

10 Socio-economics

10.1 Introduction

10.1.1 This chapter considers the likely significant socio-economic effects associated with the construction, operation and decommissioning of the proposed development. The specific objectives of the chapter are to:

- describe the socio-economic baseline;
- describe the assessment methodology and significance criteria used in completing the impact assessment;
- describe the potential effects, including direct, indirect and cumulative effects;
- describe the mitigation measures proposed to address likely significant effects; and
- assess the residual effects remaining following the implementation of mitigation.

10.1.2 The assessment has been carried out by BiGGAR Economics. There are no formally recognised standards, guidelines or methodologies for assessing wind farm effects on socio-economics and tourism for the purposes of an EIA. Therefore, the assessment has been based on professional judgement, and industry publications such as reports undertaken by BiGGAR Economics on behalf of RenewableUK.^{1 2} All staff contributing to the chapter have undergraduate or postgraduate degrees in relevant subjects, have professional experience in assessing economic impacts for EIAs, and hold professional membership of the Economic Development Association of Scotland (EDAS). The report has been reviewed and approved by Graeme Blackett of BiGGAR Economics and a copy of his CV is included in EIAR Volume 4: Technical Appendix 1.2.

10.1.3 This chapter is supported by the following figures:

- Figure 10.1 – Local Area;
- Figure 10.2 – Top Attractions;
- Figure 10.3 – Scottish Great Trails; and
- Figure 4.5 – Zone of Theoretical Visibility.

10.1.4 Figures are referenced in the text where relevant.

10.2 Assessment Methodology and Significance Criteria

Scope of Assessment

10.2.1 The following key effects were identified for consideration in this assessment:

- direct and indirect effects during development and construction on employment and economic activity;
- direct and indirect effects during operation on employment and economic activity;
- the contribution of Non-Domestic Rates (a tax which is paid on non-domestic property);
- direct and indirect effects on tourism and recreation assets during operation; and
- direct and indirect effects on tourism accommodation during operation.

¹ Department for Energy and Climate Change, RenewableUK (2012), Onshore Wind: Direct and Wider Economic Impacts

² RenewableUK (2015), Onshore Wind: Economic Impacts 2014

- 10.2.2 The chapter assesses cumulative effects as arising from the addition of the proposed development to other cumulative developments, which are the subject of a valid planning application. Operational, under construction and consented developments are considered as part of the baseline.
- 10.2.3 The assessment is based on the proposed development as described in EIAR Volume 2: Chapter 2: Development Description.
- 10.2.4 The scope of the assessment has been informed by consultation responses summarised in Table 10.1 and previous experience of undertaking EIA.

Consultation

- 10.2.5 Table 10.1 summarises the consultation responses received regarding socio-economics and tourism and provides information on where and how they have been addressed in this assessment. The following organisations made comments:
- VisitScotland; and
 - Mountaineering Scotland.
- 10.2.6 Full details on the consultation responses can be reviewed in EIAR Volume 4: Technical Appendix 1.1: Consultation Register.

Table 10.1: Consultation Responses			
Consultee and Date	Scoping / Other Consultation	Issue Raised	Response / Action Taken
VisitScotland – 10/01/2017	Scoping	Given the importance of scenery to Scotland's tourism offering, VisitScotland asked that a Tourism Impact Statement be undertaken, which may take account of the following factors: <ul style="list-style-type: none"> ▪ tourists travelling past en route to elsewhere; ▪ the views from accommodation in the area; ▪ the relative scale of tourism impact; ▪ the potential positives associated with the development; and ▪ the views of tourist organisations. 	A tourism impact assessment is undertaken which considers local tourism assets, as well as evidence on the relationship between wind farms and tourism.
Mountaineering Scotland – 28/11/2017	Scoping	Mountaineering Scotland would like tourism effects to be considered, looking at evidence on the impact of wind farms on tourism	Evidence on the relationship between wind farms and tourism is considered in paragraphs 10.4.52 to 10.4.66, including surveys undertaken by MS.

Potential Effects Scoped Out

- 10.2.7 Effects arising from the process of decommissioning have been scoped out since they are of a similar nature to construction issues, but of a smaller scale and shorter duration. However, the results of decommissioning (i.e. the removal of the wind farm) are taken into account in assessing ongoing and operational effects where appropriate.

Method of Baseline Characterisation

Extent of the Study Area

10.2.8 For the purposes of the socio-economic assessment, the following study areas were considered:

- Highland, covering the local authority area; and
- Scotland.

10.2.9 In addition, the local area immediately surrounding the proposed development has been considered when assessing the socio-economic context. The most relevant data, capturing the nearest ward or data zones is used where applicable. This is presented in EIAR Volume 3: Figure 10.1, which shows the data zones of Lochaber East and North – 05, Lochaber East and North – 06, Inverness East Rural – 01, Loch Ness – 02, Loch Ness – 05, Badenoch and Strathspey South – 01, Badenoch and Strathspey South – 02, Badenoch and Strathspey South – 03, Badenoch and Strathspey South – 04.

10.2.10 Nearby tourism and recreation assets have been also considered as part of the tourism assessment.

Desk Study

10.2.11 To understand the baseline conditions for the assessment of effects on socio-economic, tourism and recreation the following has been undertaken;

- a review of national, regional and local economic strategies;
- an analysis of socio-economic statistics for the relevant study areas;
- an analysis of tourism statistics in the relevant study areas; and
- identification of local tourism and recreation assets, and accommodation providers.

Field Survey

10.2.12 No field survey was considered necessary as part of the socio-economic assessment.

Criteria for the Assessment of Effects

Socio-economics

10.2.13 There are no recognised standards, guidelines or methodologies for assessing the effects of wind farms on socio-economics, tourism or recreation. Therefore, to identify the significance of proposed economic effects, the assessment has been based on professional judgement of the degree of change resulting from the proposals.

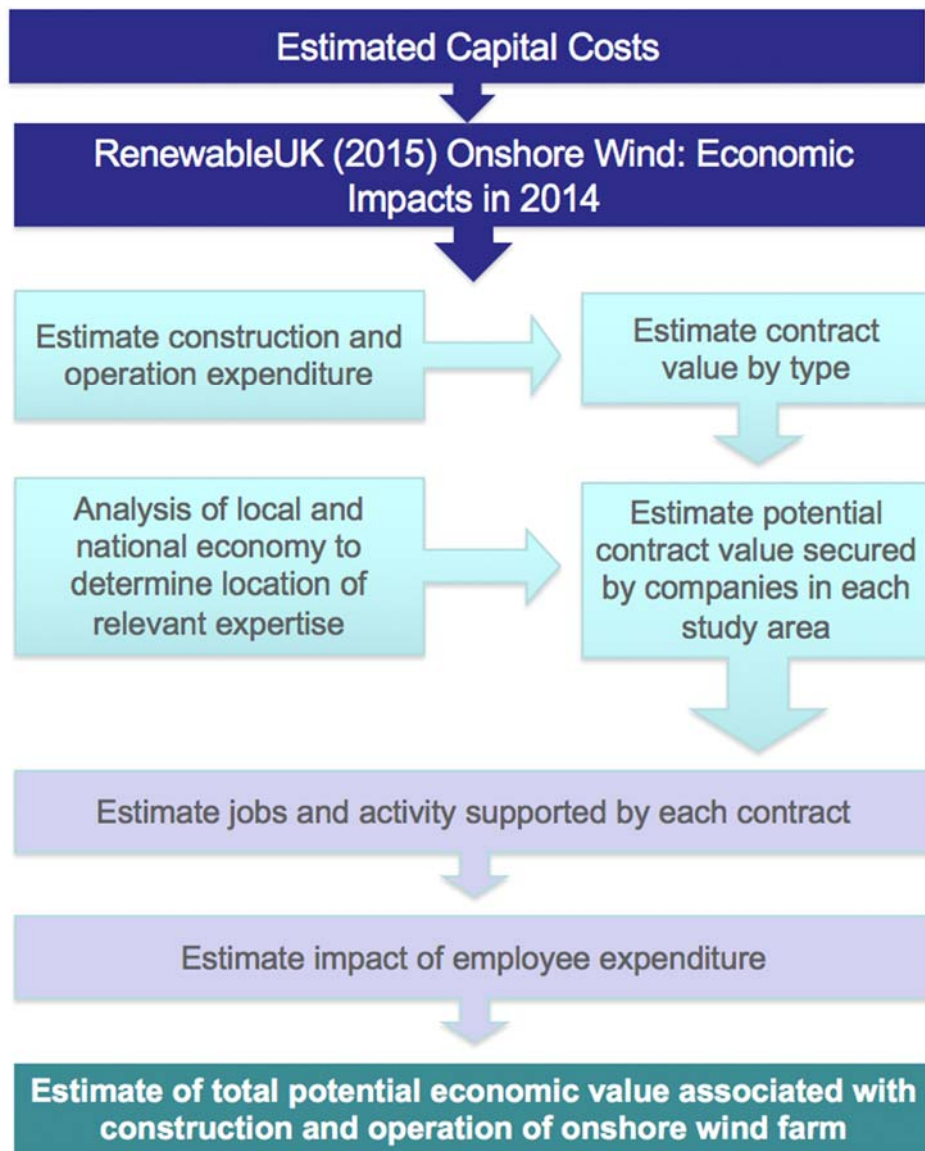
10.2.14 Analysis of economic impacts was undertaken using a model that has been developed by BIGGAR Economics specifically to estimate the economic impacts of wind farm developments. This model was also the basis of an assessment of the economic effects of the UK onshore wind sector the then Department of Energy and Climate Change (DECC) and RenewableUK in 2012.³ This was subsequently updated in 2015⁴. The assessments were based on case studies of the local, regional and national economic impacts of wind farms that have been developed in the UK in recent years.

