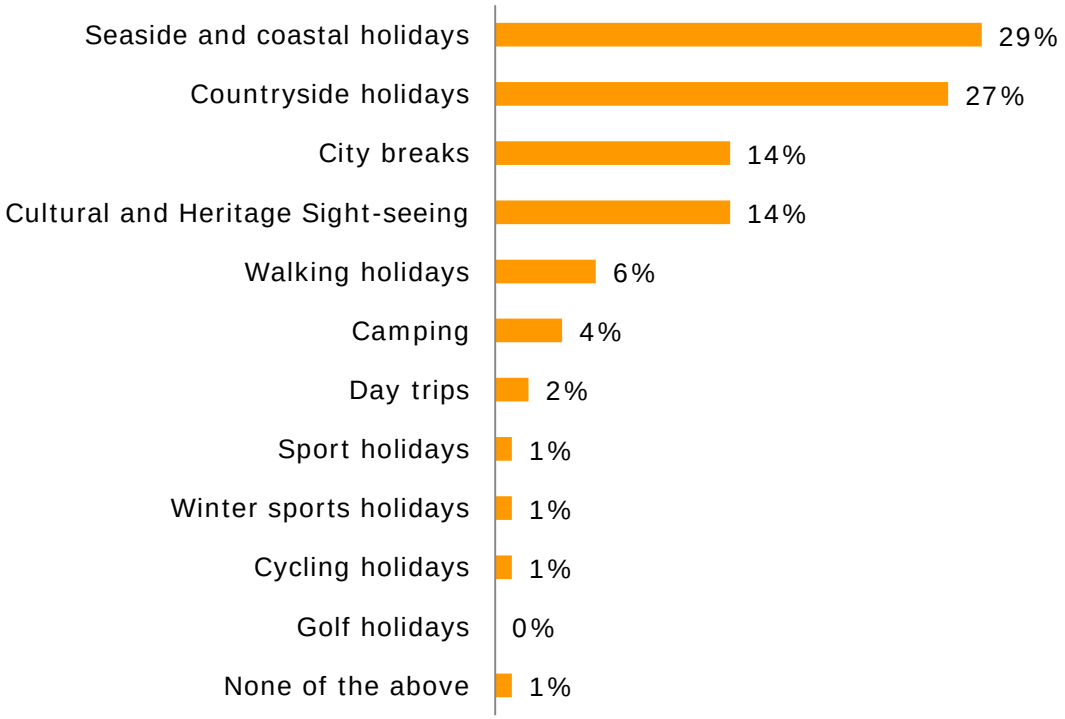
Devon (29%), Cornwall (29%), Dorset/Jurassic Coast (23%) and Snowdonia (20%) in the last three years.

5. Key Findings

5.1. Typical Holiday Profile and Booking Considerations

Before introducing questions on renewable energy and wind farms in Northumberland specifically, participants were initially asked a range of questions about their holiday preferences beginning with their preferred type of holiday as shown in Figure 4.

Figure 4: Preferred Holiday Type



Q1. Which of the following best describes your preferred type of UK holiday?
Base: 410

The most popular type of holiday amongst participants, all of whom would consider visiting Northumberland in the next 2 years, were seaside and coastal holidays (29%) followed by countryside holidays (27%). Smaller proportions preferred city breaks (14%) and cultural and heritage sightseeing (14%). The only gender variance is for 'seaside and coastal holidays' where women are significantly more likely to select this holiday type; 34% for females and 23% for males. Within the age groups, 25 to 34 year olds are significantly more likely to select 'city breaks' at 25%, 45 to 54 years olds select 'cultural and heritage sight-seeing' at a significantly higher rate of 24% and the eldest group of 65 years plus are significantly more likely to select 'countryside holidays' at 38%. The sub-sample from the North East were significantly more likely to choose 'city break' than the respondents from other regions of the UK, as their preferred type of UK holiday; a level of 24%, probably influenced by a slightly younger profile of respondents in the North East.

Of those who selected 'seaside and coastal holidays' they would predominantly visit Cornwall (30%), Devon (19%), Dorset (9%), Pembrokeshire (6%), Wales (6%) and Northumberland (5%). There are regional variances in the places respondents would visit for a 'seaside and costal holiday'; respondents from the North East were significantly less likely to visit Cornwall (5%) whereas as those from London were significantly more likely at 53%.

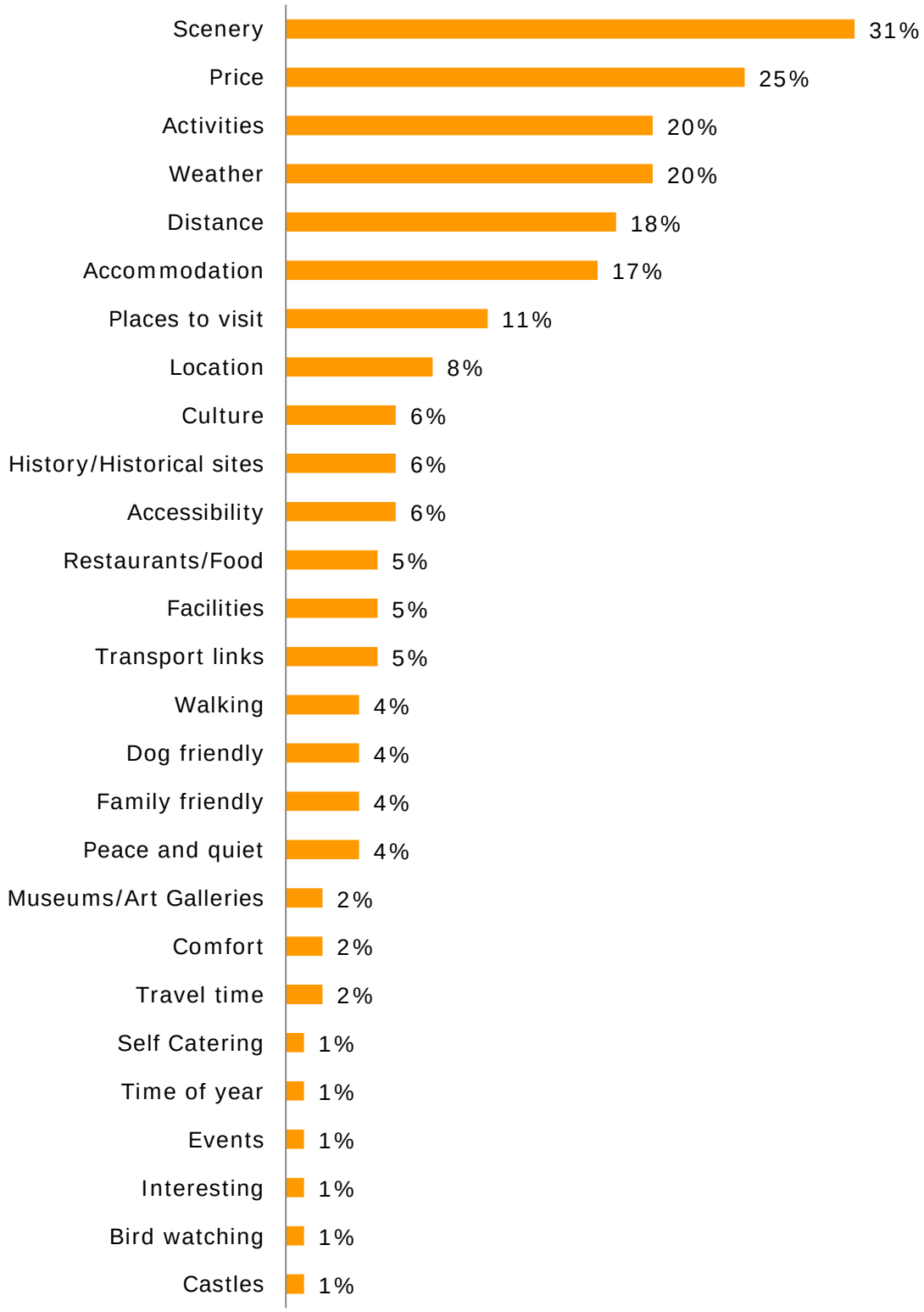
Those who selected 'countryside holidays' would predominantly visit the Lake District (22%), Scotland (19%), Yorkshire (11%), Cornwall (7%), Northumberland (7%) and Wales (7%). There are no variances dependent on the home location of respondents.

Northumberland was also specifically named by a small number of respondents as a place they would visit for walking holidays and cultural and heritage sight-seeing.

Participants were next asked what their main considerations were when booking a holiday in the UK using an open format question. Coded responses are shown in Figure 5 on the following page.

Respondents' main considerations when booking a holiday are scenery (31%), price (25%), activities (20%), weather (20%), distance (18%), and accommodation (17%). Respondents from the North East are looking for activities (30%) more than others and less likely to consider the scenery (22%). Although East Anglian respondents are a small sub-group of 32, significantly more respondents at 32% consider distance as important compared to those from other regions. Distance is less of a consideration for Londoners at 8%. Females are significantly more likely to consider accommodation: 21% females, 12% males.

Figure 5: Main booking considerations

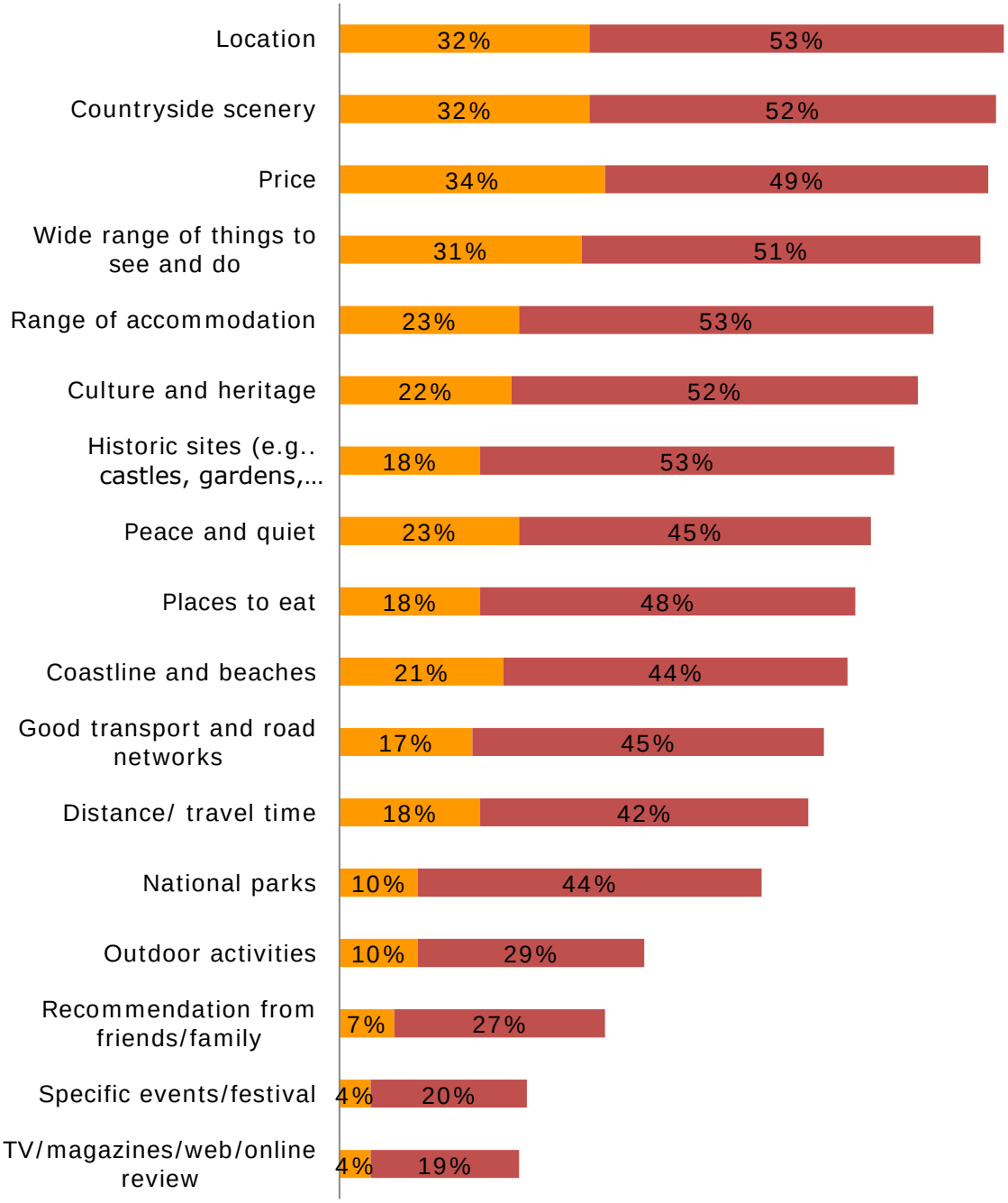


Q3. What are your main considerations when booking a holiday in the UK?

