

# 15. Socioeconomics, Tourism and Recreation

## 15.1 Non-Technical Summary

- 15.1.1 This chapter considers potential changes to land use, socio-economics, tourism and recreation as a result of the Proposed Development.
- 15.1.2 Review of the Generation Costs and Deployment Potential of Renewable Energy Technologies in the UK report (DECC, 2011) estimates the total capital cost of a wind farm greater than 5MW constructed in 2015 to be between £1.17m and £1.80m per MW installed<sup>1</sup>. Therefore based on the generation of up to 49.5 MW it is estimated that the capital cost of constructing the Proposed Development could equate to up between £57.92m and £89.10m (including turbine manufacturing) and up to £10.69m could be spent locally.
- 15.1.3 During the construction phase, the Proposed Development could directly support up to 77.50 Full Time Equivalent (FTE) local jobs and up to 232.56 FTE jobs within Scotland for the duration of the construction phase. During its operational phase, operations and maintenance related employment could directly support up to 62.49 FTE jobs, of which up to 22.06 FTE jobs would be likely to be local (within Dumfries and Galloway and East Ayrshire) whilst up to 30.43 FTE jobs would be likely to be within Scotland. Other employment is also likely to be supported or generated through induced and indirect economic and employment effects throughout all phases of the Proposed Development. In summary no significant economic and employment effects are predicted, however the Proposed Development would result in temporary, beneficial economic effects at council ward and local authority levels during the construction phase.
- 15.1.4 Taking account of all design features, including the proposed temporary diversion of a localised section of Dumfries and Galloway Core Path 215, during the construction of a proposed access track and the adjacent proposed Water of Ken bridge, all phases of the Proposed Development are predicted to result in no 'significant' adverse effects on identified tourism and recreational receptors, recreational pursuits and activities or public access. Indeed, once operational, the Proposed Development would generate a beneficial though 'not significant' effect on public access and recreation, as the proposed network of access tracks would offer improved public access into the Development Site and would enhance connectivity between existing designated walking routes which are intended to facilitate recreational pursuits.

## 15.2 Introduction and Overview

- 15.2.1 This chapter identifies and describes the likely significant socio-economic, tourism and recreational impacts of the proposed Lorg Wind Farm (hereafter referred to as 'the Proposed Development'), which would be located on an area of land (hereafter 'the Development Site') located approximately 11km to the north east of Carsphairn and approximately 10.5km to the south of New Cumnock. All proposed turbines and the majority of associated infrastructure would be located within Dumfries and Galloway, whilst 2.9km of proposed access track and a 'permanent'<sup>2</sup> anemometer mast and associated crane pad would be located within East Ayrshire.
- 15.2.2 This chapter assesses the potential impact of the Proposed Development on the baseline socio-economic, tourism and recreational situation of the local community and wider environment in the area, including Dumfries and Galloway and East Ayrshire where the Development Site is located. This chapter should be read with reference to the scheme description in **Chapter 4 - Description of the Proposed Development** and in conjunction with other relevant ES chapters, as identified throughout this chapter.

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<sup>1</sup> Figures rounded to 2 decimal places

<sup>2</sup> Permanent for the duration of the Proposed Development, i.e. until the end of the decommissioning phase following the proposed 25 year operational period.

- 15.2.3 **Sections 15.3-15.7** describe the assessment methodology that has been adopted, including reference to the Study Areas used (as described in **Section 15.5** – "Assessment Study Areas") and the consultation activities which were undertaken. An overview of relevant planning policy considerations then follows in **Section 15.8**, before **Section 15.9** (and **Appendix 15.B**) provides a review of recent evidence regarding public and tourist attitudes to wind farm development. The relevant baseline conditions of the Development Site and economy are then set out in **Section 15.10** and the influence of socio-economic considerations on the design evolution process is summarised in **Section 15.11**. Following this, the scope of the assessment is presented in **Section 15.12**, followed by detailed assessments of potentially significant effects arising from the Proposed Development in **Sections 15.13-15.15**. Details of proposed mitigation and enhancement measures are then given in **Section 15.16**, after which a summary of residual effects follows in **Section 15.17**. A full set of references is provided at the end of this ES chapter.
- 15.2.4 The Proposed Development may result in socio-economic effects at the regional level, for example, in relation to economic development, and also at the district/local level, principally affecting those who live in or visit the surrounding area. The potential effects resulting from the construction, operation and decommissioning of the Proposed Development considered in this chapter are:
- ▶ Direct effects on economic activity (e.g. business rates payable by the wind farm operator);
  - ▶ Indirect and induced effects on economic activity at a regional and local level (e.g. supply chain, multiplier effects, economic stimulus generated from the expenditure of additional employment income);
  - ▶ Direct effects on employment levels (e.g. construction workers);
  - ▶ Direct effects on land use within the Development Site (e.g. loss of agricultural land and core paths); and
  - ▶ Indirect effects on recreational use and tourism related business.
- 15.2.5 It is also pertinent to note that from a socio-economic context, the Proposed Development would make a contribution to the alleviation of the adverse consequences of global warming by providing a renewable source of energy that does not involve the emission of greenhouse gases during operation, compared with the greenhouse gas emissions associated with electricity produced using fossil fuels. As detailed in **Chapter 6 - Renewable Energy Policy, Carbon Balance and Peat Management**, it is predicted that the carbon cost in developing the Proposed Development would be paid back in ~1.5 years (~6% of the operational life of 25 years). It is further predicted that the Proposed Development could result in a total carbon saving<sup>3</sup> of approximately 1.26M tonnes over its 25 year operational life and that it could generate electricity to supply the equivalent of 27,929 average homes in Dumfries and Galloway on an annual basis. On this basis, the amount of renewable electricity generation and total level of emissions avoided as result of the Proposed Development is considered beneficial and important. For the purpose of this assessment, it is not possible to objectively assign a significance level to these benefits.

## 15.3 Methodology and Approach

### Guidance

- 15.3.1 Schedule 4 to the Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2011 (as amended) ("the EIA Regulations") identifies likely significant effects on "*population*" as a factor to be addressed within ES. In addition, section 3A of the EIA Regulations (as amended) requires EIAs to "*identify, describe and assess in an appropriate manner, in light of the circumstances relating to the proposed development, the direct and indirect effects of the proposed development on...human beings...and material assets*". However, no specific guidelines

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<sup>3</sup> Every unit of electricity produced by a wind farm development effectively displaces a unit of electricity which could otherwise have been produced by a conventional coal or gas power station. The displacement of electricity produced by a coal or gas power station by a low carbon technology such as wind turbines would represent a 'carbon saving'.

or requirements for socio-economic, tourism and recreational assessments within EIAs are either set out in the 2011 EIA Regulations or in any other statutory or advisory guidance. The method adopted is therefore one of determining the existing circumstances (the baseline) through desk-based analysis, and drawing on a range of statistical information and consultations with relevant stakeholders. The potential effects of the Proposed Development on this baseline are then assessed using knowledge gained from previous wind energy developments and using professional judgement to assess the magnitude, significance and implications of residual socio-economic effects after mitigation is taken into account. Where possible (and quantifiable), the significance of effects is assessed by way of comparison of the factor (e.g. construction jobs) with the variance of related factors within the local economy. Where effects cannot be quantified, the assessment of significance has been undertaken using professional judgement and experience.

