

Chapter 14: Socio-Economics and Tourism

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14 Socio-economics and Tourism

14.1 Executive Summary

14.1.1 This Chapter considers the potential changes to socio-economic and tourism associated with the Development.

14.1.2 Economic effects were assessed using a specially developed model that has been used to assess the economic impact of wind farms across the UK and was used in the 2012 report on the impacts of on-shore wind commissioned by Renewable UK and the Department for Energy and Climate Change (BiGGAR Economics, 2012). Tourism impacts were assessed using an established methodology that has been used in Environmental Statements (ES) for more than 30 wind farms across the UK and with reference to research on the effect of wind farms on tourism undertaken on behalf of the Scottish Government.

14.1.3 This assessment has also considered the socio-economic and tourism effects of the existing Gordonbush Wind Farm. It found that although the wind farm has had a minor positive impact on the local economy there is no evidence that it has had any negative effect on the local tourism sector.

14.1.4 The conclusion of this assessment is that the Development is not expected to have any significant tourism or socio-economic effects. As such it was unnecessary to consider mitigation and no residual effects were identified. The assessment did however conclude that the Development could help to generate a moderate, positive, long-term, cumulative economic effect as a result of its contribution to the wind farm supply chain in the local area.

14.2 Introduction

14.2.1 This Chapter has been prepared by specialist economic and tourism consultancy BiGGAR Economics. It identifies and assesses the potential socio-economic effects of the Development during construction, operation and decommissioning and considers the mitigation measures that will be necessary to prevent, reduce or offset potential negative effects or enhance potential positive effects, where possible.

14.2.2 Potential socio-economic and tourism effects are interrelated with effects on the surrounding land and its uses. This Chapter should therefore be read in conjunction with other environmental topics assessed in this ES, where relevant.

14.3 Scope of Assessment

Study Area

14.3.1 The assessment in this Chapter covers two key topics and accordingly the study area for each individual aspect has been defined based on the nature of the potential effects arising from the Development:

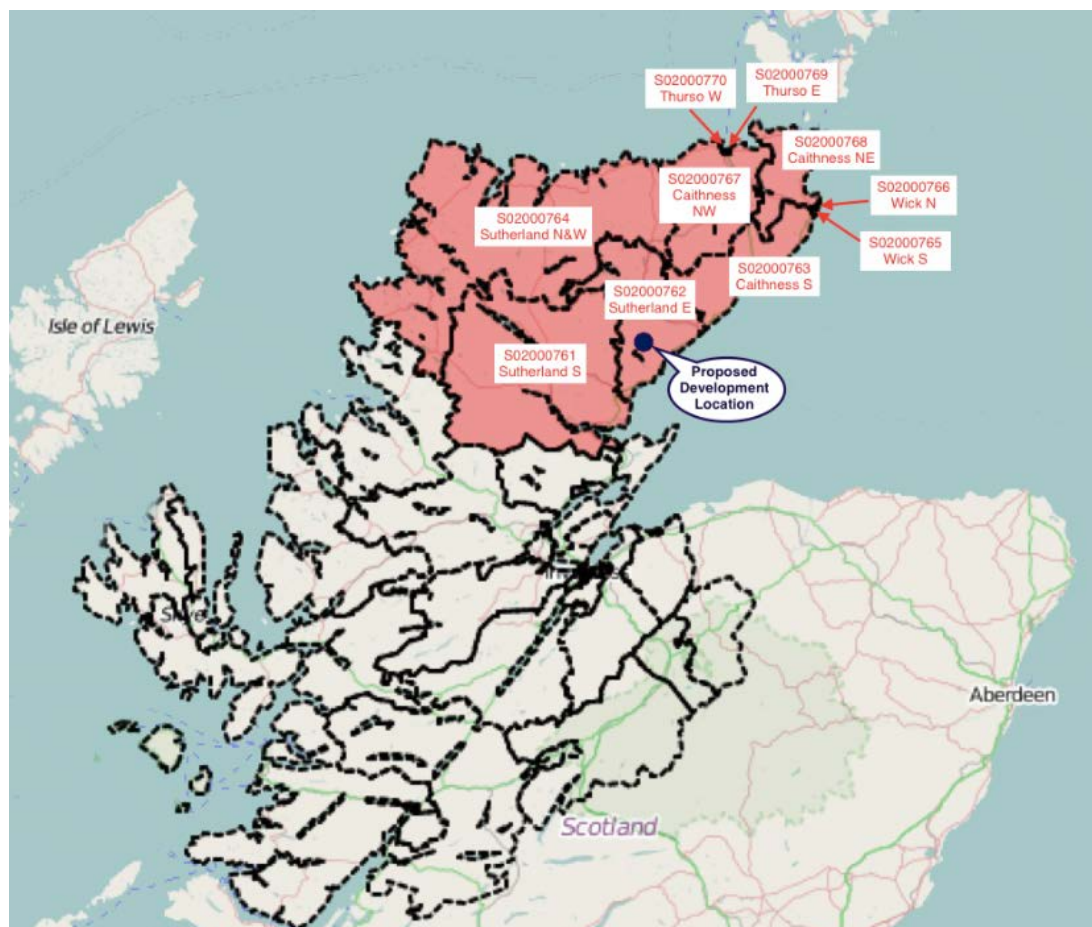
- The study areas for the socio-economic assessment are as follows:
 - Local area: this was defined as the Intermediate Data Zones: S02000768 Caithness North East, S02000767 Caithness North West, S02000763 Caithness South, S02000762 Sutherland East, S02000764 Sutherland North and West, S02000761 Sutherland South, S02000769 Thurso East, S02000770

Thurso West, S02000766 Wick North and S02000765 Wick South (see Plate 14.1).

This also covers the multi member Council Wards of East of Sutherland and Edderton; North-west and Central Sutherland; Landward Caithness; Thurso and Wick;

- Regional area: Highland Council area; and
- National area: Scotland.
- The study area for the tourism and recreational assessment is a 20km radius from the outermost turbines of the Development (see Figure 14.1).

Plate 14.1: Map of Local Area



Source: Nomis

Scoping and Consultation

14.3.2 In December 2013, The Scottish Ministers provided a scoping opinion to the Applicant in accordance with regulation 7 of the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2000. Under this regulation, Scottish Ministers are required to prepare a scoping opinion outlining what information they consider should be provided in the ES and thereafter consult the specified statutory and non-statutory bodies (and other interested parties) as to their views.

14.3.3 The scoping opinion (see Appendix 6.1) states that the application should include relevant economic information connected with the project, including the potential number of jobs

and economic activity associated with the procurement, construction, operation and decommissioning of the Development.

- 14.3.4 The consultation responses relevant to the assessments in this Chapter are summarised in Table 14.1.

Table 14.1: Scoping Response

Consultee	Summary Response	Comment/Action Taken
Highland Council	Relevant economic information connected with the project should be referenced in the ES, including the potential number of jobs and economic activity associated with the procurement, construction, operations and decommissioning of the development.	The Socio-economic Baseline (from 14.6.1 to 14.6.13) provides details on current economic conditions in the area and the Potential Socio-economic Effects section (14.7.2 to 14.7.37) provides details on jobs and economic activity expected to be associated with the Development during development, construction, operations and decommissioning stages.
	SSE have produced and published economic impact statement associated with the initial Gordonbush Wind Farm; this should be used as a basis for future predicted impact.	The Potential Socio-economic Effects section (14.7.2 to 14.7.37) is based on the evidence available from the economic impact statement published for the existing Gordonbush Wind Farm, which is considered at 14.6.14 to 14.6.19.
Visit Scotland	Any potential detrimental impact of the proposed Development on tourism, whether visually, environmentally or economically, be identified and considered in full.	The Tourism and Recreation Baseline (14.6.22 to 14.6.46) provides details on current activity and the Potential Tourism and Recreation Effects section (14.7.38 to 14.7.53) considers potential effects.
	Consideration of specific concerns relating to the impact of any perceived proliferation of developments on the local tourism industry and therefore the local economy.	The Methodology section includes a sub-section that reviews the evidence on the effects of the onshore wind sector as a whole on the tourism sector in Scotland (14.5.9 to 14.5.19).
Scottish Government	The impact of the proposed development on public footpaths and rights of way should be clearly indicated. If any re-routing of paths under a Right of Way is required, alternative routes should be highlighted for consideration.	The Tourism and Recreation Baseline includes a review of paths (14.6.30 to 14.6.36) and the Tourism and Recreation Effects section considers effects on tourism routes including walking routes (14.7.45 to 14.7.47).

14.4 Relevant Legislation, Policy & Guidance

Planning Policy

- 14.4.1 Details of the planning policy that is relevant to the Development are provided in Chapter 5 (Planning Policy Context).
- 14.4.2 The scope of this assessment has been guided by the latest Scottish Planning Policy (SPP) document that was published in June 2014. This sets out the core values and vision of planning, focusing on creating a place which is sustainable, low carbon, natural, resilient and more connected.

