

14 SOCIO-ECONOMICS, LAND USE, RECREATION AND TOURISM

14.1 Introduction

14.1.1 This section will consider the socio-economic, tourism, recreation and land use effects potentially arising from the Proposed Development. It will identify the baseline socio-economic, tourism and recreation conditions and potential receptors; and how these may be impacted by the Proposed Development. It will also provide an account for any proposed mitigation; and potential residual effects arising once mitigation is considered.

14.2 Scope and methodology

14.2.1 There are no UK regulations or standards to guide a socio-economic, land use, recreation, and tourism impact assessment and therefore the assessment has been informed by professional experience and knowledge. Nevertheless, the predicted impacts will refer to guidance provided within 'Environmental Impact Assessment Handbook' published by NatureScot in 2018 (version 5). Reference to other technical assessments, where relevant to the Proposed Development will be made, e.g., landscape and visual assessment, noise, cultural heritage, and traffic and transportation assessment.

Guidance

14.2.2 The following documents have been considered for the assessment of potential effects of the Proposed Development on socio-economics, land-use, recreation and tourism:

- Scottish Government (2019) Good Practice Principles for Community Benefits from Onshore Renewable Energy Developments
- Institute of Environmental Management and Assessment (IEMA) (2011) The State of Environmental Impact Assessment in the UK
- NatureScot (2018) Environmental Impact Assessment Handbook V5
- Wind Farms and Tourism Trends in Scotland: BiGGAR Economics (2017)
- Scottish Renewables, SNH, SEPA, FCS, HES MSS and AECow (2019) Good Practice During Windfarm Construction.

Study Area

14.2.3 The socio-economic effects will be considered on three different scales: local, regional and national. This is intended to encompass the areas where significant effects, as a result of the Proposed Development, on employment and the economy could occur. The local study area is based on Dalnessie/Lairg, which has been defined as the area within the North, West and Central Sutherland ward. The regional study area is based on the Highland Council administrative area. The national study area is based on Scotland.

14.2.4 A similar three-tiered approach has been implemented for the study area for tourism. The study area used within the assessment is up to 15 km from the Proposed Development. Tourism receptors, including accommodation, attractions and events will be identified in this study area.

- 14.2.5 A study area of 5 km from the application boundary has been used to identify recreational receptors. Direct effects have only been assessed for receptors within the application boundary, while recreational impacts occurring outside the application boundary are deemed to be indirect.
- 14.2.6 The study area for land use covers all the land taken by the Proposed Development either temporarily during construction or permanently during operation.

Baseline Determination

- 14.2.7 Baseline conditions have been determined using desk-based survey techniques, including publicly available statistics and information. Data sources referred to in undertaking this assessment are referenced in full in this chapter. No specific field survey has been undertaken with regard to potential socio-economic, land use, recreation and tourism effects, although information has been gathered where relevant from surveys undertaken in respect of other disciplines, notably landscape and visual impact (**Chapter 6**).

Scope of Assessment

Effects Assessed in Full

- 14.2.8 The assessment will consider potential employment and economic effects (direct, indirect and induced), tourism, recreation, land use, and cumulative effects. The assessment is presented in two parts, addressing both the construction phase aspects of the Proposed Development and the longer-term effects once the Proposed Development is constructed and operational.

Effects Scoped Out

- 14.2.9 As the construction phase of the Proposed Development would be relatively short term (21 months) it is not expected that construction workers from outside Dalnessie, Lairg and the Highlands would have a significant effect on the demand for housing, health or educational services. Effects on demand for such community services have therefore been scoped out.

Approach to Assessment of Effects

Economic effects

- 14.2.10 Economic output has been measured by estimating capital and operational expenditure within each study area. Additionally, gross value added (GVA¹³⁷) arising from increased employment will be included.

Employment Effects

- 14.2.11 The employment effects that are attributable to the Proposed Development are divided into three components:

¹³⁷Gross value added (GVA) measures the contribution to an economy of an individual producer, industry, sector or region.

- **Direct:** the employment and other economic outputs that are directly attributable to the delivery of the Proposed Development. These include any new jobs that are created to manage and supervise the construction and operational phases of the Proposed Development and that are filled by employees of the applicant or the appointed contractor (or subcontracted employees);
- **Indirect:** employment and other outputs created in other companies and organisations that provide services to the Proposed Development (i.e. procurement and other supply chain effects); and
- **Induced:** additional jobs and other economic outputs that are created in the wider economy as a result of the spending of employee incomes on locally produced goods and services (i.e. personal vehicle maintenance, food and drink etc) and other ripple effects that occur as a result of direct and indirect effects of the Proposed Development.

14.2.12 The Proposed Development would also generate a beneficial effect on the local economy as a result of community funding provided by the applicant. In line with standard industry practice, the applicant will provide annual community funding of £5,000 per MW during the operational life of the Proposed Development. The total community funding would be around £500,000 per year, if the Proposed Development were to be consented and constructed. Following the Good Practice Principles for Community Benefit¹³⁸ the applicant is committed to the community benefit staying in the local area. In addition, there would be opportunities for the local community to take a share in the ownership of the Proposed Development. However, it must be noted that this will not be factored into the assessment as community benefit funding is not a material consideration in the planning decision.

Land Use, Recreation, and Tourism Effects

14.2.13 Land use, recreation and tourism effects have been assessed qualitatively with reference to evidence from research and comparable wind farms and using professional experience and judgment.

Effects Evaluation Methodology

14.2.14 The significance of the socio-economic, land use, recreation and tourism effects resulting from the Proposed Development have been assessed by combining the magnitude of impact and the sensitivity of receptor.

Sensitivity of Receptor

14.2.15 There are no published standards that define receptor sensitivity relating to socio-economic, land use, recreation and tourism assessment. As a general rule, the sensitivity of each receptor or receptor group is based on its importance or scale and the ability of the baseline to absorb or be influenced by the identified effects. For example, a receptor (such as a public footpath or a supply chain business) is considered less sensitive if there are alternatives with capacity within the study area. In assigning receptor sensitivity, consideration has been given to the following:

¹³⁸ Scottish Government (2019) Community benefits from onshore renewable energy developments

Available online: <https://www.gov.scot/publications/scottish-government-good-practice-principles-community-benefits-onshore-renewable-energy-developments/> (Accessed 01/03/2021)

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- the importance of the receptor e.g. local, regional and national;
- the availability of comparable alternatives;
- the ease at which the resource could be replaced;
- the capacity of the resource to accommodate the identified impacts over a period of time; and
- the level of usage and nature of users (e.g. sensitive groups such as people with disabilities).

14.2.16 Based upon professional judgement and experience on other large-scale projects, four levels of sensitivity are used: high; medium; low; and negligible. These are defined in **Table 14.1**.

14.2.17 In considering the sensitivity of a receptor it is important to remember that, in the case of socio-economic, land use, recreation and tourism assessment, the sensitivity is often subjective and different receptors have differing sensitivities depending on matters such as the economic profile of the local area, perception of the type of development and attitude to the potential benefits of a development. This assessment is based on the assumption of a worst-case which assumes that there is a negative perception of the Proposed Development.

Table 14.1 Socio-economic Sensitivity Criteria

Sensitivity	Description
High	<p>The receptor:</p> <ul style="list-style-type: none"> • has little or no capacity to absorb change without fundamentally altering its present character; or • is of high socio-economic, land use, recreational, or tourism value; or • is of national or international importance; or • is accorded priority in national policy; or • has no alternatives with available capacity within its study area; or • is a destination in its own right (as regards tourism and visitor attractions).
Medium	<p>The receptor:</p> <ul style="list-style-type: none"> • has moderate capacity to absorb change without fundamentally altering its present character; or • has a moderate socio-economic, land use, recreational or tourism value; or • is of regional importance; or • is accorded priority in local policy; or • has some alternatives with available capacity within its study area; or • is a destination for people already visiting the area (as regards tourism and visitor attractions); or • forms a cluster of low sensitivity receptors.
Low	<p>The receptor:</p> <ul style="list-style-type: none"> • is tolerant of change without detriment to its character; or • is of low socio-economic, land use, recreational or tourism value; or • is of local importance; or

	<ul style="list-style-type: none"> • is accorded low priority in policy; or • has a choice of alternatives with available capacity within its study area; or • is an incidental destination for people already visiting the area (as regards tourism and visitor attractions).
Negligible	The receptor is resistant to change and is of low socio-economic, land use, recreational or tourism value or there is a wide choice of alternatives with available capacity within its study area.

Magnitude of Impact

14.2.18 There are no published standards that define thresholds of magnitude for socio-economic, land use, recreation or tourism impacts. In order to aid clear and robust identification of significant effects, specific and targeted criteria for defining the magnitude of impacts have been developed for this assessment based on experience on other similar projects. The following four levels of magnitude have been adopted using professional judgement: high; medium; low and negligible. These impacts can be beneficial, adverse or neutral. Criteria for each of these levels of magnitude for each receptor group are set out in **Table 14.2**.