15.3.2 Whilst acknowledging there are no specific guidelines or requirements for this type of assessment, there are a number of methodologies, guidance and studies available for undertaking socio-economic assessments. The documents considered for undertaking this assessment are:

- ▶ BiGGAR Economics for Renewable UK. (2015) Onshore Wind: Economic Impacts in 2014 for Renewable UK (The BiGGAR Report 2015);
- ▶ BiGGAR Economics for DECC & Renewable UK. (2012) Economic Impact of Onshore Wind: Direct & Wider Economic Impacts (BiGGAR Economics) Report (The BiGGAR Report 2012);
- ▶ DECC. (2011) Review of the Generation Costs and Deployment Potential of Renewable Energy Technologies in the UK;
- ▶ IEMA. (2004) Guidelines for Environmental Impact Assessment;
- ▶ Morris, P and Therivel, R. (2009) Methods of Environmental Impact Assessment;
- ▶ O'Herlihy and Co Ltd (2006). Windfarm Construction: Economic Impact Appraisal, A Report to Scottish Enterprise (The O'Herlihy Report);
- ▶ Scottish Natural Heritage. (2014) A handbook on environmental impact assessment: Guidance for Competent Authorities, Consultees and others involved in the Environmental Impact Assessment Process in Scotland; and
- ▶ The Economic Impacts of Wind Farms on Scottish Tourism: A Report for the Scottish Government. The Moffat Centre for Travel and Tourism Business Development. (March 2008) Glasgow Caledonian University.

## 15.4 Baseline Establishment

15.4.1 The assessment includes an extensive review of publicly available information sources to establish the baseline conditions relating to local population levels, key components of the local economy, existing land uses, and potential tourism and recreational receptors located within 35km of the Development Site. Given that the Proposed Development is not expected to result in any changes to housing needs, the baseline situation regarding housing provision was not considered and effects related to housing were scoped out of the assessment.

15.4.2 The assessment uses standard socio-economic and demographic data from available datasets including the 2011 Census, NOMIS and the Office for National Statistics website, standard sources of tourist and visitor data found on Visit Scotland's website, and other individual research reports. Relevant conclusions from polls and surveys carried out regarding public and tourist attitudes to wind farms have also been considered.

## 15.5 Assessment Study Areas

15.5.1 The socioeconomic Study Area used within this assessment is based on the administrative boundaries for Dumfries and Galloway Council and East Ayrshire Council, in particular the Castle

Douglas and Glenkens ward (Dumfries and Galloway) and the Cumnock and New Cumnock ward (East Ayrshire) which the Development Site is located within. In addition, the Mid and Upper Nithsdale ward of Dumfries and Galloway Council, which bounds the Development Site to the east, and the Doon Valley ward of East Ayrshire Council, which is located approximately 11.5km to west of the Development Site, have been included as comparator areas. The findings from this desk based study form the baseline for this socio-economic assessment and are reported in **Section 15.10**.

- 15.5.2 The tourism and recreation Study Area used within this assessment is derived from the landscape and visual assessment (LVIA) reported within **Chapter 9** of this ES which, in accordance with current SNH guidance, utilised a 35km visual study area. Potential tourism and recreational receptors within the same 35km study area are identified within the baseline section (**Section 15.10**) of this ES chapter and, where relevant, are subject to detailed assessment.
- 15.5.3 Receptors located wholly outwith the Zone of Theoretical Visibility (ZTV) of the Proposed Development are excluded from both the assessment provided in **Chapter 9 – LVIA** and also from the Tourism Assessment (at **Paragraph 15.14.28**) provided in this ES chapter, as there would be no potential effects on visitor attractiveness and tourism potential due to the absence of any visual effects. On the same basis, receptors located within 35km of the Development Site but with only very limited ZTV coverage of the Proposed Development<sup>4</sup> are excluded from the Tourism Assessment, as the very limited magnitude of any potential visual change likely to occur could not possibly give rise to any significant effects on the visitor attractiveness and tourism potential of these receptors.
- 15.5.4 Receptors located outwith 10km of the Development Site and but within the 35km ZTV of the Proposed Development, but which are assessed in **Chapter 9 - LVIA** or within **Chapter 10 – Historic Environment** as not experiencing either Significant adverse visual effects or Significant adverse effects on the setting of historic assets have also been excluded from this tourism assessment<sup>5</sup>, as these receptors are consequently unlikely to experience significant effects in terms of visitor attractiveness and tourism. The exclusion of these receptors takes account of the conclusions of **Chapter 9 – LVIA** and **Chapter 10 – Historic Environment** and the influence of intervening distances.
- 15.5.5 For clarity, potential tourist receptors which are excluded from detailed assessment in this ES chapter are listed in **Appendix 15.A**.

## 15.6 Consultation

- 15.6.1 This socio-economic, tourism and recreation assessment closely follows the approach set out in the Lorg Wind Farm EIA Scoping Report (November 2012) and conforms with the subsequent Scoping Opinion issued by the Scottish Government (February 2013). In doing so, it takes into consideration associated consultation responses received from Dumfries and Galloway Council and East Ayrshire Council, as well as from other consultees. Consultation responses of particular relevance to this socio-economic, tourism and recreation assessment are detailed in **Table 15.1**.

Table 15.1 Relevant Scoping Consultation Responses

Consultee	Key Issues	ES Response
ECDU - Scoping Opinion	Noted the application should include relevant economic	Relevant economic information is

<sup>4</sup> To such a limited extent that the viewpoint analysis reported within the baseline section of **Chapter 9 – LVIA** confirms that views from these receptors could not possibly experience significant visual effects and therefore they are not subject to detailed assessment within **Chapter 9 - LVIA**.

<sup>5</sup> Excluding receptors identified by Visit Scotland as being within the top five regional visitor attractions for Dumfries and Galloway and Ayrshire and Arran in 2014. These are included in the assessment on a precautionary basis where they fall within 35km of the Development Site and within the ZTV of the Proposed Development.