- 14.4.3 While it has been superseded by the Scottish Planning Policy document, detailed guidance on considering tourism and recreation effects can be found in planning advice note (PAN) 45. This provided advice to planning authorities on developing supplementary guidance for the development of wind farms. In considering tourism and recreational interests, PAN 45 refers specifically to a research report commissioned by the Scottish Government (Glasgow Caledonian University, 2008). This research suggested a range of issues that planning authorities may wish to consider in order to minimise any adverse local effects including:
- the location of a proposed development in relation to tourist routes, including designated cycling and walking routes;
 - the relative scale of recreation and tourism in the area i.e. local and national;
 - views from accommodation in the area;
 - the potential positive tourism issues associated with the Development;
 - the views of tourist organisations i.e. local tourist businesses or VisitScotland;
 - the visitor population whose recreational interests may be affected;
 - be aware of 'double counting' tourist and recreational interests which have already been taken into consideration because an area is otherwise designated; and
 - consider likely significant effects within an environmental effect assessment.
- 14.4.4 Each of these issues is addressed in this Chapter.
- 14.4.5 The Highland Council (2012a) has produced planning policy guidance covering onshore wind energy development in the Highlands. It was produced as formal Supplementary Guidance under Section 22 of the Town and Country Planning (Scotland) Act 1997 as amended by the Planning etc. (Scotland) Act 2006. It supplements the Highland-wide Local Development Plan (HwLDP), setting out detailed policies and guidance where the main principles have already been established in the Local Development Plan. Taken together the Local Development Plan and this Supplementary Guidance represent the Council's current response to Scottish Government's indication of the methodology that should be followed in planning for onshore wind energy.
- 14.4.6 In the process of preparing the guidance, The Highland Council has assessed and identified areas of the Highlands that require significant protection (stage 1), areas with potential constraint (stage 2) and finally identified areas of search (stage 3).
- 14.4.7 Within these areas of search, appropriate proposals are likely to be supported subject to detailed consideration against the HwLDP, in particular policies 57 and 67 and the Development Guidelines section of this interim guidance. Policy 67 of the HwLDP sets out the Council's overall policy for renewable energy in the Highlands. The advice contained in the supplementary guidance provides fuller interpretation of the 11 criteria within the main body of that policy in regard to proposals for on-shore wind energy developments.
- 14.4.8 The project is within stage 3. Therefore it fits with Highland Council policy. However it should be noted that this spatial framework is not consistent with the more recently published guidance in SPP 2014. The guidance provides advice on assessing the degree and significance of impact from wind farm on features, for example, landscape and visual interests, the natural environment and tourism and recreation interests.

Economic Development Policy

National Economic Development Policy

- 14.4.9 Economic development policy for Scotland is guided by Scotland's Economic Strategy (Scottish Government, 2015). It builds on earlier strategies published in 2007 and 2011 and maintains a focus on six priority sectors, including energy. Energy is one of the six sectors that the Scottish Government has identified as offering opportunities for growth.
- 14.4.10 The strategic role of renewable energy for the Scottish economy can also be seen on the front cover since one of the five images includes a wind turbine and the full page image of a wind farm that precedes the executive summary.

Regional Economic Development Policy

- 14.4.11 Highlands & Islands Enterprise (HIE) is the agency that works to implement the Scottish Government's Economic Strategy in the Highlands and Islands of Scotland. HIE's operating plan guides the work that they do to bring economic growth to every part of the Highlands and Islands.
- 14.4.12 Energy is one of the key sectors in the Highlands and Islands that offer opportunities for growth. Renewable energy offers some of the largest opportunities for development and the plan anticipates significant and sustainable economic and community benefits accruing to the region through further onshore and offshore wind deployment.
- 14.4.13 As well as the natural resources that are available, the operational plan also highlights supply chain opportunities that exist for wind energy, including building civil and energy engineering capacity in the Highlands and tower manufacturing in Argyll and the Outer Hebrides.
- 14.4.14 The operating plan covers a period of three years and does not mention any particular wind farm developments, although it is strongly supportive of renewable energy. If the proposed Development does not clash with any strategic priority then it can safely be concluded that it would be consistent with HIE's objective.

Decommissioning of Dounreay Nuclear Power Development Establishment

- 14.4.15 The decommissioning of the Dounreay Nuclear Power Plant on the North Coast of Caithness will be one of the main projects that will have an effect on the economy of Caithness and Sutherland. The site is expected to be restored by 2022-25 and the employment associated with decommissioning cease after this time. The Caithness and North Sutherland Regeneration Partnership (CNSRP) was established to support the transition of the local economy to a post-Dounreay situation. A report (Grangeston, 2012) on the socio-economic effects of the site found that 8.2% of employment in Caithness and Sutherland was either directly or indirectly associated with the decommissioning of Dounreay. The report found that the area was reducing its dependency on the plant by diversifying into new industries, due to support from CNSRP, and could reduce dependency further by taking advantage of new opportunities in the marine, tourism and renewable energy sectors.

14.5 Methodology

Desk Study

- 14.5.1 A review was undertaken of a range of published documents and internet based information, along with the assessors existing knowledge of the area, to provide data on existing land uses, socio-economic and recreational activities within the relevant study areas.
- 14.5.2 The socio-economic baseline was based on the most recently published, publicly available national statistics. The sources used include:
- General Register Office of Scotland (2014), Population Projections 2012-2037;
 - Office for National Statistics (2014), Business Register and Employment Survey 2013;
 - Office for National Statistics (2014), Mid-year Population Estimates 2013; and
 - The Highland Council, Ward Statistics.
- 14.5.3 Data for the tourism and recreation baseline was gathered from a range of publicly available online sources including:
- Details about the tourism accommodation within 20km of the Development was gathered by undertaking a search of the VisitScotland website. This was supplemented by a general Google search and local area specific websites;
 - Information about visitor attractions within a 20km radius of the Development was also obtained from the VisitScotland and Visit Highlands websites. In addition, VisitScotland's annual report on tourism in Scotland's regions, "Tourism in Scotland's Regions 2013", published in July 2014 was also consulted. Further detail was obtained from the websites maintained by individual attractions; and
 - Information about tourist routes was obtained from a variety of online sources including Walkhighlands (walking routes) and Sustrans (cycle routes). Details about the core paths network were obtained from The Highland Council website.

Assessment of Effects

Sensitivity of Effect

- 14.5.4 The sensitivity of each of the receptors identified in the baseline was then assessed using the criteria described in Table 14.2.

Table 14.2: Sensitivity Criteria

Descriptor or Criteria	Description
Very High	The receptor has little or no capacity to absorb change without fundamentally altering its present character, is of very high socio-economic, environmental or tourism value, or of international importance.
High	The receptor has low capacity to absorb change without fundamentally altering its present character, is of high socio-economic, environmental or tourism value, or of national importance.
Medium	The receptor has moderate capacity to absorb change without significantly altering its present character, has some socio-economic, environmental or tourism value, or is of regional importance.
Low	The receptor is tolerant of change without detriment to its character, is low socio-economic, recreational or tourism value, or is of local importance.
Negligible	The receptor is resistant to change and is of little socio-economic, recreational or tourism value.

Source: BiGGAR Economics

Magnitude of Effect

14.5.5 The magnitude of each of the potential effects was then assessed using the criteria described in Table 14.3.

Table 14.3: Magnitude Criteria

Descriptor or Criteria	Description
High	Total loss or major alteration to key elements/features of the baseline conditions such that post development character/composition of baseline condition will be fundamentally changed. Examples: <ul style="list-style-type: none"> • Socio-economic: major long term (5+ years) alteration of community profile (including community cohesion and stability) and business structure. • Tourism/Recreation: substantial change to regional tourism numbers. Region considered less/more attractive place to visit.
Medium	Loss or alteration to one or more key elements/features of the baseline conditions such that post development character/composition of the baseline condition will be materially changed. Examples: <ul style="list-style-type: none"> • Socio-economic: short term alteration of community profile (including community cohesion and stability) and business structure. • Tourism/Recreation: a notable change to regional tourism numbers. Region considered less/more attractive place to visit.
Low	Minor shift away from baseline conditions. Changes arising from the alteration will be detectable but not material; the underlying character/composition of the baseline condition will be similar to the pre-development situation. Examples: <ul style="list-style-type: none"> • Socio-economic: a noticeable long term alteration of community profile (including community cohesion and stability) and business structure. • Tourism/Recreation: a small and short term change to regional tourism numbers. Region considered less/more attractive place to visit.
Negligible	Very little change from baseline conditions. Change is barely distinguishable, approximating to a "no change" situation.

Source: BiGGAR Economics

Significance of Effect

14.5.6 The significance of each of the potential effects was then determined by combining the sensitivity of the resource with the predicted magnitude of change using the matrix in Table 14.4. Effects that were assessed as moderate or major were identified as significant.

Table 14.4: Significance Criteria

Magnitude of effect	Sensitivity of Receptors				
	Very High	High	Medium	Low	Negligible
High	Major	Major	Moderate	Moderate	Minor
Medium	Major	Moderate	Moderate	Minor	Not significant
Low	Moderate	Moderate	Minor	Not significant	Not significant
Negligible	Minor	Minor	Not significant	Not significant	Not significant

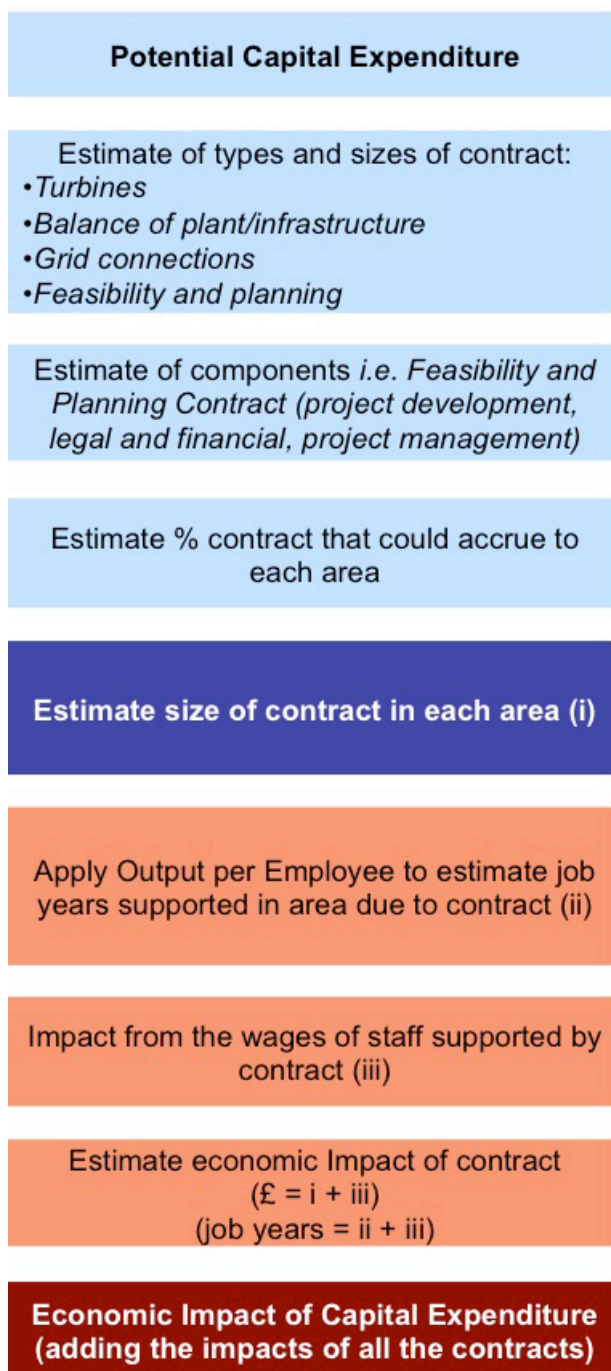
Assessment of Socio-Economic Effects

14.5.7 In order to estimate the economic effects expected to arise as a result of the construction, operation and decommissioning of the Development, data was gathered from the Applicant about the scale and type of work that would be required. This data and baseline data about the local economy was then inputted in to a model that has been developed by BiGGAR Economics specifically to estimate the socio-economic effects of wind farm developments. There are four key stages involved in this model, these are to:

- estimate total capital expenditure;
- estimate the breakdown of capital expenditure into component contracts;
- assess the capacity of the business base in each study area to carry out the contract; and
- use the resulting figure to estimate the economic effect.