³ Department for Energy and Climate Change, RenewableUK (2012), Onshore Wind: Direct and Wider Economic Impacts

⁴ RenewableUK (2015), Onshore Wind: Economic Impacts 2014

- 10.2.15 Although there are no recognised methodologies for assessing the impact of wind farms, this approach is now considered best practice, having been used in reports for the DECC and RenewableUK. This model has been used by BiGGAR Economics to assess the economic effects of numerous wind farms across the UK and the results have been accepted as robust at several public inquiries.
- 10.2.16 This economic model was based on two main sources: the analysis undertaken in the 2015 report on behalf of RenewableUK, which examined the size and location of contracts for the development, construction and operation of existing wind farms; and a bespoke analysis of the economies of the relevant study areas using local and national statistics.
- 10.2.17 The starting point for estimating the likely economic activity supported by the proposed development was to consider the level of expenditure during the construction and development, and operation and maintenance phases of the proposed development. The next step was to break this expenditure down into its main components and make reasonable assumptions about what would be expected to accrue to the main contractors and sub-contractors.
- 10.2.18 Applying these assumptions to the initial expenditure provided an estimate of the amount each component contract that could be secured by companies in Highland and Scotland. There are two sources of economic activity: the first arising from each of the component contracts and the jobs they support; the second is from the anticipated spending in the relevant study areas of people employed in these contracts (the income effect).
- 10.2.19 There are four key stages involved in this model:
- estimating total expenditure;
 - estimating the breakdown of expenditure into component contracts and subcontracts, based on the RenewableUK report;
 - assessing the capacity of the business base in each study area to carry out the contracts; and
 - using the resulting figures to estimate economic impact.
- 10.2.20 These stages are illustrated in Diagram 10.1 below.

Diagram 10.1 – Approach to Economic Impact Assessment



Source: BiGGAR Economics

10.2.21 In addition, the following are assessed:

- the wider contribution of the proposed development to wider development plans for the area;
- the potential contribution of the Applicant's shared ownership scheme; and
- the contribution of the proposed development to public sector finances.

Evidence Base of Wind Farms and Tourism

10.2.22 As both Renewable energy and tourism are important sectors in the Scottish economy, which are sometimes thought to be in conflict, the link between wind energy developments and tourism in Scotland has been reviewed, informed by the following reports:

- Wind Farms and Tourism Trends, BiGGAR Economics;⁵
- The Economic Impacts of Wind Farms on Scottish Tourism;⁶
- A Report on the achievability of the Scottish Government's renewable energy targets;⁷
- Wind Farms and Changing Mountaineering Behaviour in Scotland, 2014;⁸ and
- Wind Farms and Mountaineering Behaviour in Scotland, 2016.⁹

Analysis of Tourism and Recreation Assets in the Region

10.2.23 An overview of the tourism and recreation assets is provided in the tourism context section, and the potential effect of the proposed development was considered by assessing the potential effects on local tourism and recreation assets based on the significance criteria outlined below. The potential effect on accommodation providers in the area was assessed using the same method.

Criteria for Assessing Significance

- 10.2.24 The significance of socio-economic change has been assessed using the economic model described above which considers the regional and national economic effects that would be generated by the proposed development.
- 10.2.25 The significance of the tourism and recreation assets was assessed with reference to evidence from previous research on the effect of wind farms on tourism and experience from similar existing and proposed developments elsewhere. However, no guidance exists on how to assess the effects of onshore wind developments on economic and tourism assets and therefore professional judgement has been used.
- 10.2.26 The significance criteria outlined in Table 10.2 are also used to assess cumulative effects. Medium and high effects are categorised as significant in EIA terms

⁵ BiGGAR Economics (2017), Wind Farms and Tourism Trends in Scotland

⁶ Glasgow Caledonian University/Moffat Centre (2008), The Economic Impacts of Wind Farms on Scottish Tourism

⁷ Scottish Parliament Economy, Energy and Tourism Committee (2012), Report on the achievability of Scottish Government's renewable energy targets

⁸ Mountaineering Scotland (2014), Wind Farms and Changing Mountaineering Behaviour in Scotland

⁹ Mountaineering Scotland (2016), Wind Farms and Mountaineering Behaviour in Scotland

Table 10.2: Significance Criteria	
Significance	Description
High	Major loss/improvement to key elements/features of the baseline conditions such that post development character/composition of baseline condition will be fundamentally changed. For example, a major long-term alteration of socio-economic conditions, a major reduction/improvement of recreational assets or a substantial change to tourism spend
Medium	Loss/improvement 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. For example, a moderate long-term alteration of socio-economic conditions, a moderate reduction/improvement in the recreational asset, or a moderate change to tourism spend
Low	Changes arising from the alteration will be detectable but not material; the underlying composition of the baseline condition will be similar to the pre-development situation. For example, a small alteration of the socio-economic conditions, a small reduction/improvement in the recreational asset, or a small change in tourism spend
Negligible	Very little change from baseline conditions. Change is barely distinguishable, approximating to a "no change" situation

Limitations and Assumptions

10.2.27 The assessment is based on the experience of comparable developments elsewhere and a review of the local socio-economic context. In order to maximise the economic effects associated with the proposed development it will be necessary for local contractors to engage with the opportunities

10.3 Baseline Conditions

Strategic Socio-economic Baseline

Scotland's Economic Strategy¹⁰

10.3.1 In March 2015, the Scottish Government published its economic strategy with the two main purposes of increasing competitiveness and tackling inequality. The strategy outlined four main priorities to achieve these aims:

- investing in Scotland's people, infrastructure and assets;
- promoting inclusive growth, which creates opportunity through a fair and inclusive jobs market, and regional cohesion to provide economic opportunities across all of Scotland;
- fostering a culture of innovation, which is open to change and new ways of doing things; and
- enabling Scotland to take advantage of international opportunities.

Scotland's Energy Strategy¹¹

10.3.2 In December 2017, the Scottish Government released the Scottish Energy Strategy, which set out the Government's vision for a Scotland's energy future.

10.3.3 In 2016, 54% of all electricity in Scotland was generated from renewable sources, with a target of producing 100% from renewable sources by 2020. However, in 2015, electricity represented 24% of all energy consumed in Scotland, and the overall share of renewables was 17.8%. By 2030, the Scottish Government wants the proportion of all energy, including heat and transport, supplied from renewable sources to increase to 50%.

¹⁰ Scottish Government (2015). Scotland's Economic Strategy

¹¹ Scottish Government (2015). Scottish Energy Strategy: The Future of Energy in Scotland

- 10.3.4 The Scottish Government has also highlighted that renewables present an economic opportunity as an expanding market where Scotland will support growth by capitalising on its reputation, and the Government will continue to support businesses in Scotland.
- 10.3.5 Additionally, the Scottish Government has emphasised the importance of communities benefitting from renewable energy generation, including through shared ownership.¹²

Highland and Island Operating Plan 2017-18¹³

- 10.3.6 The Highland and Islands Operating Plan is based on how the region can:
- support businesses and social enterprises;
 - develop growth sectors;
 - boost regional competitiveness; and
 - strengthen communities and fragile areas.
- 10.3.7 To achieve these aims community development, which promotes inclusive growth, is an essential component of economic development in the Highlands and Islands. This can have a wider social and economic impact by boosting local employment and making communities more attractive places to live and will be supported by improving infrastructure and empowering communities through asset ownership, including ownership of renewable energy.
- 10.3.8 The Plan also highlights key growth sectors, including the energy sector. This includes developing new energy opportunities, such as marine energy and decommissioning, as well as promoting supply chain engagement in large-scale energy projects that are already underway. Technology and advanced engineering, including the Liberty British Aluminium plant in Fort William, are areas of opportunity where local firms can participate in the supply chain.