Base: 410

When presented with a list of factors to rate with importance on a scale of 1 to 5 (only 'important' and 'very important' responses are shown), location, countryside scenery and price are the most important factor when planning trips/holidays. People are also looking for a wide range of things to see and do.

Figure 6: Main booking considerations



Q4. Please rank how important each of the following factors are in your decision when planning trips/holidays?

Base: 410

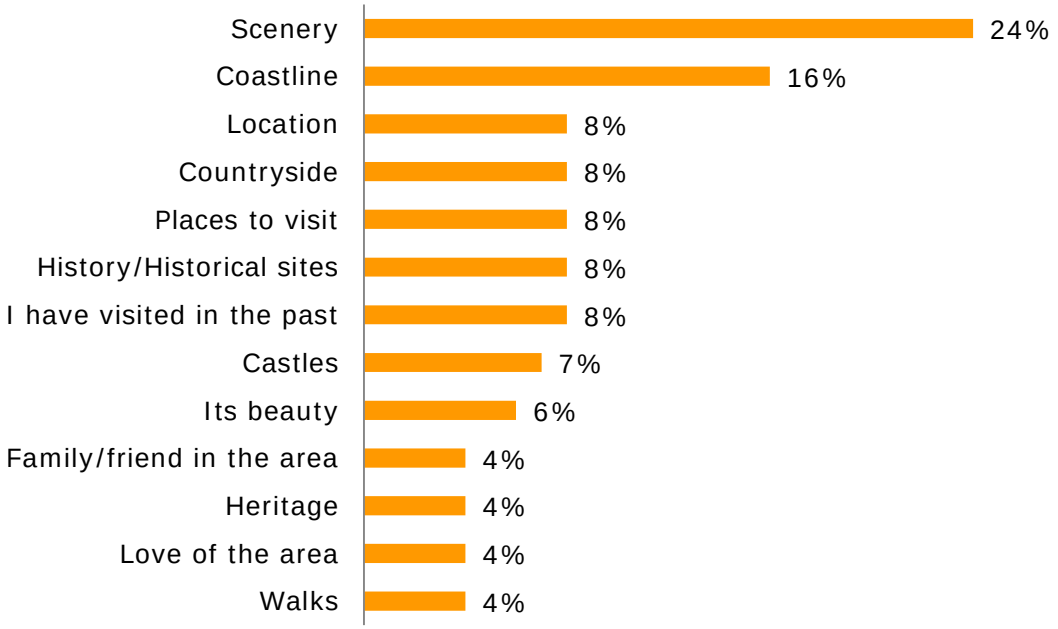
Again females are significantly more likely to assign accommodation to very important at 28% (males 18%). Females are also significantly more likely to assign location to very important at 37% (males 27%), good transport and road networks as important at 51% (males 44%) and distance/time travelled as important at 48% (males 36%). Females also regard TV/magazines/web/online reviews more importantly than males with 24% assigning them as important in contrast to 14% of males. When asked to rate coastline and beaches the men are significantly more likely to select that they are neither important nor unimportant at 34% (females 24%).

There are only a few variances when looking at age, understandably the eldest age group are less interested in activities and more important for them is peace and quiet. It is the age group of 25 to 34 year olds who rate price more importantly than other age groups (49% very important).

5.2. Consideration of Northumberland

The survey then focused specifically on Northumberland asking all respondents what reasons would make them consider visiting Northumberland in the future. As displayed in Figure 7 below, the main reason is the scenery (24%) followed by the coastline (16%). The oldest age group of 65 years plus are significantly more likely to mention the coastline (25%).

Figure 7: Reasons for considering Northumberland - Unprompted

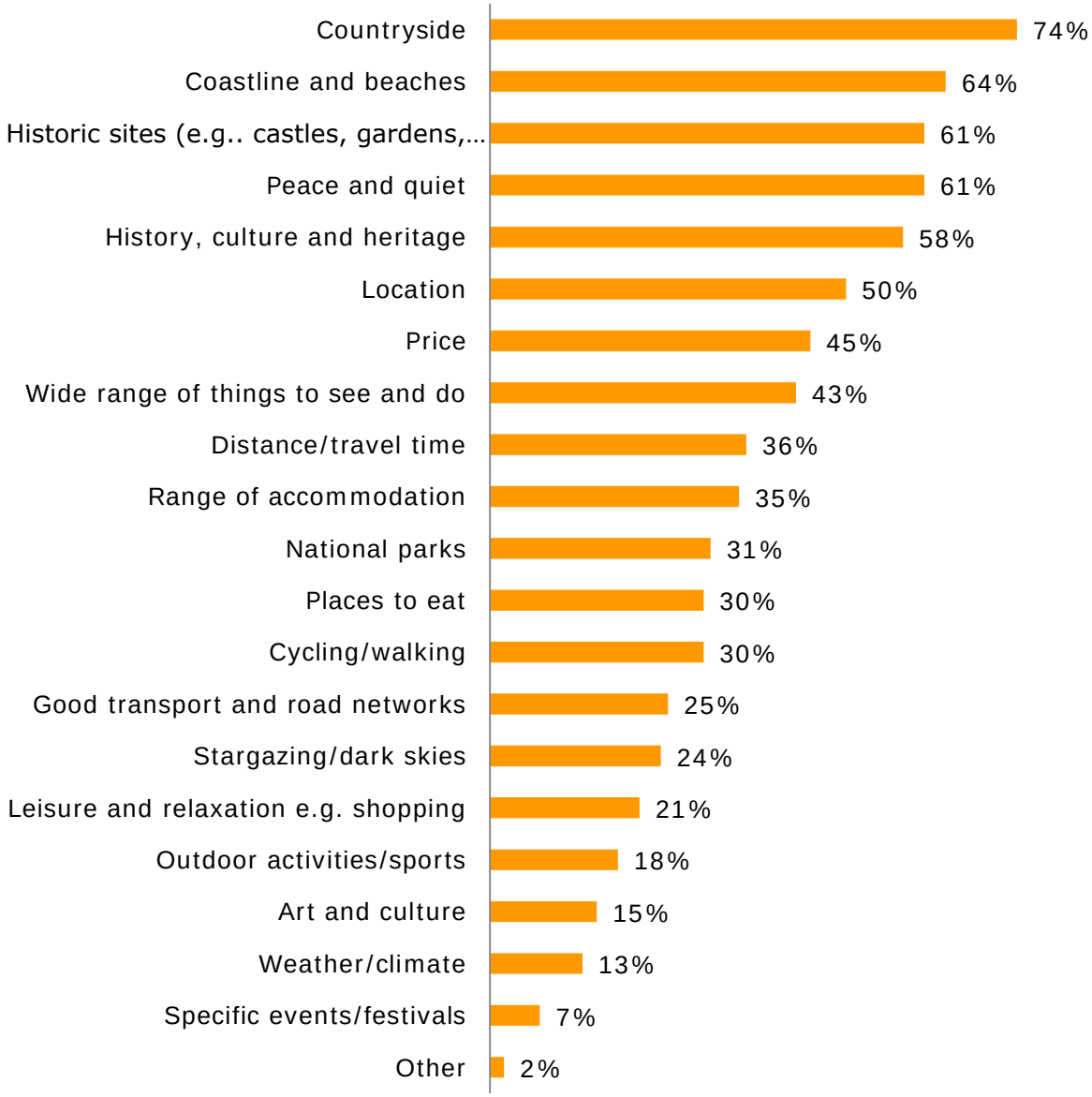


Q6a. What reasons would make you consider visiting Northumberland in the future?

Upon prompting it is the countryside that is selected as being the most popular reason for visiting Northumberland in the future. Understandably it is respondents from the North East (68%) Scotland (57%) and Yorkshire (59%) who select distance/travel time.

The eldest group of respondents select coastline and beaches (86%), peace and quiet (77%) and history, culture and heritage (69%) significantly more than other age groups. The only statistical significant variance between the genders is peace and quiet where it is the males who are significantly more likely to select this as a reason to consider, males 66%, females 56%. The prompted responses are shown in Figure 8 on the following page.

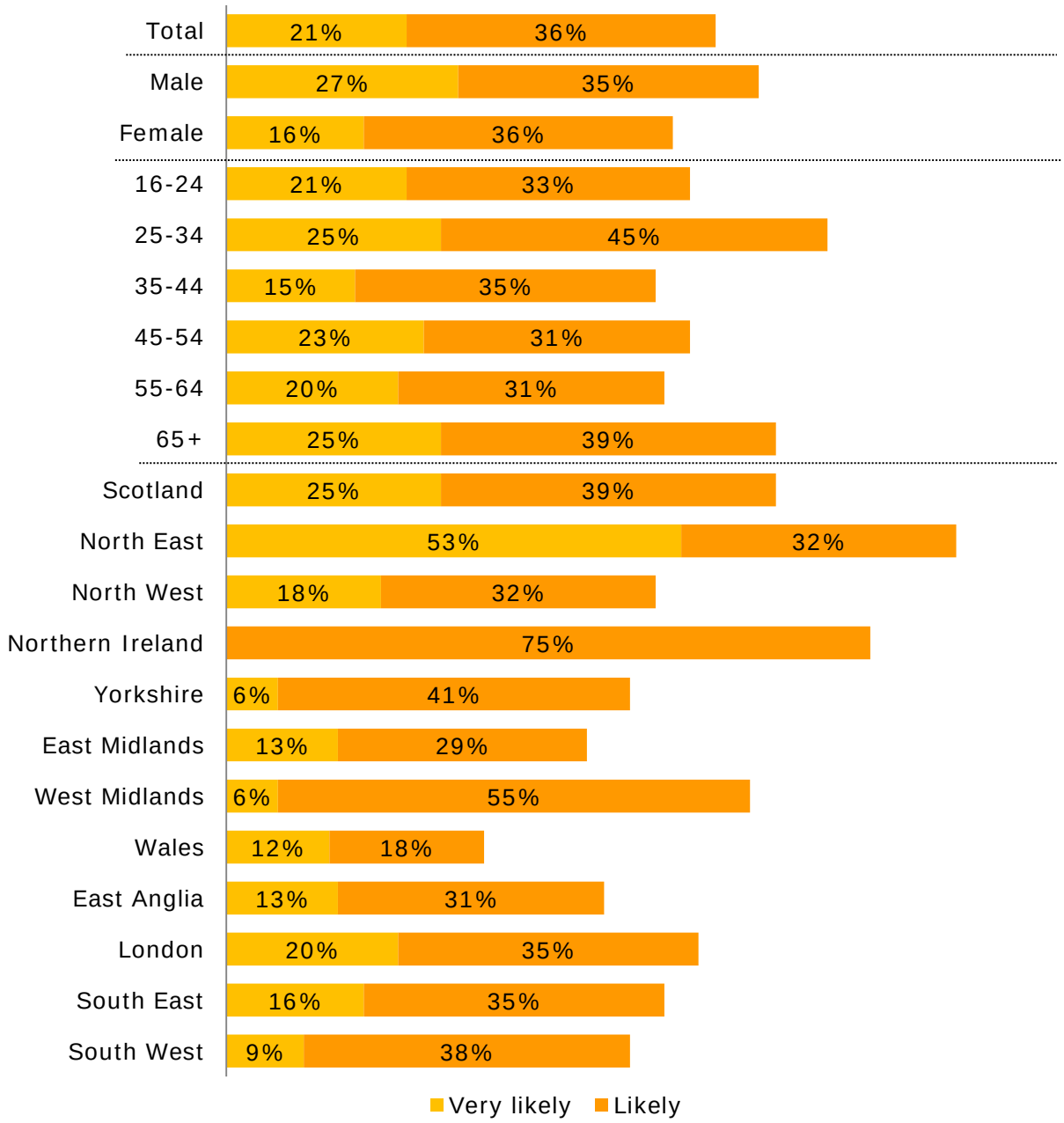
Figure 8: Reasons for considering Northumberland - Prompted



Q6b. Which of the following best describes why you would consider Northumberland for a visit in the future?

Whilst 100% of the sample said they would consider visiting Northumberland within the next two years, more than half (57%) thought it was actually 'very likely' or 'likely' that they would visit during that period. The breakdown of who is 'very likely' or 'likely' to visit in the next two years is shown in Figure 9.