Table 14.2 Magnitude of Impact

Receptor Group	High	Medium	Low	Negligible
Economy	An impact that would dominate over baseline economic conditions by >10 %.	An impact that would be expected to result in a moderate change to baseline economic conditions by >5 %.	An impact that would be expected to result in a perceptible difference from baseline economic conditions by >0.5 %.	An impact that would not be expected to result in a measurable variation from baseline economic conditions.
Employment	An impact that would dominate over baseline labour market conditions and/or would affect a large proportion (>10 %) of the existing resident workforce.	An impact that would be expected to result in a moderate change to baseline labour market conditions and/or would affect a moderate proportion (>5 %) of the existing resident workforce.	An impact that would be expected to result in a perceptible difference from baseline labour market conditions and/or would affect a small proportion (>0.5 %) of the existing resident workforce.	An impact that would not be expected to result in a measurable variation from baseline labour market conditions.
Tourism and visitor economy	An impact that would dominate over baseline tourism and	An impact that would be expected to result in a	An impact that would be expected to result in a	An impact that would not be expected to result in a

Receptor Group	High	Medium	Low	Negligible
	visitor economy conditions.	moderate change to baseline tourism and visitor economy conditions.	perceptible difference to baseline tourism and visitor economy conditions	measurable variation from baseline tourism and visitor economy conditions
Tourism and visitor receptors	An impact that would be expected to cause a major restriction of access to or availability of tourism and visitor assets in the study area or would result in a major change to existing patterns of use.	An impact that would be expected to have a moderate restriction of access to or availability of tourism and visitor assets in the study area or would result in a moderate change to existing patterns of use.	An impact that would be expected to have a small restriction of access to or availability of tourism and visitor assets in the study area or would result in a small change to existing patterns of use.	An impact that would be unlikely to result in a noticeable difference to tourism and visitor assets in the study area.
Land use	An impact that would lead to a major restriction on the operation of a receptor, e.g. forestry business, or complete closure of receptor.	An impact that would lead to a moderate to major restriction on the operation of the receptor.	An impact that would lead to a minor restriction on the operation of the receptor.	An impact that would lead to a negligible restriction on the use of the receptor.
Cumulative	An impact that would lead to a major change to baseline conditions through interactions with other projects.	An impact that would lead to a moderate change to baseline conditions through interactions with other projects.	An impact that would lead to a minor change to baseline conditions through interactions with other projects.	An impact that would lead to a negligible change to baseline conditions through interactions with other projects.

Potential Effects

14.2.19 The level of effects matrix presented in **Table 14.3** provides a guide to how magnitude of impact and sensitivity of receptor were combined, but is not a substitute for professional judgement.

Table 14.3 Level of Effects Matrix

Sensitivity of Receptor	Magnitude of Impact			
	High	Medium	Low	Negligible
High	Major	Major	Moderate	Minor
Medium	Major	Moderate	Minor	Negligible
Low	Moderate	Minor	Negligible	Negligible
Negligible	Minor	Negligible	Negligible	Negligible

14.2.20 Effects may be positive (beneficial) or negative (adverse) and this would be specified where applicable. Where an effect is classified as major, this is considered to represent a 'significant effect' in terms of the EIA Regulations. Where an effect is classified as moderate, this may be considered to represent a 'significant effect' but should always be subject to professional judgement and interpretation, particularly where the sensitivity or impact magnitude levels are not clear or are borderline between categories or the impact is intermittent. It should be noted that significant effects need not be unacceptable or irreversible.

Mitigation

14.2.21 The assessment takes account of any environmental principles that are incorporated into the design of the Proposed Development. These include good practice measures with regard to traffic management, control of noise and dust, signage and provisions for maintaining access for walkers. Any additional mitigation measures that would reduce the level of any significant effects are set out and considered prior to assessing residual effects.

Assessment Limitations

14.2.22 Data have been collated from published sources and comparable experience of similar developments. No surveys specific to the Proposed Development and in support of assessment have been completed.

14.2.23 The applicant has endeavoured to thoroughly report the potential local impact of the Proposed Development; however, detailed statistics relating to employment and the local economy were not always available so there are certain effects that are not possible to assess at a local level.

14.2.24 While every effort has been made to ensure that the key tourism and recreation facilities in the area have been identified, it is possible that there are a number of small attractions that will not have been identified through the data collection process.

14.2.25 In order to maximise the economic effects associated with the Proposed Development, it will be necessary for local contractors to engage with the opportunities that arise and increase awareness of these opportunities. Based on prior experience of construction of

such developments, it is assumed that this will be the case for the purposes of this assessment.

14.3 Consultation Undertaken

14.3.1 Consultation with stakeholders has principally been conducted by way of the request for a formal Scoping Opinion. This, together with additional communication on socio-economic, land use, recreation and tourism issues, is summarised in

14.3.2 **Table 14.4** below.

14.3.3

14.3.4 **Table 14.4** shows the responses received during the consultation process and which have been addressed in this chapter.

Table 14.4 Scoping Responses Regarding Socio-economic, Land Use, Recreation and Tourism Considerations

Consultee	Scoping Consultation Response
The Highland Council	<p>Socio-economics, land use, recreation, and tourism should have its own chapter in the EIAR to ensure that these matters are appropriately addressed and not lost in other assessments.</p> <p>The EIAR should estimate who may be affected by the development, in all or in part, which may require individual households to be identified, local communities or a wider socio-economic groupings.</p> <p>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.</p> <p>In this regard wind farm development experience in this location should be used to help set the basis of likely impact. This should set out the impact on the regional and local economy, not just the national economy. Any mitigation proposed should also address impacts on the regional and local economy.</p> <p>The potential impact on and mitigation for public access should be assessed incorporating core paths, public rights of way, long distance routes, other paths and wider access rights across the site. There are core paths and public rights of way in this area which are likely to be affected during construction and operation phases. A plan detailing the following should be submitted as part of the EIAR:</p> <ul style="list-style-type: none"> • existing public non-motorised public access footpaths, bridleways and cycleways on the site and any proposed access route from the public road infrastructure; • proposed public access provision both during construction and after completion of the development, including links to existing path networks (where appropriate) and to the surrounding area, and access points to water; and • impacts of the proposed development on the core paths and proposed mitigation if any. • An Access Management Plan is required to be submitted with the application. Specifically, the EIAR is required to assess any routes that has the potential to be affected and include improvements to public access on or near the site must be considered.

	<ul style="list-style-type: none"> Any existing routes should be accommodated before, during and after construction without diversions. If diversions of core paths or rights of way are being considered then early engagement with the Council's Access Officer is recommended to avoid unnecessary delay in the process.
Mountaineering Scotland (MS)	MS may put forward arguments demonstrating adverse impact on tourism in similar landscapes should a planning application be made.

14.4 Statutory and Planning Context

The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017

- 14.4.1 The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 establish in broad terms what is to be considered when determining the effects of development proposals on socio-economics, land use, recreation and tourism. There is no specific legislation available on methods that should be used to assess the socio-economic, land use, recreation and tourism impacts of a proposed renewable energy development.

Electricity Act 1989

- 14.4.2 Schedule 9 of the Electricity Act states that any application for a generating station must show consideration for the preservation of amenity and the applicant must do what they reasonably can to mitigate for any adverse effects of the Proposed Development. However, Schedule 9 only refers to *"the desirability of preserving natural beauty, of conserving flora, fauna and geological or physiographical features of special interest and of protecting sites, buildings and objects of architectural, historic or archaeological interest"*. There is no mention of socio-economic, land use, recreation or tourism interests.

Climate Change (Emissions Reduction Targets) (Scotland) Act 2019

- 14.4.3 This act sets out a legally binding target of achieving net zero by 2045 and an interim target of a 75% reduction in baseline emissions by 2030. Although not directly applicable to the assessment of potential socio-economic, recreation and tourism impacts, this act emphasises the importance of a just transition. According to section 35C, the transition to net zero should create work in a way that does not negatively affect the current workforce and economy.

Scottish Planning Policy (2014) (SPP)

- 14.4.4 It is clear from SPP that the Scottish Government is committed to developing further renewable energy projects and paragraph 153 of SPP advises that:

"Efficient supply of low carbon and low cost heat and generation of heat and electricity from renewable energy sources are vital to reducing greenhouse gas emissions and can create significant opportunities for communities. Renewable energy also presents a significant opportunity for associated development, investment and growth of the supply chain" (page 36).

- 14.4.5 Paragraph 80 states that:

“Where it is necessary to use good quality land for development, the layout and design should minimise the amount of such land that is required. Development on prime agricultural land, or land of lesser quality that is locally important should not be permitted except where it is essential:

- *....to meet an established need, for example for essential infrastructure, where no other suitable site is available; or...*
- *for the generation for energy from a renewable source or the extraction of minerals where this accords with other policy objectives and there is secure provision for restoration to return the land to its former status.”*

14.4.6 SPP Paragraph 29 requires that policies and decisions should, amongst other matters, give *“due weight to net economic benefit”*.