14.5.8 The magnitude of this economic effect was then assessed by considering the scale of the effect in relation to the economy in each of the study areas. The stages of the economic effect assessment are illustrated in Plate 14.2.

Plate 14.2: Economic Effects: Stages of Analysis of Economic Impact of Investment



Assessment of Tourism and Recreation Effects

14.5.9 Tourism and recreation effects were assessed using evidence from existing studies on the effects of wind farm development on tourism and experience from existing and proposed developments elsewhere. In particular, this assessment draws on the conclusions of work commissioned by the Scottish Government in 2008 (Glasgow Caledonian University, 2008) on the effects of wind farms on tourism, which remains by far the most robust and comprehensive source available. In April 2012, VisitScotland added to this research by publishing research on consumer attitudes to wind farms and their effects on tourism

(VisitScotland 2012). As these studies reflect the views of the Scottish Government and the national tourism agency, they provide an appropriate basis for the tourism assessment. The key findings of these reports are summarised below.

Glasgow Caledonian University Research (2008)

- 14.5.10 This study was based on an extensive literature review and a survey. The literature review considered 40 studies from the UK and Ireland and reports from Denmark, Norway, the US, Australia, Sweden and Germany and found that there was no evidence to suggest that wind farms have a serious negative economic effect on tourism. The survey considered the views of 380 tourists in four case study areas (Caithness and Sutherland; Stirling, Perth and Kinross; Scottish Borders; Dumfries and Galloway) and was undertaken at locations that maximised the likelihood that respondents would have seen a wind farm during their visit. The key findings from the survey were that:
- 75% of people felt that wind farms had a positive or neutral effect on the landscape;
 - 2% of those interviewed who had seen a wind farm in the area (4 respondents out of 191) said that it would affect their decision to visit the area again, 2 indicated that the likelihood would increase and 2 that the likelihood would decrease. These 4 respondents were intercepted in the Stirling and Perth and Kinross area. None of the respondents in Caithness and Sutherland indicated that the wind farm they had seen would affect their decision to visit the area again;
 - after seeing a photomontage of a local wind farm before and after development, 3% of respondents said that it would affect their decision to visit the area again; and
 - after seeing a photomontage of a local wind farm before and after an extension was added, 7% of respondents said that it would affect their decision to visit the area again.
- 14.5.11 It is also worth noting that amongst tourists whose main activity was given as walking or hill walking, the general attitude toward wind farms was somewhat more positive than other types of tourists.
- 14.5.12 The worst-case scenario was of a negative economic effect equivalent to 3.5% of jobs in tourism by 2015, compared with a situation where there were no wind farms. This was as a result of two potential effects: visibility from tourist routes (affecting on decisions to return) and visibility from accommodation (affecting prices some tourists might be prepared to pay).
- 14.5.13 Overall the study concludes that the effects of meeting renewables targets on tourism are so small that, provided planning and marketing are carried out effectively, there is no reason why the two are incompatible.

VisitScotland Research (2012)

- 14.5.14 This research found that for 83% of residents in Scotland the decision to holiday in Scotland would not be affected by the presence of a wind farm. This study found that 80% of respondents in Scotland, when asked about holidays and short breaks in the Scottish countryside, disagreed or felt neutral that wind farms spoilt the look of the Scottish countryside. Almost half (46%) of respondents in Scotland stated they would be interested in visiting a wind farm visitor centre.

Scottish Parliament Inquiry

- 14.5.15 During 2012, the Economy, Energy and Tourism Committee of the Scottish Parliament heard evidence from a wide range of experts as part of an inquiry into the achievability of the Scottish Government's 2020 renewable energy targets, the merits of the targets, and what the risks and barriers are to realising them.
- 14.5.16 Tourism was one of the issues investigated by the Inquiry and the evidence considered included both the Glasgow Caledonian University and VisitScotland reports cited above. The findings of the Committee were published in November 2012 and are reiterated below:
- 14.5.17 *"While some strongly held localised and anecdotal opinion exists, the Committee has seen no empirical evidence which demonstrates that the tourism industry in Scotland will be adversely affected by the wider deployment of renewable energy projects, particularly onshore and offshore wind.*
- 14.5.18 *Whilst care always needs to be taken in terms of the planning process and decisions on the siting of individual projects in areas popular with tourists and in our rural and wild land areas, no one has provided the Committee with evidence, as opposed to opinion, that tourism is being negatively affected by the development of renewable projects. However, given the importance of this issue, the Committee recommends that VisitScotland and the Scottish Government continue to gather evidence on this from visitors to Scotland."*

BiGGAR Economics Report (2013)

- 14.5.19 This has been confirmed by more recent analysis that found, based on an analysis of wind farm development and tourism employment trends between 2008 and 2011 in each local authority area in Scotland, that there was no correlation between changes in wind farm capacity and tourism employment trends. The detailed findings of that research included that, at the end of 2011, The Highland Council area accounted for around 18% of the installed capacity of onshore wind in Scotland with an increase in capacity of more than 50% between 2008 and 2011. Over the same period however tourism employment in The Highland Council area also grew, by 1.2% (bucking the national trend which saw a 2.5% decrease in tourism employment).

Approach to Tourism Effect Assessment

- 14.5.20 The worst case scenario considered in the research described above identifies two potential sources of negative effects on tourism:
- visibility from tourist routes; and
 - visibility from accommodation.
- 14.5.21 In order to assess the potential effect of the Development on the local tourism sector, this Chapter therefore considers the extent to which the behaviour of tourists might be affected by changes to views from important tourist routes in the area and from tourist accommodation.
- 14.5.22 Views from visitor attractions are not identified as a potential source of negative effect in any of the research described above. Despite this, because tourism is so important to the

local economy, the effect on the behaviour of visitors as a result of changes to views from important visitor attractions is also assessed.

14.6 Baseline Conditions

Socio-economic Baseline

Population

- 14.6.1 The Highland Council provides statistics on each of the different Council Wards. These show just over 40,000 people living in the Council Wards that make up the Local Area. The population of the Highland region was 232,910 in 2013 and in Scotland it was 5,313,600. Therefore the Local Area constitutes 17.3% of the Highland population and 0.8% of the Scottish population.
- 14.6.2 The population of the Local Area is older than that of Highland and Scotland as a whole. In the Local Area, 22.5% of the residents are 65 or older, compared to 19.3% of the residents of Highland and 17.4% of residents of Scotland. Similarly, the proportion of the population who are young adults, aged between 16 and 44, is significantly lower in the Local Area (30.4%) than it is in either Highland (33.3%) or Scotland as a whole (37.9%).

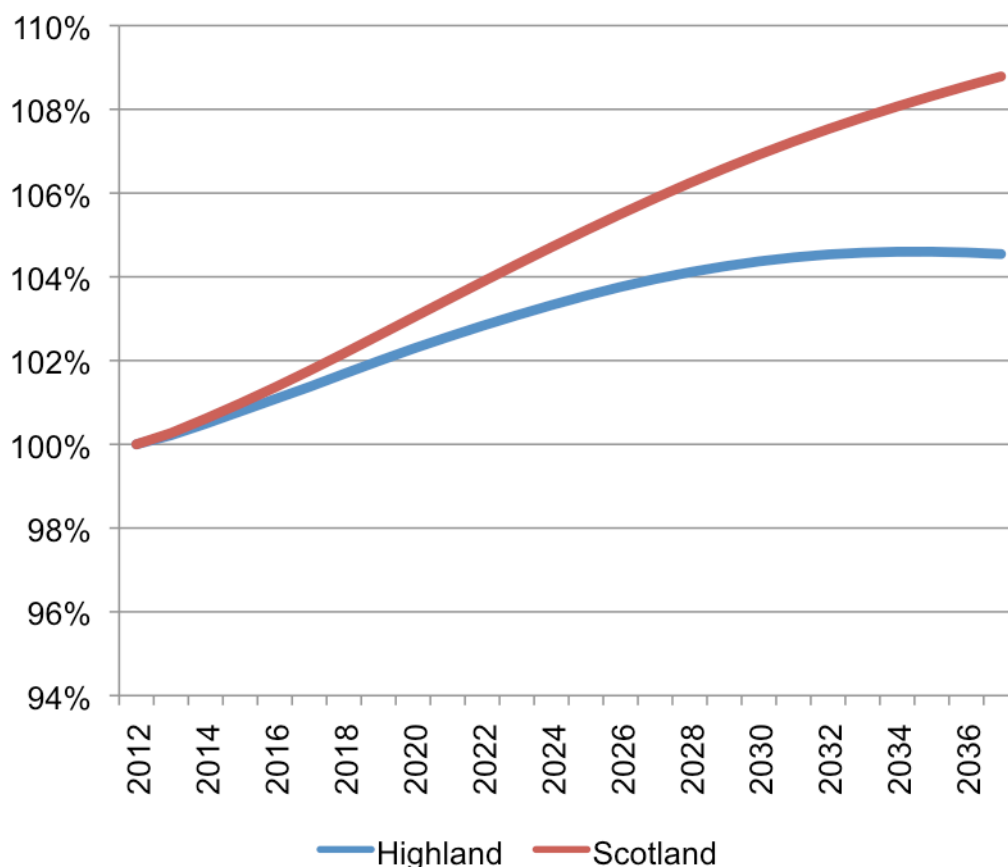
Table 14.5: Population and Age

	Local Area*	Highland	Scotland
Population	40,229	232,910	5,313,600
Under 16	16.1%	17.6%	17.2%
16 – 44	30.4%	33.3%	37.9%
45 – 64	31.1%	29.8%	27.4%
65+	22.5%	19.3%	17.4%

Source: ONS, Mid year Population Estimates 2013 *Highland Council Ward Statistics

- 14.6.3 The populations of Scotland and Highland are both expected to grow. In the 25 year period between 2012 and 2037, the population of Scotland is expected to grow by 8.8% (NRS, 2014). The population of Highland is also expected to grow in this time period but by a smaller amount, 4.5%. The population growth in Highland is expected to slow significantly after 2030 and start to decrease after 2035. The source does not give population projections for the Local Area.
- 14.6.4 The average age of the population is expected to grow in both Highland and Scotland. In 2012 the average age in Scotland was 41.0 years old, compared to 42.6 years old in Highland. This gap is expected to widen in the future and by 2037 the average age of the population in Scotland is anticipated to be 44.3 years old, an increase of 3.3 years and in Highland it is estimated to be 47.7 years old, an increase of 5.1 years.