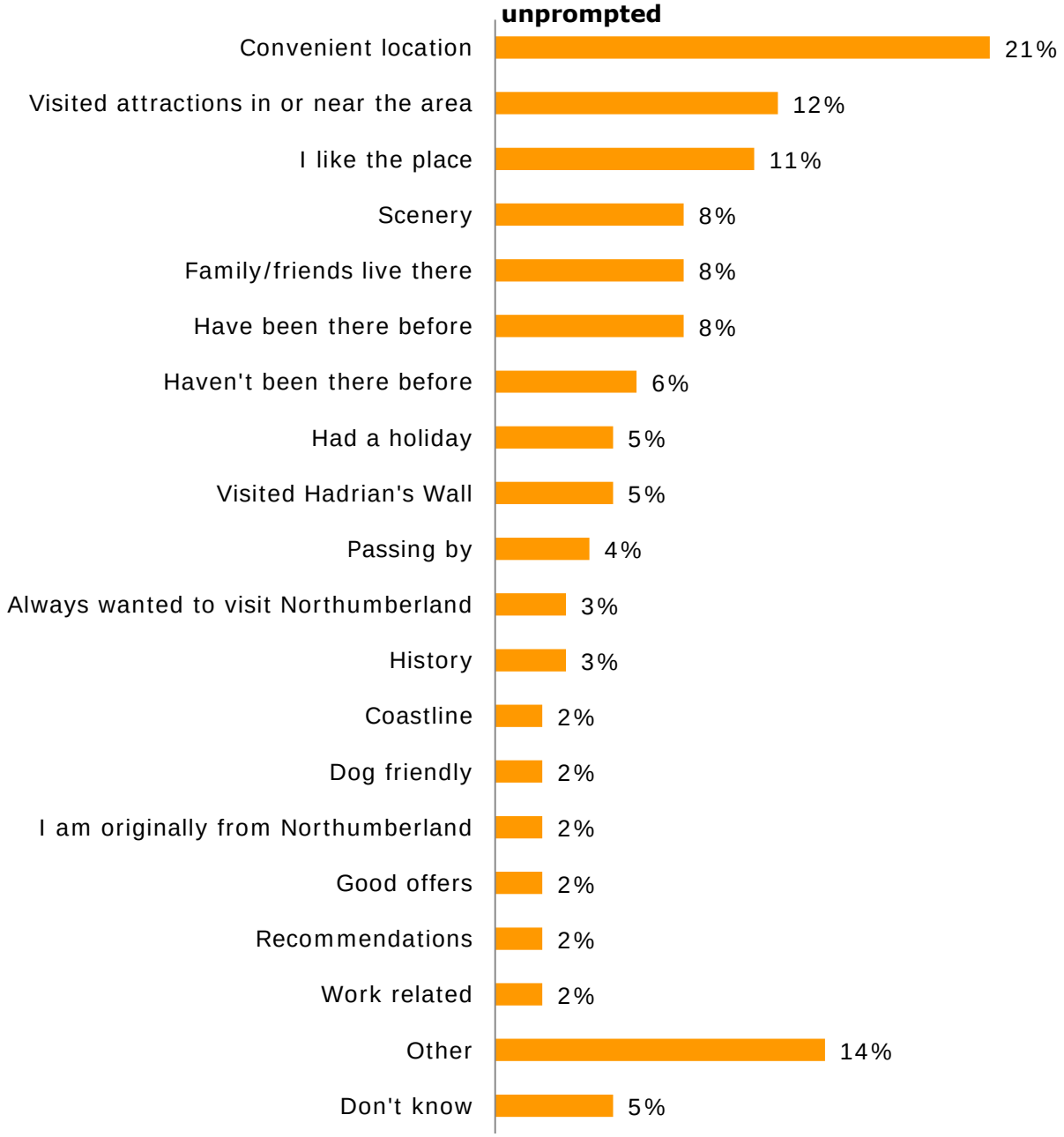
Figure 9: Visit likelihood



Q7. How likely are you to visit Northumberland within the next 2 years?
Base: 410; for individual bases see p9

The respondents that have visited Northumberland in the last 3 years (n=131) have done so as it is a convenient location. The coded responses for why respondents visited are shown in Figure 10.

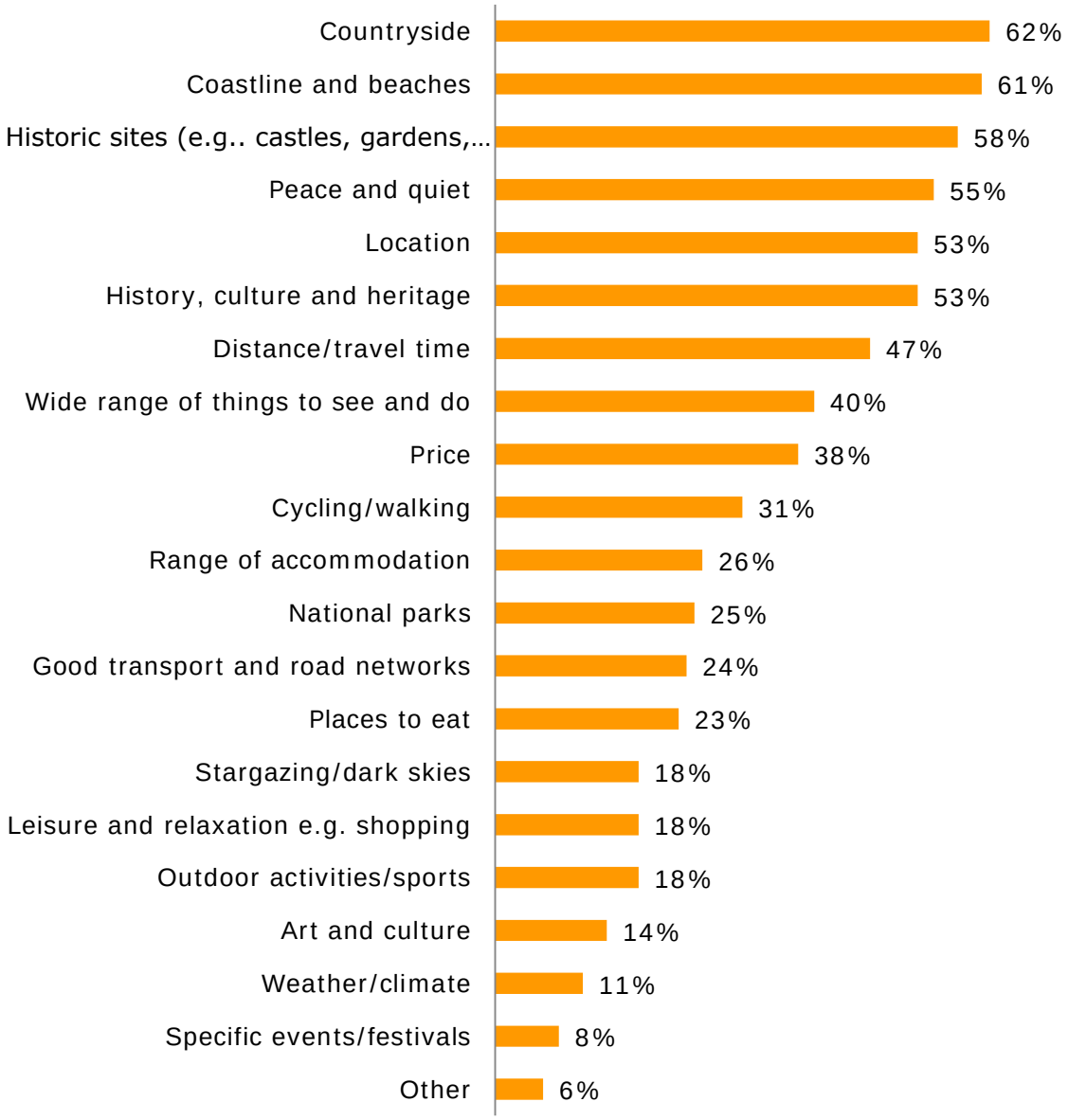
Figure 10: Reasons for visiting Northumberland in the past - unprompted



Q8a. Why did you decide to visit Northumberland in the past 3 years?
Base: All who said they had visited Northumberland in the past 3 years - 131

Upon prompting it is the countryside, coastline beaches, historic sites and peace and quiet that drew people to Northumberland, see Figure 11 below.

Figure 11: Reasons for visiting Northumberland in the past - prompted



Q8b. Which of the following best describes your reasons for visiting Northumberland in the past?

Base: All who said they had visited Northumberland in the past 3 years - 131

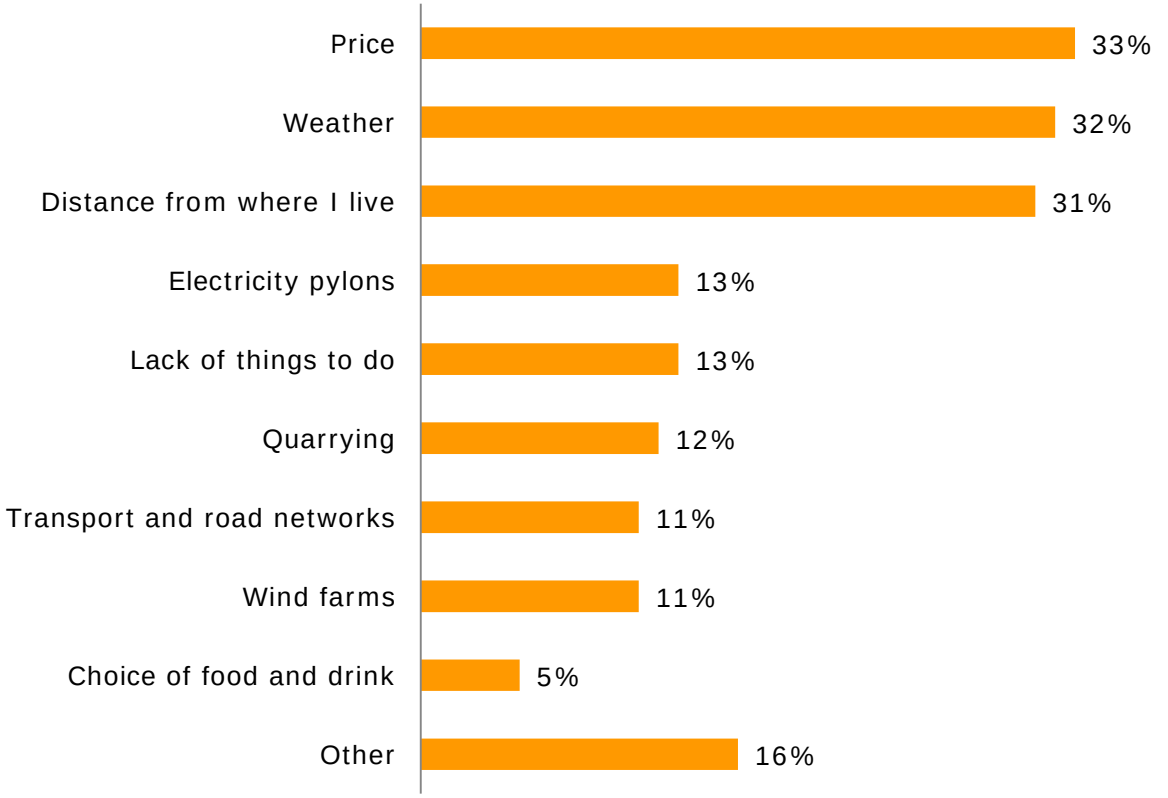
In-line with the importance factors, females have visited because of the coastline and beaches (79%) and the good transport and road networks (37%).

All respondents were then asked about barriers to visiting Northumberland; it is the weather that is the most selected barrier with one third of respondents being deterred by weather. Interestingly North East residents are significantly more likely to select weather suggesting

that they are possibly reluctant to stay local and are in search of better weather rather than those who are outside of the North East choosing not to visit because of the weather (North East 42%, others 30%). This may also be influenced by the slightly younger sample in the North East since we are seeing that younger respondents are generally more inclined to be put off by the weather.

When prompted with a list of barriers, electricity pylons and quarrying are more of a deterrent than wind farms. Of the 11% who select wind farms, two thirds of them are males in comparison to only a third being females. There is no significant variance across the age groups of those selecting wind farms. Figure 12 shows the barriers to visiting Northumberland.