Consultee	Key Issues	ES Response
	<p>information connected with the project.</p> <p>Noted the Government's approach to realising its ambitions for renewables are set out in the "2020 Routemap for Renewable Energy in Scotland" document which highlights the manufacturing potential of the renewables sector and opportunities for communities to share in the rewards.</p> <p>Stated impact of the Proposed Development on public footpaths and rights of way should be clearly indicated.</p> <p>Should address provisions made regarding public access, having regard for the requirements of the Land Reform (Scotland) Act 2003 and the Scottish Outdoor Access Code. Extent of any access restrictions proposed, if any should be detailed and any new facilities for access to be provided on or off site should be shown.</p>	<p>presented in this ES chapter. The assessment provided in this ES chapter includes full consideration of potential effects on public access, tourism and recreation.</p>
<p><b>Visit Scotland</b></p>	<p>Recommended that "<i>any potential detrimental impact</i>" on tourism be identified and assessed within the ES. Also suggested that "<i>full consideration</i>" be given to the Scottish Government's research on the impact of wind farms on tourism (i.e. the Moffat Report, 2008) and recommended that the EIA should include the preparation of a Tourism Impact Statement.</p>	<p>The potential effect of the Proposed Development on the visitor attractiveness and tourism potential of individual tourism and recreational receptors, as well as on the tourism value of scenic landscapes, is assessed within this ES Chapter.</p> <p>The Scottish Government's 2007 research (and other relevant attitudinal research) is fully considered in this ES Chapter and <b>Appendix 15.B</b>.</p>
<p><b>The Scottish Rights of Way and Access Society (ScotWays)</b></p>	<p>Requested that attention be paid to an extract from the Welsh Assembly Government's 'Technical Advice Note on Renewable Energy (TAN 8): Proximity to Highways and Railways' regarding recommended separation distances between wind turbines and transport infrastructure. Also requested that they be sent details of the proposed layout of turbines and associated infrastructure once they are available.</p> <p>Confirmed that the National Catalogue of Rights of Way showed routes DS14, DS15 and DN159 to be in the vicinity of the boundary of the Site Layout Plan which was included in the Lorg Wind Farm Scoping Report (2012)<sup>6</sup>.</p> <p>ScotWays stated that DS15 is recorded as a right of way and DN159 is recorded as an "other route". The DN159 is part of the Southern Upland Way. The status of DS14 as a partially recorded right of way or an "<i>other route</i>" is unclear due to its position at a local authority boundary. The DS15 section potentially affected by the Proposed Development is part of a Drove Road between Sanquhar and Stroanpatrick and is promoted by the Heritage Paths project for its historical interest. This route is also signed and waymarked as the Lorg Trail.</p>	<p>Effects on all relevant transport and designated recreational routes are assessed firstly in <b>ES Chapter 9 – LVIA</b> and also within this ES Chapter.</p> <p>All proposed turbines would be located at least turbine height from the edge of any public highway or designated recreational route. Details of the proposed layout of turbines and associated infrastructure will be provided to Scotways as part of the planning application consultation.</p>
<p><b>Dumfries and Galloway Council (DGC) Archaeologist</b></p>	<p>Noted that the Cairnhead Community Forest and the Striding Arches Project tie into the Southern Upland Way, which passes along the southern boundary of the Development Site. Recommended that potential effect on these cultural heritage and recreational receptors should be assessed within the socio-economics section of the ES.</p>	<p>Effects on the visitor attractiveness and tourism potential of these assets is assessed in the Tourism Assessment provided in this ES Chapter.</p>
<p><b>East Ayrshire Council</b></p>	<p>Acknowledged the approach of Dumfries and Galloway Council to community benefit funding, however requested that consideration also be given to opportunities for New Cumnock, as the nearest settlement to the Development Site, to benefit from the Proposed Development.</p>	<p>Potential community benefit funding arising from the Proposed Development is considered where appropriate within this ES Chapter.</p>
<p><b>Crown Estate</b></p>	<p>Confirmed that their interests would not be affected by the Proposed Development.</p>	<p>Noted</p>

<sup>6</sup> As detailed on ES Figure 3.1 the Development Site boundary has been altered since the production of the EIA Scoping Report for Lorg Wind Farm in November 2012.

Consultee	Key Issues	ES Response
<b>Mountaineering Council of Scotland</b>	Confirmed that a detailed response to the scoping report would not be issued.	Noted
<b>Marine Scotland Science Freshwater Laboratory</b>	Stated that the ES should address potential impacts of the Proposed Development on angling as a recreational interest.	Potential effects on angling as a recreational interest are assessed within this ES chapter.
<b>Association of Salmon Fishery Boards</b>	Noted the Proposed Development straddles the catchments of the River Dee and River Nith, and falls within the districts of the Dee and Nith District Salmon Fishery Boards. It also falls within the catchments relating to the Galloway and Nith Fishery Trusts. Requested that full consultation should be undertaken with the relevant local Fishery Boards and Trusts.	Local District Salmon Fishery Boards have been consulted. In addition a baseline fisheries habitat survey has been undertaken (provided in <b>Appendix 11.E</b> to the ES).  The Proposed Development has been designed to minimise the number of watercourse crossings as far as possible such that 14 new crossings would be required (13 culverts and 1 bridge). Watercourses are buffered by 30m or 50m (where sensitive species were recorded) as appropriate. All the latest relevant guidance would be adhered to in the detailed design and construction of proposed watercourse crossings.
<b>Nith District Salmon Fishery Board (NDSFB)</b>	NDSFB noted that the majority of the Proposed Development is located within the catchment of the Water of Ken (governed by the Galloway Fisheries Trust), but that it does straddle the jurisdiction of the NDSFB and Nith Catchment Fishery Trust. NDSFB requested they be appraised regarding the progress of the Proposed Development noting the potential for construction works for Windfarms and associated infrastructure to impact on salmonid species within the catchment.	Surface water run-off would be discharged in such a way to minimise the risk of pollution of the water environment. A Pollution Prevention Plan would be produced in consultation with SEPA if the Proposed Development was granted consent.  The guidance noted by the Galloway Fisheries Trust would be consulted if the Proposed Development was granted consent.
<b>Galloway Fisheries Trust</b>	Noted that the River Dee sustains populations of Atlantic salmon, Brown/Sea trout and European eel, although they may not all be present in the area of interest. There is potential that Brook lamprey may also be present. Stated that a Pollution Prevention Plan should be prepared in consultation with SEPA to minimise potential effects on the water environment.	

15.6.2 In response to the Scoping Opinion consultation, further consultation was undertaken with Dumfries and Galloway and East Ayrshire Councils as the relevant statutory public access authorities. The Access Officers from both Councils provided records of Core Paths, Public Rights of Way and 'other routes' within their administrative areas.

## 15.7 Methodology for Establishment of Effects

15.7.1 The Proposed Development has the potential to generate a range of socio-economic, tourism and recreational effects. The method adopted for this assessment draws on publicly available information and is based upon the approach set out in Morris and Therivel (2009) as follows:

- ▶ Establishing the baseline to determine the existing socio-economic characteristics of the Development Site and its surrounding area (receptors);
- ▶ Defining receptor sensitivity to wind farm development where possible;
- ▶ Identifying the potential change that the receptor would experience as a result of the Proposed Development, with consideration given to its magnitude, duration (e.g. short/long term, temporary/permanent) and valency (i.e. adverse/beneficial);
- ▶ Identifying the significance of potential socio-economic effects;
- ▶ Identifying mitigation measures where significant adverse effects are predicted; and

- ▶ Identifying any residual effects after mitigation.

- 15.7.2 Predicted economic and employment effects from the construction, operational and decommissioning phases of proposed onshore wind energy developments have been calculated using the guidance set out in the BiGGAR Report (2012), the updated BiGGAR Report (2015) and the O’Herlihy Report (2006).
- 15.7.3 The guidance used to assess effects on recreational activities (including public outdoor access) accords with guidance contained within Appendix 5 of ‘A Handbook on Environmental Impact Assessment, 4<sup>th</sup> edition’ (SNH, 2013). In particular, the assessment of potential impacts on physical access considers any changes to existing access arrangements to the Development Site and the surrounding area during the construction, operation or decommissioning phases of the Proposed Development.
- 15.7.4 The tourism assessment follows the standards set out in the recommendations of the Moffat Report (2008). Therefore, the assessment of predicted effects on leisure and tourism interests takes account of relevant findings detailed in **Chapter 7 - Noise, Chapter 9 - Landscape and Visual Assessment, Chapter 10 - Historic Environment** and **Chapter 14 - Traffic and Transport**.
- 15.7.5 Where possible, guidance has been used to establish the potential effects. Where there is no prescribed guidance, professional judgement and previous experience of wind farm development has been used.
- 15.7.6 The employment impacts within the study area are defined in terms of Full-Time Equivalent (FTE) jobs associated with predicted capital expenditure. The assessment has therefore focused on the following impact categories:
- ▶ Direct economic impacts: jobs and capital spend that are wholly or largely related to construction, decommissioning, and operation and maintenance of the Proposed Development;
  - ▶ Indirect economic impacts (positive and negative): jobs and capital spend generated in the economy of the study area in the chain of suppliers of goods and services to the direct activities;
  - ▶ Induced economic impacts: jobs and capital spend created by direct and indirect employees’ spending in the study area or in the wider economy; and
  - ▶ Wider economic (catalytic) impacts (positive and negative): employment and income generated in the economy related to the Proposed Development. This would include the effects on inward investment elsewhere within the construction sector, (e.g. as a result of worker supply) and on other sectors of the economy.
- 15.7.7 For employment effects, the availability of labour and skills is critical in accommodating the demands, needs and requirements of the Proposed Development. Adequate labour and skills capacity results in a low sensitivity, while limited labour and skills capacity results in a high sensitivity. Sensitivity criteria in terms of employment are shown below in **Table 15.2**.