Current Socio-economic Baseline

Population

- 10.3.9 The combined population of the local area (which includes the towns of Fort Augustus, Kingussie and Spean Bridge) is 7,591. Over a fifth of this population is aged over 65 (22.7%), a higher proportion than Highland (21.3%) and Scotland (18.5%). The working age population is 61.3%, which is also smaller than Highland (61.6%) and Scotland (64.6%).
- 10.3.10 The local area is very rural and sparsely populated. The population density is 2.4 person per km², compared to 9.2 in Highland, and 69.4 in Scotland as a whole. The local area represents 3.2% of Highland's population, and 12.4% of the total land.

¹² Scottish Government (2015), Good Practice Principles for Shared Ownership of Onshore Renewable Energy Developments

¹³ Highlands and Islands Enterprise (2017), Operating Plan 2017-18

Table 10.3: Population, 2016

	Local Area	Highland	Scotland
Total	7,591	234,770	5,404,700
0-15	15.9%	17.0%	16.9%
16-64	61.3%	61.6%	64.6%
65+	22.7%	21.3%	18.5%
Population density (person per km ²)	2.4	9.2	69.4

Source: National Records of Scotland (2017), Population Estimates 2016

10.3.11 Between 2016 and 2041 the population of Highland (data is not available at the ward level) is expected to increase slightly (1.4%), while the population of Scotland is expected to increase by 5.3%. The population is also expected to become older, with 30.4% of the population aged 65+ in 2041, compared to 25.3% in Scotland as a whole. As a result, the working age proportion is expected to fall to 54.4%.

10.3.12 Although data is not available at the more local level, it would be reasonable to assume that the population surrounding the wind farm is unlikely to experience significant growth and, given that its age profile is already older than Highland's, that the proportion of the population aged 65+ will be higher in 2041.

Table 10.4: Population Projections, 2016-2041

	Highland		Scotland	
	2016	2041	2016	2041
Total	234,770	237,988	5,404,700	5,693,201
0-15	17.0%	15.2%	16.9%	15.8%
16-64	61.6%	54.4%	64.6%	58.9%
65+	21.3%	30.4%	18.5%	25.3%

Source: National Records of Scotland (2018), Population Projections 2016-41

Economic Activity

10.3.13 The economic activity rate in Highland is, at 84.6%, higher than for Scotland as a whole (77.5%), while the unemployment rate is similar (4.2% compared to 4.1%). The median annual wage is £28,282 marginally lower than Scotland (£28,371).

Table 10.5: Economic Indicators, 2016

	Highland	Scotland
Economic Activity Rate	84.6%	77.5%
Unemployment Rate	4.2%	4.1%
Median annual wage (£)	28,282	28,371

Source: ONS (2018), Annual Population Survey Jan 2017 – Dec 2017. ONS (2018), Annual Survey of Hours and Earnings

Industrial Structure

10.3.14 The employment structure of the local area is provided in Table 10.6. There are 2,750 employees, much of which is concentrated in local towns, such as Fort Augustus and Kingussie, which are each more than 10 km from the proposed development. Agriculture and forestry (which does not include farm agriculture) accounts for 5.8% of employment, about double the Scottish level of 3.0%, and higher than the Highland level of 1.7%.

- 10.3.15 Over a fifth of workers are in the accommodation food services sector (20.4%), almost double the Highland level (11.3%) and triple the Scottish level (7.3%), which suggest how important tourism is to the area. Arts, entertainment and recreation also accounts for 5.8% of employment, higher than the Highland level (4.3%), and double the Scottish level (3.1%). However, retail corresponds to smaller proportion of employment (10.7%) than regionally (15.6%) and nationally (14.4%).
- 10.3.16 Manufacturing and construction account for 7.5% and 8.7% of employment respectively in the local area, higher than in Highland, where they represent 5.6% and 6.5%, and Scotland, where they represent 7.0% and 5.4%.
- 10.3.17 Sectors associated with the public sector, such as education, healthcare and public administration, are also responsible for relatively less employment than regionally and nationally. Combined, they represent 22.0% of employment in the local area, while in Highland and Scotland they represent 31.2% and 29.1%. However, health and social work is the second largest sector, representing 12.4% of employment.

Table 10.6: Business Register and Employment Survey, 2016			
	Local Area	Highland	Scotland
Agriculture and forestry*	5.8%	1.7%	3.0%
Mining and quarrying	1.3%	0.3%	1.2%
Manufacturing	7.5%	5.6%	7.0%
Electricity, gas, steam and air conditioning	2.0%	0.7%	0.7%
Water supply, sewerage, waste	0.0%	1.6%	0.7%
Construction	8.7%	6.5%	5.4%
Wholesale and retail trade	10.7%	15.6%	14.4%
Transportation and storage	2.4%	4.8%	4.2%
Accommodation and food services activities	20.4%	11.3%	7.3%
Information and communication	0.7%	2.1%	2.9%
Financial and insurance activities	0.0%	0.8%	3.3%
Real estate activities	2.4%	1.4%	1.5%
Professional, scientific and technical activities	4.7%	5.6%	6.9%
Administrative and support activities	1.6%	4.3%	7.3%
Public administration and defence	1.5%	5.2%	6.0%
Education	8.2%	6.9%	7.3%
Human health and social work activities	12.4%	19.0%	15.9%
Arts, entertainment and recreation	5.8%	4.3%	3.1%
Other service activities	0.9%	2.1%	2.1%
Total	2,750	115,500	2,587,500

Source: ONS (2017), Business Register and Employment Survey. *Does not include farm agriculture

Socio-economic Summary

- 10.3.18 The area immediately surrounding the proposed development is largely rural with a low population density and a population that is older than Highland and Scotland and is likely to grow older. Employment is concentrated in small local towns, and the most important sector is accommodation and food services, suggesting that tourism is an important part of the

economy. Construction and manufacturing, as well as agriculture and forestry, which does not include farm agriculture, are also important sectors.

Current Tourism Baseline

Tourism Economy

10.3.19 Tourism is a significant contributor to the economy of rural Scotland. Benefits include cash flows into a range of businesses, extending beyond accommodation, restaurants and visitor attractions. Taxis and public transport, village shops, craft workers and country estates are among the list of those receiving direct business. Local trades are also boosted through purchases by businesses and improvements to premises simulated by tourism.

10.3.20 Drawbacks, however, include the seasonality of tourism activity. Most tourism businesses in rural areas must take advantage of peak times in tourism, requiring enough revenue in a 6-month period to sustain them all year. This results in high-intensity periods followed by those of uncertainty, due to the unpredictable nature of demand in the sector from factors such as fluctuations in exchange rates, international terrorism, domestic prosperity and fuel prices. Wages are also often relatively low with unfavourable working hours.

10.3.21 Tourism is important to the economy in the Highland: it contributed £197.1 million GVA in 2015, and employed 16,000 people, accounting for around 13.9% of total Highland employment. In Scotland it employed 217,000 people, or 8.4% of total employment.

Table 10.7: Sustainable Tourism Employment and Gross Value Added, 2015		
	Highland	Scotland
GVA (£m)	197.1	3,760.8
Employment	16,000	217,000

Source: Scottish Government (2018), Growth Sector Statistics 2015

Visitors

10.3.22 In 2016, tourists from within Great Britain accounted for about 1.85 million trips to the Highlands and Islands, representing 16.1% of all GB visits to Scotland. The Highlands and Islands is composed of Highland, the Orkney islands, the Shetland Islands and the Outer Hebrides.