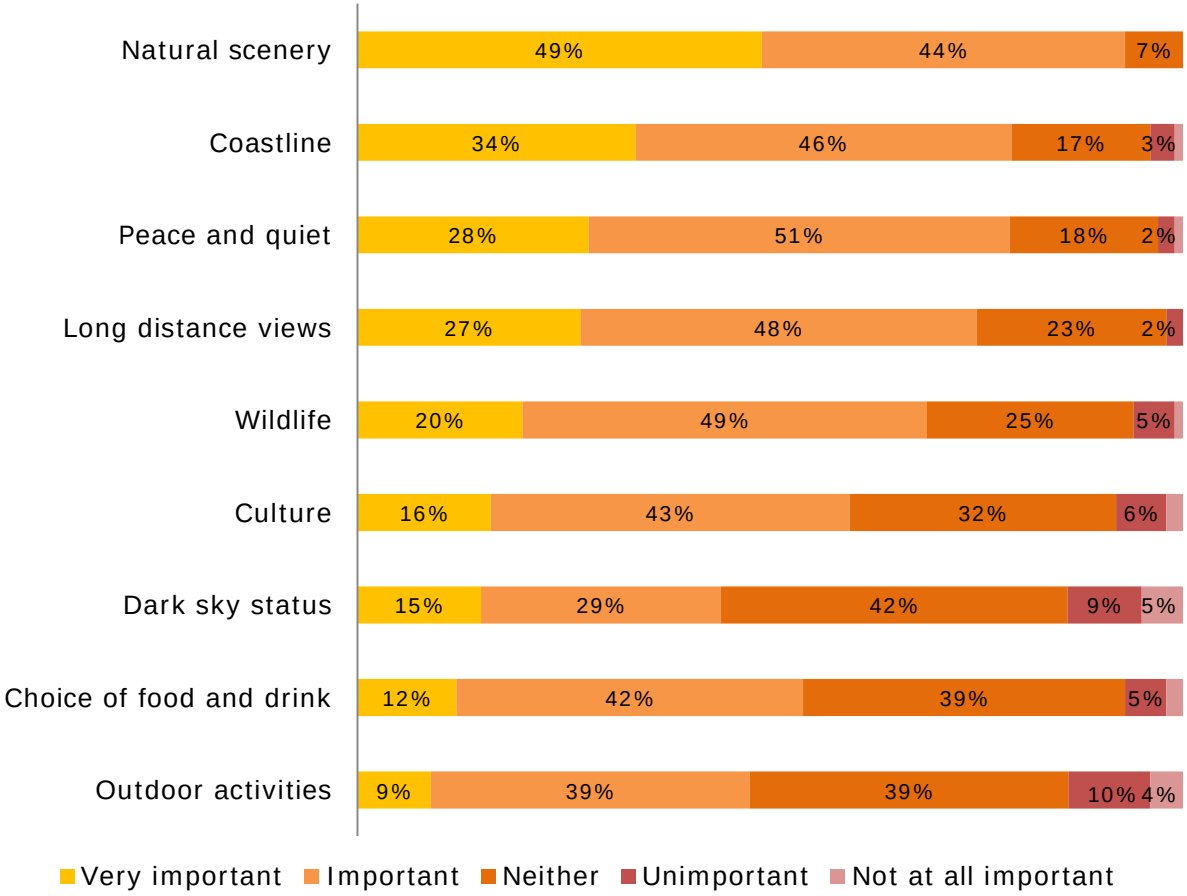
Figure 12: Barriers to visiting Northumberland- prompted



Q9b. Which of the following would deter you from considering a visit to Northumberland in the future?
Base: 410

When assessing the character of Northumberland it is the natural scenery that is considered the most important with just under half (49%) claiming it to be very important to the character of Northumberland, please see Figure 13 below.

Figure 13: Character of Northumberland



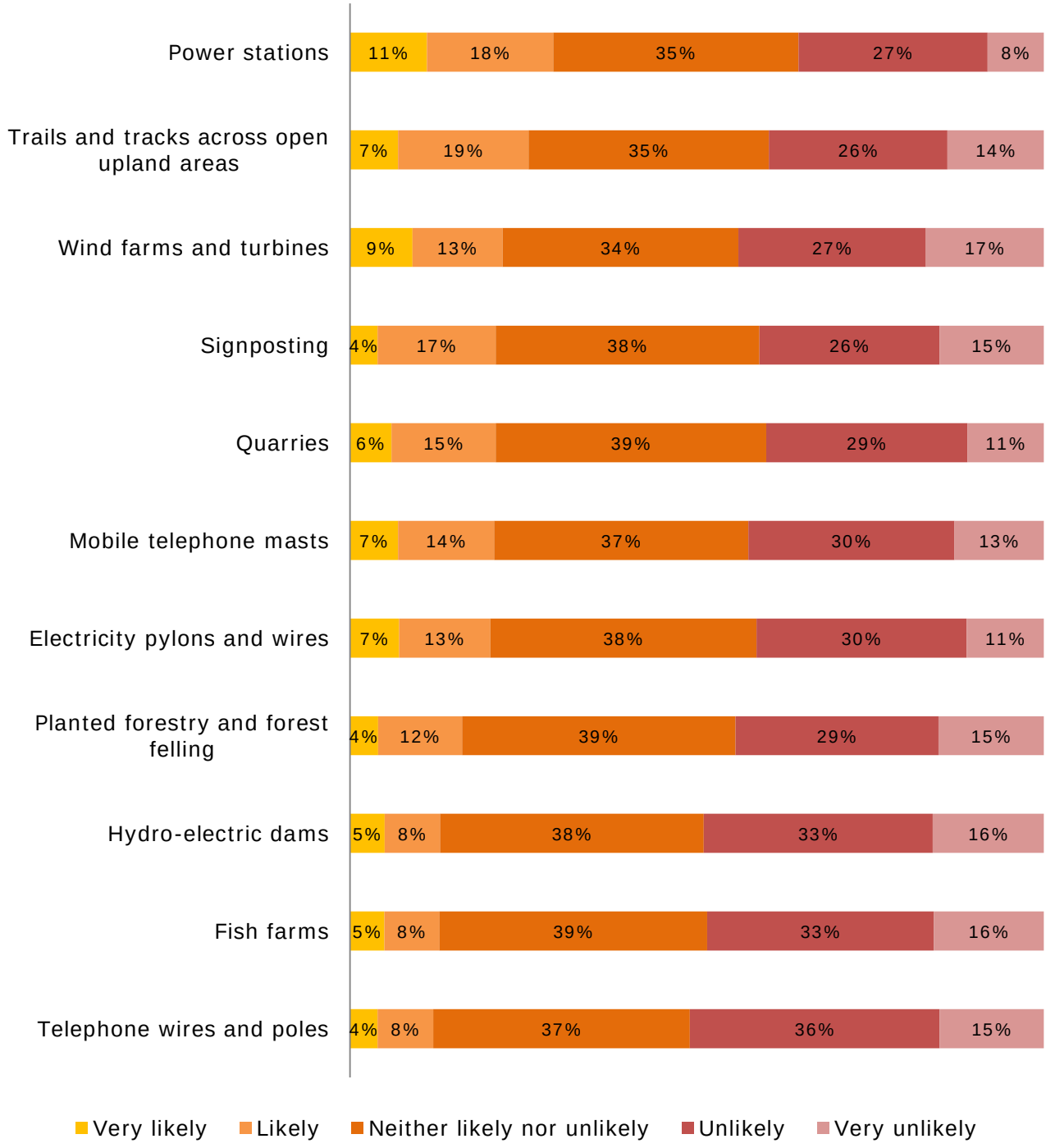
Q10. How important do you feel the following are to the overall character of Northumberland?

Base: 410

Looking at factors that affect respondents visiting the countryside or scenic areas, it is the presence of power stations that are the most likely to impact upon decisions to visit an area. Wind farms and turbines are unlikely to affect 44% of the respondents and a further 34% select that they are neither likely nor unlikely to affect decisions leaving 22% saying that they are likely to affect decisions. The order of impact is shown in Figure 14.

Of the 38 respondents that are very likely to be affected by wind farms and turbines 74% are males and 26% females meaning that males are significantly more likely to select very likely. Age is not showing as having a significant variance.

Figure 14: Considerations when visiting scenic area/countryside



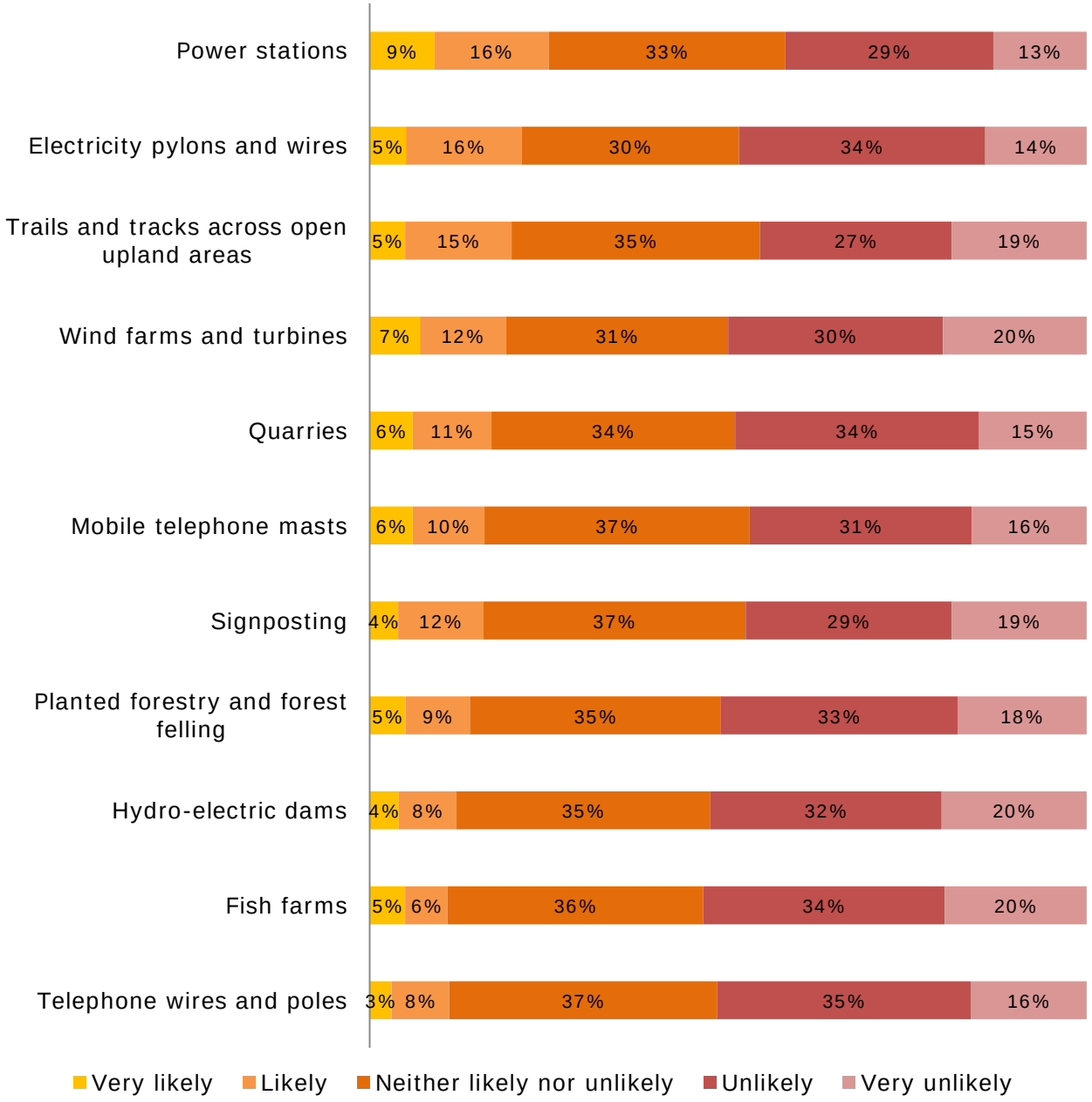
Q11. How likely is it that the following would affect your decision to visit a countryside/scenic area?

Base: 410

When specifically looking at Northumberland, power stations and electricity pylons and wires are more likely to affect respondents' decisions to visit the area. Respondents are slightly less likely to be affected by wind farms and turbines when deciding to visit Northumberland than

they are when thinking of general countryside and scenic areas (19% likely for Northumberland, 22% general countryside/scenic areas). The order of impact when considering Northumberland is shown in Figure 15. The main reason given by respondents that are likely to be affected by the presence of wind farms and turbines when considering visiting Northumberland is that they spoil the scenery (34%) and are unattractive (15%).

Figure 15: Considerations when visiting Northumberland



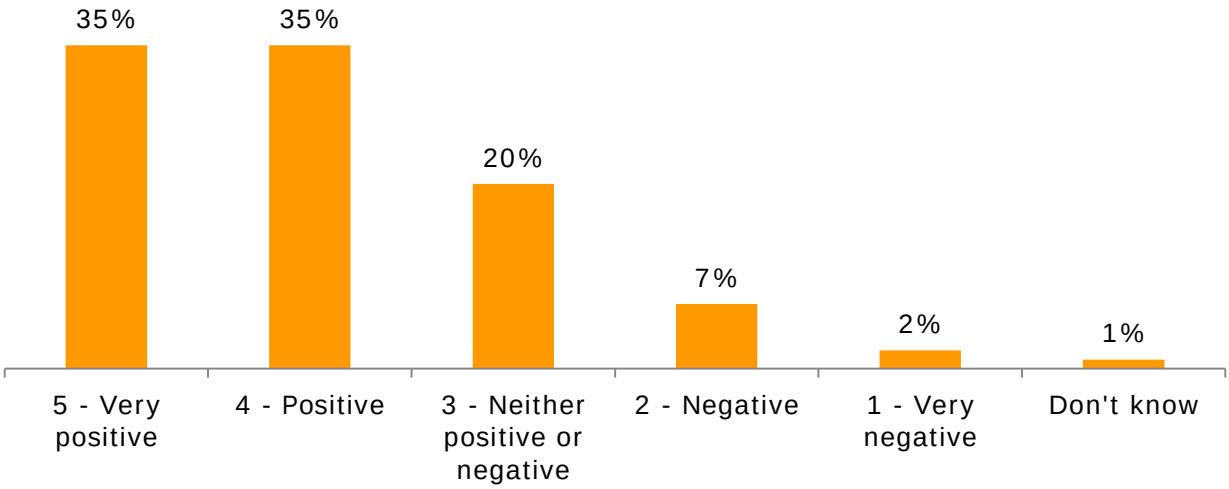
Q12. How likely is it that the following would affect your decision to visit Northumberland?