Table 15.2 Employment Sensitivity

Sensitivity	Definition
High	Where there is a low / limited availability of labour and skills.
Medium	Where there is a constrained supply of labour and skills.
Low	Where there is a readily available labour force and skills.

- 15.7.8 The magnitude of potential changes/impacts on socio-economic receptors are assessed as defined in **Table 15.3**. In the case of employment effects, this is based on participants within the labour force; and the level of occupational skills available in the study area (see **Table 15.2**).

Table 15.3 Industry and Economic Magnitude of Change

Magnitude of Change	Definition
<b>Large</b>	Changes as a result of the Proposed Development that are of greater than local scale or which exceed recognised standards.
<b>Medium</b>	Changes as a result of the Proposed Development that are likely to be noticeable at a local scale.
<b>Small/Negligible</b>	Slight to no change as a result of the Proposed Development.

- 15.7.9 Public access, tourism and recreational receptors would only be adversely affected where the physical impacts (landscape, visual, noise, land-use, etc.) of the Proposed Development adversely affects visitor/user experience, visitor/user numbers or associated levels of expenditure. As such, any potential variation in expenditure or visitor/user numbers affecting individual receptors, and consequent effects on business turnover or employment, are of key importance.
- 15.7.10 Recreational behaviour could be affected where a development potentially leads to a change in recreational habits or activities. Guidance from SNH<sup>7</sup> notes that factors which might lead to changes in recreational behaviour include loss, closure, or diversion of access routes; obstructing access routes; enhancing access; reduction in amenity or intrusion; enhancement in amenity; and changes in the setting of recreational receptors.
- 15.7.11 The potential effect on recreational users and tourist visitors is likely to be a factor of the proximity of the Proposed Development to receptors, the receptor/resource type and usage (e.g. a town centre indoor recreational facility compared to a hill top view point), visibility of the Proposed Development from receptors, and the need for any public access diversion due to the Proposed Development's presence.
- 15.7.12 The main factors considered relevant when defining the sensitivity of receptors relating to public access, recreation and tourism are outlined in **Table 15.4**.

Table 15.4 Sensitivity of Tourism and Recreational Receptors

Sensitivity	Definition
<b>High</b>	Where the receptor or resource is defined as being of International or National status or has high visitor/user numbers.
<b>Medium</b>	Where the receptor or resource is defined as being of regional status or has medium visitor/user numbers.
<b>Low</b>	Where the receptor or resource is defined as being of local status or low visitor/user numbers.

- 15.7.13 The magnitude of change is gauged by estimating the level of change on the receptor as a result of the Proposed Development. This magnitude of change is assigned in line with the criteria detailed in **Table 15.5**.

<sup>7</sup> SNH (2001). Survey of Behaviour Associated with Access and Informal Recreation.



Table 15.5 Tourism and Recreational Magnitude of change

Magnitude of Change	Definition
<b>Large</b>	Where the extent of changes (e.g. changes in visitor attractiveness, visitor numbers, etc.) on identified receptors (i.e. routes, activities, tourism and recreational resources, tourism destinations or tourism/recreational businesses) is large scale and the substantial majority of activities or receptor users (including employees) will be affected.
<b>Medium</b>	Where the extent of changes (e.g. changes in visitor attractiveness, visitor numbers, etc.) on receptors is small in scale, but the majority of activities or receptor users (including employees) will still be affected; or alternatively where the extent of effects on activities, resources and/or businesses is large in scale but only a minority of receptor users (including employees) or activities would be affected.
<b>Small/Negligible</b>	Where the extent of changes (e.g. changes in visitor attractiveness, visitor numbers, etc.) on receptors is small in scale and would only affect a small minority of receptor users (including employees) or activities.

15.7.14 In line with standard EIA practice and taking into account professional judgement, the sensitivity of receptors, as defined in **Table 15.2** and **Table 15.4** are generally considered against the magnitude of change (**Table 15.3** and **Table 15.5**) to determine the significance of resultant effects. A matrix showing this relationship is provided in **Table 15.6**.

Table 15.6 Establishing the level of effect

		Receptor Sensitivity		
		HIGH	MEDIUM	LOW
Magnitude of change	LARGE	VERY SUBSTANTIAL	SUBSTANTIAL	SLIGHT / MODERATE
	MEDIUM	SUBSTANTIAL	MODERATE	SLIGHT
	SMALL	SLIGHT / MODERATE	SLIGHT	NEGLECTIBLE / SLIGHT

15.7.15 Based on the approach summarised in **Table 15.6**, predicted changes from the baseline position that would result in either substantial or very substantial levels of effect (shaded in grey) are considered to be significant in terms of the EIA Regulations.

## 15.8 Policy Context

15.8.1 National, regional and local policies in respect of economic development, tourism, and wider social and community effects have influenced the design of the Proposed Development, and as such these must be considered within this assessment. The following policy documents were examined for their relevance to the socio-economic, tourism and recreation assessment of the Proposed Development:

- ▶ National Planning Framework (NPF) 3 (2014);
- ▶ The Scottish Planning Policy (SPP) (2014);
- ▶ Scotland’s Economic Strategy (2015);
- ▶ A Low Carbon Economic Strategy for Scotland (2011);

- ▶ Dumfries and Galloway Regional Economic Strategy 2014 - 2020: Baseline Study and Regional Economic Profile (2014);
- ▶ East Ayrshire Economic Development Strategy (2014);
- ▶ Ayrshire and Arran Tourism Strategy 2012-2017;
- ▶ East Ayrshire Tourism Strategy and Action Plan 2009-2015;
- ▶ The Dumfries and Galloway Local Development Plan (LDP) (2014);
- ▶ The Ayrshire Joint Structure Plan (approved 2007);
- ▶ The East Ayrshire Local Plan (adopted 2010); and,
- ▶ East Ayrshire Local Development Plan Proposed Plan (2015).

## National Economic Strategies

Scotland's Economic Strategy (Scottish Government, 2015)

- 15.8.2 This document identifies the transition to a low carbon economy, including the deployment of renewable energy technologies, as a “*key aspect*” of the current Economic Strategy for Scotland.

A Low Carbon Economic Strategy for Scotland (Scottish Government, 2010)

- 15.8.3 This strategy explains how the Scottish Government intends to transition Scotland's current economy towards a low carbon one and explores the predicted socio-economic impacts of this transformation, including on inward investment and employment. Energy generation is identified as a key economic sector where substantial decarbonisation is required in order to meet statutory climate change targets. The document observes that “*onshore wind is still the technology that can make the most immediate positive impact on our low carbon economy*” (:90) and therefore envisages the continued deployment of onshore wind farms, stating that “*the Scottish Government will continue to encourage large, medium and small scale developments that are sited appropriately*” (:90).