14.4.7 SPP Paragraph 169 requires that the planning system supports the transformational change to a low carbon economy, consistent with national objectives and targets. Considerations in respect of proposals for onshore wind that are relevant to this assessment include:

- net economic impact, including local and community socio-economic benefits such as employment, associated business and supply chain opportunities;
- the scale of contribution to renewable energy generation targets;
- public access, including impact on long distance walking and cycling routes and scenic routes identified in the national planning policy framework (NPF); and
- impacts on tourism and recreation.

14.4.8 Paragraph 79 also requires that the planning system promotes economic activity and diversification including, where appropriate, sustainable development linked to renewable energy developments.

National Planning Framework 3 (2014) (NPF3)

14.4.9 NPF3 is the spatial expression of the Government’s Economic Strategy and sets out a long-term vision for where development and investment are needed across Scotland to support sustainable and inclusive growth. NPF3 aims *“to share the benefits of growth by encouraging economic activity and investment across all of Scotland’s communities, whilst protecting our natural and cultural assets”*.

14.4.10 NPF3 states that in order to help make Scotland a low carbon place, the spatial strategy suggests: *“...to retain the benefits of renewable energy development in Scotland by supporting investment at key sites across the country.”*

14.4.11 A sustainable, economically active rural area, which attracts investment and supports vibrant, growing communities, is said to be essential to the Government’s vision. NPF3 indicates that the future of the renewables sector in Scotland will be key to bringing new employment to Scotland’s remote areas and that rural communities will benefit from well-planned renewable energy development.

14.4.12 NPF3 also sets out that development of a national long-distance walking and cycling network will link key outdoor tourism locations across the country and will be an important tourism asset in its own right; as such, it is identified as a National Development. National Cycle Network Route 1 (NCN1) bounds the north of the turbine area. It is also proposed that local communities can benefit from creation of the National Walking and Cycling

network by connecting it with the local core path network. There is a Heritage Path bounding the north of the turbine area and directly connected to NCN1. Potential impacts to these routes have been considered.

National Planning Framework 4 – Consultative Draft (2021) (NPF4)

- 14.4.13 The draft NPF4 was published by the Scottish Government in 2021, this follows the November 2020 Position Statement which aimed to inform further discussions and was not itself a document setting out policy. Draft NPF4 highlights onshore wind as a development priority. Table 14.1 provides an overview of the key draft policies most relevant to the Proposed Development.
- 14.4.14 The framework also provides policies that encourage the sustainable development and economic growth of rural areas. The main strategy is to increase the population of rural Scotland and the Islands by building low carbon rural communities and promoting local jobs and businesses.

Table 14.5: Draft NPF4 policy most relevant to the Proposed Development

Policy Reference	Title	Relevant Policy Summary
Policy 19	Green Energy	<p>Development proposals for all forms of renewable energy and low-carbon fuels, together with enabling works such as transmission and distribution infrastructure, and energy storage such as battery storage, should be supported in principle.</p> <p>Development proposals for wind farms in National Parks and National Scenic Areas should not be supported.</p> <p>Outwith National Parks and National Scenic Areas and recognising the sensitivity of any other national or international designations, development proposals for new wind farms should be supported unless the impacts identified (including cumulative effects), are unacceptable. To inform this, site specific assessments including where applicable Environmental Impact Assessments (EIA) and Landscape and Visual Impact Assessments (LVIA) are required.</p> <p>Areas identified for wind farms should be suitable for use in perpetuity. Consents may be time-limited but wind farms should nevertheless be sited and designed to ensure impacts are minimised and to protect an acceptable level of amenity for adjacent communities.</p> <p>Specific considerations will vary relative to the scale of the proposal and area characteristics but development proposals for renewable energy developments must take into account:</p> <ul style="list-style-type: none"> • net economic impact, including local and community socio-economic benefits such as employment, associated business and supply chain opportunities; • the scale of contribution to renewable energy generation targets; • effect on greenhouse gas emissions reduction targets;

Policy Reference	Title	Relevant Policy Summary
		<ul style="list-style-type: none"> • cumulative impacts – taking into account the cumulative impact of existing and consented energy development; • impacts on communities and individual dwellings, including visual impact, residential amenity, noise and shadow flicker; • landscape and visual impacts, including effects on wild land; • effects on the natural heritage, including birds; • impacts on carbon rich soils; • public access, including impact on long distance walking and cycling routes and scenic routes; • impacts on historic environment assets, including scheduled monuments, listed buildings and their settings; • impacts on tourism and recreation; • impacts on aviation and defence interests including seismological recording; • impacts on telecommunications and broadcasting installations, particularly ensuring that transmission links are not compromised; • impacts on road traffic and on adjacent trunk roads; • effects on hydrology, the water environment and flood risk; • the need for conditions relating to the decommissioning of developments, including ancillary infrastructure, and • site restoration, opportunities for energy storage; and • the need for a robust planning obligation to ensure that operators achieve site restoration.

Onshore Wind Policy Statement Refresh Consultation

- 14.4.15 The Scottish Government published the consultation on the Onshore Wind Policy Statement (OWPS) Refresh in October 2021 where they are seeking views on their ambition to secure an additional 8-12 GW of installed onshore wind capacity by 2030. While it is only at consultative draft stage, it demonstrates the Scottish Government's ongoing commitment to onshore wind and recognition that this decade is key for the delivery of onshore wind if the 2030 renewable energy and carbon reduction targets are to be met.
- 14.4.16 In relation to economic benefits, the Scottish Government has included in its objectives to significantly increase local content in energy projects located in Scotland. Furthermore, in terms of tourism opportunities, the Scottish Government believes there are opportunities for more wind farm developments to provide outdoor recreation activities.

Tourism Scotland 2020

14.4.17 The Tourism Scotland 2020¹³⁹ strategy advises that tourism is one of Scotland's key economic contributors. It identifies four groups of assets that contribute to the tourist appeal of Scotland. These are:

- nature, heritage and activities;
- destination towns and cities;
- events and festivals; and
- business tourism.

14.4.18 The document sets an aspiration to increase annual visitor spend in Scotland by £1 billion by 2020 from the baseline in 2011 (at 2011 prices). It identifies the need to develop market opportunities associated with the assets listed above. Key performance indicators associated with this goal to measure progress include:

- grow visitor-spend by £1 billion from £4.5 billion to £5.5 billion by 2020;
- increase the advocacy score for Scotland from 25%;
- increase the average visitor-spend from £358.56;
- increase the total tourism employment figures from 185,100; and
- increase total tourism turnover from £6.2 billion.

14.4.19 The strategy was reviewed in 2016¹⁴⁰ (Scottish Tourism Alliance, 2016) at the mid-term point of the policy with further priorities being identified to achieve the targets for 2020 set in 2012, including:

- strengthen digital capabilities;
- strengthen industry leadership;
- enhance the quality of the visitor experience; and
- influence investment, specifically flight access & transport connectivity, built infrastructure, digital connectivity and
- business growth finance.

Scotland Outlook 2030

14.4.20 Scotland Outlook 203 sets the vision of the future of tourism in Scotland, the strategy focuses on four core priorities:

- People;
- Places;
- Diverse businesses; and
- Experiences.

14.4.21 The vision also concentrates on investment, training, accessibility and sustainability.

Scotland's Economic Strategy

14.4.22 Scotland's Economic Strategy (2015) sets out how the Scottish Government will provide support for businesses and individuals to grow in an economically sustainable way with

¹³⁹ Tourism Leadership Group and the Scottish Tourism Alliance (2012), *Tourism Scotland 2020*

¹⁴⁰ Scottish Tourism Alliance (2016), *Tourism Scotland 2020 Mid-term review*

the dual objectives of boosting competitiveness and tackling inequality. As part of these objectives, the document aims to direct investment in order to maximise opportunities for employment, business, leisure and tourism and also to join up planning policy to facilitate this. The document identifies four strategic priorities which are critical to economic growth:

- investing in our people, infrastructure and assets in a sustainable way;
- fostering a culture of innovation;
- promoting inclusive growth; and
- internationalisation.

Scotland's Economic Action Plan 2019-20

14.4.23 The Scottish Government's Economic Action Plan 2019-20 (2019) sets out how it plans to make Scotland a leader in technological and social innovations. It aims to deliver higher productivity and greater competitiveness, while transitioning to a carbon neutral economy through measures that support business, and encouraging investment, innovation and upskilling.