Base: 410

5.3. Renewable Energy

Opinion towards renewable energy is positive with just 9% selecting negative or very negative. This small sub-sample of respondents that are negative consists of 72% being male and 28% being female. From the age groups of 65 years plus, 14% select that their views are negative towards renewable energy, this is significantly higher than the average.

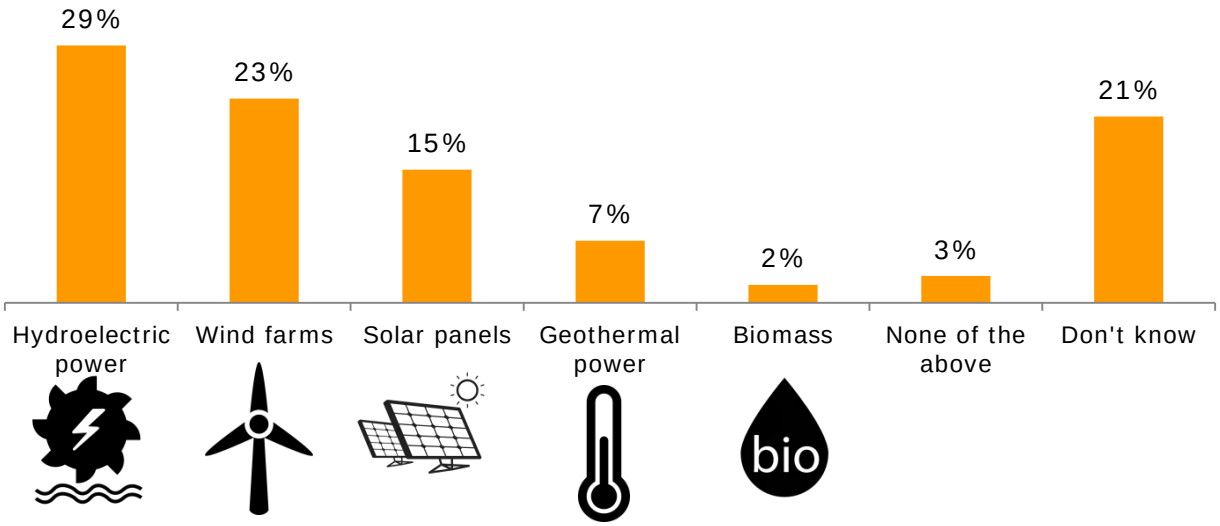
Figure 16: Attitute towards renewable energy



Q13. How do you feel in general about renewable energy?
Base: 410

Respondents' opinions towards the different forms are divided; hydroelectricity (29%) is regarded as the best form of renewable energy followed by wind farms (23%). Males are significantly more likely to select hydroelectricity (34%) compared to females (24%) whereas females (28%) are significantly more likely to select wind farms than males (19%). Males are also more likely to select geothermal power compared to females, 9% and 4% respectively. Age also has an impact with the two eldest age groups significantly more likely to choose hydroelectric power as the best form (55-64 years 41%, 65 years plus 42%). Respondents from the South West are also significantly more likely to select hydroelectricity at 47%. The order that respondents regard renewable energy is shown in Figure 17.

Figure 17:Hierarchical order of renewable energy types



Q14. What do you feel is the best form of renewable energy production?
Base: 410

42% of the sample support on-shore wind farms development, a further 22% claim to have no real opinion leaving 21% opposed and 5% not knowing their thoughts about on-shore wind turbine development. The age group of 25 to 34 years olds are significantly more likely to support them at 64% whereas the eldest age group are significantly more likely not to support their development at 52%. Males are also significantly more likely to oppose on-shore wind farms at 28% with 15% of females opposed.

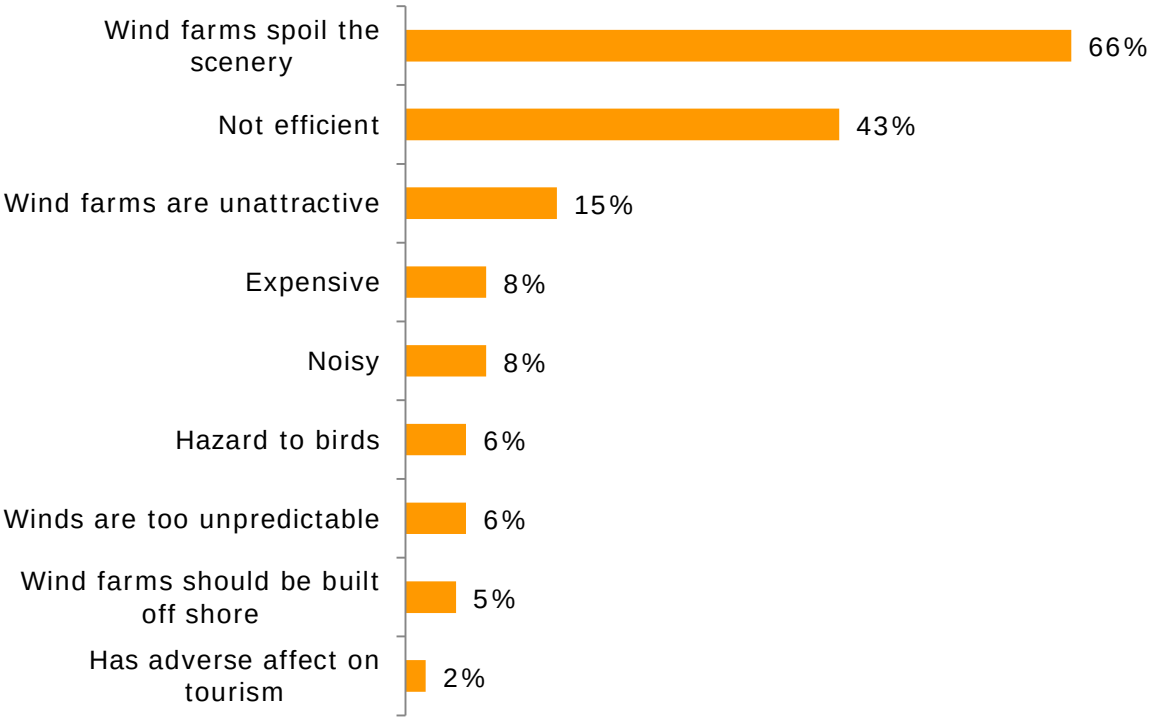
42% of the respondents that support on-shore wind farm development believe that environmentally friendly renewable energy forms are needed/necessary. 19% state that they like the appearance of wind farms and 11% believe that they are a better alternative to coal, gas and nuclear power. In addition it is the understanding of 5% of those who support the farms that fossil fuels are running out and 5% see the potential of this power source in the UK.

There is uncertainty and a lack of knowledge with regards to wind farms and hence a fifth of the total sample has no opinion towards their development.

The most dominant explanation as to why respondents are opposed to on-shore wind farm development is because they spoil the scenery with two thirds citing this reason. It is also believed by 43% of the sample that are opposed that they are not efficient. As well as spoiling

the scenery 15% say that they are unattractive. 8% believe that wind farms are expensive and 8% believe that they are noisy. The explanations for opposition are illustrated in Figure 18.

Figure 18: Explanations for opposition to wind farms

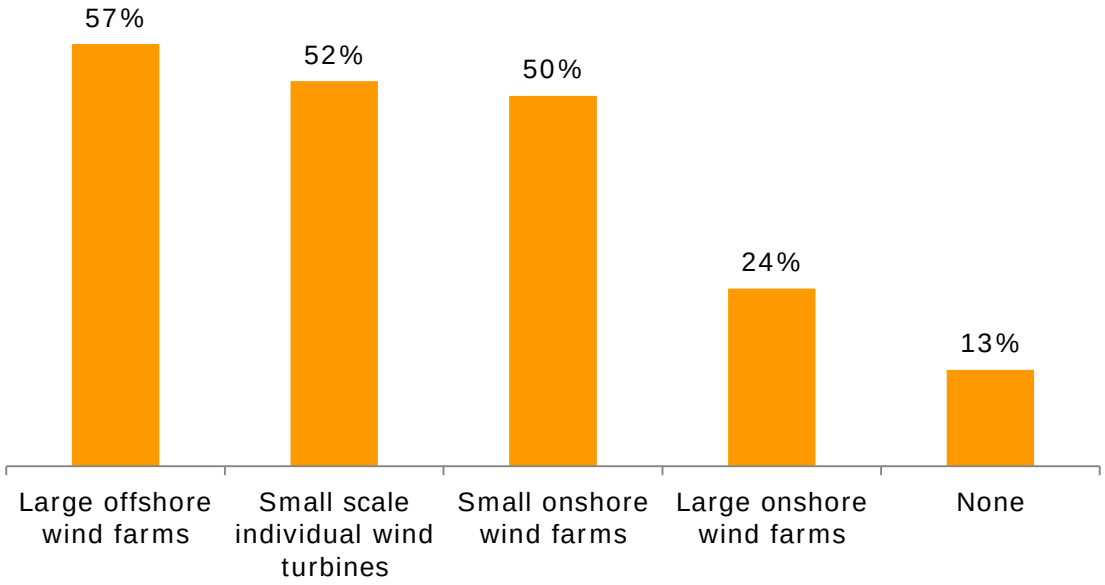


Q15a. Why do you say 'I oppose on-shore wind farm development'?

Base: 87

When asked to select which type of wind farm respondents would be most comfortable seeing in an area like Northumberland there are mixed opinions with just 13% saying none. It is the off shore farm that is preferred but small on-shore farms are acceptable to half of the respondents. Figure 19 documents these opinions. It is the eldest age group that are significantly more likely to say none at 24%.

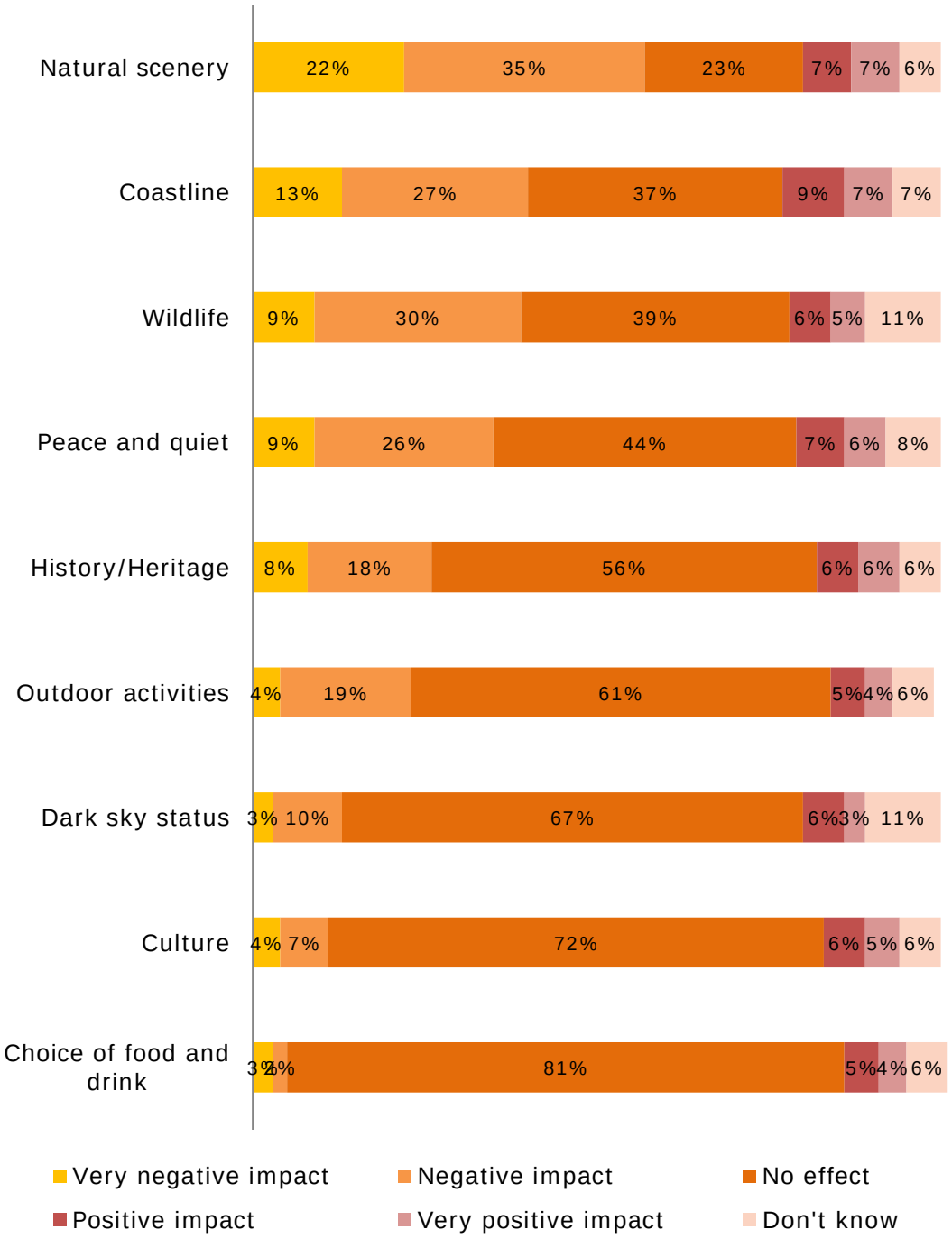
Figure 19: Types of wind farm



Q14ai. What type of wind farms would you be comfortable seeing in an area such as Northumberland?
Base: 410