## Regional and Local Economic Development Strategies

Dumfries and Galloway Regional Economic Strategy 2014 - 2020: Baseline Study and Regional Economic Profile (2014)

- 15.8.4 Intended to inform a forthcoming regional economic strategy for Dumfries and Galloway, this document presents a snapshot of demographic and socio-economic trends across the local authority. It should be noted that as this study was published in 2014 it is underpinned by the then latest available statistical data relating to the period up to 2013. Whilst this Study does not define specific economic development priorities, it does state that the objective of the forthcoming regional economic strategy will be to “*identify regional priorities and underpin development of regional policies and support programmes to assist the effective targeting of resources and meaningful intervention to support recovery*”.

East Ayrshire Economic Development Strategy 2014 - 2025

The current economic development strategy for East Ayrshire sets out the baseline economic position of the area and a series of economic development priorities with associated key actions for the local authority over the period 2014 - 2025. The Strategy is aligned with the vision set out in the approved East Ayrshire Community Plan (2015), namely to create: “*A thriving area with a strong local economy delivering higher levels of sustainable growth and employment for the benefit of existing and future residents*”.

15.8.5 Six key economic development priorities are identified to implement this vision:

- ▶ *“Integrate East Ayrshire with the regional economy;*
- ▶ *Facilitate economic restructuring;*
- ▶ *Improve the vibrancy of our town centres;*
- ▶ *Improve the quality of the tourism offer;*
- ▶ *Increase economic participation in our communities; and,*
- ▶ *Accelerate the pace of infrastructure improvements”.*

15.8.6 Under Priority 2 – Economic Restructuring, renewables is identified as a “*primary growth sector*” and the need to “*support rural diversification and spread the benefits of investment across our communities*” is acknowledged.

**Ayrshire and Arran Tourism Strategy 2012-2017**

15.8.7 Published by the Ayrshire Economic Partnership, this strategy is supported by four relevant objectives:

- ▶ *“Increase annual number of visitors coming to Ayrshire and Arran by 10%, from 3.50 million to 3.85 million.*
- ▶ *Increase annual spend by visitors by 20% from £348 million to £418 million.*
- ▶ *Increase employment supported by the sector by 10% from 8,915 jobs to 9,807 jobs.*
- ▶ *Enhance and conserve the region’s natural, heritage and cultural assets”.*

15.8.8 The strategy identifies eight important tourism offers in Ayrshire and Arran, all of which have significant growth potential: “*Culture & Heritage, including Burns; Activities & Natural Environment, Golf, Sailing, Food & Drink, Islands, Weddings & Civil Partnerships, and Business Tourism*”.

**East Ayrshire Tourism Strategy and Action Plan 2009-2015**

15.8.9 This document outlines a strategic ambition to grow tourism revenue by 10% in real terms in East Ayrshire. It highlights the importance of sustainable tourism development and specifically calls for growth in the green tourism sector. One of the strategy’s key objectives is to strengthen the promotion of East Ayrshire as a green tourism destination.

**Planning Policies, Advice and Guidance**

15.8.10 All relevant Development Plan, national and other planning policies and other material considerations are fully outlined in **Chapter 5 – Planning Policy Context**. Planning policies of relevance to this assessment are listed below in **Table 15.7**.

Table 15.7 Relevant Planning Policy Considerations

Planning Policy Document	Relevant Provisions and Policies
<p><b>Dumfries and Galloway Local Development Plan (2014)</b></p>	<ul style="list-style-type: none"> <li>▶ Section 2: LDP Vision Statement for Dumfries and Galloway;</li> <li>▶ Policy IN1: Renewable Energy (including preamble);</li> <li>▶ Policy IN2: Wind Energy;</li> <li>▶ Policy ED2: Business Development in the Rural Area;</li> </ul>

Planning Policy Document	Relevant Provisions and Policies
	<ul style="list-style-type: none"> <li>▶ Policy ED12: Dark Sky Park;</li> <li>▶ Policy HE3: Archaeology;</li> <li>▶ Policy HE6: Historic Gardens and Designed Landscapes;</li> <li>▶ Policy CF4: Access Routes; and</li> <li>▶ Policy T2: Location of Development / Accessibility.</li> </ul>
<p><b>Dumfries and Galloway Statutory Supplementary Guidance (Economic Development and Infrastructure Sections)</b></p>	<ul style="list-style-type: none"> <li>▶ Part 1 Wind Energy Development: Development Management Considerations Supplementary Guidance (March 2015); and</li> <li>▶ Dark Sky Park Friendly Lighting Supplementary Guidance (August 2015).</li> </ul>
<p><b>Ayrshire Joint Structure Plan (2007)</b></p>	<ul style="list-style-type: none"> <li>▶ Policy ECON 6: Renewable Energy;</li> <li>▶ Policy ECON 7: Wind Farms;</li> <li>▶ Policy STRAT 1: Sustainable Development (in particular Schedule 1);</li> <li>▶ Policy ECON 14: Rural Diversification;</li> <li>▶ Policy ENV1: Landscape Quality;</li> <li>▶ Policy ENV11: Air, Noise and Light Pollution; and</li> <li>▶ Policy TRANS1 – Land Use &amp; Transportation.</li> </ul>
<p><b>East Ayrshire Local Plan (2010)</b></p>	<ul style="list-style-type: none"> <li>▶ Policy CS12: Renewable Energy Developments (General);</li> <li>▶ Policy CS14: Wind Energy Developments;</li> <li>▶ Policy SD1: General Strategic Policy;</li> <li>▶ Policy SD5: Development in the Rural Area;</li> <li>▶ Policy CS15: Renewable Energy Fund;</li> <li>▶ Policy ENV6: Ancient Monuments and Archaeology;</li> <li>▶ Policy ENV8: Historic Gardens and Designed Landscapes;</li> <li>▶ Policy ENV17: Land in Rural Areas;</li> <li>▶ Policy ENV20: Environmental Quality of Strategic Access &amp; Tourism Routes;</li> <li>▶ Policy ENV25: Air Quality, Noise and Light Pollution; and</li> <li>▶ Policy T9: Rights of Way.</li> </ul>
<p><b>East Ayrshire Local Development Plan Proposed Plan (2015)</b></p>	<ul style="list-style-type: none"> <li>▶ Paragraph 2.13 (Rural Area Vision Statement);</li> <li>▶ Proposed Policy OP1: Overarching Policy;</li> <li>▶ Proposed Policy RE1: Renewable Energy Developments (including</li> </ul>

Planning Policy Document	Relevant Provisions and Policies
	<p>Schedule 1);</p> <ul style="list-style-type: none"> <li>▶ Proposed Policy RE3: Wind Energy Proposals over 50 Metres in Height;</li> <li>▶ Proposed Policy RE4: The Cumulative Impact of Wind Energy Proposals;</li> <li>▶ Proposed Policy RE5: Wind Energy and the Landscape;</li> <li>▶ Proposed Policy RE8: Community Benefits;</li> <li>▶ Proposed Policy TOUR 4: The Dark Sky Park;</li> <li>▶ Proposed Policy TOUR 5: Galloway and Southern Ayrshire Biosphere;</li> <li>▶ Proposed Policy ENV2: Scheduled Monuments and Archaeological Resources;</li> <li>▶ Proposed Policy ENV4: Gardens and Designed Landscapes;</li> <li>▶ Proposed Policy ENV 5: Historic Battlefields;</li> <li>▶ Proposed Policy ENV8: Protecting and Enhancing the Landscape;</li> <li>▶ Proposed Policy ENV12: Water, air and light and noise pollution; and</li> <li>▶ Proposed Policy T4: Development and Protection of Core Paths and Natural Routes.</li> </ul>
<p><b>East Ayrshire LDP Draft Supplementary Guidance (2015)</b></p>	<ul style="list-style-type: none"> <li>▶ Planning for Wind Energy Draft Supplementary Guidance; and</li> <li>▶ Financial Guarantees Draft Supplementary Guidance.</li> </ul>
<p><b>National Planning Framework 3 (2014)</b></p>	<ul style="list-style-type: none"> <li>▶ Chapter 3: A low carbon place;</li> <li>▶ Chapter 4: A natural, resilient place; and</li> <li>▶ Chapter 5: A connected place.</li> </ul>
<p><b>Scottish Planning Policy (2014)</b></p>	<ul style="list-style-type: none"> <li>▶ Principal Policy on Sustainability (paragraphs 24-35);</li> <li>▶ Considerations for determining energy infrastructure applications (paragraph 169);</li> <li>▶ Promoting Rural Development Subject Policy (paragraphs 74 – 91);</li> <li>▶ Supporting Business and Employment Subject Policy (paragraphs 92 – 108);</li> <li>▶ Valuing the Historic Environment Subject Policy (paragraphs 135 – 151);</li> <li>▶ Valuing the Natural Environment Subject Policy (paragraphs 193 - 233); and</li> <li>▶ Promoting Responsible Extraction of Resources Subject Policy (Paragraphs 234-248).</li> </ul>