Table 10.8: GB Trips by Country of Residence, 2016 (000s)		
	Highland & Islands	Scotland
Scotland	1,000	5,461
England	833	5,803
Wales	22	249
Total	1,855	11,514

Source: VisitScotland (2017), Tourism in Scotland's Regions 2016

10.3.23 Data on overseas trips to Scotland are provided by the International Passenger Survey. The largest proportion of visitors, as in Scotland as whole, are from the USA, with 24.1% of trips and 33.9% of spend. This suggests that about one in three American visitors go to the Highlands and Islands. The next biggest group is from Germany, with 113,000 visitors (19.0%) and £48 million in spending (16.7%).

Table 10.9: Overseas Trips by Country of Residence, 2016 (000s)

	Highlands & Islands		Scotland	
	Trips (000s)	Spend (£m)	Trips (000s)	Spend (£m)
USA	144	97	451	510
Germany	113	48	355	212
France	56	16	152	75
Canada	33	16	149	130
Australia	37	18	132	102
Italy	27	11	123	92
Netherlands	35	13	115	62
Poland	5	<1	138	20
Spain	11	2	89	40
Sweden	12	4	89	43
Rest of World	122	59	954	564
Total	596	286	2,747	1,850

Source: VisitScotland (2017), Tourism in Scotland's Regions 2016

10.3.24 Table 10.10 shows the number and average trip duration of domestic and overseas trips. Domestic visitors accounted for 74% of nights spent in the Highlands & Islands, and those from overseas accounted for 26%. Whilst there were fewer nights spent by overseas visitors overall, the average amount of nights was higher. The duration of GB trips to the Highlands and Islands was also longer than for Scotland as a whole (4.7 compared to 3.4).

Table 10.10: Average Duration of GB and Overseas Trips

	Highland & Islands	Scotland
GB Nights (000s)	8,803	38,876
Overseas Nights (000s)	3,090	21,229
Total Nights (000s)	11,893	60,105
Average GB Nights	4.7	3.4
Average Overseas Nights	5.2	7.7

Source: VisitScotland (2017), Tourism in Scotland's Regions 2016

10.3.25 Accommodation occupancy figures can be used to highlight the seasonality of the tourism sector and confirm that tourism is seasonal in the Highlands, with peak occupancy in the summer months and much less demand at other times, as shown in Table 10.11.

10.3.26 The type of accommodation most-affected by seasonality in the Highlands is Guesthouses & B&Bs, with a difference of 76% occupancy between the high and low periods. Hotels and self-catering accommodation also displays signs of seasonality with differences in occupancy of 47% for hotels and 66% for self-catering between their high and low periods. Guesthouses & B&Bs also experience the lowest average percentage occupancy with 49% throughout the year, whilst hotels have 67% and self-catering has 56% occupancy on average.

Table 10.11: Accommodation Occupancy (Highlands)

	Hotel (%)	Guesthouse/B&B (%)	Self-Catering (%)
January	42	13	32
February	56	25	40
March	61	29	40
April	59	35	40
May	75	74	50
June	88	73	69
July	87	80	93
August	88	87	77
September	84	76	76
October	77	44	97
November	53	37	33
December	41	11	27
High	88	87	93
Low	41	11	27
Difference	47	76	66
Average	67	49	56

Source: VisitScotland (2017), Tourism in Scotland's Regions 2016

Local Attractions and Accommodation

10.3.27 The most visited attractions for the Highlands & Islands are displayed in Table 10.12 below.

10.3.28 Urquhart Castle is 27 kilometres (km) to the north, from the proposed site and the remaining four top attractions are greater than 35 km from the proposed site boundary. The furthest is the Glenfinnan Monument, which is 58 km away. Their locations with respect to the proposed development are displayed in EIAR Volume 3: Figure 10.2.

10.3.29 Loch Ness is also a popular tourism destination among domestic and overseas visitors, although visitor numbers to the loch are hard to measure it is considered a top regional attraction due to its cultural importance.

Table 10.12: Top 5 Attractions in Highlands and Islands

	Number of Visitors	Approximate Distance from Proposed Site Boundary (km)
(1) Urquhart Castle	396,397	27
(2) Glenmore Forest Park	304,374	40*
(3) Glenfinnan Monument	251,181	58
(4) Nevis Range	200,667	36
(5) Glencoe Visitor Centre	199,327	54

Source: VisitScotland (2017), Tourism in Scotland's Regions 2016 *Distance to edge of the forest park

10.3.30 Additionally, three of Scotland's Great Trails and two National Cycle Routes have been identified to pass near to the proposed development which are shown in Table 10.13 below.

Table 10.13: Identified National Trails

National Trail	Nearest Approximate Distance to Site Boundary (km)
The East Highland Way (Purple)	6
South Loch Ness Trail (Blue)	11
Great Glen Way (Green)	14
National Cycle Route 7	14
National Cycle Route 78	10

Source: BIGGAR Economics Analysis

10.3.31 The Dalwhinnie to Newtonmore Railway line has also been considered in the assessment, although it is not a great scenic railway locals and visitors also travel lesser-known routes for their scenic views.

10.3.32 The location of the three Scottish Great Trails are also displayed in EIAR Volume 3: Figure 10.3. with the East Highland Way in purple, the South Loch Ness Trail in blue and the Great Glen Way in green. The National Cycle Route 7 follow the A9 to the south-east of the proposed development. The National Cycle Route 78 Follows the A82 until the centre of Fort Augustus where it follows the B862 on the eastern side of Loch Ness, located to the west and north-east of the proposed development.

10.3.33 Around the proposed site, accommodation facilities and attractions are primarily situated around significant settlements such as Fort Augustus and roadways, such as the A9 and the A82. These tourism assets have been identified using both the TripAdvisor and VisitScotland websites.

10.3.34 The number of identified local accommodation facilities around these areas, whose impact from the proposed development will be assessed, are listed below:

- Fort Augustus - 58 accommodation facilities & 6 attractions;
- Laggan - 4 self-catering facilities & no attractions;
- Newtonmore - 24 self-catering facilities & 6 attractions;
- Kingussie - 16 self-catering facilities & 4 attractions;
- Invermoriston - 8 self-catering facilities & 1 attraction;
- Kilfinnan and North & South Laggan -11 self-catering facilities & no attractions;
- General Wade's Military Road - 3 self-catering facilities & 1 attraction;
- A86 - 8 self-catering facilities & 4 attractions;
- A9 - 26 self-catering facilities & 3 attractions; and
- A82 - 4 self-catering facilities & 1 attraction.

10.3.35 The zone of theoretical visibility is shown in EIAR Volume 3: Figure 4.5.

Future Baseline

10.3.36 It is expected that there will be no substantial change in the economy if the proposed development were not to go ahead.

10.4 Assessment of Likely Effects

10.4.1 This section considers the economic impact associated with the construction and development of the proposed development, as well as its operation and maintenance. It also considers

some of the wider impacts, such as the contribution to public finances, the shared ownership scheme and how it fits into the long-term strategy of the Applicant.

- 10.4.2 In addition, it considers the potential effects of the proposed development on local tourism assets, such as accommodation, with reference to the relationship between wind farms and tourism.

Potential Construction Effects

Construction and Development

- 10.4.3 The proposed development would comprise 39 turbines, each with an anticipated capacity of up to 4.3 MW, resulting in an indicative total generating capacity of 168 MW. The estimated capital costs of the proposed development, including both the pre-construction phase and grid connection is £158 million.
- 10.4.4 This expenditure is split into four main categories of contracts:
- pre-construction;
 - balance of plant;
 - turbines; and
 - grid connection.
- 10.4.5 Based on the estimates of capital expenditure, the largest proportion of capital expenditure (capex) would be on turbine related contracts, followed by balance of plant, grid connection and pre-construction.
- 10.4.6 The economic impact of the construction and development phase was estimated for Highland and Scotland. In order to do this, it was necessary to estimate the proportion of each type of contract that might be secured in each of the study areas. The assumptions were based on the average from the RenewableUK research, analysis of the industries and professions in each study area, and BiGGAR Economics previous experience. To estimate the expenditure for each contract in each of the study areas these percentages were applied to the estimated size of each component contract.
- 10.4.7 This suggested that Highland could secure contracts worth up to £24.2 million, which is equivalent to 15% of the total capital expenditure. The largest opportunity for Highland would be with the balance of plant contracts as companies in the area could secure contracts worth up to £12.8 million.
- 10.4.8 Scotland could secure up to 39% of total capex, worth up to £61.3 million (Table 10.14). This estimate was based on the assumption that the contract for the turbine towers would be secured by a Scottish manufacturer. The GFG Alliance intends that the towers would be manufactured in a GFG wind farm tower manufacturing facility in Scotland using Scottish GFG steel.