14.4.24 At the heart of this strategy is inclusive growth, combining increased prosperity with greater equity, which requires getting the fundamentals right. These include:

- investment: boosting private and public investment and delivering world-class infrastructure;
- enterprise: ensuring a competitive business environment;
- international: growing exports and attracting international investment;
- innovation: supporting world-leading innovation;
- skills: providing a highly skilled workforce;
- place: supporting thriving places;
- people: ensuring a sustainable working population where everyone can participate in and benefit from increased prosperity; and
- sustainability: seizing the economic opportunities in the low carbon transition.

14.4.25 An update to the 2018 Climate Change Plan, Update to the Climate Change Plan 2018-2032 Securing a Green Recovery on a Path to Net Zero (2020), was published by the Scottish Government in December 2020 and includes targets for economic development, inclusive growth, jobs and wellbeing. These include, but are not limited to:

- Encourage private investment towards net zero projects;
- Mobilise public sector procurement spending to support a green recovery and wider climate and circular economy ambitions.
- Infrastructure investment.

Scottish Energy Strategy

14.4.26 In December 2017, the Scottish Government published the Scottish Energy Strategy¹⁴¹, which sets out the Government's vision for Scotland's energy future.

14.4.27 In 2016, 54.4% of all electricity in Scotland was generated renewably, with a target of producing 100% from renewable sources by 2020. This increased to 73.9% in 2018. The

¹⁴¹ Scottish Government, (2017) *Scottish Energy Strategy*
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overall share of energy consumption, which includes heat and transport, produced by renewables was 19.8%¹⁴². By 2030, the Scottish Government wants the proportion of all energy, including heat and transport, supplied from renewable sources to increase to 50%.

- 14.4.28 The Scottish Government has also highlighted that renewables present an economic opportunity as an expanding market which will continue to support Scottish economic growth. The Scottish Government will continue to support businesses in this sector.
- 14.4.29 Additionally, the Scottish Government has emphasised the importance of communities benefitting from renewable energy generation, including through community benefit funds and shared ownership/community investment.

Local Development Plans

Highland wide Local Development Plan

- 14.4.30 The adopted Highland wide Local Development Plan (the HwLDP) ¹⁴³sets out the planning policy for the whole region as well as detailing the Supplementary Guidance for On-shore Wind Energy. The HwLDP states that in considering proposals for on-shore wind developments the Council will have regard to considerations including, but not limited to:
- the scale and nature of any potential economic spin-offs for local businesses, employment opportunities;
 - effects on industries for which Highland’s landscape is important e.g. tourism, recreation; and
 - effects on industries such as forestry brought about through changes to land use and management.

- 14.4.31 Furthermore, the HwLDP established a vision for Sutherland and Caithness which aims to achieve by 2030. The plan envisages that the area will be a centre of excellence for energy and engineering, providing jobs in these sectors. It also envisions a regeneration of the area through a more diverse economy and a thriving tourism industry.

Caithness and Sutherland Local Development Plan

- 14.4.32 The Caithness and Sutherland Local Development Plan, also known as CaSPlan, adopted in August 2018, provides guidance on development and investment in the Caithness and Sutherland area, seeking to deliver:
- improved employment prospects;
 - better connectivity and transport;
 - conservation of the environment and heritage;
 - community growth.

Highlands and Islands Enterprise: 2019-2022 Strategy

- 14.4.33 The 2019-2022 Highland and Islands Enterprise Strategy provides a framework on how the region can sustain and develop an economy based on:

¹⁴² Scottish Government, (2019) *Scotland’s Economic Action Plan 2019-20*

¹⁴³ The Highland Council, (2012) *The Highland-wide Local Development Plan* (HwLDP)

- productive and resilient businesses;
- strong, capable and resourceful communities; and
- a connected community providing opportunities for economic growth.

14.4.34 The strategy identifies renewable energy as a major component of the regional economy. Its positive impact on the local economy and industry can be amplified through securing supply chain opportunities.

14.4.35 Another important sector is tourism, which provides a major opportunity for the region's businesses and communities to grow.

14.5 Existing Socio-Economic Environment

Overview

14.5.1 The Proposed Development is located on the Dalnessie Estate, approximately 13 km to the north-east of Lairg in the Scottish Highlands, near the A836–A838 Junction. The turbine area and its access track fall within the THC area, in the North, West and Central Sutherland ward. The land is currently used as a shooting estate and for sheep grazing. Surrounding land uses include commercial forestry, sporting and recreational uses.

Demographics, Employment and Economy

14.5.2 The population of the Highlands was 235,400 in 2020, of which 60.7% are aged between 16 and 64¹⁴⁴. The National Records of Scotland projections indicate that the population of the Highlands will increase to 236,664, between 2018 and 2028. This is an increase of 0.5%, which is lower when compared to a projected increase of 1.8% for Scotland as a whole.

14.5.3 Consultation of the Office for National Statistics¹⁴⁵ population density data for mid-2019 indicated that 9 people per km² are present in the Highlands. This figure is significantly lower than the overall figure for Scotland of 70 persons per km².

14.5.4 The proportion of the population that is economically active is equal to 79.4%, which is slightly higher than the Scottish and UK averages (76.8% and 79.1% respectively). **Table 14.6** shows the rates for unemployment and gross weekly earnings by place of work in the Highland area and in the whole of Scotland.

Table 14.6 Economic Activity, Unemployment and Weekly Pay for Year 2020

¹⁴⁴ NOMIS Labour Market Profile – Highland <https://www.nomisweb.co.uk/reports/lmp/la/1946157421/report.aspx> (Accessed September 2021)

¹⁴⁵ Office for National Statistics, Population Density Data <https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/datasets/populationestimatesforukenglandandwalesscotlandandnorthernireland> (Accessed September 2021)

	Highlands	Scotland
Economic Activity Rate (aged 16 – 64)	79.4%	76.8%
Unemployment Rate (aged 16 – 64)	3.2%	4.3%
Earnings by place of work - Gross Weekly Pay (Full Time)	£562.40	£592.70

Source: ONS, Labour Market Profile Highland

- 14.5.5 The Scottish Index of Multiple Deprivation (SIMD) 2020¹⁴⁶ is the Scottish Government's official tool for measuring deprivation across a selected pool of small areas. If an area is identified as 'deprived', this can relate to the local population having a low income as well as restricted access to both resources and opportunities.
- 14.5.6 THC ranks within the 15 least deprived Local Authorities in Scotland. The datazone with the most measured levels of deprivation in the overall SIMD 2020 in the Highlands is in Inverness Merkinch with a rank of 174, making it one of the most deprived areas. Whereas the Inverness Culloden and Balloch area has a rank of 6776, making it one of the least deprived areas in the Highlands.
- 14.5.7 The industries present in the Highland area are summarised in Table 14.7 below, the data exclude self-employed, government-supported trainees and HM Forces and farm-based agriculture. This shows that the largest sector in the Highlands is Health, which constitutes 18.6 % of the workforce, followed by the wholesale and retail trade sector with 14.2 % of the Highlands workforce, and by Accommodation and Food Service Activities with 13.3 %.

Table 14.7 Employment by Sector for Year 2019

Sector	Highland	Scotland
Human health and social work activities	18.6%	16%
Wholesale and retail trade; repair of motor vehicles and motorcycles	14.2%	13.5%
Accommodation and food service activities	13.3%	8.3%
Education	8.0%	8.3%
Construction	6.2%	5.5%
Administrative and support service activities	5.3%	8.2%
Professional, scientific and technical activities	5.3%	7.2%

¹⁴⁶ Scottish Government, Scottish Index of Multiple Deprivation (SIMD) 2020
<https://www.gov.scot/collections/scottish-index-of-multiple-deprivation-2020/> (Accessed September 2021)

Sector	Highland	Scotland
Manufacturing	5.3%	6.8%
Public administration and defence; compulsory social security	5.3%	6.3%
Transportation and storage	4.4%	4.2%
Arts, entertainment and recreation	3.5%	2.8%
Information and communication	2.0%	3.4%
Water supply; sewerage, waste management and remediation activities	1.8%	0.8%
Real estate activities	1.3%	1.5%
Other service activities	1.1%	1.7%
Financial and insurance activities	0.9%	3.4%
Electricity, gas, steam and air conditioning supply	0.8%	0.7%
Mining and quarrying	0.4%	1.1%

Source: ONS, Labour Market Profile Highland

Tourism

- 14.5.8 Consultation of the data published by VisitScotland in 2020¹⁴⁷ indicated that the number of visitors to Scotland, from the UK, in 2019 increased by 17% from 2018, with a total spend of £3.20 bn (2019). However, overseas visitors in 2019 declined by 7% from 2018, with an overall spend of £27.39 bn (2019). The 2019 data for the Highlands indicate a decrease in international visitors of around -15%, while domestic visitors increased by 45%, with a total overall spend of £1.55 bn. In 2019, before the Covid-19 pandemic, the sector employed over 200,000 people nationwide, being one of the major employers and contributed 2.9% to Scotland's GVA. In 2017 the tourism sector in the Highland supported 16,000 jobs, around 8% of tourism jobs of Scotland as a whole.
- 14.5.9 The main tourist facilities closest to the Proposed Development are located in Lairg, around 13 km south of Dalnessie, and in Rogart 32 km to the south-west.
- 14.5.10 Within the tourism study area (15 km from the turbine area) there are 27 accommodation businesses, as detailed by the VisitScotland website summarised as follows:
- 2 Camping sites;
 - 4 Hotels;
 - 17 Self Catering; and
 - 3 Bed & Breakfast.