Planning Policy Document	Relevant Provisions and Policies
Other Material Considerations	<ul style="list-style-type: none"> <li>▶ Onshore Wind – Some Questions Answered (Scottish Government, December 2014);</li> <li>▶ Online Renewables Planning Advice regarding Onshore Wind Turbines (Scottish Government, last updated May 2014)'</li> <li>▶ PAN 1/2013: Environmental Impact Assessment (August 2013); and</li> <li>▶ Other guidance publications detailed in this ES chapter.</li> </ul>

## 15.9 Review of Tourism and Public Attitudes to Wind Farm Development Studies

15.9.1 A number of studies have been sourced to gather information on public attitudes towards wind farm development, with particular focus on those which reference their potential effects on tourism. Several surveys and research studies have been reviewed as part of this assessment:

- ▶ MORI. (September 2002) Tourist Attitudes towards Wind Farms. British Wind Energy Association and Scottish Renewable Forum;
- ▶ Moffat Centre. (March 2008) The Economic Impacts of Wind Farms on Scottish Tourism: A Report for the Scottish Government. Glasgow Caledonian University;
- ▶ Visit Scotland. (2012) Wind Farm Consumer Research;
- ▶ YouGov (February 2013) YouGov/Scottish Renewables Survey Results;
- ▶ MORI. (April 2013) Renewable UK Wind Power omnibus research;
- ▶ Demski, C., Spence, A. and Pidgeon, N. (2013) Transforming the UK Energy System: Public Values, Attitudes and Acceptability – Summary findings of a survey conducted August 2012. (UKERC: London);
- ▶ ComRes (August 2014) REG Windpower – On-shore Wind Public Survey;
- ▶ ComRes (July 2014) RenewableUK – Renewable Energy Survey;
- ▶ DECC (April 2015) Public Attitudes Tracking Survey: Wave 13 – Summary of Key Findings;
- ▶ YouGov. (May 2015). YouGov Political Poll for The Sunday Times; and
- ▶ DECC (August 2015) Public Attitudes Tracking Survey: Wave 14 – Summary of Key Findings.

15.9.2 **Appendix 15.B** provides an overview of these surveys and polls and summarises pertinent conclusions from 'The Economic Impacts of Wind Farms on Scottish Tourism: A Report for the Scottish Government' (2008) (referred to as 'the Moffat Report'). Overall, the evidence provided in **Appendix 15.B** suggests that whilst there are clearly different views on the acceptability of wind farms, there is no conclusive data to demonstrate that in overall terms, tourism is adversely affected by wind farm developments. Indeed, in the final report of its inquiry into the achievability of the Scottish Government's 2020 renewable energy targets the Scottish Parliament's Economy, Energy and Tourism Committee concluded that "*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*" (Scottish Parliament, 2012: page 8).

15.9.3 Notwithstanding the evidence outlined above, it is necessary to consider the site specific potential impacts of the Proposed Development on tourism and wider recreational activities as a result of effects on landscape and visual interests, hydrology, cultural heritage and traffic. This assessment

therefore identifies predicted effects from the Proposed Development on tourism and recreational receptors.

## 15.10 Baseline Information

### Renewable Energy Industry

#### Manufacturing & Supply Chain

- 15.10.1 A large scale wind turbine manufacturing plant is located at Machrihanish near Campbeltown. This Wind Towers (Scotland) Ltd facility currently employs approximately 130 workers. There are further facilities distributed throughout northern Europe.
- 15.10.2 In addition to this, several leading engineering and energy companies have announced their intention to invest significant funds in deploying large-scale, next generation renewable energy technologies across Scotland, including at Fife Energy Park and Clydeport's Hunterston site. Businesses across Scotland are involved in developing secondary components for wind turbines, including gear boxes, although it should be noted that these components are not required solely for wind turbines.

#### Employment & Investment

- 15.10.3 In March 2015 the UK Government's Department for Business, Innovation and Skills (BIS) published a report entitled 'The size and performance of the UK low carbon economy', which calculated that there in 2013 there were approximately 21,000 jobs in Scotland across nine renewable energy subsectors, including 5,400 jobs within the onshore wind subsector. Similarly, in January 2014, Scottish Renewables published a report entitled 'Employment in Renewable Energy in Scotland' by O'Herlihy & Co. which demonstrates that in 2013 there were at least 11,625 FTE posts within Scotland's renewable energy sector, including at least 3,397 FTE posts within the onshore wind subsector. The discrepancy between this report and the higher employment levels reported in the 2015 BIS report can at least partially be explained by an acknowledgement from Scottish Renewables that, due to the survey methods employed, their study is likely to have underestimated employment numbers. Nonetheless, all of these statistics demonstrate the national and regional employment significance of both the renewables sector generally, and specifically the onshore wind industry.
- 15.10.4 The Onshore Wind: Direct and Wider Economic Benefits report (BiGGAR Economics for RenewableUK, 2015) updates a previous report from 2012 which was jointly commissioned by Renewable UK and DECC to evaluate the economic impacts of the UK onshore wind industry at national, regional and local scales. This updated report continues to assess the direct and indirect economic impacts of the commercial onshore wind sector using similar case studies and economic modelling methodologies. It concludes that throughout the period between 2012 and 2015, the percentage of expenditure from individual development projects coming into the UK has increased for development and construction phases and that a higher percentage of this is spent within local supply chains. This means that projects, including the Proposed Development, are now predicted to generate greater positive economic and employment impacts during their construction phase than would have been calculated using the figures previously contained within the 2012 report.

From a detailed economic analysis of onshore wind case studies, the report calculates that the onshore wind medium-large subsector currently contributes 13,600 jobs and £906 million in gross value added (GVA) to the UK economy. It also concludes that for each 1MW installed capacity, 69% of total expenditure on onshore wind farm projects takes place within the UK. This takes account of the following reported expenditure in the UK: 98% of development; 48% of construction; and 87% of operation and maintenance. It should however be noted that these figures do not compare 'construction' expenditure with 'total capital expenditure' or disaggregate 'construction' expenditure into turbine manufacturing, balance of plant or grid connection expenditures. The report states separately that for a typical wind farm project, turbine manufacturing accounts for

64.4% of total capital expenditure, balance of plant contracts account for 28.6% and grid connections account for 7.1%. These detailed figures are used within the economic and employment assessment provided in this ES Chapter.