Table 10.14: Potential Construction and Development Expenditure by Study Area and Contract Type (£m)

	Highland	Scotland
Pre-Construction	1.4	6.2
Balance of Plant	12.8	29.7
Turbine	6.3	16.9
Grid Connection	3.7	8.5
Total	24.2	61.3
Total (%)	15%	39%

10.4.9 The contract values potentially awarded in each area would represent an increase in turnover of businesses in these. The impact that this increase turnover has on employment was estimated using industry-specific data from the Annual Business Survey.¹⁴ The survey gives the turnover per employee each of the industries involved, which allows the employment from any increase in turnover to be estimated.

10.4.10 The employment impacts during the construction and development phase are reported in job years, rather than full-time equivalents (FTEs) because the contracts would be short-term. Job years measures the number of years of full-time employment generated by a project. For example, an individual working on this project for 18 months would be reported as 1.5 job years.

10.4.11 In this way, the construction and development impacts were estimated to support up to 205 job years in Highland, of which up to 111 job years would be on balance of plant contracts. It was estimated that up to 507 job years would be supported in Scotland.

Table 10.15: Potential Construction and Development Employment by Study Area and Contract Type (Job years)

	Highland	Scotland
Pre-Construction	15	66
Balance of Plant	111	239
Turbine	56	148
Grid Connection	23	55
Total (job years)	205	507

10.4.12 There would also be knock on effects from the direct employment during the proposed development because the people who are employed on the proposed development would have an impact on the wider economy when they spend their salaries. The research undertaken for RenewableUK in 2012 found that the average salary for employees in the onshore wind sector is £34,600.¹⁵ It was therefore estimated that up to £7.1 million would be paid in salaries to staff directly employed during the construction and development phase of the proposed development in Highland.

10.4.13 In order to estimate the economic impact of these salaries in each of the study areas it was necessary to make assumptions regarding the location of employee expenditure. It was assumed that employees that live in Highland would spend 40% of their salaries inside Highland and workers living in the rest of Scotland would spend 74% of their salaries in

¹⁴ Office for National Statistics (2017), Annual Business Survey Provisional Results 2016

¹⁵ Department for Energy and Climate Change, RenewableUK (2012), Onshore Wind: Direct and Wider Economic Impacts

Scotland. The assumption for each of the location of spend in Scotland is based on data provided in the Scottish Government's Input-Output Tables.¹⁶

- 10.4.14 The economic impact of the increased expenditure was estimated using the average GVA/turnover and turnover/employee for the whole economy as reported in the Annual Business Survey. In this way it was possible to estimate the induced impact direct employees would create in the construction and development phase. In Highland employees could spend £2.8 million, supporting 20 job years and £1.0 million GVA. In Scotland, direct employees could spend £12.9 million, supporting 89 job years, and £4.5 million GVA.

Table 10.16: Potential Construction and Development Spending Impact		
	Highland	Scotland
Employee Spend (£m)	2.8	12.9
GVA (£m)	1.0	4.5
Employment (job years)	20	89

- 10.4.15 The total impact during the construction and development phase is the sum of the direct impacts and the induced impacts from the expenditure of direct employees. The total combined impact was estimated to be up to £25.2 million and 224 job years in Highland, and up to £65.8 million and 596 job years in Scotland (Table 10.17).

- 10.4.16 Given the relative size of the Highland economy, which employs 115,000 people, the effect of the 361 job years of employment is **Low** and **not significant**. Similarly, the effect on the Scottish economy, which, employs almost 2.6 million, was assessed as **Negligible** and **not significant**.

Table 10.17: Potential Economic Impact during Construction and Development		
	Highland	Scotland
Economic Impact (£m)	25.2	65.8
Employment (job years)	224	596

- 10.4.17 The Applicant is committed to maximising the local economic impact from the proposed development and would work with Highlands and Islands Enterprise and the Inverness Chamber of Commerce to ensure that local enterprise have an opportunity to bid for contracts. As the Applicant intends to have a significant presence in Highland this could provide local contractors with an opportunity to build a relationship that could lead to future contracts.

Potential Operational Effects

Operation and Maintenance

- 10.4.18 The operation and maintenance impact of the proposed development was estimated annually as the impact that would persist throughout its 30-year life-span.
- 10.4.19 Annual expenditure on operations and maintenance was estimated by multiplying the installed capacity by the industry average annual expenditure per MW on operations and maintenance. The annual expenditure per MW was estimated as £59,867 in the 2015 RenewableUK report.¹⁷ The proposed development was expected to have an installed capacity of up to 168MW, which implies that the annual operations and maintenance expenditure associated with the proposed development could be up to £10.0 million.

¹⁶ Scottish Government (2017), Input-Output Tables 2014

¹⁷ RenewableUK (2015), Onshore Wind: Economic Impacts 2014

10.4.20 In order to estimate the economic impact of the operations and maintenance expenditure in each of the study areas it was first necessary to estimate the proportion of the contracts that could be secured in each of these areas. These assumptions were based on the contract proportions reported in the RenewableUK report and the analysis of the industries present in each of the study areas.

10.4.21 Based on this information, it was assumed that Highland could secure 50% of operations and maintenance contracts, and the Scotland could secure 75% of contracts. In this way it was estimated that operations and maintenance would generate up to £5.0 million in Highland, and up to £7.5 million in Scotland.

Table 10.18: Potential Operation and Maintenance Expenditure by Study area				
	Highland		Scotland	
	%	£m	%	£m
Operation and maintenance	50%	5.0	75%	7.5

10.4.22 As with the construction phase, the contract values awarded in each of the study areas represent an increase in turnover in those areas. The economic impact of the increase in turnover on employment was estimated in the same way as the construction expenditure, using the Annual Business Survey,¹⁸ although as the impact on employment would be long-term it is presented as jobs.

10.4.23 In this way it was estimated that turnover generated by the operation and maintenance of the proposed development could support up to 38 jobs in Highland and 57 jobs in Scotland.

Table 10.19: Potential Employment from Operation and Maintenance (jobs)		
	Highland	Scotland
Operation and maintenance	38	57

10.4.24 As with the construction expenditure, there would also be knock on effects from the direct employment during the operation of the proposed development. The people who would be employed would have an impact on the wider economy by spending their salaries. This was estimated using the same method as for the construction and development phase.

10.4.25 Adding together direct and induced impacts during the operation and maintenance, it was estimated that the total economic impact of the proposed development would be up to £5.2 million and 42 jobs in Highland, and up to £8.0 million and 67 jobs in Scotland.

10.4.26 The effect on the both the Highland and Scottish economies was considered **Negligible** and **not significant**.

Table 10.20: Potential Economic Impact during Operation and Maintenance		
	Highland	Scotland
Economic Impact (£m)	5.2	8.0
Employment (jobs)	42	67

Wider Contribution

10.4.27 Glenshero Wind Farm is being developed by SIMEC on land owned by Jahama Estates, both of which are subsidiaries of the GFG Alliance, which also owns Liberty Aluminium Lochaber, an aluminium plant in Fort William, and a range of other investments.

¹⁸ Office for National Statistics (2017), Annual Business Survey Provisional Results 2016