Graph 14.1: Population Projections 2012 - 2037



Source: GROS

14.6.5 The Local Area is one of the most sparsely populated areas of Scotland and is classified as Remote Rural by the Scottish Government. The Local Area covers over 8,100 km² and has a population of just over 40,200. Therefore the population density for this area is 4.95 people per square kilometre. The Local Area accounts for 31% of the total area of Highland, which has a population density of 8.79 people per square kilometre. This is the least densely populated council area in Scotland. The Local Area accounts for 10.4% of Scotland’s landmass, which has a significantly higher population density of 68.19 people per square kilometre.

Table 14.6: Population Density

	Local Area*	Highland	Scotland
Area (km ²)	8,130	26,489	77,925
Population density	4.95	8.79	68.19

Source: ONS, Mid year Population Estimates 2013 *Highland Council Ward Statistics

Economic Activity

14.6.6 The economic activity rate of residents aged between 16 and 74 years old is lower in the Local Area than in Highland and in Scotland. In the Local Area 68.3% of the population aged 16 – 74 is active in the labour market, either working or seeking employment. This is lower than the rate for Highland, which is 71.5% and marginally lower than Scotland as a

whole 69.0%. The Unemployment rate in the Local Area (4.5%) is not as low as that of Highland (4.0%) but is lower than the overall unemployment rate for Scotland (4.8%).

- 14.6.7 The lower level of economic activity in the Local Area than in the more urban areas of Highland and Scotland is a contrast to other Remote Rural areas of Scotland. A study by the Scottish Government (Scottish Government, 2012) found that the economic activity rate in Remote Rural areas was 3% higher than in the Rest of Scotland, and 2% higher than in Highland.

Table 14.7: Economic Activity

	Local Area*	Highland	Scotland
People in employment	14,600	98,000	2,316,200
Economic activity rate (16 – 74 year olds)	68.3%	71.5%	69.0%
Unemployment rate (16 – 74 year olds)	4.5%	4.0%	4.8%

Source: Highland Council Ward Statistics

- 14.6.8 The industries that people are employed in for each of the study areas (Local area, Regional area and National area) is given in Table 14.8. This shows that the largest source of employment for the Local Area is human health and social work activities, which employs 19.7% of the population. This is the same industry that employs the largest proportion of workers in both Highland (18.7%) and Scotland (15.5%).
- 14.6.9 The industries that are most relevant to onshore wind energy developments will be found within the sectors of:
- Manufacturing;
 - Construction; and
 - Professional, scientific and technical services.
- 14.6.10 Together these sectors account for 19.4% of the total workforce in the Local Area. This is a greater proportion than in Highland, where these sectors employ 18.3% of the workforce but less than in Scotland where they account for 19.6% of employment.
- 14.6.11 The proportion of the workforce that is employed in professional, scientific and technical services in the Local Area is 7.3%. This is higher than that for Highland and Scotland as a whole and higher than other rural areas. It is likely that the reason for employment in this sector being higher than would otherwise be expected is that the Dounreay nuclear facility is located on the Northern shore of Caithness. This facility is in the process of being decommissioned and work on the site is expected to be completed before 2025.
- 14.6.12 The proportion of the workforce who are employed in the public sector is not given for the datazones that make up the Local Area. However, it is possible to make an estimation based on the industries that are listed by Table 14.8. The following industries are used as a proxy for the public sector;
- Public administration and defence; compulsory social security;
 - Education; and
 - Human health and social work activities.
- 14.6.13 These industries account for 32.6% of employment in the Local Area, which is higher than the level for Highland (31.0%) and for Scotland (28.9%).

Table 14.8: Industries of Employment

	Local Area	Highland	Scotland
Agriculture, forestry and fishing	2.2%	1.5%	3.1%
Mining and quarrying	0.4%	0.2%	1.2%
Manufacturing	5.2%	6.0%	7.1%
Electricity, gas, steam and air conditioning supply	0.4%	0.4%	0.7%
Water supply; sewerage, waste management and remediation activities	2.1%	0.8%	0.6%
Construction	6.9%	6.8%	5.6%
Wholesale and retail trade; repair of motor vehicles and motorcycles	13.4%	15.2%	14.6%
Transportation and storage	3.9%	4.9%	4.0%
Accommodation and food service activities	12.4%	12.4%	7.8%
Information and communication	1.3%	2.0%	2.5%
Financial and insurance activities	0.9%	1.0%	3.5%
Real estate activities	1.2%	1.4%	1.4%
Professional, scientific and technical activities	7.3%	5.5%	6.9%
Administrative and support service activities	5.4%	5.4%	7.4%
Public administration and defence; compulsory social security	4.8%	5.4%	5.8%
Education	8.1%	6.9%	7.6%
Human health and social work activities	19.7%	18.7%	15.5%
Arts, entertainment and recreation	2.5%	3.4%	2.8%
Other service activities	1.9%	2.0%	1.9%

Source: ONS, Business Register and Employment Survey 2013 Employees

Operational Gordonbush Wind Farm

- 14.6.14 The Development would be located adjacent to the operational Gordonbush Wind Farm, a 35 turbine development near Brora in Sutherland. The 35 turbines have an installed capacity of 70MW and became operational in June 2012. Preparation of the site began in Autumn 2009 and took 30 months to complete. Details of the economic effect that this development had on the local area are described in a case study of the Gordonbush Wind Farm Case Study, published by Renewable UK and DECC on the economic impacts of on-shore wind in the UK (Biggar Economics, 2012/updated 2015) (see Appendix 14.1).
- 14.6.15 Based on a total capital expenditure of £100 million that was involved in developing the existing Gordonbush Wind Farm it was estimated that 66 job years were supported in the local Sutherland economy during the construction phase. This was based on the Local Area securing 9% of the capital expenditure, with a total value of £9.5 million. The Gordonbush Wind Farm is currently operational and the site is expected to be operational until 2037.
- 14.6.16 The case study assumed an annual expenditure during the operational phase of the wind farm to be £4.7 million, of which 30% would be spent in the Local Area. This would amount to £34.9 million expenditure in the local area over the 25-year life cycle of Gordonbush Wind Farm. It was estimated that the Gordonbush Wind Farm would support 14 jobs during the operational phase in the Sutherland economy.

- 14.6.17 The jobs supported in the Local Area were predominantly supported by expenditure on “balance of plant” and would have included individuals involved in Civil Engineering. For example, one of the major contracts awarded during the operations and maintenance was with a Scottish Civil Engineering firm with offices in Dingwall. These contracts included the construction of roads, turbine bases and hard standings. These contracts supported employment for just over a year for the employees of this firm. Raw materials from quarries and timber yards were also secured from the Local Area.
- 14.6.18 The Applicant pays into the Scottish Hydro Gordonbush Community Fund to support developments in the areas covered by the Community Councils of Brora, Golspie, Helmsdale and Rogart. The contribution is set to provide at least £144,000 per annum, with additional funding available depending on the output of the Gordonbush Wind Farm.
- 14.6.19 It was also expected that the Gordonbush Wind Farm would support the tourism sector in the Local Area. This was expected to be as a result of additional expenditure from business tourists associated with the existing wind farm that would support the sector outwith the traditional tourist seasons. The Applicant has also supported the creation of tourism infrastructure by funding the refurbishment of the Brora Heritage Centre.

Summary

- 14.6.20 All of the factors described above were considered in order to determine how sensitive the economies of each of the study areas might be to change. At the Scottish level, the sheer size of the economy relative to the Development means that the economy would be relatively insensitive to change. The sensitivity of the Scottish economy was therefore assessed as negligible. The relative size of the project to the Highland economy would be greater than to the Scottish economy but still comparatively small so the sensitivity of the Highland economy was assessed as low.
- 14.6.21 For the local economy however, the scale of the project would be relatively large. The local economy is one of the most sparsely populated areas of Scotland and has a comparatively elderly population. The local economy also has a more limited range of employment opportunities than the Highlands as a whole and is highly dependent on employment associated with the decommissioning of the Dounreay Nuclear Plant, which will decrease substantially over the next decade. This suggests that the creation or loss of even a small number of jobs could have a significant effect on the local economy. For these reasons the sensitivity of the local economy was assessed as medium.

Tourism and Recreation Baseline

Economy

- 14.6.22 Sustainable tourism is one of seven growth sectors identified in the Scottish Government’s Economic Strategy. Data from the BRES (ONS, 2013) shows that in 2013, sustainable tourism, as defined by the Scottish Government, accounted for 14.2% of employment in Highland. This is significantly higher than the proportion of tourism related employment across Scotland as a whole (8.5%) and also marginally higher than the rate of the Local Area (13.7%). This suggests that tourism is slightly less important to the Local Area than to other parts of the Highlands.