- 15.10.5 The BiGGAR report (2015) estimates the level of operational investment for a wind farm of greater than 5MW to be between £23,000 and £130,000 per year per MW installed. The report explains that the large differential in this cost range is due to differences in the size of developments, land contracts and whether or not turbines were still under warranty across the case study projects examined. The weighted average cost was £59,867 per MW installed per annum.
- 15.10.6 The Review of the Generation Costs and Deployment Potential of Renewable Energy Technologies in the UK report (DECC, 2011) analyses the deployment potential and generation costs of renewable electricity technologies in the UK up to 2030. It states that onshore wind energy “*still has significant deployment potential of around 17.3GW by 2030*”. This report estimates an operating expenditure of between £30,000/MW/year and £73,000/ MW/year for onshore wind farms greater than 5MW (page 21), which is broadly consistent with the operational figures calculated in the Biggar report (2015).
- 15.10.7 At a regional level, the latest available data from the Scottish Government indicates that the energy sector (including renewables) within Dumfries and Galloway generated £62.2m GVA and the same sector within East Ayrshire generated £59.9m GVA 2012. The Scottish Government also estimates that at the national level, the low carbon employment sector accounted for 44,800 jobs in 2013 of which 5,400 were within the onshore wind energy subsector (Scottish Government, 2015). It should be noted that this corresponds with the employment figure calculated within the aforementioned UK Government BIS report.
- 15.10.8 All of these statistics demonstrate the importance of the renewable energy sector to the regional and national economy.

## Socio-Economic Overview of Development Site

- 15.10.9 Covering a total area of approximately 1,092ha, the Development Site<sup>8</sup> is located approximately 10.5km to the south of New Cumnock and approximately 11km to the north east of Carsphairn. The nearest turbine of the existing Windy Standard Extension (Brockloch Rig) wind farm is located approximately 3.6km west of the Development Site and Afton Reservoir is located approximately 1.2km north of the Development Site.
- 15.10.10 The majority of the Development Site comprises undulating rough grazing land typical of the surrounding area and is currently used as sheep pasture. The Development Site is predominantly enclosed to the north east, east and south by coniferous forestry plantations, and the Southern Upland Way (SUW) runs along part of the eastern and southern boundary of the Development Site. To the south west, west and north west the Development Site is bounded by the steep open hillsides of Hare Cleugh, Allwhannie Knowes, Wedder Hill, Langower Hill, Meikledodd Hill and Lorg Hill. The elevation of the Development Site itself ranges from approximately 255m to 640m above ordnance datum (AOD).
- 15.10.11 The nearest residential properties to the Development Site are located at Polskeoch and Upper Holm of Dalquhairn, which are located 650m and 730m from the Development Site respectively. There is also a bothy located at Polskeoch, approximately 380m from the Development Site.
- 15.10.12 The Development Site is divided into two areas by a steep-sided valley formed by the Water of Ken, which runs throughout the Development Site from the north-east to the south-west, with Lorg Farmhouse located on relatively flat land north of the river and alongside the Lorg Burn. The valley of the Lorg Burn in the north-west of the Development Site is extremely steep and surrounded by a semi-circle of high ridges and peaks, including Ewe Hill, Alwhat, Meikledodd Hill and Lorg Hill. The south-east of the Development Site is defined by the north-flowing Pulmulloch Burn and

<sup>8</sup> The Development Site includes approximately 2.9km of proposed new access track, a proposed permanent anemometer mast and crane pad in East Ayrshire, with all other proposed infrastructure located within Dumfries and Galloway.



surrounding peaks of Altry Hill, Craigstewart, Coranbae Hill, Cairn Hill, Black Hill, High Countam and Fortypenny Hill. In addition to the Water of Ken and the Lorg Burn, a number of other small burns cross the Development Site.

## Transport

- 15.10.13 The Development Site can currently be accessed from an existing track leading to Lorg Farmhouse from the terminus of the B729 at Holm of Dalquhairn Bridge. In addition, Afton Road, a single carriageway track, runs for approximately 10km from the junction with the B741 at Afton Bridge in New Cumnock southwards to Craigdarroch farmhouse. Afton Road will be upgraded and extended southwards as part of the consented Afton Wind Farm scheme to form the access track for that scheme<sup>9</sup>. Once constructed, the Afton Wind Farm access track will extend to the north western boundary of the Development Site for the Proposed Development.
- 15.10.14 The Development Site is situated approximately 12.5km (at its closest point) North West of the A713, which is designated as the National Tourist Route (Galloway) from the town of Ayr at a roundabout junction with the A70 southwards to Castle Douglas. The A76, which runs between Dumfries and Kilmarnock and passes through settlements including Thornhill, Sanquhar, New Cumnock, Cumnock, Auchinleck and Mauchline is located approximately 13.9km north west of the Development Site (at its closest point). The nearest railway stations, New Cumnock and Kirkconnel Stations, are located approximately 12.4 km north and north east of the Development Site respectively.
- 15.10.15 For the purposes of the tourism and recreation impact assessment undertaken in this Chapter, the following local roads have been identified within 10km of the Development Site and at least partially within the ZTV of the Proposed Development:
- ▶ Minor road from east of Knowehead to Holm of Dalquhairn;
  - ▶ B729 between Movaivie and east of Knowehead;
  - ▶ Minor road from Smittons Bridge to Lorg Bridge (Lorg Road);
  - ▶ Minor road from Penpont to Polskeoch (which terminates approximately 1.5km north east of the Development Site); and
  - ▶ Afton Road.
- 15.10.16 Stretches of the following major transport routes are also located within 35km of the Development Site and at least partially within the ZTV of the Proposed Development:
- ▶ M74;
  - ▶ A713 National Tourist Route;
  - ▶ Other 'A' class and Trunk Roads: A70, A75, A76, A702, A712 and A762; and
  - ▶ Glasgow to Carlisle railway line via Kilmarnock and Dumfries.
- 15.10.17 Of these major transport routes, the following have been excluded from the detailed visual assessment undertaken in **Chapter 9 – LVIA**; and therefore also from further assessment in this chapter as factors including screening by built form and only fragmentary blade tip theoretical visibility would ensure the absence of any significant visual or associated tourism effects:
- ▶ M74; and
  - ▶ A75, A712, A762 and A702.

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<sup>9</sup> This includes the consented variation to the Afton Wind Farm section 36 consent, which was granted by the Scottish Ministers in October 2015.

## Population

15.10.18 **Table 15.8** provides an overview of the current demographic profile of relevant geographies, as recorded by the 2011 Census.

Table 15.8 Key Population Statistics from 2011 Census

Geographical Area	Total Population - 2011 Census (2001 Census)	Percentage Under 16	Percentage 16-64	Percentage 65 and over	Population Density (persons per hectare)
Scotland	5,295,403 (5,062,000)	17.3	65.9	16.8	0.68
Dumfries and Galloway	151,324 (147,800)	16.6	61.5	21.8	0.24
East Ayrshire	122,767 (120,200)	17.6	65.1	17.4	0.97
Castle Douglas & Glenkens Ward (DGC)	10,325	16.1	60.0	24.0	0.10
Mid and Upper Nithsdale Ward (DGC)	12,179	16.8	61.2	22.0	0.13
Cumnock and New Cumnock Ward (EAC)	14,401	16.7	64.8	18.5	0.40
Doon Valley Ward (EAC)	11,242	18.3	64.0	17.7	0.48

15.10.19 **Table 15.8** shows that at the last census, the overall population structure within East Ayrshire including ward level was very similar to the national structure, whilst Dumfries and Galloway had a notably larger pensionable age cohort and smaller working age cohort. A large difference in population density was evident between the two local authority areas and relevant council wards therein, reflecting differences in the overall level of urbanisation between the two local authorities.