Despite the majority choosing to select a type of wind farm that they would feel comfortable seeing in Northumberland there is agreement by some that there would be a negative impact upon the natural scenery, the coastline, wildlife and the peace and quiet. However over a third believe that the presence of wind farms would have no effect on the coastline, wildlife and the peace and quiet and 14% believe that their presence will have a positive impact on the natural scenery and 16% believe that their presence will have a positive impact on the coastline. The extent of the impact wind farms will have on various factors is shown in Figure 20. The eldest age group of 65 years plus are significantly more likely to select a very negative impact for natural scenery (45%), history/heritage (21%), wildlife (18%), coastline (31%) and peace and quiet (21%).

Figure 20: Impact of wind farms to Northumberland



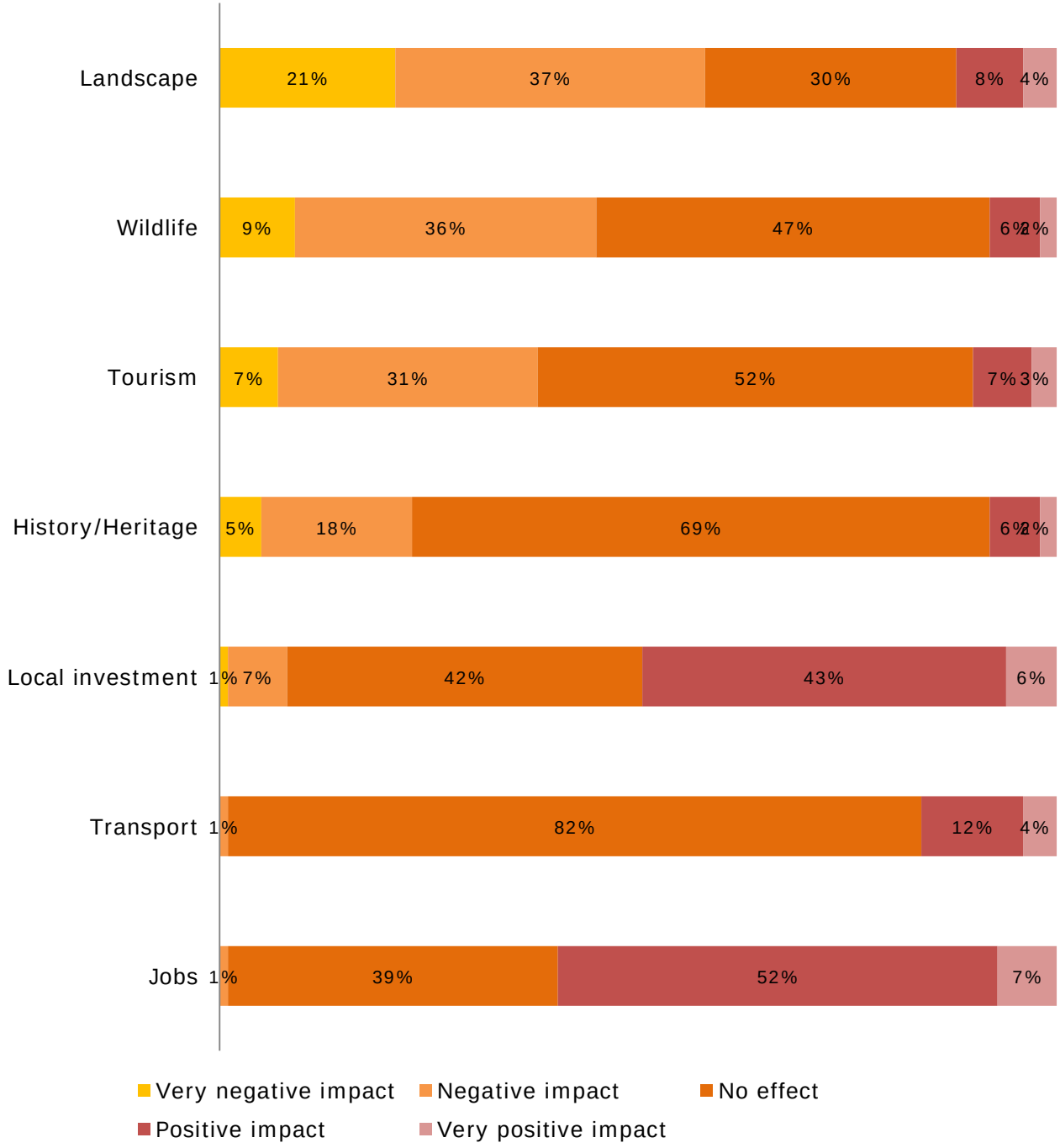
Q16. Which of the following would be impacted by the presence of wind farms in Northumberland?

Base: 410

Furthermore, respondents were asked what would be the impact of wind farms on economical factors and tourism, the results are shown in Figure 21. There is agreement by over half (58%) that there would be a negative impact to the landscape but for all other areas the majority of respondents believe that wind farms will either have no effect or a positive impact.

Once again the eldest age group stand out statistically showing significant variances in their negative responses to the impact upon the landscape (strong negative impact 42%) and tourism (strong negative impact 13%).

Figure 21: Impact of wind farms on tourism and economics

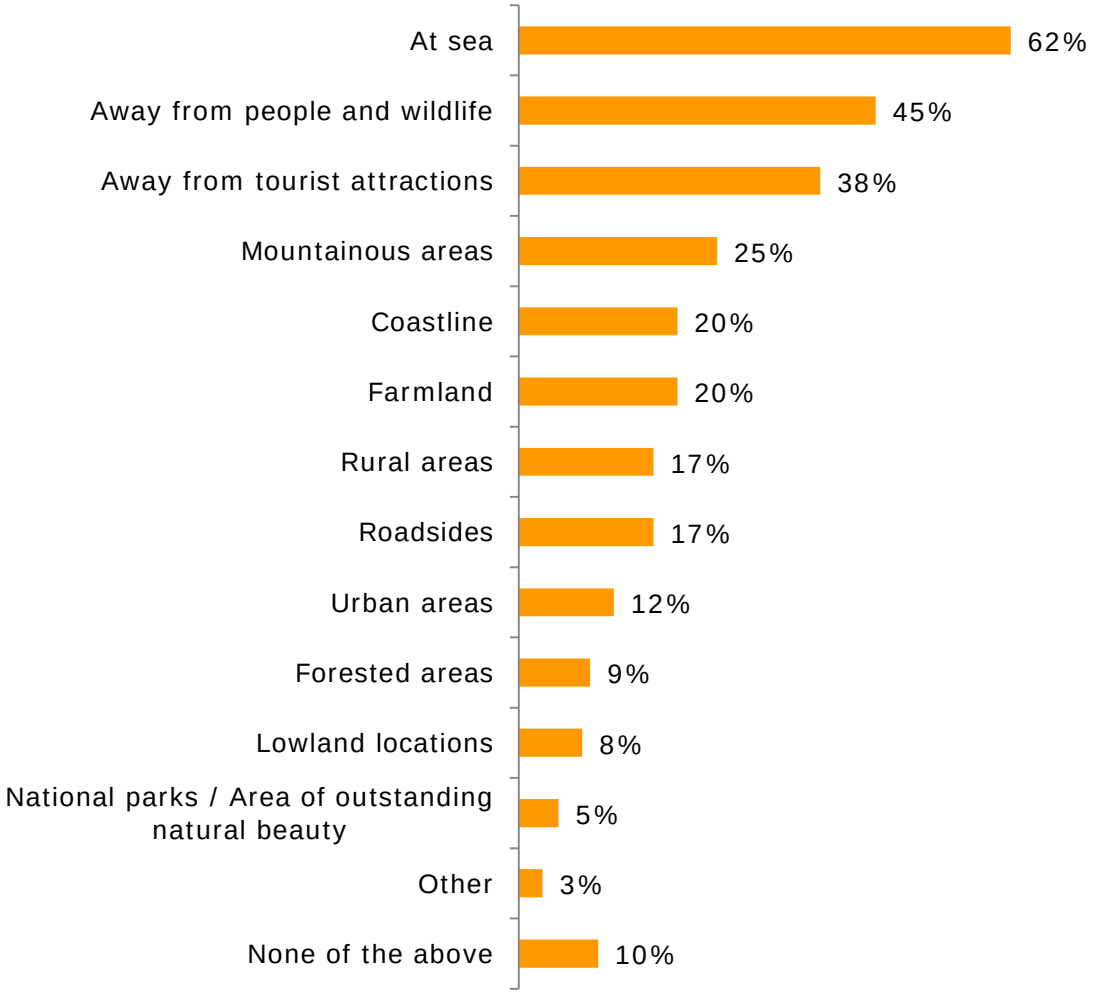


Q17. How do you think wind farms will affect the following in Northumberland?

Base: 410

It is agreed by a third of respondents (32%) that the best place for wind farms to be built in Northumberland is off shore and this increases to nearly two thirds (62%) of respondents when they are given a list of locations to choose from. The responses are shown in Figure 22.

Figure 22: Wind farm location - prompted



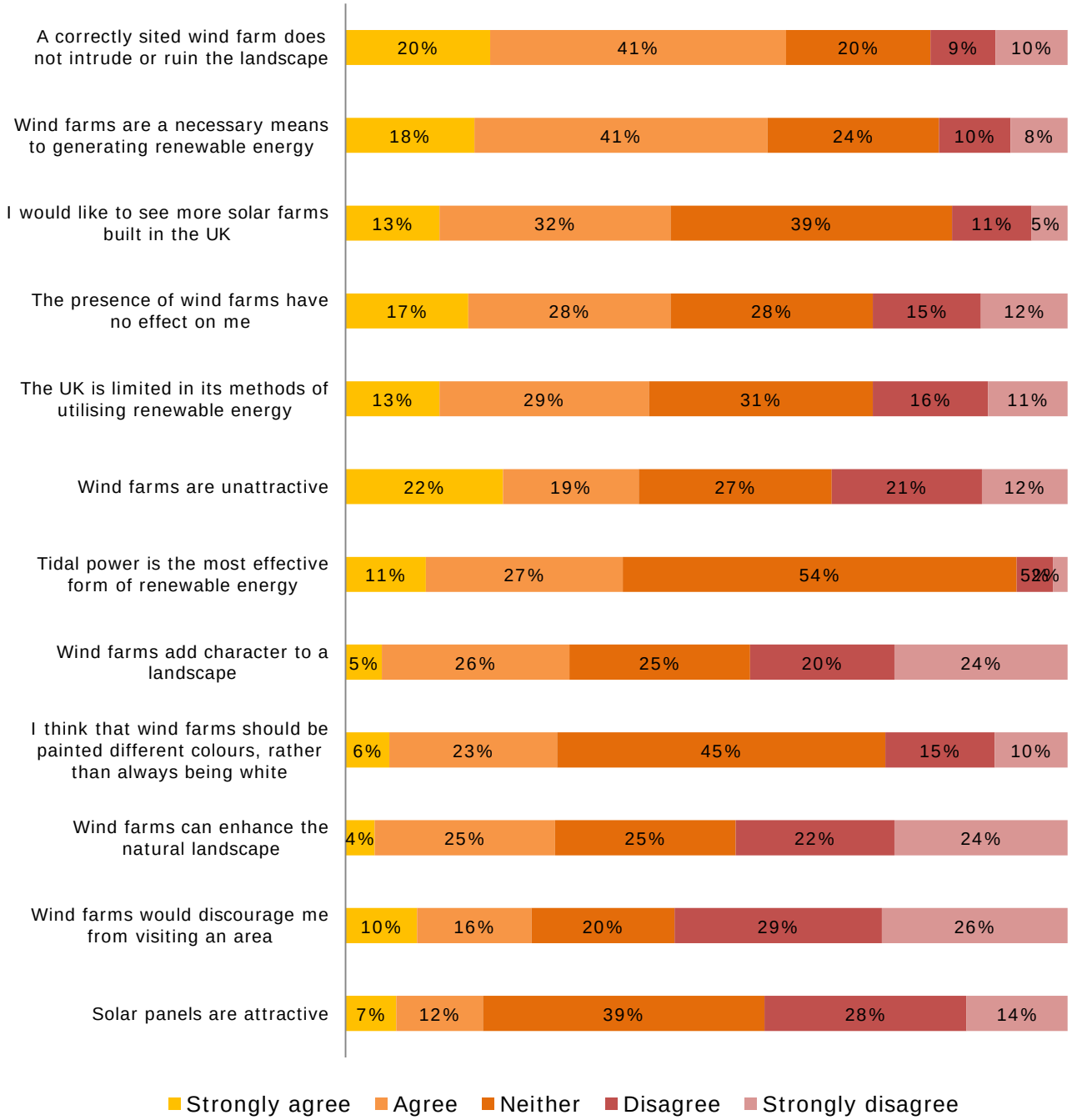
Q18a. Which of the following locations do you think are the best places for wind farms to be built in Northumberland?
Base: 410

The main reason for respondents' answers is to have a minimal impact upon the scenery, people and wildlife.