- 14.6.23 According to the Scottish Government there were 1,261 registered tourism enterprises in Highland in 2012. This represents around 12.7% of all registered enterprises in the Highlands. The total turnover of these enterprises in 2012 (latest available figures) was estimated at £426 million and their contribution to Scottish Gross Value Added (GVA) was estimated at almost £221 million. This represents 7.7% of the total GVA of Highland and a growth of 10.5% from the previous year.
- 14.6.24 Official data for the turnover and value of the tourism sector is not given for the data zones that comprise the Local Area; however, it is possible to estimate these values based on the amount of tourism related employment in the Local Area. The Local Area accounts for 13.4% of all sustainable tourism employment in Highland. Therefore it was estimated that the turnover of the tourism sector in the Local Area in 2012 was £57.1 million (i.e. 13.4% of the £426 million turnover of tourism enterprises in the Highlands) and this contributed £29.6 million GVA to the Scottish economy (i.e. 13.4% of the £221 GVA of tourism enterprises in the Highlands).

Attractions and Activities

- 14.6.25 VisitScotland commissioned a national visitor survey (VisitScotland 2011/12) that was undertaken during 2011 and 2012. Regional results for the Highlands show that by far the most important reason for visiting the Highlands, as mentioned by 57% of visitors, was the scenery and landscape. Other important reasons included the history of the area (mentioned by 23% of visitors), a recommendation (mentioned by 22%), to visit a particular attraction (20%) or because they had been to the area before (20%).
- 14.6.26 The visitor survey also includes information about the types of activities visitors engage in while in an area. It shows that the most popular activities on visits to the Highlands were walking (mentioned by 54% of visitors) and sightseeing (51% of visitors). Taking a long walk (as opposed to a stroll) was mentioned by 41% of visitors. Visiting historic buildings and trying local food, were both also mentioned by 51% of visitors.

Tourist Accommodation

- 14.6.27 Table 14.9 provides a list of the accommodation providers (individual hotels, bed and breakfasts, self-catering and other accommodation facilities) located within 20km of the Development. Accommodation is categorised by its approximate straight-line distance from the site. Figure 14.1 provides a map of tourist accommodation providers.
- 14.6.28 This indicates that there are around 90 individual accommodation providers within 20km of the Development. Of these, two are located within 5km of the Development, neither of which is expected to have visibility of the Development. Table 14.9 also shows that within the study area there are a greater number of accommodation facilities along the A9 to the north-east and south-east of the Development. These accommodation facilities are clustered in Brora, approximately 9.5km from the Development and Helmsdale, approximately 19km from the Development. Brora is therefore the nearest significant tourist location to the Development. None of the accommodation providers are expected to have visibility of the Development, as Figure 14.1 shows.

Table 14.9: Tourist Accommodation

Distance	Location	Approximate Distance (km)	Number of places to stay
0-5km	Gordonbush	1.5km	2
5-10km	Brora	8km	28
	Golspie	10km	9
10-15km	Rogart	14km	6
15-20km	Dornoch	19km	11
	Helmsdale	19km	36

Source: VisitScotland accommodation database and general web search

- 14.6.29 The nature of the potential effect of the Development on accommodation providers is that some visitors may find accommodation with views of a wind farm less attractive than accommodation with no view of a wind farm. This could therefore have a negative effect on the price that these accommodation providers could charge for rooms with such a view. To assess the sensitivity of the various accommodation providers it was assumed that the further away a provider would be to the Development the less sensitive it would be. Accordingly the sensitivity of accommodation providers was assessed as follows:
- within 5km of the Development - high sensitivity;
 - within 10km of the Development – medium sensitivity;
 - within 20km of the Development – low sensitivity; and
 - more than 20km of the Development - negligible sensitivity.

Tourist / Recreation Routes

Footpaths and Trails

- 14.6.30 Scotland's Great Trails (formerly known as "Long Distance Routes") is a network of 26 nationally promoted trails in Scotland suitable for "people powered" journeys. Each trail is waymarked, largely off-road and is at least 25 miles long. None of these trails is located in the northern Highlands.
- 14.6.31 Walk Highlands is a website and social network for walkers in Scotland. It is dedicated to promoting walking routes across Scotland and to supporting small tourism businesses. It claims to be one of the busiest websites of its kind in the UK with around 13,000 visitors each day and is therefore a useful source of information about footpaths and trails.
- 14.6.32 The local study area broadly corresponds to the area designated as "Sutherland and Caithness" on the Walk Highlands website. This area is further subdivided into four areas, one of which is "Dornoch, Brora and East Sutherland", which covers the area where the Development would be located. The website identifies 21 routes within this area.
- 14.6.33 All but two of these routes are easy, short-distance (<11km) walks following reasonably well-defined paths. These routes can be considered as locally important and therefore of low sensitivity.
- 14.6.34 Two of the routes are more challenging and cover longer distances. One of these is an 18.5km route up the Corbett Carn Chuinneag and the other is the 38.5km route up Carn

Ban via Alladale. As these routes are longer and may appeal to dedicated hill walkers they were assessed as regionally important and therefore of medium sensitivity.

- 14.6.35 Scottish access legislation requires each local authority and national park authority in Scotland to draw up a plan of core paths in their area. These plans are informed by consultation with local communities, land managers and path users. The core paths identified by The Highland Council are split into six areas, one of which is "Sutherland". The Sutherland core paths plan is further subdivided into 24 local areas, one of which is Brora, which covers the area where the Development would be located.
- 14.6.36 There are 15 core paths identified in the Brora local area, which are identified in Figure 7.7 and 7.14 in Chapter 7: Landscape and Visual Impact Assessment of this ES. None of these paths enter the site. The closest core paths to the site are a track along the west side of Loch Brora (SU06.02) and an old drove rode that crosses the hillside between East Clyne and Oldtown (SU06.03), approximately 3km to the south of the site. These routes can be considered as locally important and therefore of low sensitivity.

Cycling Routes

- 14.6.37 The National Cycle Network is a series of safe, traffic-free lanes and quiet on-road routes that covers 14,200 miles across the UK and connects every major city in the UK. The National Cycle Network includes 10 "national" routes that are classified using a system that is broadly equivalent to the A-road classification system.
- 14.6.38 The only National Route to cross the northern Highlands is Route 1, which runs the length of the UK from Lands End to John O' Groats. The northern section of this route goes from Bonar Bridge, through Lairg and onto Tongue. This section of the route represents less than 3% of the total 2,740km covered by the route therefore it is reasonable to expect that the route would be reasonably insensitive to the Development. The sensitivity of the route was therefore assessed as low.

Driving Routes

- 14.6.39 VisitScotland promotes a series of 12 sign-posted tourist routes throughout Scotland. The National Tourist Routes are designed to provide tourists with an alternative to the main trunk roads and motorways. Two of these routes include sections in the northern Highlands: the Moray Coastal Route and the North and West Highlands Route.
- 14.6.40 The North and West Highlands Route starts in Ullapool and heads toward Durness in the far north-west. The route then follows the northern coast of Scotland all the way to John O' Groats, a total distance of 224km. All points on this route would be more than 50km from the Development therefore it is outwith the scope of this assessment.
- 14.6.41 The Moray Firth Coastal Route covers a total distance of 124km in a semi-circle from Inverness around the Beauly, Cromarty and Dornoch Firths. The final stretch of this route travels between Lairg and Dornoch along the A839 for a distance of around 27km. This means that tourists using the route would be within 15km of the Development for around 14km, around one tenth of the total distance of the route. The status of this route as a National Tourist Route suggests that the route as a whole may be of high sensitivity; however, the fact that only around 10% of the route would be affected would diminish

this. The overall sensitivity of the route to the Development was therefore assessed as low.

Tourist Attractions / Activities

14.6.42 According to VisitScotland (2014) the top five visitor attractions in the Highlands in 2013 were:

- Rothiemurchus Estate by Aviemore;
- Eilean Donan Castle and Visitor Centre;
- Urquhart Castle, Drumnadrochit;
- Glenmore Forest Park near Aviemore; and
- CairnGorm Mountain Railway.

14.6.43 All of these attractions would be more than 100km from the Development and are therefore outwith the scope of this assessment.

14.6.44 Table 14.10 lists the other tourist attractions that are located within 20km of the Development. This shows that there are 12 tourist attractions in the study area, none of which are within 5-10km of the Development.

14.6.45 The tourist attractions are all concentrated around Brora, Golspie and Helmsdale. Almost all of these attractions are small and only of local importance and therefore their sensitivity to change was assessed as low.

14.6.46 Dunrobin Castle is the most northerly of Scotland’s great houses and the largest in the Northern Highlands with 189 rooms. As a result, Dunrobin Castle has been assessed as being of regional importance with its sensitivity to change assessed as medium.

Table 14.10: Tourist Attractions

Distance	Location	Attractions	Significance
0-5km	n/a	n/a	n/a
5-10km	Brora	Clynesh Distillery and Visitors Centre	Local
		Brora Golf Course	Local
		Brora Heritage Centre	Local
		Loch Fleet National Nature Reserve	Local
		Doll Riding Centre	Local
		Highlands Unbridled	Local
	Golspie	Golspie Golf Club	Local
		Dunrobin Castle	Regional
Highland Wildcat Trails		Local	
10-15km	n/a	n/a	n/a
15-20km	Helmsdale	Helmsdale Golf Club	Local
		Timespan Heritage and Arts Centre	Local
		Strath Ullie Crafts and Visitor Information Centre	Local