¹⁴⁷ VisitScotland, (2020), *Insight Department: Key Facts on Tourism in Scotland 2019*

- 14.5.11 These businesses are shown on **Figure 14.1**. None of the accommodation businesses identified are considered to be of more than local value and their sensitivity low.
- 14.5.12 The assessment of tourism and recreational effects considers receptors within 15 km of the turbine area, but for the more remote parts of the study area any effects are expected to be restricted to visual effects during the operation phase. Consequently, the receptors addressed in this Chapter are restricted to those close to the turbine area (within approximately 5 km), and those more distant receptors up to 15 km that are shown in the ZTV (**Figure 6.1.2a**) to have visibility of the Proposed Development.
- 14.5.13 Tourist destinations and outdoor recreational areas within approximately 15 km include, as listed on VisitScotland and Trip Advisor:
- Falls of Shin Visitor Attraction;
 - Go Wild Highland;
 - Ferrycroft Visitor Centre;
 - Sutherland Sporting Tweed Company;
 - The Rusty Coo;
 - The Lairg Triangle;
 - Assynt & Loch Shin Circuit from Lairg
 - Dalchork Forest Trails;
 - North Coast 500 Golf Ltd; and
 - North West Highlands Geopark.
- 14.5.14 The receptors listed above are considered likely to draw visitors from a wide area and as such are considered of regional importance and medium sensitivity in socio-economic, land use, recreation and tourism' terms.
- 14.5.15 Shops and other tourism assets such as restaurants tend to be clustered in settlements such as Lairg. Such groups of receptors can be considered to be of medium sensitivity.
- 14.5.16 Informal tourism and recreational assets relate to walking routes and open spaces which are not commercial in nature. The turbine area is located within a remote setting with limited recreation opportunity based around the natural environment, and with few informally recognised tourist attractions within the 5 km study area. However, it must be noted that although the turbine area is located within the Dalnessie estate which is privately owned, the Dalnessie Lodge, located outside of the Site is available for hire on a commercial basis.
- 14.5.17 Within the recreational study area, a section of the National Cycle Network is present, located on the A836, just before the access to the turbine area, as shown in **Figure 14.1**. Only one core path and rights of way is present within 5 km of the turbine area and is listed in **Table 14.8** below. The table does not include the Heritage Path of Strath Tirry to Bandaloch, which is not part of THC's core path network. The Heritage Path starts at the T junction from the A836 and follows up on the access track to the turbine area to then proceed north, as shown in **Figure 14.1**.

Table 14.8 Identified Public Rights of Way

Core Path	Route Code	Approximate Distance to Site
Loch Shin Hide	SU16.05	4.5 km

- 14.5.18 There are no formally recognised public rights of way in the study area, however it is acknowledged that public access may not be limited to such formally recognised routes, particularly under consideration of the Land Reform Act (Scotland) 2003.
- 14.5.19 There are no designated horse-riding tracks or trekking stables within the turbine area.
- 14.5.20 The historic walking and trekking Moray Firth Route is located approximately 7.5 km from the turbine area at its closest point.
- 14.5.21 Neither the turbine area nor the Dalnессie Estate has been used to host any events, so direct impacts on events has been scoped out of this assessment. No events were identified on the Visit Scotland and Scotland Info websites within the 15 km tourism study area; therefore, no indirect effects on events are predicted.

Land Use

- 14.5.22 The land is currently used as a shooting estate and for rough grazing for sheep. Surrounding land uses include commercial forestry, sporting and recreational uses. The turbine area covers 486.2 ha.
- 14.5.23 No public roads are located within the turbine area. Access will be taken from the private track leading from the A836 to Dalnессie Estate. Current access to the turbine area is by foot or all-terrain vehicle (ATV).
- 14.5.24 There are no residential properties or buildings within the turbine area. Two residential buildings, part of the Dalnессie Estate, are located over 800 m away from the turbine area, outside the application boundary.

Public Attitude to Renewable Energy Development

- 14.5.25 The potential for impact on tourism is closely linked to public perception of those visiting an area. This section provides an overview of studies undertaken to assess public perception of wind farm development across the UK.
- 14.5.26 In 2011, as part of their policy update, VisitScotland commissioned research to learn more about UK consumer attitudes to wind farms. The survey was largely attitudinal based and according to the results, wind farms do not have any significant impacts on the levels of tourism with evidence such as 52% of the study respondents disagreeing that wind farm spoil the look of the UK/Scottish countryside.
- 14.5.27 Based on this research, VisitScotland published a Position Statement in 2014 which stated:
- “VisitScotland understands and supports the drive for renewable energy and recognises the economic potential of Scotland’s vast resource, including the opportunities for wind farm development... There is a mutually supportive relationship between renewable energy developments and sustainable tourism.”*

- 14.5.28 A Department of Energy and Climate Change (DECC) survey on public attitudes showed that in March 2014, 80% of the British public said they supported using renewable energy for electricity, heat and fuel in the UK.
- 14.5.29 More recently, the Public Attitudes Tracker, published by the Department for Business in 2018, Energy and Industrial Strategy (BEIS)¹⁴⁸ showed a record 76% of people support the development of onshore wind compared to a previous 74% from the start of 2017. The advance in onshore wind development in Scotland has also been accompanied by an interest in understanding how the impacts of wind farm developments affect local house prices. In recent years, there has been considerable research looking at measurable effects on whether or not properties near, or in sight of, new wind farm developments see price changes that differ from other houses. A topical study conducted by RenewableUK and the Centre for Economics and Business Research (2014)¹⁴⁹ concluded that no adverse impacts were found on house prices from a range of wind farm cases across England and Wales and that there was, in fact, a slight beneficial influence on house prices from the cases analysed.
- 14.5.30 A few studies have been conducted around the impact of wind turbines on house prices^{150,151}, which have not been conclusive. However, it must be noted that there is no consistent evidence of adverse impacts overall.
- 14.5.31 The applicant has sought to raise awareness of the Proposed Development within the local community and have encouraged members of the public to engage with the project. The public consultation procedure is detailed in **Chapter 3: Consultation**. Engagement with and responses to public consultation are documented in the Statement of Community Consultation that forms a supporting document to the section 36 application. For the purpose of this assessment, the general themes of the feedback mainly included queries around the community benefit fund, walking routes near the site, traffic and transport arrangements and shared ownership.

14.6 Predicted Impacts

Construction Phase Impacts

- 14.6.1 During the 21-month construction phase of the Proposed Development there would be economic effects resulting from expenditure on items such as site preparation (including forestry services), access roads, purchase and delivery of materials, plant, equipment and components. Based on experience at other wind farm developments in Scotland, it is predicted there would be a peak onsite workforce of 50 workers. Some of these workers would be sourced from the local and regional labour market within Lairg and the Highland Council area, and many more would be sourced from Scotland as a whole. The remainder of this section sets out to quantify the likely benefits to local and national jobs and the

¹⁴⁸ Department for Business, Energy & Industrial Strategy, (2019) *BEIS Public Attitudes Tracker, December 2018 Survey (Wave 28)* Questions on Clean Growth, Renewable Energy, Shale Gas, Condensing Boilers, Heat Networks, Renewable Heating Systems, Heat Usage in the Home and Installing or Replacing Heating Systems

¹⁴⁹ RenewableUK, (2014) *The effect of wind farms on house prices*

¹⁵⁰ ClimateXChange (2016) *Impact of wind turbines on house prices in Scotland*

¹⁵¹ Gibbons, S. (2015) Gone with the Wind: Valuing the Visual Impacts of Wind Turbines through House Prices. *Journal of Environmental Economics and Management* 72, doi: 10.1016/j.jeem.2015.04.006

economy based on the proportion of construction expenditure that would take place within the local, regional and national economy.