There is dispute with regards to wind farms but it is agreed by more than half that if correctly sited they do not intrude or ruin the landscape and that the farms are a necessary means to generating renewable energy. 45% of respondents agree that the presence of wind farms has no effect on them, 27% neither agree nor disagree with this leaving only a third (33%) disagreeing. There are also more respondents who agree that wind farms add character to an

area (31%) and can enhance the natural landscape (29%) than there are agreeing that wind farms would discourage them from visiting an area (26%). The perceptions towards wind farms and renewable energy sources are shown in Figure 23.

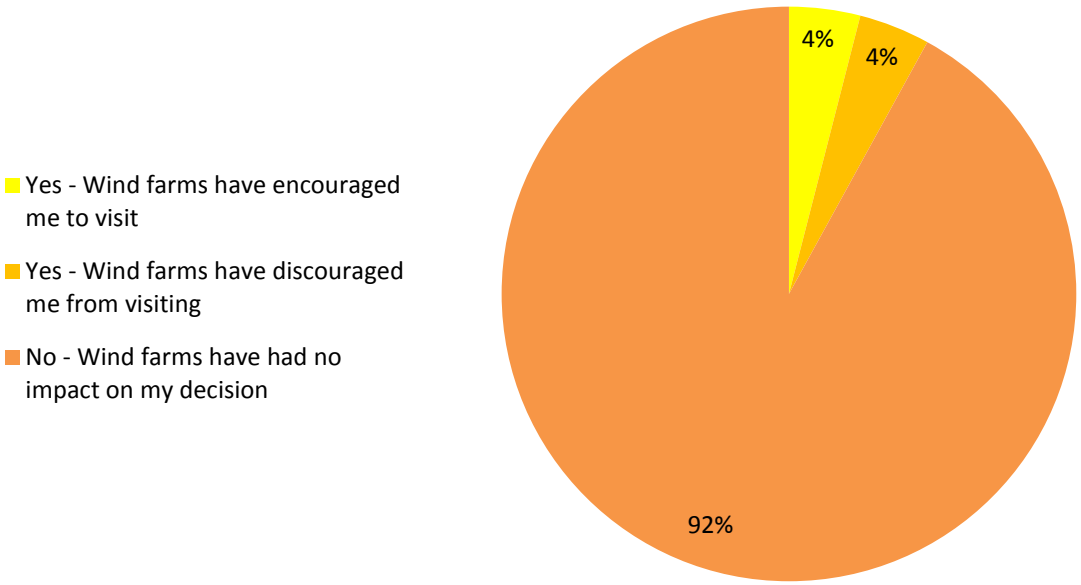
Figure 23: Perceptions of renewable energy



Q19. How much do you agree with the following statements?
Base: 410

In general wind farms are not having an influence on respondents' decisions to visit Northumberland. As few that have been discouraged to visit have also been encouraged to visit, 4% in both instances. Despite the eldest age group showing significant variances negatively towards wind farms in previous questions, they are significantly more likely than the other age groups to select that wind farms have had no impact on their decision to visit Northumberland (97%); they have not been discouraged.

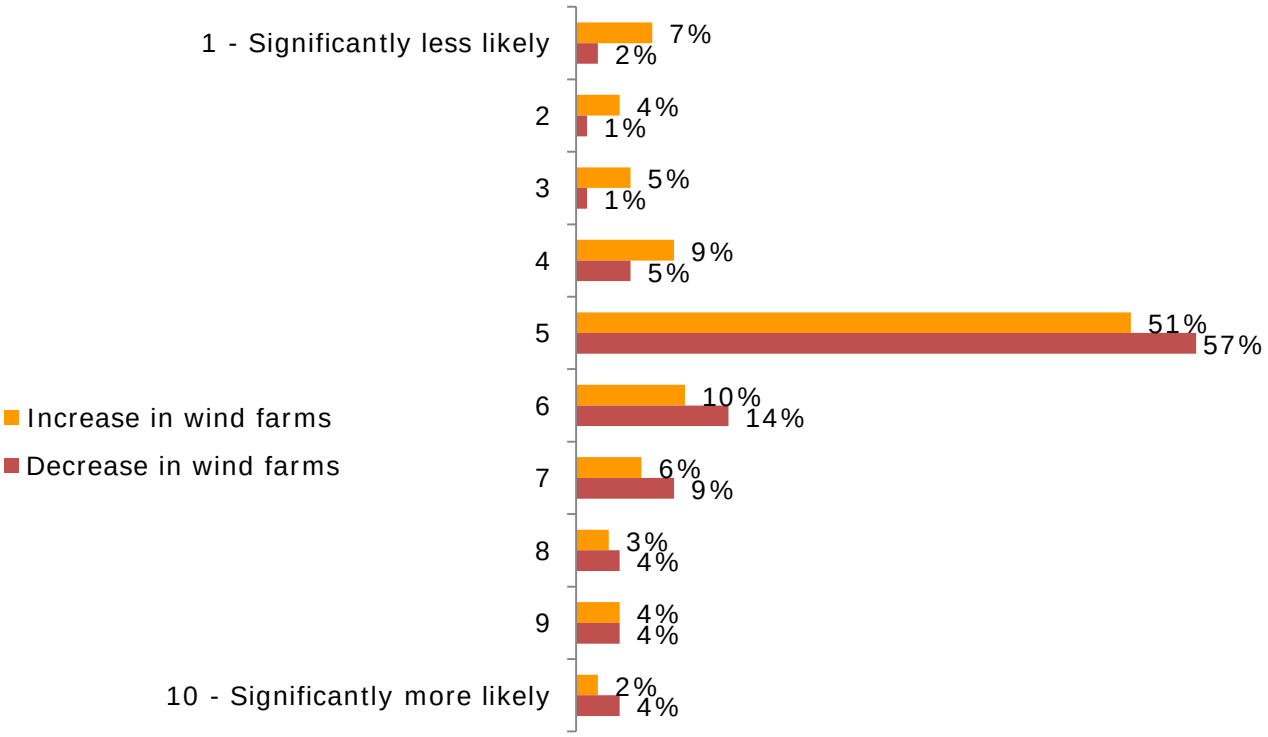
Figure 24: Wind farm influence



Q20. Has the presence of wind farms influenced your decision to visit Northumberland previously?
Base: 410

If the amount of wind farms in Northumberland were to increase significantly, the likelihood to visit Northumberland would not change and the reduction of wind farms would see a slight increase in likelihood to visit, the responses are shown in Figure 25.

Figure 25: Saturation point



Q21a/b. If the amount of wind farms in Northumberland were to significantly increase/decrease how would this affect your likelihood to visit?

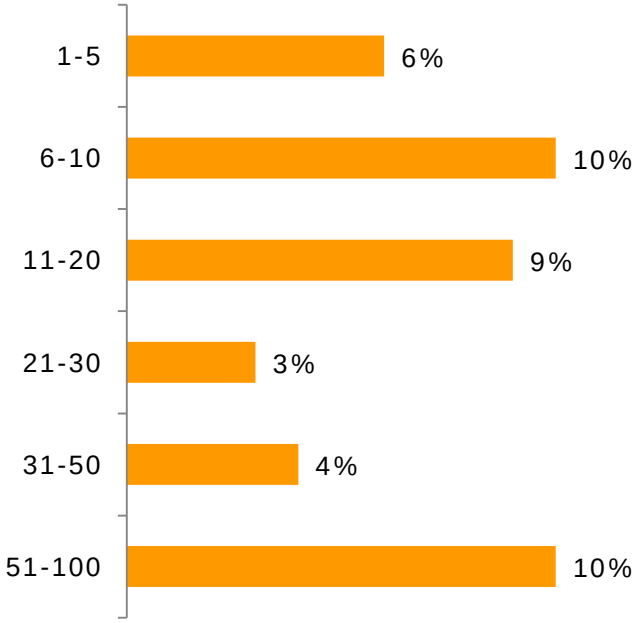
Base: 410

Only 10% respondents (n=39) said they would definitely be encouraged to book a holiday/visit to somewhere other than Northumberland in the future because of the presence of wind farms, whilst 20% said they may be. More than two thirds (64%) said the presence of wind farms in Northumberland would not encourage them to book a holiday/visit elsewhere.

Whilst 41% of respondents think Northumberland has a sufficient number of wind farms, 43% believe that the area could support more. The remaining sample of 16%, think Northumberland already has too many. Of those that think Northumberland has too many already nearly two thirds (63%) are males, meaning 37% are female. The youngest group of 16 to 24 year olds are less likely to believe Northumberland could support more (17%), don't necessarily believe that they have too many (8%) but are significantly likely to believe they have a sufficient number (75%). The oldest age group of 65 years plus are significantly likely to believe that Northumberland has too many (30%) and whilst they are not any less likely to support more (41%) they are significantly less likely to agree that there are sufficient (30%). There are no statistical significant variances across the opinions of the regional groups towards the number of wind farms in Northumberland.

When asking the respondents who think Northumberland could support more wind farms, the mean number of additional wind farms is 37 before they would be discouraged to visit, see Figure 26.

Figure 26: Saturation point



Q21f. What increase in the number would start to discourage you from visiting?

Base: All who believe Northumberland could support more wind farms, 176

6. Conclusions

The vast majority feel positively towards renewable energy, with respondents selecting hydroelectricity and wind power as the best types of renewable energy. Power stations and electricity pylons and wires were likely to have a greater impact on respondents' decision to visit Northumberland than wind farms. However when assessing wind energy, off shore farms are favoured over on shore in general and specifically in Northumberland.

There are demographic variances in opinions about wind farms, males and the eldest age group of 65 years plus are more negative towards wind energy. The presence of wind farms has more of an effect on these two groups.

The main reasons for visiting Northumberland are the scenery and the coastline and it is recognised that these two areas will be affected most by the development of wind farms. A minority group believe that Northumberland already has too many wind farms but generally opinion is divided as to whether there are sufficient already or whether the area can support more.

The impact of additional wind farms on visitor numbers to Northumberland is present but the majority feel that wind farms are not having an influence on their likelihood to visit the area. Only 11% said that the presence of wind farms would affect their decision to visit Northumberland. For those whose decision to visit would be affected this was primarily because of the impact on scenery and because they are unattractive but overall 61% of the total sample agree that a correctly sited wind farm does not ruin or intrude on the landscape.

7. Questionnaire

Thanks for agreeing to take part in this survey.

This survey is about your holiday preferences and we would like you to answer a few questions. The survey will take no more than 8 minutes of your time and we would really appreciate your views.

All information received is strictly confidential, and will be dealt with in accordance with the Market Research Society Code of Conduct.