Operational Gordonbush Wind Farm

- 14.6.47 The existing Gordonbush Wind Farm consists of 35 turbines. The main construction work for the site began in Autumn 2010 and was completed in June 2012. It is therefore necessary to consider the operational wind farm and any effects it may have on the local tourism sector as part of the tourism baseline.
- 14.6.48 Potential impacts on the local tourism sector were considered as part of the Environmental Statement that was prepared to support the Section 36 application for Gordonbush Wind Farm in 2003. This assessment concluded that any effect the wind farm might have on the local tourism industry would be insignificant. Before assessing the potential significance of the Development it is necessary to consider whether and to what extent this has turned out to be the case.
- 14.6.49 One approach to doing this is to consider changes in tourism related employment over this period. Between 2010 and 2013 tourism related employment in the local area increased by 15%. Over the same period the increase in tourism related employment across the Highlands as a whole was also 15%.
- 14.6.50 During this period tourism related employment also increased relative to the rest of the local economy, increasing from 11.5% of employment in 2010 to 13.7% in 2013. This suggests not only that tourism has performed at similar levels to the rest of the region over this period but also that tourism may have outperformed other local sectors of the local economy. This suggests that the operational Gordonbush Wind Farm has not negatively affected the sector.
- 14.6.51 Further evidence of this can be found by considering visitor numbers for attractions close to the operational Gordonbush Wind Farm. A list of visitor attractions within 20km of the site is provided in Table 14.10. Visitor numbers for many of these attractions are not publicly available; however, figures are available for two of the most important attractions: Dunrobin Castle and Clynelish Distillery.
- 14.6.52 In September 2013 it was reported (Northern Times, 2013) that visitor numbers to Dunrobin Castle increased by 8.5% between 2012 and 2013. This followed a fall the previous year that was attributed to the London Olympics. These figures were reported as part of a wider story about the increase in visitor numbers to a number of attractions across Sutherland, suggesting that this may have been representative of the performance of the sector as a whole.
- 14.6.53 Prior to this it was reported (Northern Times, 2012) that visitor numbers to the Clynelish Distillery, which is located around 5km from the site, had increased by 40% between 2011 and 2012. It was also reported that visitor numbers to the Distillery had increased "steadily" since 2008.
- 14.6.54 One possible explanation for this increase is that the popularity of whisky visitor centres has increased over this period and that the increase in visitor numbers at Clynelish simply reflects this. If this were the case then it would be reasonable to expect visitor numbers at similar attractions elsewhere in Scotland to have increased by a similar amount over the same period. In fact this has not been the case.

14.6.55 The Clynelish Distillery is owned by Diageo, which operates 12 similar centres across Scotland. Between 2011 and 2012 total visitor numbers to all of these centre's increased by 14%, less than half the increase recorded at Clynelish. This strongly suggests that neither the construction nor subsequent operations of the operational Gordonbush Wind Farm has had any negative effect on the attraction.

14.6.56 Based on the available evidence it is therefore reasonable to conclude that the expectations of the original socio-economic impact assessment were correct and that the operational Gordonbush Wind Farm has not had a negative effect on the local tourism sector.

14.7 Potential Effects

14.7.1 This section describes the potential effects on socio-economics and tourism that could arise from the construction, operation and decommissioning of a wind farm. Inclusion here does not imply that these effects would occur or be significant for the Development, only that they have been considered. Mitigation and enhancement measures described in Section 14.8 (Mitigation and Enhancement) with an assessment of the resulting residual effects of the Development provided in Section 14.9 (Residual Effects) and the cumulative effects that could occur are discussed in Section 14.10 (Cumulative Effects).

Potential Socio-economic Effects

14.7.2 This section considers the potential additional socio-economic effects that the Development could have in each of the different study areas. This does not include the economic effect of the operational Gordonbush Wind Farm.

14.7.3 The Development is anticipated to have a maximum output of up to 56MW. However, as outlined in Chapter 4: Description of Development of this ES (see paragraph 4.3.2 and 4.3.3), the final turbine selected for the site would be dependent on economics and available technology at the time of construction. The potential socio-economic effects that are considered in this Chapter are based on the 'worst-case scenario', i.e. the turbine with the lower output capacity of 2.3MW. This enables an assessment of the lowest potential level of investment, based on a potential installed capacity of 36.8 MW.

Development and Construction

14.7.4 The starting point for estimating the total capital expenditure (CAPEX) of the Development was the expenditure per MW of the operational Gordonbush Wind Farm. Based on this it was estimated that the capital expenditure for the Development would be £1.1 million/MW. This takes into account the fact that there is existing infrastructure from the operational Gordonbush Wind Farm in place, which would be utilised by the proposed Development (e.g. the use of existing access tracks and grid substation etc.).

14.7.5 Based on an installed capacity of 36.8MW (see paragraph 14.7.3), the total capital expenditure (CAPEX) was estimated to be £40.5 million.

14.7.6 The expenditure on development and construction is split into four main contract types. These are:

- development and planning;
- balance of plant;

- turbine; and
- grid connection.

14.7.7 BiGGAR Economics (2012) undertook a study for RenewableUK and the Department of Energy and Climate Change that considered the proportion of the total CAPEX that onshore wind developers spent in each of the four contract types. This found that the majority of the CAPEX went on turbine costs and a quarter went on balance of plant. The value of these contracts for the Development was estimated by applying these percentages to the total CAPEX. These values are given in Table 14.11.

Table 14.11: Development and Construction Expenditure by Contract Type

	% of CAPEX	Value (£m)
Development and planning	8.4%	3.4
Balance of plant	25.0%	10.1
Turbine	59.6%	24.1
Grid Connection	7.0%	2.8
Total	100%	40.5

Source: BiGGAR Economics

14.7.8 The next stage in estimating the quantitative effect of the Development during the development and construction phase was to estimate the proportion of each of the contract types that could be awarded in each of the study areas. This estimation was based on analysis of the industries that were present in each of these areas and the averages from the 2012 DECC report.

14.7.9 A variety of industries are able to benefit from the contracts awarded during the development and construction of a wind farm. These range from forestry and engineering contractors through to professional services such as lawyers and environmental consultants. Analysis of the Highland labour market found that less than 20% of the people employed in these industries in Highland are in the Local Area. Therefore, it would be expected that the majority of contracts awarded in Highland would be outwith the Local Area.

14.7.10 The analysis suggests that the Highland economy might secure 20% of total capital expenditure, amounting to a total investment of £8.2 million. Balance of plant contracts would be the single largest component of this and it was estimated that companies in Highland could secure Balance of plant contracts worth £5.9 million, which is equivalent to 60% of the total balance of plant expenditure. There would also be opportunities in the development stage and on grid connections. In total, Highland could secure 20% of the total capital expenditure on the Development.

14.7.11 This analysis also suggests that the Local Area could secure contracts worth £3.8 million, which is equivalent to 9% of the total capital expenditure. The balance of plant contracts would also represent the largest opportunity for the Local Area and it was estimated that companies in the local area could secure 27% of these contracts with a value of £2.7 million.

14.7.12 Scotland could secure 45% of the total capital expenditure, if the towers for the turbines are also constructed in Scotland. The total value of the contracts secured in Scotland could

be £18.3 million. Approximately half of this value would be from balance of plant contracts, of which Scotland could secure 92%.

Table 14.12: Development and Construction Expenditure by Study Area

	Local Area		Highland		Scotland	
	%	£m	%	£m	%	£m
Development and planning	6%	0.2	32%	1.1	90%	3.1
Balance of plant	27%	2.7	60%	5.9	92%	9.3
Turbine	0%	0.0	0%	0.4	13%	3.1
Grid Connection	14%	0.9	32%	1.9	100%	2.8
Total	9%	3.8	20%	8.2	45%	18.3

Source: BiGGAR Economics. (Note: Figures may not sum due to rounding)

14.7.13 The values of the contracts would represent an increase in turnover in the businesses in each of the study areas. This increased turnover would enable these businesses to support employment. The effect that this increased turnover would have on the employment in these businesses was estimated using the appropriate industry data from the Annual Business Survey (ONS, 2014). This survey gives the annual turnover per employee for each of the industries that are involved in any wind farm development. In this way it is possible to estimate the annual employment, or job years, that would be supported by any additional turnover.

14.7.14 This method found that the development and construction contracts could support 27 job years in the Local Area. The majority of these jobs would be in the civil engineering, electrical engineering and construction sectors for the balance of plant contracts. The additional turnover in Highland could support 58 job years, and in Scotland the total turnover would support 142 jobs years. The balance of plant contracts would be the largest source of employment in both Highland and Scotland as a whole, supporting up to 55 job years respectively.

Table 14.13: Employment in each Study Area by Contract Type

	Local Area	Highland	Scotland
Development and planning	2	10	32
Balance of plant	17	36	57
Turbine	0	3	30
Grid Connection	8	8	23
Total	27	58	142

Source: BiGGAR Economics

14.7.15 The people who are directly employed on the Development would also have an additional effect on the study areas through the spending of their salaries. Previous research undertaken by BiGGAR Economics for DECC has found that the average salary in the onshore wind sector is £34,600. It was therefore estimated that the individuals employed on the Development in Scotland would be paid a total of £4.9 million during the development and construction stages.

14.7.16 In order to estimate the economic effect that the spend of these wages would have on each of the study areas, it was necessary to make assumptions regarding the location of

the employees expenditure. It was assumed that workers in the Local Area spent 20% of their salaries in the Local Area, workers in Highland spent 40% of their salaries in Highland and workers in Scotland spent 74% of their salaries in Scotland in line with the Scottish Input Output tables.

14.7.17 The Gross Value Added (GVA) effect from this increased expenditure was estimated by applying the GVA/turnover ratio for the whole Scottish economy. In a similar way, the employment effect of this expenditure was estimated by applying the turnover/employee ratio for the whole Scottish economy.

14.7.18 In this way it is possible to estimate the economic effect of the spending of the workers of the Development. Staff spending could contribute £1.1 million GVA, which would support 29 job years in Scotland and £0.2 million GVA and 6 job years in Highland.

Table 14.14: Spending Effects

	Local Area	Highland	Scotland
Employee spend (£m)	0.2	0.8	3.6
GVA (£m)	0.1	0.2	1.1
Employment (job years)	1	6	29

Source: BiGGAR Economics

14.7.19 The total economic effect during the construction and development phase is the sum of the contract effects and the effects of the expenditure of the direct employees. This gives a total economic effect of 28 job years and £3.9 million GVA in the Local Area. In the Highland the total economic impact could be 64 job years and £8.4 million GVA and in Scotland the impact could be £19.4 million GVA and 171 job years.

Table 14.15: Economic effect during Development and Construction

	Local Area	Highland	Scotland
GVA (£m)	3.9	8.4	19.4
Employment (job years)	28	64	171

Source: BiGGAR Economics

14.7.20 At the Scottish level, supporting 171 job years and £19.4 million GVA would have a negligible effect on the economy. Similarly with Highland, the creation of 64 job years and £8.4 million GVA would have a negligible effect on the economy. Although the creation of 28 job years and £3.9 million GVA would still have a small effect on the Local Area it would be more noticeable and therefore the magnitude of the effect was assessed as low.