Supply chain

- 14.6.2 In terms of potential supply chain benefits, the Proposed Development provides opportunities for the involvement of local, regional and Scottish suppliers in a range of activities, including research and development, design, project management, civil engineering, component fabrication / manufacture, installation and maintenance. There is expertise in all of these areas in the wider region, although a full wind energy supply chain covering all aspects of wind turbine component manufacture has not yet been developed within the region or indeed within Scotland as a whole. In Scotland are currently present several wind turbine manufacturing plants in Fife, and in the Highlands.
- 14.6.3 The key consideration in this context is that with an increasing number of wind farm schemes either operational, under development or having gained consent in Scotland, the commercial viability, and job prospects amongst Scottish supply chain firms has improved. Cluster benefits in the industry increase where firms are supported by the spending of other firms within the renewables sector. The net effect is to increase business and employment opportunities within Scotland's renewable energy sector, boosting the performance of regional and national economies.
- 14.6.4 In addition, during the construction process there will be opportunities where those employed will develop skills that will be of benefit to the local economy and to local businesses in the longer term. Further, employment generated through the Proposed Development will contribute to diversifying the local economy and help support the retention in the area of the working age population.

Socio-Economic Impacts

- 14.6.5 The Capital Expenditure (CAPEX) for the construction and development of the Proposed Development were estimated using research undertaken by BiGGAR Economics on behalf of RenewableUK (2015)¹⁵².
- 14.6.6 On the basis of this methodology, for the Proposed Development with up to 16 turbines with a combined generating capacity in the order of 100 MW, the construction and development costs has been estimated to be up to £146.9 million¹⁵³. The cost of battery storage has not been included because it is a newer technology with limited use in the UK so there is not sufficient research into the related expenditure.
- 14.6.7 This expenditure is split into four main categories of contract:
- development and planning;
 - turbines;
 - balance of plant (construction costs excluding turbine supply); and
 - grid connection.

¹⁵² RenewableUK, (2015) *Onshore Wind: Economic Impacts in 2014*

¹⁵³ Based on the sum of development (£150,216) and construction costs (£1,318,875) (i.e. the capital expenditure) per MW, multiplied by 100 MW (i.e. the capacity of the wind turbine element of the proposed development).

14.6.8 A 2015 study found that approximately 10% of CAPEX was on development and planning, and around 64% was on the turbines (RenewableUK, 2015)¹⁵⁴; however, developments in the sector, and the transition towards larger turbines, has changed the breakdown of CAPEX. BVG Associates (2017)¹⁵⁵ estimated that turbine related contracts accounted for the majority of CAPEX, followed by balance of plant, development and planning and grid connection. The values in **Table 14.9**, are higher than those used in the RenewableUK (2015)¹⁵⁶ and the BVG Associates (2017)¹⁵⁷ reports, to take into account a larger proportion of CAPEX expenditure on turbine related contracts (70.0%), followed by balance of plant (20.5%), development and planning (4.4%) and grid connection (5.1%).

Table 14.9 Estimated Development and Construction Expenditure by Type

Item	Description	Cost (£millions)	% of Expenditure
Development and Planning	The processes up to the point of financial close or placing firm orders to proceed with construction, and project management costs incurred by the applicant. Includes project design, environmental studies, legal agreements, project funding and planning permissions.	6.4	4.4%
Turbines	The activity by wind turbine manufacturers and their suppliers, covering nacelle component manufacture and assembly and blade and tower manufacture.	102.8	70%
Balance of Plant	Includes civil and project management, roads, substation buildings, turbine foundations and	30.1	20.5%

¹⁵⁴ RenewableUK, (2015) *Onshore Wind: Economic Impacts in 2014*

¹⁵⁵ BVG Associates, (2017) *Economic Benefits from Onshore Wind farms*

¹⁵⁶ RenewableUK, (2015) *Onshore Wind: Economic Impacts in 2014*

¹⁵⁷ BVG Associates, (2017) *Economic Benefits from Onshore Wind farms*

Item	Description	Cost (£millions)	% of Expenditure
	hardstandings, landscaping/ forestry/ fencing, and mechanical and electrical installation.		
Grid Connection	Includes engineering services, construction, electrical components, and industrial equipment and machinery.	7.5	5.1%
Total		146.9	100%

14.6.9 The economic impact of the construction and development phase was estimated for Lairg, the Highlands, and Scotland as a whole (estimating the CAPEX by study area). 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 weighted development and construction costs from the RenewableUK (2015)¹⁵⁸ research. For development, the percentage of spend within the local area (i.e. Lairg and the Highlands) is predicted to be 13% and for Scotland it is predicted to be 59%. For construction, the percentage of spend within Lairg and the Highlands is predicted to be 12% and for Scotland it is predicted to be 36%. 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.

14.6.10 On this basis, it was estimated that Lairg and the Highlands could secure contracts worth up to £17.6 million. Scotland was estimated to be able to receive contracts worth up to £54.2 million. The estimated value of contract type by study area are shown in **Table 14.10**.

Table 14.10 Estimated Development and Construction Expenditure by Study Area and Contract Type

Item	Lairg and the Highlands		Scotland	
	Cost (£millions)	% of item total	Cost (£millions)	% of item total
Development	0.8	13%	3.7	59%
Construction	16.8	12%	50.5	36%

¹⁵⁸ RenewableUK, (2015) *Onshore Wind: Economic Impacts in 2014*

Direct Impacts

14.6.11 The RenewableUK (2015)¹⁵⁹ report presents contract data from several case studies and combines it with turnover per employee data and GVA to turnover ratios for relevant industries, as shown in **Table 14.11**. This table also shows the breakdown of construction costs into each of the main components of work (balance of plant, turbines and grid connection). Furthermore, the report indicates that the majority of the value of the construction contract is represented by the turbines, followed by the balance of plant and lastly by the grid connection. This gives a weighted average showing that there is one employee per £137,942 in turnover and a GVA/Turnover rate of 0.432.

¹⁵⁹ *Ibid*

ESB Asset Development (UK) Ltd

Table 14.11 GVA and turnover per employee (Construction Phase)

	Turnover per employee (£)	GVA/Turnover ratio	%Spend
Balance of Plant	150,194	0.458	28.6%
Turbines	129,672	0.422	64.4%
Grid Connection	163,802	0.419	7%
Total	137,942	0.432	100%

14.6.12 Applying the above assumption of one employee per £137,942 in turnover to the Proposed Development provides an estimate of the likely level of employment at the local/regional and national level. The GVA/Turnover rate of 0.432 can then be used to calculate the GVA at the local/regional and national and UK level.

Table 14.12 Estimated Construction Phase Direct Economic Impact of the Proposed Development

Study Area	Estimated number of jobs	Estimated GVA (£millions)
Lairg and the Highlands	52	7.2
Scotland	158	21.8

Indirect Impacts

14.6.13 Indirect and induced impacts on employment and GVA were calculated using GVA and employment multiplier values Type I (indirect), and Type II (indirect and induced) published on the Scottish Government 2018 Input-Output¹⁶⁰, as shown in **Table 14.13**.

14.6.14 The Type I multiplier for employment estimates that 1.5 indirect jobs would be created elsewhere in the economy for every FTE direct construction job; while the Type II multiplier estimates that 1.8 indirect and induced jobs would be created.

Table 14.13 Estimated Construction Phase Indirect and Induced Effects Economic Impact of the Proposed Development

Area	Indirect Jobs	Indirect/induced Jobs	Indirect GVA (£millions)	Indirect/induced GVA (£millions)
Lairg and the Highlands	26	15.6	3.6	2.2
Scotland	79	47.4	10.9	6.5

¹⁶⁰ Scottish Government, (2018) *Supply, Use and Input-Output Tables: 1998-2017*

Tourism Impacts

- 14.6.15 The construction period is expected to last approximately 21 months and would benefit the local economy through expenditure on purchases of accommodation, food, drink, fuel, etc. that are needed to sustain the construction workforce. These would be experienced mainly by businesses within the tourism sector, or those that are partly dependent on tourism for their income (e.g. the retail sector).
- 14.6.16 The positive effects arising during the construction period are expected to more than offset any possible temporary losses to the tourism economy that may occur in the event that tourist visitors were deterred (for example, if holiday accommodation was in use by construction workers and therefore not available to tourists) during this phase.
- 14.6.17 There is a potential indirect impact on recreation caused by visual disturbance during the period of construction, which could affect amenity and enjoyment of nearby walks. The visual impacts of construction effects will be localised and temporary, as the construction works will only be detectable to route users for short periods along the route. There is one core path within the 5 km study area, being SU16.05, Loch Shin Hide (approximately 4.5 km from the turbine area). It must also be noted that the Heritage Path of Strath Tirry to Bandaloch, which is not part of the Council's core path network starts at the T junction from the A836 and follows up on the access track to the turbine area to then proceed North, as shown in **Figure 14.1**; might be potentially affected by the construction vehicular traffic and construction activities. More detail can be found in **Chapter 12**.

Land Use Impacts

- 14.6.18 The turbine area is located within a wider estate where the land is currently used for deer stalking, shooting and for sheep grazing. Surrounding land uses include commercial forestry, sporting and recreational uses. However, it must be noted that the turbine area is regarded by the Dalnessie estate manager as being sub-optimal for deer stalking.
- 14.6.19 Ongoing activities within the turbine area and the surrounding area, such as deer stalking, may be temporarily affected during the construction phase of the Proposed Development. The applicant will work with the landowner to ensure that they are able, wherever possible, to continue their activities safely during construction phase.