- 10.4.28 The plant was bought from Rio Tinto by the GFG Alliance in 2016, and the sale encompassed two hydro power stations at Fort William and Kinlochleven, as well as extensive estate lands, comprising 114,000 acres. These include the land that the proposed development is to be built on.
- 10.4.29 As well as developing renewable energy, the GFG Alliance is considering proposals and ideas with a wide range of community groups and local stakeholders for how its estate can be used. Its aim is to use the estate in the most productive way to maximise benefit for the economy and residents through a joined-up plan where all the different elements work together. These ideas include:
- investment to upgrade housing and visitor accommodation across the estate;
 - development of high-grade facilities for tourists including accommodation and outdoor pursuits such as kayaking;
 - major improvement to, and expansion of, farming, fishing forestry across the estate;
 - a new helipad to serve both business and emergency services;
 - support for individual enterprises related to agriculture, sport and recreation; and
 - improved access to the estate lands through better signage, parking and other facilities and improved management of natural habitats and peatland.¹⁹
- 10.4.30 The aluminium smelter bought by the Alliance was built about a century ago and is the last remaining aluminium smelter in the UK. There can be little doubt that the availability of a secure and renewably generated supply of electricity, provided by the nearby hydro power, has been a significant factor in its longevity. The availability of clean, reliable energy will continue to be important to the long-term competitiveness of the Fort William complex, and in supporting the vision of the GFG Alliance.
- 10.4.31 GFG has announced that it will also be investing in a new £120 million alloy wheel facility in Fort William.²⁰ BiGGAR Economics has assessed the economic impact of the existing aluminium smelter, and the potential economic impact of the proposed alloy wheel facility.
- 10.4.32 The existing facility employs 170 people directly. It was estimated that its total economic impact, including supply chain and staff spending impacts, is £27.6 million GVA and 278 jobs in Highland, and £30.5 million and 348 jobs in Scotland.
- 10.4.33 It was also estimated that once the proposed aluminium wheel facility has been set up, increasing the efficiency of the Fort William operations, it would require an additional 400 employees. Including the supply chain and staff spending impact, it was estimated this could generate £43.9 million GVA and 605 jobs in Highland and £52.2 million GVA and 650 jobs in Scotland, as well as safeguarding jobs at the aluminium smelter.
- 10.4.34 This development is expected to be highly impactful in the Lochaber economy and to lead to growth in the total population of Lochaber. As a result, a recruitment drive is likely to be necessary, as is a significant increase in the housing stock, which would require significant investment, while also creating jobs and economic activity in the construction sector. If this doesn't happen, employees from other businesses and organisations in Lochaber may be displaced.²¹

¹⁹ GFG Alliance (2017), Alliance unveils new wind energy project to support the development of Scottish industry.
<http://www.gfgalliance.com/media/gfg-alliance-unveils-new-wind-energy-project-support-development-scottish-industry/>

²⁰ GFG Alliance (2018), Planning go-ahead for flagship alloy wheels plant in Highlands.
<http://www.gfgalliance.com/media/planning-go-ahead-flagship-alloy-wheels-plant-highlands/>

²¹ Golder Associates/BiGGAR Economics (2017), Environmental Impact Assessment of Alloy wheel manufacturing facility

- 10.4.35 Other investments that the GFG Alliance has made in the UK in recent years include several, previously distressed metals manufacturing facilities. These include the Dalzell plant in Motherwell, which was acquired in 2016 and reopened in September of that year, saving about 120 jobs.²² The plant, which manufactures plate steel, would roll the steel required for the proposed development. The GFG Alliance has also discussed the possibility of developing its own specialised wind tower manufacturing facility, which may be located on land adjacent to the Dalzell plant.²³
- 10.4.36 In addition, the GFG Alliance recently acquired Green Highland Renewables a hydro power developer, now known as SIMEC Green Highland Renewables or SIMEC GHR. SIMEC GHR has delivered 45 hydro power schemes internationally, and continues to operate and maintain many of them. SIMEC and SIMEC GHR aims to build or upgrade a number of hydro schemes, including some on its Lochaber estate, to achieve this aim, the GFG Alliance has plans to invest circa £50 million in the next four years.
- 10.4.37 The GFG Alliance has invested in a range of bio-diesel generators across its industrial sites totalling 100MW, include a plant at Fort William, which opened in March 2017. These generators will provide power to the smelter and proposed alloy wheel facility and potentially renewable heat to the wheel factory and surrounding community.
- 10.4.38 These plants, as well as the hydro power and wind schemes, form part of the GFG Alliance's vision of using reliable low carbon, low cost generation to power its energy intensive steel and aluminium plants, a concept it calls GREENMETAL. In addition to using renewable energy this concept also calls for using electric arc furnaces to recycle existing scrap metal, of which the UK exports more than 7 million tonnes each year. The GFG Alliance has plans to develop 5 million tonnes of low-carbon metalmaking capacity, and expects that the combination of recycled metal and clean energy can reduce the total carbon footprint to one tenth of traditional blast furnace production.²⁴
- 10.4.39 By providing reliable, renewable energy the proposed development will help the GFG Alliance to achieve its vision of supporting GREENMETAL manufacturing throughout the UK and to revive industry in the Highlands.

Shared Ownership

- 10.4.40 The applicant has extended an opportunity to the local community (Laggan Community Association in the first instance) to share ownership in the proposed development, by investing in up to 5% of the project. Shared ownership is defined as any structure that involves a community group as a meaningful financial partner in a renewable energy group.
- 10.4.41 Preliminary discussions have indicated a preference for either Shared Revenue, where the community receives a share of revenues in exchange for a lump sum but full ownership remains with the Applicant, or a Joint Venture agreement, which would involve the community becoming a minority shareholder receiving a variable return in the form of dividends.

²² Liberty (2016), Britain's largest steel plate mill re-born following Liberty rescue.
<http://www.libertyhousegroup.com/news/britain-s-largest-steel-plate-mill-re-born-following-liberty-rescue/>

²³ GFG Alliance (2017), GFG Alliance unveils new wind energy project to support development of Scottish industry.
<http://www.gfgalliance.com/media/gfg-alliance-unveils-new-wind-energy-project-support-development-scottish-industry/>

²⁴ GFG Alliance (2017), GFG Alliance back UK Government's Industrial Strategy with 5m-tonne GREENSTEEL plan for 'Clean Growth'. <http://www.gfgalliance.com/media/gfg-alliance-backs-uk-governments-industrial-strategy-5m-tonne-greensteel-plan-clean-growth/>

- 10.4.42 The Scottish Government Good Practice Principles for Shared Ownership of Onshore Renewable Energy Developments²⁵ sets out the Scottish Government's belief that shared ownership should become the standard in the renewable industry, and how this can be achieved. This commitment to shared ownership was renewed in the 2017 Onshore Wind Policy Statement.²⁶
- 10.4.43 The Scottish Government is committed to shared ownership because it can help to create greater positive public feeling towards proposed projects and strengthen relations between developers and communities, build the capacity of communities and empower their members, and support Scotland's ambitious targets for locally owned renewable energy.
- 10.4.44 The community are being assisted by Local Energy Scotland. Local Energy Scotland is an independent organisation that offers free and impartial advice to local communities on the process of investing in renewable energy projects. In addition, SIMEC have appointed Abundance Investment to support the delivery of the Shared Ownership provision. Abundance Investment is an organisation that was founded to make it easy for organisations to invest in social and environmental infrastructure and is acting as the local community's direct point of contact and intermediary.
- 10.4.45 A Memorandum of Understanding has been signed between the Applicant and the community, which will commit both parties to continuing to explore the opportunity once the planning application has been submitted.
- 10.4.46 Any returns from the shared ownership could be used to address a wide range of potential social or economic issues. These may include provision of a local public transport service, new cycle and walk ways connecting the community, hiring a community caretaker, supporting the local school or discounting energy costs. The community is also in discussions to purchase and improve the local forest.

Non-Domestic Rates

- 10.4.47 The proposed development would be liable for non-domestic rates, the payment of which would contribute directly to public sector finances. These non-domestic rates, by providing an additional revenue stream, would support the delivery of government services.
- 10.4.48 An analysis of the rateable values paid by several wind farms in Highland indicates that the average rateable value per MW is £22,265.
- 10.4.49 Given that the proposed development would be up to 168M W, it is estimated that the total rateable value would be up to £3.7 million. Given a poundage rate of £0.518 per £1 of rateable value for business with a rateable value over £51,000²⁷ it is estimated that the proposed development could contribute £1.9 million annually to public finances, and over 30 years could contribute £58.0 million. However, the actual contribution would depend on variables such as the actual load factor, and the potential for any relief from non-domestic rates.
- 10.4.50 This effect was assessed as **Low** and **not significant**.

Tourism and Wind Farm Evidence

- 10.4.51 The extent to which the development of the onshore wind sector effects the tourism sector is a well-researched topic, with several studies published over the last decade.