14.7.21 Combining this with the sensitivity of economies of each of the study areas (see paragraphs 14.6.20 and 14.6.21) suggests that the short-term economic effect of the Development would be negligible for the Scottish and Highland economies but minor for the local economy.

Operations

14.7.22 In order to assess the economic effect of the operational phase of the Development it was necessary to estimate the average annual expenditure during this phase. Previous data received from the Applicant indicated that just under £65,000 was spent each year per MW

installed. Based on an installed capacity of 36.8MW (see paragraph 14.7.3), it was estimated that the annual operational spend would be £2.4 million. This would amount to £59.7 million over the 25 year life span of the Development.

14.7.23 The economic effect that this operational expenditure would have in each of the study areas is dependent on the proportion of contracts during this stage that are awarded to companies in each of these areas. These assumptions were based on the analysis of the industries present in the study areas and the findings from the DECC report (2012). The analysis concluded that the Local Area could secure 30% of the operations and maintenance contracts, worth £0.7 million per annum. Highland could secure 50% worth £1.2 million annually. Scotland could secure 90% of these contracts worth £2.2 million annually. The total value of all operations and maintenance contracts in Scotland would be worth £53.8 million over the 25 year life span of the Development.

Table 14.16: Operational Expenditure by Study Area

	Local Area		Highland		Scotland	
	%	£m	%	£m	%	£m
Operations and maintenance	30%	0.7	50%	1.2	90%	2.2

Source: BiGGAR Economics

14.7.24 As with the development and construction expenditure, the contracts awarded in each of the study areas would represent an increase in turnover in businesses in these areas. This increased turnover would support employment in these businesses. The turnover supported by this increase in turnover was estimated by applying the turnover/employee ratios from the Annual Business Survey to the appropriate sectors. This found that the operations and maintenance contracts could support 7 jobs in the Local Area, 12 jobs in Highland and 22 jobs in Scotland.

14.7.25 The operational expenditure is expected to continue during the 25 year life span of the Development and therefore the employment effects are reported in terms of 'jobs' rather than 'job years', to reflect the long term nature of these opportunities.

Table 14.17: Direct Employment in each Study Area

	Local Area	Highland	Scotland
Operations and maintenance	7	12	22

Source: BiGGAR Economics

14.7.26 There would also be a knock on effect from those employed on the Development spending their salaries, as described in the Development and Construction section. The same assumptions were used in assessing the induced effect of the operational contracts. In this way it was found that the spending of operational workers would support £0.2 million GVA and 4 jobs in Scotland. In Highland this would support up to £0.1 million GVA and 1 job.

Table 14.18: Spending Effects

	Local Area	Highland	Scotland
Employee spend (£m)	<0.1	0.20.6	0.8
GVA (£m)	<0.1	<0.1	0.2
Employment (jobs)	0	1	4

Source: BiGGAR Economics

- 14.7.27 The total economic effect during the operational phase is the sum of the contract effects and the effects from the expenditure of the direct employees. This gives a total economic effect of 8 jobs and £0.7 million GVA in the Local Area, and 13 jobs and £1.2 million GVA in Highland. In Scotland the operations and maintenance could support £2.3 million GVA annually and 26 jobs.

Table 14.19: Economic Effect during the Operations and Maintenance

	Local Area	Highland	Scotland
GVA (£m)	0.7	1.2	2.3
Employment (jobs)	8	13	26

Source: BiGGAR Economics

- 14.7.28 At the Scottish level, supporting less than 30 jobs and £2.3 million GVA annually would have a negligible effect on the economy. Similarly with Highland, the creation of 13 jobs and £1.2 million GVA annually would have a low effect on the economy. Although the creation of 8 jobs and £0.7 million GVA would still have a small effect on the Local Area it would be more noticeable and therefore the magnitude of the effect was assessed as low.
- 14.7.29 Combining this with the sensitivity of economies of each of the study areas (see paragraphs 14.6.20 and 14.6.21) suggests that the long-term economic effect of the Development would be negligible for the Scottish and Highland economies but minor for the local economy.

Taxation

- 14.7.30 During the operational phase of the Development the Applicant would also be required to contribute to public finances by paying non-domestic rates. The rate that the Development would be required to pay is dependent on the load factor of the Development and the total installed capacity. Analysis of data in the Renewables Obligation database suggests that the average load factor of Scottish wind farms is 30% so it was assumed that the load factor of the Development would also be around 30%.
- 14.7.31 Guidance produced by the Scottish Assessors Association (Scottish Assessors Association, 2011) suggests that the rateable value for a wind farm of this scale and load factor would be calculated on the basis of £24,271 per annum per MW. Based on an installed capacity of 36.8MW (see paragraph 14.7.3), this implies a total rateable value of up to £0.9 million.
- 14.7.32 Non-domestic rates are charged/£ of rateable value at a poundage rate that is currently set at £0.471/£. This implies that the Development would be liable to non-domestic rates of £0.4 million per year, which amounts to a total of £11.0 million during the 25-year lifetime of the Development.

14.7.33 Non-domestic rates are not retained within the local authority where they are gathered so this additional revenue will not be used directly to fund local services. The additional revenue would however increase the total amount of funding available for public services in Scotland and would therefore have a positive effect. Given the indirect nature of the effect the magnitude of this effect was assessed as low. This implies that the overall significance of the positive effect at the local level would be minor.

Decommissioning

14.7.34 There have been very limited instances of decommissioning of onshore wind installations in the UK. Therefore the economic effect of this phase is based on estimated costs in the DECC report, which found that onshore wind energy developers anticipated expenditure during the decommissioning phase to be £34,555 per MW. Therefore it was estimated that the decommissioning cost of the Development would be £1.3 million.

14.7.35 It was assumed that the proportion of contracts secured in each of the study areas would be the same as for the operations and maintenance contracts. Therefore 30% could be secured in the Local Area, 50% in Highland and 90% in Scotland. In this way it was estimated that the Local Area could secure contracts valued at £0.4 million, which would support 4 job years. Highland could secure contracts worth £0.6 million, which would support 6 job years and companies in Scotland could secure contracts valued £1.1 million, which would support 11 job years.

Table 14.20: Decommissioning Assumptions / Direct Effect

	Local Area	Highland	Scotland
Proportion of contracts secured	30%	50%	90%
Contract value (£m)	0.4	0.6	1.1
Jobs supported (job years)	4	6	11

Source: BiGGAR Economics

14.7.36 The people employed during the decommissioning of the Development would have a knock on effect of the economy through the expenditure of their wages. The process for estimating the effect of this expenditure was exactly the same as described in the construction and operational phases (see Paragraph 14.7.15). In this way it was estimated that the induced effect during the decommissioning phase would support 1 job year in Highland and 2 job years in Scotland. The total effect during the decommissioning stage is given in the table below.

Table 14.21: Decommissioning Effect

	Local Area	Highland	Scotland
GVA (£m)	0.4	0.7	1.2
Employment (job years)	4	7	14

Source: BiGGAR Economics, numbers may not sum due to rounding

14.7.37 The potential magnitude of the economic effect of the Development during the decommissioning phase is likely to be less than the magnitude of the economic effect during the construction phase. The magnitude of the effect and the overall significance of the effect was therefore assessed as negligible for all three study areas.

Potential Tourism & Recreation Effects

14.7.38 In order to assess the potential tourism and recreation effects of the proposed Development it is necessary to consider the visual impact that the Development might have on the key receptors identified in the tourism and recreation baseline. Visual impacts are assessed in Chapter 7 of this ES.

14.7.39 It is however important to note that as this assessment considers changes to existing tourism conditions in the local area, which include the operational Gordonbush Wind Farm. As discussed in paragraphs 14.6.46 - 14.6.56, there is no evidence to suggest that the operational Gordonbush Wind Farm has had a negative effect on the local tourism sector. This section therefore considers only the potential effects associated with the additional turbines proposed as part of this Development.

14.7.40 The receptors identified in the tourism baseline included:

- Tourism accommodation;
- Tourist routes; and
- Tourist attractions.

14.7.41 The potential effects of the Development on each of these receptors is considered in turn below.

Potential Effects on Tourist Accommodation

14.7.42 The extent to which tourist accommodation providers might be negatively affected by the Development would depend on the extent of the views of the Development that such providers might gain. As the Gordonbush Wind Farm already exists then potential effects could only arise if providers gained significant views of the additional turbines.

14.7.43 As Figure 14.1 shows, none of the accommodation providers within 20km are expected to have any visibility of the Development and so no effects are expected.

14.7.44 Moreover, the existing Gordonbush Wind Farm does not appear to have had a negative effect on tourism in the local evidence, which suggests that visitors to the local area are relatively tolerant of wind farms.

Potential Effects on Tourist Routes

14.7.45 Paragraphs 14.6.32 to 14.6.43 identified a number of tourist routes within the study areas, and three of these routes were identified to potentially be sensitive to the Development. These are:

- Two regionally important, long-distance walking routes up Carn Chuinneag and Carn Ban; and
- The Moray Firth Coastal Route promoted by VisitScotland.

14.7.46 Potential negative effects on walking routes in the local area (both short-distance and longer distance) would depend on the extent to which the Development might change the existing character of the walking routes and tourists enjoyment of them. The fact that there is already an operational wind farm at Gordonbush means that this type of development is already an established part of the landscape in the area. This means that

walkers visiting the area should already have a reasonably high expectation of seeing a wind farm during their trip.