Operational Phase Impacts

- 14.6.20 When the Proposed Development is operational, should it be consented, a team of personnel to provide servicing, maintenance, repairs and other operational support, would be required.
- 14.6.21 The operation and maintenance impact of the Proposed Development was estimated as the impact that would persist throughout the lifespan of the Proposed Development. The long-term assessments of the operations and maintenance impacts have been assessed over the 35-year period.

Operational Phase Socio-Economic Impacts

- 14.6.22 Annual expenditure on operations (OPEX) and maintenance was estimated based on analysis undertaken in the 2015 RenewableUK report¹⁶¹, which stated that the weighted average cost was £59,867 per MW per annum. It was estimated that the annual operations and maintenance expenditure associated with the Proposed Development could be up to £6 million (which excludes community benefit funding and nondomestic rates). Over the first 35 years of operational life of the Proposed Development this could amount to approximately £209 million. These figures are based only on the wind generation element of the Proposed Development; and does not include the battery storage elements for which there is no available contemporary analysis. Actual OPEX would likely be higher but information on OPEX for battery storage is not available. The OPEX estimates assessed below represent the worst-case scenario.
- 14.6.23 To estimate the economic impact of the operation and maintenance expenditure in each of the study areas, it was first necessary to estimate the proportion of contracts that could be secured in each of these areas. These assumptions were based on the contract proportions reported in the RenewableUK report¹⁶².
- 14.6.24 On this basis it was estimated that Lairg and the Highlands could secure 42% of operation and maintenance contracts, worth up to £2.5 million each year, and that Scotland could secure 58% of contracts, worth up to £3.5 million, as shown in **Table 14.14** below.

Table 14.14 Estimated Annual Operation and Maintenance Expenditure by Study Area

Item	Lairg and the Highlands		Scotland	
	Cost (£millions)	% of item total	Cost (£millions)	% of item total
Operation and Maintenance	2.5	42%	3.5	58%

Direct Impacts

- 14.6.25 Similarly, 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 GVA and employment was estimated in the same way as the construction expenditure.
- 14.6.26 The RenewableUK (2015)¹⁶³ report indicates that using a weighted average for all operations and maintenance activities present that there is one employee per £121,935 in turnover and a GVA/Turnover rate of 0.430, as shown in **Table 14.15**, below.

¹⁶¹ RenewableUK, (2015) *Onshore Wind: Economic Impacts in 2014*

¹⁶² *Ibid*

¹⁶³ *Ibid*

Table 14.15 Estimated GVA and Turnover per Employee (Operations and Maintenance)

	Turnover per employee (£)	GVA/Turnover ratio
Operations & Maintenance	121,935	0.430

14.6.27 Applying the above assumption of one employee per £121,935 in turnover to the Proposed Development provides an estimate of the likely level of employment at the local/regional and national level. The GVA/Turnover rate of 0.430 can then be used to calculate the GVA at the local/regional and national and UK level, shown in **Table 14.16**.

Table 14.16 Estimated Operations and Maintenance Direct Economic Impact of the Proposed Development

Area	Estimated number of jobs	Estimated GVA (£ millions)
Lairg and the Highlands	21	1
Scotland	28	1.5

Indirect Impacts

14.6.28 Similarly to the construction phase, Indirect and induced impacts on employment and GVA for operation and maintenance were calculated using GVA and employment multiplier values Type I (indirect) and Type II (indirect and induced) published on the Scottish Government 2018 Input-Output¹⁶⁴ (Scottish Government, 2018), as shown in **Table 14.17**. It must be noted that at there is no Input-Output multiplier for onshore wind operation and maintenance, a multiplier for repair and maintenance has been used instead.

14.6.29 The Type I multiplier for employment estimates that 1.4 indirect jobs would be created elsewhere in the economy for every FTE direct operation and maintenance job; while the Type II multiplier estimates that 1.7 indirect and induced jobs would be created.

Table 14.17 Estimated Operation and Maintenance Indirect and Induced Effects Economic Impact of the Proposed Development

Area	Indirect Jobs	Indirect/induced Jobs	Indirect GVA (£)	Indirect/induced GVA (£)
Lairg and the Highlands	8.4	6.3	400,000	300,000
Scotland	11	8.4	600,000	450,000

¹⁶⁴ Scottish Government, (2018) *Supply, Use and Input-Output Tables: 1998-2017*

Tourism Impacts

- 14.6.30 The most comprehensive study of the potential effects of wind farms on tourism was undertaken by the Moffat Centre at Glasgow Caledonian University in 2008¹⁶⁵ (Glasgow Caledonian University/Moffat Centre, 2008). The study found that, although there may be minor effects on tourism providers and a small number of visitors may not visit Scotland in the future, the overall effect on tourism expenditure and employment would be very limited. This study is now about 10 years old, although a Scottish Government report confirmed the findings¹⁶⁶, and in that time wind farms have become a more common feature in Scotland. As such, it would be expected that any negative effects on the tourism economy would by then have been apparent.
- 14.6.31 In 2017 BiGGAR Economics undertook a study into the effects of constructed wind farms on tourism at the national, regional and local level¹⁶⁷.
- 14.6.32 Tourism employment was considered from 2009 to 2015, a six-year period over which Scotland and almost all local authority areas increased the number of wind farms, while employment in sustainable tourism also grew significantly. The analysis found no correlation between tourism employment and the number of turbines at the national or local authority level.
- 14.6.33 The study also considered the impact on employment at a smaller level, in data zones up to 15 kilometres from wind farm developments. The wind farms considered were constructed between 2009 and 2015. The study compared employment in 2009, when the wind farms did not exist, and 2015, when they were constructed, to measure the effect of windfarms on local employment. This excluded construction impacts, such as wind farm related employees staying in local accommodation.
- 14.6.34 At the local authority level in these smaller areas, no link was found between the development of a wind farm and tourism related employment. In 21 out of the 28 areas considered, employment in this sector grew. In 22 of the areas, employment either grew faster or decreased less than the rate for the relevant local authority area as a whole.
- 14.6.35 Overall, the conclusion of this study was that published national statistics on employment in sustainable tourism demonstrate that there is no relationship between the development of onshore wind farms and tourism employment at the level of the Scottish economy, at the local authority level, nor in the areas immediately surrounding wind farm development.
- 14.6.36 The findings of this research are in accordance with those of the Scottish Parliament's Economy, Energy and Tourism Committee in 2012 (Scottish Parliament Economy, Energy and Tourism Committee, 2012), when they concluded that there is no robust, empirical evidence of a negative link between wind farm development and tourism.
- 14.6.37 Overall, there is no research evidence that shows that negative effects on the tourism economy in Scotland as a result of wind farms are likely.
- 14.6.38 Within that overall context, the following assessment nevertheless considers whether there might be any specific effects on individual tourism assets. This assessment

¹⁶⁵ Glasgow Caledonian University/Moffat Centre, (2008) *Economic impacts of wind farms on Scottish tourism: report*

¹⁶⁶ ClimateXChange (2012) *The Impact of Wind Farms on Scottish Tourism*

¹⁶⁷ BiGGAR Economics, (2017) *Wind Farms and Tourism Trends in Scotland*

considers whether the Proposed Development could result in changes in the behaviour of tourists that might lead to effects on the tourism economy.

- 14.6.39 Visual effects associated with the Proposed Development may occur at recreation receptor locations, when people are looking towards the development and from locations where clear views of the turbines are available. The visual effects of the Proposed Development on tourism and recreational resources are assessed in **Chapter 6 LVIA**. It should be noted that there is a distinction between a visual effect and a recreational amenity effect. Recreational amenity effects are described as effects that would influence the recreational value e.g. use or enjoyment of an asset such as a walking route.
- 14.6.40 There are no potential direct impacts as there are no tourist attractions within the site so only indirect impacts have been assessed. In that regard, the impact on tourist attractions within 15 km of the turbine area has been considered. Areas of potential indirect impacts considered are the operational traffic associated with the Proposed Development using the local road network and potential visual amenity impacts resulting primarily from the presence of the turbines. Based on a review of the findings of the assessment in **Chapter 12: Transport**, however, no significant residual impacts are expected due to maintenance vehicles travelling to and from the turbine area as this would be on an occasional basis only. The key potential indirect impacts that affect tourism amenity are therefore considered to be visual amenity impacts of the turbines during operation.
- 14.6.41 For the tourist attractions within the study area it was considered that the potential visual impacts were not likely to affect the main features of any attraction, based on the descriptions provided by VisitScotland or their official websites.
- 14.6.42 The visual effects on the following recreational routes have been assessed in **Chapter 6: Landscape and Visual Assessment**:
- A836 and NCN 1;
 - Right of Way HS29, Hill Track and Heritage Path to east of turbine area.
- 14.6.43 Studies undertaken in respect of other wind farm projects where users have been asked if the presence of turbines would discourage them from using a route have found that the majority would not be deterred. For example, an independent survey of tourists and day-trippers in the area around the proposed Clashindarroch Wind Farm in Aberdeenshire (Gilmorton Rural Development, 2009) found that 84% of respondents did not feel that the proposed wind farm would have an impact on their willingness to revisit the area. The survey also found that there was no difference in the attitude of walkers and other visitors in relation to their willingness to revisit. Furthermore, the magnitude of impact for cyclists and horse riders may be less than for walkers as the speed of travel is likely to be faster and individual views are experienced for a shorter period of time. Even for users who find the presence of a wind farm detracts from their experience, this may simply manifest itself in users choosing not to linger in those sections of the route that have clear views of the wind farm.
- 14.6.44 It is expected that the Proposed Development will have no impact on the behaviour of visitors/tourists that use paths within the study area, as only a few sections of these will have visibility of the Proposed Development, as assessed in **Chapter 6**.
- 14.6.45 There would also be some minor beneficial effects on local businesses within the study area arising from expenditure on goods and services by staff and suppliers visiting the