²⁵ Scottish Government (2015), Good Practice Principles for Shared Ownership of Onshore Renewable Energy Developments

²⁶ Scottish Government (2017), Draft Onshore Wind Policy Statement

²⁷ Scottish parliament Information Centre (2017), Non-domestic rates and the 2017 Revaluation

GLASGOW CALEDONIAN CENTRE (2008), THE ECONOMIC IMPACTS OF WIND FARMS ON SCOTTISH TOURISM²⁸

- 10.4.52 In 2008, Glasgow Caledonian University's Moffat Centre published a report, which incorporates a literature review, an intercept survey of tourists in the study area, an internet survey, a Geographic Information Systems (GIS) study about the effect on accommodation and economic analysis of the results. The study area for this report included Caithness and Sutherland, Perth Kinross and Stirling, Dumfries and Galloway, and the Scottish Borders.
- 10.4.53 The literature review found that most of the studies concluded no significant negative outcomes of wind farms on tourism in sensitive areas, as they generally don't have wind farms approved.
- 10.4.54 The intercept survey of tourists carried out in Scotland found 25% viewed wind farms negatively, but the majority had neutral or positive opinions, with negative views being less widely held among hill walkers. Respondents who had already seen a wind farm were also less likely to be hostile to them.
- 10.4.55 Although a significant minority (20-30%) preferred landscapes without wind farms, very few would change their future intention to revisit Scotland based on them.
- 10.4.56 A 2012 report commissioned by the Scottish Government subsequently found that the findings of the Glasgow Caledonian report were robust, and that there had been no adverse effect on tourism in the areas considered in the original report.²⁹

SCOTTISH PARLIAMENT ECONOMY, ENERGY AND TOURISM COMMITTEE (2012), REPORT ON THE ACHIEVABILITY OF THE SCOTTISH GOVERNMENT'S RENEWABLE ENERGY TARGETS³⁰

- 10.4.57 Also in 2012, following an inquiry into the achievability of the Scottish Government's renewable energy targets, the Scottish Parliament's Economy, Energy and Tourism Committee concluded that:

"Several witnesses made assertions that there would be a negative impact on Scotland's tourism industry from renewable developments. However, these assertions were contradicted by research evidence from VisitScotland and others.

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 more rural and remote rural areas, no witness has provided the Committee with robust, empirical evidence, as opposed to anecdotal comment and opinion, that tourism is being negatively affected by the development of renewable projects."

VISITSCOTLAND (2012), WIND FARM CONSUMER RESEARCH³¹

- 10.4.58 A survey commissioned by VisitScotland in 2011 looked at the attitudes of tourists towards wind farms. It surveyed 2,000 people in the UK and 1,000 people in Scotland, who had visited Scotland recently. The majority (86-91%) were in agreement about the importance of the natural scenery and landscape, for most of the respondents (80-83%) their decision to stay in the UK for a short holiday would not be affected by the presence of a wind farm. In general, the respondents did not feel that wind farms ruined the tourism experience.

²⁸ Glasgow Caledonian University/Moffat Centre (2008). The Economic Impacts of Wind Farms on Scottish Tourism.

²⁹ ClimateXchange. (2012). The Impact of Wind Farms on Scottish Tourism.

³⁰ Scottish Parliament Economy, Energy and Tourism Committee (2012), Report on the achievability of Scottish Government's renewable energy targets

³¹ VisitScotland (2012). Wind Farm Consumer Research.

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- 10.4.59 A study published in 2014 by Mountaineering Scotland, a membership body that represents Scottish hillwalkers and mountaineers, conducted a survey of its members. It found that wind farms had an adverse effect on Scottish mountaineering, with many responding that they would avoid areas with wind farms and that they were also found to reduce the scale of Scottish tourism.
- 10.4.60 Following criticisms about the impartialness of the original findings, Mountaineering Scotland conducted another survey of its members in 2016. When asked about the impact of wind farms on plans to walk and climb, 75% of respondents answered that wind farms have no effect on their plans, although some expressed that they may decrease their enjoyment. 22% responded that they go as often, but avoid areas with wind farms, while 1% go to the mountains less. However, 2% of respondents said they go to the mountains more often and like to see wind farms.

BiGGAR ECONOMICS (2017), WIND FARMS AND TOURISM TRENDS IN SCOTLAND³⁴

- 10.4.61 A study undertaken by BiGGAR Economic in 2017, analysed the effects of wind farms on the tourism sector in Scotland at a National, Regional and Local level. This was an updated study of work previously published in 2016.
- 10.4.62 The report found that while the capacity of wind farms has more than doubled over the study period, employment in sustainable tourism had increased by more than 15%. Furthermore, the analysis found no correlation between tourism employment and the number of turbines at the Local Authority level. The study also considered the impact on employment up to 15 km from developments, and the wind farms considered were those constructed between 2009 and 2015.
- 10.4.63 The study concludes that national statistics suggest there is no relationship between the development of onshore wind farms and tourism employment in Scotland, the Local Authority in which the wind farms are located or the local area surrounding the development.

National and Regional Attractions

- 10.4.64 Given the proposed development's distance from the attractions considered in Table 10.12, with the nearest being 27 km away, it is considered highly unlikely that there would be any sort of effect.
- 10.4.65 Loch Ness, at its closest point, sits approximately 12 km to the north-west of the site boundary, and although visitor numbers are not available, it is considered to be of national importance given its international recognition and contribution to national identity. However, there are not expected to be any views of the proposed development from the loch, which is located in the Great Glen, and therefore the proposed development would not alter any of loch's characteristics such as its beauty and tranquillity. Therefore, it is not expected that there would be any impact upon Loch Ness.

Great Trails and Railways

- 10.4.66 The East Highland Way runs for 134 km between Fort William and Aviemore, passing the proposed development along the southern, south-easterly and easterly side. The trail passes

³² Mountaineering Scotland (2014). Wind farms and changing mountaineering behaviour in Scotland.

³³ Mountaineering Scotland (2016). Wind farms and mountaineering in Scotland.

³⁴ BiGGAR Economics (2017) Wind Farms and Tourism Trends in Scotland.

6 km away from the site boundary at its closest point. The trail is known for its accessibility across the Highlands, and its numerous lochs and forestry. These characteristics are not expected to be affected by the proposed development, and therefore the impact has been classified as **Negligible** and **not significant**.

10.4.67 The South Loch Ness Trail is approximately 50 km long, going from Loch Tarff to the outskirts of Inverness. The trail is located 11 km away to the north of the proposed development at its closest point. The main characteristics of this trail are the views along the famous Loch Ness as well as a link between Fort Augustus and Inverness. These characteristics are unlikely to be affected by the proposed development, and so the impact has been classified as **Negligible** and **not significant**.

10.4.68 The Great Glen Way is approximately 117 km long, beginning in Fort William and ending in Inverness, passing Loch Lochy and Loch Ness on their western side. The trail is 14 km away from the proposed development at its closest point, which passes the site on its south-westerly, westerly and north-westerly side. The main characteristics of the trail is its views along Loch Lochy, Loch Oich and Loch Ness as well as its access between Fort William and Inverness, which will not be affected. The proposed development is also unlikely to be visible from the trail. The effect has been assessed as **Negligible** and **not significant**.

10.4.69 National Cycle Route 7 is approximately 970 km long, beginning in Sunderland, passing through Carlisle and Glasgow, and ending in Inverness. The cycle route passes the proposed development 14 km away at its closest point to the south-east. Any effect from the proposed development is expected to be minimal due to the route's use for connectivity and the distance from the proposed development, and has been classified as **Negligible** and **not significant**.

10.4.70 National Cycle Route 78 – The Caledonia Way, is approximately 380 km long, beginning in Campbeltown and ending in Inverness. The cycle route passes the proposed development 10 km at its closest point to the north-west. The cycle route passes the site to the south-west, west and north-west. Any impact from the proposed development is expected to be minimal at-most due to the routes use for connectivity, and therefore has been classified as **Negligible** and **not significant**.

10.4.71 The Dalwhinnie to Newtonmore Railway Section passes the proposed development to the south-eastern and eastern side approximately 14 km away at its closest point. Although some may consider the views scenic, and these are unlikely to be changed considerably, the railway is mainly used as transport from Perth to Inverness, and would not be affected by the construction of the proposed development. As a result, the impact of the proposed development upon this railway line is assessed as **Negligible** and **not significant**.

Local Accommodation and Attractions

10.4.72 Fort Augustus is located approximately 14 km north-west of the site boundary, consisting of 58 accommodation facilities and six attractions which have been identified. Fort Augustus is known for its location between Fort William and Inverness, as well as its location alongside Loch Ness, on the Great Glen Way and near to the South Loch Ness Trail. The impact from the operation of the proposed development upon all 64 identified tourism assets is expected to be **Negligible** and **not significant**, as it is not expected to alter the characteristics of these assets which attract visitors.

10.4.73 Laggan is located approximately 8 km to the east of the site boundary, consisting of four accommodation facilities which have been identified and no attractions. The accommodation facilities located at Laggan are not expected to be affected by the proposed development, and so the impact has been classified as **Negligible** and **not significant**.