- 14.7.47 The fact that this does not appear to have had any detrimental impact on the local tourism sector suggests that visitors to the local area are relatively insensitive to this type of development. For this reason, the magnitude of this potential effect would be low. When coupled with the low sensitivity of the receptors this implies that the potential effect of the Development on the short-distance, local routes, including the two core paths that pass close to the site, would be not significant and the potential effect on the two longer distances routes would be minor.
- 14.7.48 Tourists using the Moray Firth Coastal Route would be within 15km of the Development for around one tenth of the total distance of the route. From this distance it is reasonable to expect that any effect on visitors enjoyment of the route as a result of the additional turbines would be low. The fact that the operational Gordonbush Wind Farm does not appear to have had a negative effect on tourism on the local area to date adds further weight to this assessment. Coupled with the low sensitivity of the route suggests that the overall significance of this effect would be minor.
- 14.7.49 At all points tourists using National Cycle Route 1 would be at least 30km from the Development. For this reason the magnitude of the potential effect was assessed as low. When combined with the low sensitivity of the route this suggests that the overall magnitude of this effect would be not-significant.
- 14.7.50 In addition, it is noted that the conclusions of the Landscape and Visual Impact Assessment (Chapter 7 of this ES) were that there will be “no significant effects on other routes, including the A9, A836, A839, A897, A949, national cycle routes, long distance walking routes and railway lines.”

Potential Effects on Tourist Attractions

- 14.7.51 Paragraphs 14.6.42 to 14.6.46 identify 12 tourism attractions and leisure facilities that may be sensitive to the Development: Clynesh Distillery and Visitors Centre, Brora Golf Course, Brora Heritage Centre, Loch Fleet National Nature Reserve, Doll Riding Centre, Highlands Unbridled, Golspie Golf Club, Dunrobin Castle, Highland Wildcat Trails, Helmsdale Golf Club, Timespan Heritage and Arts Centre and Strath Ullie Crafts and Visitor Information Centre.
- 14.7.52 As discussed elsewhere in this assessment, there is no evidence that the operational Gordonbush Wind Farm has had any negative effect on tourism in the local area. In fact, the baseline assessment found that since work on the operational wind farm started visitor numbers to some local visitor attractions have increased. It is therefore reasonable to conclude that the magnitude of the effect of the existing wind farm was not significant.
- 14.7.53 It is also reasonable to expect that, as wind farms are now an established part of the local landscape, the potential negative effects arising from the Development would be less than the effects of the original development. For this reason, the potential magnitude of this effect was assessed as negligible. When combined with the sensitivity of the receptors (Medium for Dunrobin Castle and Low for the remaining attractions) this means this potential impact would be not significant.

14.8 Mitigation and Enhancement

- 14.8.1 It is necessary to consider appropriate mitigation strategies for any significant effects. As this assessment has not identified any significant socio-economic or recreational/tourism effects associated with the Development, it was therefore unnecessary to consider mitigation strategies.
- 14.8.2 Although not a requirement, it is a matter of good practice to consider measures that could be taken to maximise the benefits of proposed developments. Such measures would include proactively engaging with the local supply chain to ensure that local companies are aware of and know how to tender for contracts related to the Development. Appropriate measures may also include liaising with local business interests to ensure that any community funding is allocated in a way that would support the local economy and enable local businesses and local residents to take full advantage of any new opportunities that may arise.
- 14.8.3 The Applicant is very familiar with such best practice approaches and is committed to achieving a high level of engagement with local suppliers and to liaising closely with local communities. The Applicant's approach to the construction and subsequent operation of the operational Gordonbush Wind Farm helps to illustrate this commitment.
- 14.8.4 During the course of developing the operational Gordonbush Wind Farm the Applicant made particular efforts to develop a strong local supply chain. Subsequent analysis of the supply chain, presented in a case study of the operational Gordonbush Wind Farm (Appendix 14.1) shows that it involved at least 26 companies in the Highlands (BiGGAR Economics, 2012).
- 14.8.5 The Applicant has developed similar relationships with the wider supply chain as a result of its numerous other projects elsewhere in the region. As part of its commitment to developing these relationships the Applicant has launched a dedicated supplier portal called Open for Business (O4B) Highlands and Islands.
- 14.8.6 This web-based portal provides a platform for the Applicant to promote opportunities originating in the region that enables local suppliers to view opportunities, register as a supplier and respond to notices free of charge. Users of the site can also use the portal to advertise their own sub-contracting opportunities to the local supplier base.
- 14.8.7 To help promote opportunities more widely the Applicant also hosts Meet the Buyer events in the Highlands. These events are designed to provide an opportunity for local businesses to find out about the opportunities available within the Applicant's pipeline of projects in the north of Scotland. Initiatives such as these demonstrate the Applicant's strong commitment to maximising the positive economic effects of its projects, including this Development.
- 14.8.8 The Applicant has demonstrated a similar level of commitment to enhancing the positive effects of its activities on local communities. One of the ways in which it does this is through its commitment to paying a living wage, not just to its own employees but also to all contracted employees working regularly on its sites. The living wage is an hourly rate set above the national minimum wage that experts believe meets the costs of housing, bills, food and work related travel.

- 14.8.9 Evidence of the Applicant's commitment to maximising local benefits is also provided by considering the positive contribution that the Applicant has made to local communities since work on the operational Gordonbush Wind Farm began in 2010.
- 14.8.10 During the initial construction phase for example the Applicant invested more than £2 million in local roads infrastructure and funded the complete refurbishment of an Old School House located at the junction of the A9 and Clynelish Distillery road. The old schoolhouse has since been gifted to the local community for use as a heritage visitor centre to help the community to encourage passing tourists using the nearby A9 to stop in the area. These investments have helped to create a positive legacy for local communities.
- 14.8.11 As part of its commitment to maximising benefits to local communities the Applicant also established a community benefit fund linked to the operational Gordonbush Wind Farm. This fund has already provided around £0.5 million for a wide range of local organisations and charities ranging from sports clubs to local schools.
- 14.8.12 If successful in this application the Applicant would contribute additional community benefit funding. The value of this funding would be determined based on the Applicant's existing policy on community investment. This has been formulated in consultation with a range of stakeholders and amounts to £5,000 per megawatt per annum, indexed linked, for the duration of the operation of the wind farm. This would be split 50:50 between a specific local community benefit and a wider sustainable energy fund, equating to a combined total of £7.0 million over the 25 year operational period of the Development in today's values (the cash value would be higher as a result of the indexation). This would be in addition to the £3.6 million that the Applicant is already committed to contributing to the existing community fund.
- 14.8.13 The Applicant has also established an apprenticeship scheme to support businesses in Rogart, Golspie, Brora and Helmsdale to take on young apprentices. This scheme is now helping up to 5 young people each year to learn valuable skills and making it easier for local communities to retain more of their bright young people.
- 14.8.14 As a result of this experience the Applicant has developed strong links with the local communities and an effective organisational structure for distributing community benefit funds. This should help to maximise the socio-economic benefits of the Development, if approved, for local communities.

14.9 Residual Effects

- 14.9.1 Neither the assessment of potential socio-economic effects nor the assessment of potential tourism/recreational effects identified any significant effects therefore there are not expected to be any residual effects arising from the Development.

14.10 Cumulative Effects

- 14.10.1 The magnitude of the cumulative socio-economic effect of the Development was assessed by considering the potential economic effect of the Development in combination with the economic effects of other wind farms in the local area. Potential tourism effects were considered using the same methodology described in Section 14.5.

- 14.10.2 As demonstrated elsewhere in this assessment, wind farms have the potential to generate demand for goods and services that can generate a positive effect for companies in the local area. Although the magnitude of this effect was assessed as minor, the presence of a number of different wind farms in a relatively small area could lead some local companies to expand operations, which could increase the magnitude of the impact.
- 14.10.3 The number of wind farms already in or close to the local area, the highly dispersed geography of the local economy and the fact that the Applicant has established links within the local supply chain as a result of the operational Gordonbush Wind Farm all make this more likely. For this reason, the cumulative magnitude of this impact was assessed as medium, which suggests that the cumulative effect could be moderate.
- 14.10.4 The cumulative effect of the Development on tourism receptors would depend on the cumulative visual impact of the Development, which was assessed in Chapter 7. The cumulative visual impact assessment of the Development finds no significant effects of relevance to tourism resources and so there is no reason to expect that the cumulative impact on tourism/recreation would be significant.

14.11 Conclusions

- 14.11.1 This assessment has considered the potential effects of the Development on the economy and tourism sector at a local, regional and national level. Although a number of potential effects have been identified, none of these has been assessed as significant. As such it was unnecessary to consider mitigation and no residual effects were identified.
- 14.11.2 Although none of the effects identified were assessed as significant in environmental impact terms, they are nevertheless likely to have a substantial effect on the local economy and the communities in the immediate vicinity of the Development.
- 14.11.3 Based on an installed capacity of 36.8MW (see paragraph 14.7.3), it was estimated that during the construction phase, the Development could generate £19.4 million GVA for the Scottish economy of which £8.4 million of which could be retained in the Highlands. It was also estimated that the construction phase could support 171 years of employment across Scotland, of which 64 could be in the Highlands.
- 14.11.4 Once operational it was estimated that the Development could generate £2.3 million GVA/year for the Scottish economy, of which £1.2 million could be retained in the Highlands. Over the 25 year life of the Development this represents a total contribution of £57.9 million GVA to the Scottish economy and £31.1 million GVA to the Highland economy. It was also estimated that during the operational phase the Development could support 26 jobs across Scotland, of which 13 could be in the Highlands.
- 14.11.5 The Development is also expected to generate a number of other positive economic effects including, non-domestic rates estimated £11.0 million over the 25 year life time of the Development and community benefit funding equating to a total of £4.6 million over the 25 year operational period of the Development.
- 14.11.6 Evidence from the operational Gordonbush Wind Farm shows that the Applicant has a strong commitment to maximising the local and regional economic impact of its activities and to enhancing the benefits that this brings to the communities it operates in. It is anticipated that, if successful in this application, the Applicant would build on this

experience to help maximise the benefits of the Development for the local communities in which it would be located.

- 14.11.7 This assessment has also considered the cumulative effect of the Development in relation to other wind farms in the study area and it has concluded that there would be no significant effects of relevance to tourism resources. The assessment did however find that the cumulative economic effect of the Development could be significant as a result of the combined effect of this Development and others on the local supply chain. The Applicant has made considerable efforts to help achieve this by implementing initiatives to support the development of a local supply chain (see Section 14.8).

14.12 Statement of Significance

- 14.12.1 The Development is not expected to generate any significant residual negative socio-economic or tourism effects. It could however help to generate a moderate, positive, long-term, cumulative economic effect as a result of its contribution to the wind farm supply chain in the local area.

14.13 References

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