Proposed Development. This is expected to benefit local shops, food and drink businesses, and accommodation providers. Although the expenditure would be intermittent and is difficult to quantify, the benefit would be enhanced by the fact that workers visiting the Proposed Development would do so all year round, unlike tourism expenditure which tends to be seasonal.

Land Use Impacts

- 14.6.46 For land use, the landowner would be able to partially reinstate the land use of the turbine area after the construction phase for either deer stalking or sheep grazing and will be able to maintain the land use in the rest of the estate outside of the turbine area.

Cumulative Impacts

- 14.6.47 There is potential for cumulative impacts to arise in relation to the construction of several prospective or consented projects where the construction phases overlap with the Proposed Development. There are a number of wind farms within 10 km of the turbine area, either consented or in the planning process, as set out in **Table 14.18** below.

Table 14.18 Wind Farms Development within 10 km of the Turbine Area (as per Cumulative Cut-off Date of 27/08/2021)

Development	Status	Distance
Strath Tirry Wind Farm	In planning	4.63 km

- 14.6.48 The greater the capacity of consented and constructed developments in the area, the more likely it is that the local area can benefit from supply chain opportunities.
- 14.6.49 Cumulative visual effects on outdoor recreational and tourism facilities resulting from the Proposed Development in conjunction with other windfarms in the study area are assessed in **Chapter 6 Landscape and Visual Assessment** of this EIA Report.
- 14.6.50 Concerning land use and given the amount of grassland areas available in the Highlands, wind farms generally have a very small development footprint. It is estimated that the permanent footprint of the Proposed Development following completion of construction will be approximately 12.3 ha of the total land in the turbine area, excluding the borrow pits and temporary compounds; while the access track land take will be of approximately 25.5 ha.
- 14.6.51 No additional cumulative impacts are predicted from the construction and operation of the Proposed Development alongside wind farms within 10 km of the application boundary.

14.7 Assessment of Effects

- 14.7.1 Based on the discussion of anticipated impacts in **Section 14.6** above, a commentary on the sensitivity of each receptor, the predicted magnitude of impact and subsequent level of effect is provided in this section.

Construction Phase Effects

Direct Socio-economic Effects

- 14.7.2 It is expected that during the construction and development phase, the magnitude of direct impact of the Proposed Development would be a Negligible (Beneficial) impact on a receptor of Medium (regional) sensitivity in the study areas of Lairg and the Highlands, leading to a level of effect of **Negligible (Beneficial)**. For Scotland as a whole, a Negligible (Beneficial) impact is predicted on a receptor of High (national) sensitivity, leading to a level of effect of **Minor (Beneficial)**.

Indirect Socio-economic Effects

- 14.7.3 It is expected that during the construction and development phase, the indirect and induced impacts of the Proposed Development would be Minor (Beneficial) on a receptor of Medium (regional) sensitivity in Lairg and the Highlands, leading to a level of effect of **Minor (Beneficial)**. For Scotland as a whole, the predicted impact is of a Negligible (Beneficial) impact on a receptor of High (national) sensitivity, leading to a level of effect of **Minor (Beneficial)**.

Tourism Effects

- 14.7.4 The overall magnitude of direct impacts on the tourism economy during the construction are considered to be Negligible on a receptor of Medium (regional) sensitivity, leading to a level of effect of **Negligible (Beneficial)**. It is possible that the benefits to individual businesses may be substantial; however, until such time as contracts are let, it is not possible to identify the magnitude of impact to individual businesses.
- 14.7.5 Indirect impacts on other off-site resources such as accommodation are unlikely to be affected by the construction of the Proposed Development. Due to the intervening distance of these receptors from the Proposed Development, it is considered that the magnitude of the indirect impacts would be low on receptors of Low (local) sensitivity. Therefore, the level of effect would be **Negligible (Adverse)**.
- 14.7.6 Local shops, cafes, accommodation providers and hotels often experience an increase in turnover during the construction phase, as they have opportunities to provide additional services to the developer and their contractors. The Proposed Development will result in a short term, Medium (beneficial) impact on receptors of Low (local) sensitivity, resulting in a **Minor (Beneficial) effect**.

Land Use Effects

- 14.7.7 The magnitude of the impact on the land use during the construction phase is considered Low as the landowner would be able to partially reinstate the land use of the turbine area after the construction phase to support either deer stalking or sheep grazing, and will be able to maintain the land use in the rest of the estate outside of the turbine area. The land-use is considered to be a Low (local) sensitivity receptor in the context of the wider estate as it is not used by the public and its regarded as sub-optimal for the main sporting and grazing land use within the wider estate. Therefore, the level of effect arising from the Proposed Development would be **Negligible (Adverse)**.

Operational Phase Effects

Operational Phase Socio-Economic Effects

- 14.7.8 In terms of the magnitude of direct effects, it is expected that during the construction and development phase, for Lairg and the Highlands a Negligible (Beneficial) direct impact would arise on a receptor of Medium (regional) sensitivity, leading to a level of effect of **Negligible (Beneficial)**. In Scotland as a whole, the predicted magnitude of impact is Negligible (Beneficial) on a receptor of High (national) sensitivity, leading to a level of effect of **Negligible (Beneficial)**.
- 14.7.9 For indirect effects during the operational phase, for Lairg and the Highlands, a Negligible magnitude of impact is predicted on a receptor of Medium (regional) sensitivity, leading to a level of effect of **Negligible (Beneficial)**. For Scotland as a whole, a Negligible impact is predicted on a receptor of High (national) sensitivity, leading to a level of effect of **Minor (Beneficial)**.

Operational Phase Tourism Effects

- 14.7.10 Surveys of the public's attitudes to wind farms provide no clear evidence that the presence of wind farms in an area has an adverse impact on local tourism. Local tourist attractions may have a particular sensitivity to visual effects; however, access to tourist facilities will be unaffected. Hence, even where significant visual effects are predicted (see **Chapter 6 Landscape and Visual Assessment**), no adverse effects on the tourism receptors are predicted. .

Operational Phase Land Use Effects

- 14.7.11 For land use, the magnitude of the impact on land use during the operational phase is predicted to be Low. The sensitivity of the receptor is considered to be Low (local); therefore, the level of effect is considered to be **Negligible (Adverse)**. However, it must be noted that the landowner will have a rental agreement in place with the developer which could enable further investment in the estate.

14.8 Mitigation

- 14.8.1 There are no mitigation measures proposed in terms of socio-economic, land use, recreation and tourism effects as the effects are predicted to be **minor/negligible** beneficial impacts at a local, national and UK level that would be **not significant** in EIA terms.

14.9 Residual Effects

- 14.9.1 As no additional mitigation is proposed, the residual socio-economic and land use effects are as stated in **Section 14.7** above. No effects that would be considered as significant in EIA terms have been assessed.

14.10 Summary

- 14.10.1 This assessment has considered data from a diverse range of sources to determine the likely effects of the Proposed Development on the local economy and land use, together with local effects on tourism and recreation assets. The potential effects on the economy and identified assets take account embedded mitigation, such as good practice measures to be adopted in design and construction. All of this has been considered in the context of current employment in the region and regeneration activities, land use, the location of the Proposed Development and its relationship with recreational facilities and tourism attractions.
- 14.10.2 The overall conclusion of this assessment is that the Proposed Development will lead to overall minor/negligible beneficial socio-economic effects to the selected study areas with no adverse effects on recreation or the tourism economy in the selected study areas.
- 14.10.3 In addition to the assessed effects, the applicant has committed annual community funding of £5,000 per MW during the operational life of the Proposed Development. Based on a total installed capacity of around 100 MW, the total community funding would be around £500,000 per year, which would equate to £17.5 million for a 35-year lifetime.

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