If you are happy to continue, please click 'Next' to continue

ALL

S1. Which of the following areas would you **consider** going on holiday to/visiting in the next 2 years?
MULTICODE, ROTATE

1. Devon
2. Cornwall
3. Yorkshire Dales
4. Yorkshire Moors
5. Northumberland – **MUST SELECT TO CONTINUE**
6. The Lake District
7. Scottish Highlands
8. Snowdonia
9. Cotswolds
10. Peak District
11. Dorset/Jurassic Coast
12. None of the above **– EXCLUSIVE - THANK AND CLOSE**

S2. Which of the following areas of the UK have you visited/been on holiday to in the **last 3 years**?
MULTICODE, ROTATE

1. Devon
2. Cornwall
3. Yorkshire Dales
4. Yorkshire Moors
5. Northumberland
6. The Lake District
7. Scottish Highlands
8. Snowdonia
9. Cotswolds
10. Peak District
11. Dorset/Jurassic Coast
12. None of the above
13. I haven't taken a holiday/short break in the UK in the last three years

DEMOGRAPHICS

ALL

S3. Please select your gender
SINGLECODE

1. Male
2. Female

50% Female, 50% Male

ALL
S4. Can you please indicate which of the following age bands applies to you?
SINGLECODE

1. Under 16 years **THANK AND CLOSE**
2. 16-24 years 13%
3. 25-35 years 18%
4. 36-44 years 18%
5. 45-54 years 18%
6. 55-64 years 18%
7. 65+ years 15%

Soft quotas

ALL
S5. Where do you live?
FLASH MAP – UK

ALL WHO SELECT 'NORTH EAST' AT S5
S5a. Can you please indicate which area you live?
SINGLECODE

1. Northumberland **THANK AND CLOSE**
2. County Durham
3. Newcastle upon Tyne
4. Sunderland
5. North Tyneside
6. South Tyneside
7. Gateshead
8. Middlesbrough
9. Redcar and Cleveland
10. Stockton
11. Hartlepool

12. Other

Quota to be 20% of North East excluding Northumberland, remaining 80% to be Nat Rep

TOURISM QUESTIONS

ALL
Q1. Which of the following best describes your preferred type of **UK holiday**?
SINGLECODE ROTATE

1. City break
2. Countryside holiday
3. Winter sports holiday
4. Walking holiday
5. Cycling holiday
6. Seaside and coastal holiday
7. Golf holiday
8. Sport holiday
9. Day trip
10. Camping holiday
11. Cultural and Heritage Sight-seeing holiday
12. None of the above **DO NOT ASK Q2A**

Q2a. Where in the UK would you predominantly visit for a <**PULL THROUGH SELECTED RESPONSE AT Q1>**?

ALL
Q3. What are your main considerations when booking a holiday in the UK?
For example weather, activities, scenery, culture, how far away it is? etc.
Please be as specific as possible in your response

ALL
Q4. Please rank how important each of the following factors are in your decisions when planning trips/holidays. Please indicate this on a scale of 1 to 5, with 1 being not at all important and 5 being very important
ROTATE

1. Price
2. Range of accommodation
3. Culture and heritage
4. Coastline and beaches
5. Countryside scenery
6. National parks
7. Specific events/festivals
8. Location

9. Good transport and road networks
10. Places to eat
11. Outdoor activities
12. Wide range of things to see and do
13. Peace and quiet
14. Distance/ travel time
15. Historic sites (eg. castles, gardens, historic houses)
16. Recommendation from friends/family
17. TV/magazines/web/online review

Options (left to right):
1 – Not at all important
2 – Not important
3 – Neither important nor unimportant
4 – Important
5 – Very important

ALL
Q5. Is there anything else that influences your decision when booking a holiday/planning a visit to an area?

Earlier in the survey you said you would consider **Northumberland** as a place to visit. The following questions are specifically relating to **Northumberland**.

ALL
Q6a. What reasons would make you consider visiting Northumberland in the future?
Please be as specific as possible in your answer

ALL
Q6b. Which of the following best describe why you would consider Northumberland for a visit in the future?
Please select all that apply
MULTICODE, ROTATE

1. Price
2. Range of accommodation
3. History, culture and heritage
4. Coastline and beaches
5. Countryside
6. National parks
7. Specific events/festivals
8. Location
9. Good transport and road networks
10. Places to eat

11. Leisure and relaxation e.g. shopping
12. Outdoor activities/sports
13. Stargazing/dark skies
14. Wide range of things to see and do
15. Peace and quiet
16. Distance/travel time
17. Historic sites (eg. castles, gardens, historic houses)
18. Weather/climate
19. Art and culture
20. Cycling/walking
21. Other – please specify

ALL
Q7. How likely are you to visit Northumberland within the next 2 years?

1. Not at all likely
2. Unlikely
3. Neither likely nor unlikely
4. Likely
5. Very likely

ALL WHO SELECT 'NORTHUMBERLAND' AT S2
Earlier in the survey you said you had visited **Northumberland** in the past **3 years.**

Q8a. Why did you decide to visit Northumberland in the past 3 years?
Please be as specific as possible in your answer

ALL WHO SELECT 'NORTHUMBERLAND' AT S2
Q8b.Which of the following best describes your reasons for visiting Northumberland in the past?
Please select all that apply
MULTICODE, ROTATE

1. Price
2. Range of accommodation
3. History, culture and heritage
4. Coastline and beaches
5. Countryside
6. National parks
7. Specific events/festivals
8. Location
9. Good transport and road networks
10. Places to eat
11. Leisure and relaxation e.g. shopping
12. Outdoor activities/sports
13. Stargazing/dark skies

14. Wide range of things to see and do
15. Peace and quiet
16. Distance/travel time
17. Historic sites (eg. castles, gardens, historic houses)
18. Weather/climate
19. Art and culture
20. Cycling/walking
21. Other – please specify

ALL
Q9a. What would deter you from visiting Northumberland in the future?
Please be as specific as possible in your answer

ALL
Q9b. Which of the following would deter you from considering a visit to Northumberland in the future?
Please select all that apply
MULTICODE, ROTATE

1. Weather
2. Lack of things to do
3. Transport and road networks
4. Distance from where I live
5. Wind farms
6. Price
7. Quarrying
8. Electricity pylons
9. Choice of food and drink
10. Other - please specify

ALL
Q10. Please indicate on a scale of 1 to 5, with 1 being not very important at all and 5 being very important how important you feel the following are to the overall character of Northumberland
ROTATE

	1 – Not very important	2 – Unimportant	3 - Neutral	4 - Important	5 – Very important
Natural scenery					
History					
Wildlife					
Dark sky status					
Coastline					
Culture					
Choice of food and drink					
Outdoor activities					
Peace and quiet					
Long distance views					

ALL
Q11. On a scale of 1-5 where 1 is 'very unlikely' and 5 is 'very likely' how likely is it that the following would affect **your decision** to visit a countryside/scenic area?
ROTATE

	1- Very unlikely	2- Unlikely	3- Neither likely nor unlikely	4- Likely	5- Very likely
Electricity pylons and wires					
Wind farms and turbines				**ASK Q15b**	**ASK Q15b**
Mobile telephone masts					
Planted forestry and forest felling					
Telephone wires and poles					
Hydro-electric dams					
Power stations					
Fish farms					
Quarries					
Trails and tracks across open upland areas					
Signposting					

ALL
Q12. On a scale of 1-5 where 1 is 'very unlikely' and 5 is 'very likely' how likely is it that the following would affect **your decision** to visit **Northumberland?**
ROTATE

	1- Very unlikely	2- Unlikely	3- Neither likely nor unlikely	4- Likely	5- Very likely
Electricity pylons and wires					
Wind farms and turbines				**ASK Q15c**	**ASK Q15c**
Mobile telephone masts					
Planted forestry and forest felling					
Telephone wires and poles					

Hydro-electric dams					
Power stations					
Fish farms					
Quarries					
Trails and tracks across open upland areas					
Signposting					

Following EU guidelines the British government is committed to ensuring that 15% of the UK's energy demand is produced from renewable sources by 2020.

ALL

Q13. How do you feel in general about renewable energy?

1. Very negative
2. Negative
3. Neither positive or negative
4. Positive
5. Very positive
6. Don't know

ALL

Q14. What do you feel is the best form of renewable energy production?

1. Wind farms
2. Hydroelectric power
3. Geothermal power
4. Solar panels
5. Biomass
6. None of the above
7. Don't know

ALL

Q15. How do you feel about on shore wind farm development in general?

1. I support on shore wind farm development
2. I have no real opinion
3. I oppose on shore wind farm development
4. Don't know **GO TO Q15b dependent an answer at Q11**

ASK IF RESPONSE 1, 2, 3 AT Q15

Q15a. Why do you say this?

ALL

Q14ai. What type of wind farms would you be comfortable seeing in an area such as Northumberland?
MULTICODE

- Large offshore wind farms
- Large onshore wind farms

- Small onshore wind farms
- Small scale individual wind turbines

IF SELECT 'LIKELY' OR 'VERY LIKELY' FOR 'WIND FARMS AND TURBINES' AT Q11
Q15b. You previously stated that the presence of wind farms would affect your decision to visit countryside/scenic area. Why is this?
Please be as specific as possible

IF SELECT 'LIKELY' OR 'VERY LIKELY' FOR 'WIND FARMS AND TURBINES' AT Q12
Q15c. You previously stated that the presence of wind farms would affect your decision to visit Northumberland. Why is this?
Please be as specific as possible

ALL
Q16. Which of the following would be impacted by the presence of wind farms in Northumberland?
RANDOMISE

	1- Very negative impact	2- Negative impact	3- No effect	4- Positive impact	5- Very positive impact	Don't Know
Natural scenery						
History/Heritage						
Wildlife						
Dark sky status						
Coastline						
Culture						
Choice of food and drink						
Outdoor activities						
Peace and quiet						

ALL
Q17. How do you think wind farms will affect the following **in the Northumberland?**
RANDOMISE

	1- Strong negative impact	2- Negative impact	3- No effect	4- Positive impact	5- Strong positive impact
Wildlife					
History/Heritage					
Landscape					
Transport					
Local investment					
Tourism					

Jobs					

ALL
Q18a. What sort of location do you think is the best place for wind farms to be built in Northumberland?
Please be as specific as possible

ALL
Q18b. Which of the following locations do you think are the best places for wind farms to be built in Northumberland?
Please select all that apply
MULTICODE RANDOMISE

1. Coastline
2. Urban areas
3. Rural areas
4. Forested areas
5. National parks /Area of outstanding Natural Beauty
6. Farmland
7. Lowland locations
8. Away from tourist attractions
9. Away from people and wildlife
10. Mountainous areas
11. Roadsides
12. At sea
13. Other
14. None of the above **EXCLUSIVE**

ALL
Q18c. Why do you think that this?
Please be as specific as possible

ALL
Q19. Please indicate on a scale of 1 to 5, with 1 being strongly disagree and 5 being strongly agree how much you agree with the following statements
ROTATE

	1 – Strongly disagree	2 – Disagree	3 – Neither agree nor disagree	4 - Agree	5 – Strongly agree
Wind farms add character to a landscape					
Wind farms can enhance the natural landscape					
Wind farms would discourage					

me from visiting an area					
Tidal power is the most effective form of renewable energy					
Wind farms are a necessary means to generating renewable energy					
Wind farms are unattractive					
The presence of wind farms has no effect on me					
Solar panels are attractive					
I think that wind farms should be painted different colours, rather than always being white					
I would like to see more solar farms built in the UK					
A correctly sited wind farm does not intrude on or ruin the landscape					
The UK is limited in its methods of utilising renewable energy					

ALL
Q20. Has the presence of wind farms influenced your decision to visit Northumberland previously?
ROTATE

1. Yes – Wind farms have encouraged me to visit
2. Yes – Wind farms have discouraged me from visiting
3. No – Wind farms have had no impact on my decision

ALL
Q21a. If the amount of wind farms in Northumberland were to significantly **increase** how would this affect your likelihood to visit?

DM USE 10 POINT LIKELIHOOD SCALE WITH 1 SIGNIFICANTLY LESS LIKELY AND 10 SIGNIFICANTLY MORE LIKELY

ALL
Q21b. If the amount of wind farms in Northumberland were to significantly **decrease** how would this affect your likelihood to visit?

DM USE 10 POINT LIKELIHOOD SCALE WITH 1 SIGNIFICANTLY LESS LIKELY AND 10 SIGNIFICANTLY MORE LIKELY

ALL
Q21c. Would the presence of wind farms in Northumberland encourage you to book a holiday/visit elsewhere instead?

1. Yes, definitely
2. Yes, maybe
3. No

4. Don't know

ALL WHO SELECT 'YES' AT Q20
Q21e. Why has the presence of wind farms encourage/discourages (pull through dependent on Q20 answer) you to visit Northumberland?

ALL
Q21f. There are currently 15 operational wind farm sites with a further 3 under construction across Northumberland County. What increase in the number would start to discourage you from visiting?

DM COULD WE HAVE A SCALE TOOL

- 10%
- 20%
- 30%
- 40%
- 50%
- 60%
- 70%
- 80%
- 90%
- 100%
- More than 100%
- The number of wind farms would not affect my decision