- 10.4.74 Newtonmore is located approximately 15 km to the east of the site boundary, consisting of 24 accommodation facilities and five attractions which have been identified. The 29 tourism assets located within Newtonmore would be unlikely to be affected by the proposed development, and so the impact has been classified as **Negligible** and **not significant**.
- 10.4.75 Kingussie is located approximately 19 km to the east of the site boundary, consisting of 16 accommodation facilities and four attractions which have been identified. The characteristics of the 20 tourism assets would be unlikely to be affected by the proposed development, and therefore the impact has been classified as **Negligible** and **not significant**.
- 10.4.76 Invermoriston is located approximately 17 km to the north of the site boundary, consisting of eight accommodation facilities and one attraction which have been identified. Invermoriston is located along the side of Loch Ness, along the route of the Great Glen Way. The characteristics of the tourism assets identified are not expected to be altered by the operations of the proposed development, and therefore the impact upon them has been classified as **Negligible** and **not significant**.
- 10.4.77 Kilfinnan and North & South Laggan is located approximately 17 km to the west of the site boundary, located between Loch Oich and Loch Lochy. The area consists of 11 accommodation facilities and no attractions which have been identified. The characteristics of these accommodation facilities would not be expected to be affected by the operation of the proposed development and therefore the impact has been classified as **Negligible** and **not significant**.
- 10.4.78 The section of General Wade's Military Road being assessed spans from Laggan to Fort Augustus, for a distance of approximately 40 km. At its closest point, General Wade's Military Road passes through the site boundary, on its southern side. This military road was built in first half of the 18th Century and is known for its views over Loch Ness. The characteristics of this road, and the three accommodation facilities located along it, are not expected to be affected by the proposed development and so the impact has been classified as **Negligible** and **not significant**.
- 10.4.79 The A86 road connects Spean Bridge to Kingussie, passing the proposed development to the south, 5 km away at its closest point. Eight accommodation facilities and four attractions have been identified along the main road. The characteristics of the 12 tourism assets identified are unlikely to be affected by the construction of the proposed development, and therefore the impact has been classified as **Negligible** and **not significant**.
- 10.4.80 The A9 road connects Falkirk to Thurso in the north of Scotland, passing the proposed development to the east, 14 km away from the site boundary at its closest point. 26 accommodation facilities and 3 attractions were identified along the main road. The characteristics of the 29 identified tourism assets are unlikely to be affected by the construction of the proposed development, and therefore the impact has been classified as **Negligible** and **not significant**.
- 10.4.81 The A82 road connects Glasgow to Inverness, passing the proposed development to the west, 13 km away from the site boundary at its closest point. 4 accommodation facilities and 1 attraction were identified along the main road. The characteristics of the 5 identified tourism assets are unlikely to be affected by the construction of the proposed development, and therefore the impact has been classified as **Negligible** and **not significant**.

Potential Decommissioning Effects

- 10.4.82 The effects of decommissioning have been scoped out.

Potential Cumulative Effects

- 10.4.83 During consultation, the need to consider potential cumulative effects of the proposed development with other wind farms was noted by a number of consultees. As discussed in the baseline, the Highland economy is dependent of tourism revenue and a large attraction is the landscape and activities undertaken within it. Potential cumulative effects on tourism, recreation and socio-economics could occur if there are significant cumulative effects on the landscape. The landscape and visual assessment in the Environmental Impact Assessment report provides a detailed assessment of potential cumulative effects on the landscape.
- 10.4.84 The cumulative assessment includes consideration of the potential for cumulative effects resulting from the proposed development in combination with other developments, which have been consented, under construction or operational.
- 10.4.85 Two wind farms have been identified within 10 km that are either operational or being constructed. Corriegarth Wind Farm, which consists of 23 turbines with 69 MW capacity, has been constructed and lies approximately 10 km to the north of the site boundary. The approved and under construction Stronelairg Wind Farm, borders the site boundary to the north and will consist of 66 turbines with capacity of 227 MW.
- 10.4.86 Any cumulative effects on tourism are expected to be minimal, due to the location of the approved Stronelairg Wind Farm. As this development is in close proximity to the site, the proposed development would appear as an extension, reducing its cumulative impact on the landscape. Additionally, as there are few wind farms in the vicinity of the proposed development, the cumulative impact would be lower.

10.5 Mitigation

Mitigation during Construction

- 10.5.1 No mitigation is required as there would be no significant effects as a result of the construction of the proposed development.

Mitigation during Operation

- 10.5.2 No mitigation is required as there would be no significant effects as a result of the operation of the proposed development.

Mitigation during Decommissioning

- 10.5.3 The effects of decommissioning have been scoped out.

10.6 Assessment of Residual Effects

Residual Construction Effects

- 10.6.1 It is not expected that there would be any significant residual effects from construction.

Residual Operational Effects

- 10.6.2 It is not expected that there would be any significant residual operational effects.

Residual Decommissioning Effects

- 10.6.3 The effects of decommissioning have been scoped out.

Residual Cumulative Effects

- 10.6.4 As discussed previously the construction and operational cumulative effects are expected to be minimal and therefore not significant.

10.7 Summary

- 10.7.1 The proposed development consists of 39 turbines with an indicative capacity of up to 168 megawatts (MW) and is located approximately eight kilometres west of the village of Laggan in Highland. The immediately surrounding area is very rural and sparsely populated, with the population being older than both the Highland and Scottish average. Tourism, as well as manufacturing and construction, are important to the local economy.
- 10.7.2 The economic impact of the proposed development has been assessed based on the Applicant's projections as well as experience of what has happened at other onshore wind farms, including case studies of other onshore wind developments in Scotland as part of the BiGGAR Economics research for RenewableUK. The result of the economic analysis suggests that during the development and construction phase the proposed development is expected to contribute up to:
- £25.2 million and 224 job years of employment in Highland; and
 - £65.8 million and 596 job years of employment in Scotland.
- 10.7.3 And during each year of the operation and maintenance of the proposed development could contribute up to:
- £5.2 million and 42 jobs in Highland; and
 - £8.0 million and 67 jobs in Scotland.
- 10.7.4 The proposed development would support wider investments by the GFG Alliance, which acquired the Lochaber Aluminium Smelter in Fort William and is planning to build an alloy wheels facility that will directly employ 400 people. Other investments include Highland Green Renewables, which operates hydro power schemes and will invest £60 million over two years in new hydro schemes, and the Dalzell steel plant in Motherwell, which is expected to supply the proposed development.
- 10.7.5 Additional wider benefits associated with the proposed development include:
- a shared ownership opportunity for local communities to invest in up to 5% of the wind farm and invest the returns in the local area, generating substantial social and economic benefits; and
 - non-domestic rates estimated at £1.9 million per year, £58.0 million over 30 years.
- 10.7.6 A review of the latest research evidence suggests that there is no evidence of wind farm developments adversely impacting on the tourism economy of Scotland. However, given the importance of tourism to the local economy, an assessment of potential tourism impacts has been undertaken. That assessment notes that the region's main tourism attractions are located some distance from the site and finds no significant tourism effects.
- 10.7.7 Overall, all effects are assessed as **not significant**.

Table 10.21: Summary of Potential Significant Effects of the Proposed Development

Likely Significant Effect	Mitigation Proposed	Means of Implementation	Outcome / Residual Effect
Construction			
Potential Economic Impact (Highland)	None required	Not applicable	Not significant
Potential Economic Impact (Scotland)	None required	Not applicable	Not significant
Great Trails & Railways	None required	Not applicable	Not significant
Local Accommodation & Attractions	None required	Not applicable	Not significant
Operation			
Potential Economic Impact (Highland)	None required	Not applicable	Not significant
Potential Economic Impact (Scotland)	None required	Not applicable	Not significant
Non-domestic rates	None required	Not applicable	Not significant
Great Trails & Railways	None required	Not applicable	Not significant
Local Accommodation & Attractions	None required	Not applicable	Not significant
Decommissioning			
Scoped Out			
Cumulative			
Potential Economic Impact from Construction and Operation (Highland and Scotland)	None required	Not applicable	Not significant

10.8 Glossary and Abbreviations

10.8.1 The following terms were defined within this chapter.

Term	Definition
Job years	Job years measures the number of years of full-time employment generated by a project. For example, an individual working on this project for 18 months would be reported as 1.5 job years.

10.8.2 The following abbreviations were used within the chapter.

Abbreviation	Expanded Term
GVA	Gross Value Added
ONS	Office for National Statistics