15.10.20 **Table 15.9** shows recent demographic trends within relevant geographies, as measured by mid-year population estimates from Scottish Neighbourhood Statistics.

Table 15.9 Total Population (Mid-Year Estimates) from Scottish Neighbourhood Statistics

Year	Castle Douglas & Glenkens Ward (DGC)	Mid and Upper Nithsdale Ward (DGC)	Cumnock and New Cumnock Ward (EAC)	Doon Valley Ward (EAC)	Dumfries and Galloway	East Ayrshire	Scotland
2003	8708	12782	14,501	11,786	147,860	119,860	5,068,500
2004	8764	12865	14,453	11,871	148,690	120,210	5,084,300
2005	8832	12935	14,352	12,009	149,620	120,280	5,110,200
2006	8914	12861	14,262	12,278	149,780	120,450	5,133,100
2007	9009	12924	14,343	12,316	150,370	120,950	5,170,000
2008	9085	12946	14,226	12,293	151,010	121,590	5,202,900
2009	9048	12987	14,198	12,270	151,160	122,110	5,231,900

2010	9038	13053	14,118	12,185	151,100	122,410	5,262,200
2011	8934	13014	14,068	12,154	151,410	122,690	5,299,900
2012	8908	12917	13,957	12,138	150,830	122,720	5,313,600
2013	8944	12901	13,927	12,097	150,270	122,440	5,327,700
2014	-	-	-	-	-	-	5,347,600

15.10.21 The data in **Table 15.9** indicates that while the overall population of Scotland has increased steadily since 2003, there has also been steady increases in population levels across East Ayrshire and Dumfries and Galloway. There has also been slight population increases in all identified council wards except the Cumnock and New Cumnock (EAC) ward, which has experienced a steady population decline (-3.96% between 2003 and 2013).

15.10.22 **Tables 15.10** and **15.11** show recent changes in working age and pensionable age populations within relevant geographies.

Table 15.10 % Population of Working Age (16-64) Trend from 2001-2011 (SNS)

Year	Castle Douglas & Glenkens Ward (DGC)	Mid and Upper Nithsdale Ward (DGC)	Cumnock and New Cumnock Ward (EAC)	Doon Valley Ward (EAC)	Dumfries and Galloway	East Ayrshire	Scotland
2003	57.33	57.88	60.57	60.93	58.64	61.57	62.45
2004	57.53	57.85	60.74	60.90	58.75	61.64	62.55
2005	57.44	57.63	60.93	61.22	58.66	61.80	62.70
2006	58.05	57.73	61.19	61.39	58.66	61.91	62.81
2007	57.32	57.44	61.19	61.03	58.36	61.90	62.76
2008	56.86	57.37	60.97	60.76	58.12	61.80	62.70
2009	56.37	57.27	61.16	60.44	57.82	61.71	62.61
2010	56.1	57.37	61.20	60.74	57.85	61.68	62.68
2011	55.87	57.72	61.35	61.29	58.04	61.92	62.96
2012	55.9	57.61	61.47	61.14	58.05	61.76	62.96
2013	56	57.34	61.50	61.22	58.09	61.79	63.08

Table 15.11 % Population of Pensionable Age (65+) Trend from 2001-2011 (SNS)

Year	Castle Douglas & Glenkens Ward (DGC)	Mid and Upper Nithsdale Ward (DGC)	Cumnock and New Cumnock Ward (EAC)	Doon Valley Ward (EAC)	Dumfries and Galloway	East Ayrshire	Scotland
2003	25.95	22.95	20.01	18.90	23.25	19.22	18.89

Year	Castle Douglas & Glenkens Ward (DGC)	Mid and Upper Nithsdale Ward (DGC)	Cumnock and New Cumnock Ward (EAC)	Doon Valley Ward (EAC)	Dumfries and Galloway	East Ayrshire	Scotland
2004	26.03	23.16	19.98	19.01	23.50	19.31	19.00
2005	26.21	23.39	20.26	19.08	23.73	19.43	19.06
2006	25.54	23.76	20.44	19.14	23.91	19.59	19.14
2007	26.52	24.21	20.79	19.78	24.37	19.85	19.37
2008	26.85	24.74	21.40	20.37	24.77	20.12	19.58
2009	27.63	25.24	21.64	20.72	25.20	20.39	19.80
2010	27.99	25.47	22.17	21.02	25.40	20.62	19.88
2011	28.53	25.5	22.02	20.42	25.39	20.51	19.75
2012	28.44	26.07	22.08	20.66	25.63	20.67	19.83
2013	28.85	26.21	22.19	20.54	25.76	20.76	19.81

15.10.23 **Tables 15.10 and 15.11** indicate two general trends across all geographies: relatively stable working age populations coupled with population ageing. However, as shown in **Table 15.10**, the percentage of working age populations across East Ayrshire and Dumfries and Galloway has consistently been lower than the national working age population percentage since 2003, whilst the percentage of working age populations within identified council wards also lags behind the overall council areas. Furthermore, **Table 15.11** shows that the percentage of pensionable age populations within the Castle Douglas & Glenkens (DGC), Mid and Upper Nithsdale (DGC) and Cumnock and New Cumnock (EAC) wards are all greater than for the Dumfries and Galloway and East Ayrshire Council areas overall. These trends suggest firstly that there is a relatively stable labour pool within relevant geographies and secondly that public services in these areas may come under increased pressure if recent increases in the pensionable aged population continue.

15.10.24 The latest available demographic projections for Dumfries and Galloway and East Ayrshire are shown in **Tables 15.12 and 15.13** respectively. Demographic projections are unavailable at lower spatial scales.

Table 15.12 Projected Population by Age Group in Dumfries and Galloway to 2037 (GROS, 2014)

Age Group	Base Year	Projected Years					
	2012	2015	2020	2025	2030	2035	2037
0-15	24,616	23,761	23,781	23,512	23,356	22,690	22,267
16-29	21,995	21,932	20,549	18,897	17,783	17,757	17,625
30-49	36,466	33,735	30,761	30,717	31,365	30,304	30,058
50-64	33,415	33,825	34,077	31,902	27,162	24,179	23,452
65-74	18,860	20,105	20,707	20,294	21,737	21,879	21,150
75+	15,478	16,504	18,869	22,184	24,274	26,129	27,067

	Base Year	Projected Years					
All ages	150,830	149,862	148,744	147,506	145,677	142,938	141,619

Table 15.13 Projected Population by Age group in East Ayrshire to 2037 (GROS, 2014)

	Base Year	Projected Years					
Age Group	2012	2015	2020	2025	2030	2035	2037
0-15	21,562	21,312	21,652	21,563	21,005	20,328	20,027
16-29	20,558	20,414	18,969	17,854	17,737	18,113	18,155
30-49	33,378	31,468	29,266	28,508	28,290	27,305	26,789
50-64	24,980	25,854	27,469	27,103	24,440	22,002	21,519
65-74	12,565	13,520	14,328	14,590	16,225	17,316	17,251
75+	9,677	10,330	11,746	14,051	15,641	17,382	18,187
All ages	122,720	122,898	123,430	123,669	123,368	122,446	121,928

15.10.25 **Tables 15.12 and 15.13** indicate that populations of East Ayrshire and Dumfries and Galloway are projected to decrease over the period to 2037, with a particularly marked fall in Dumfries and Galloway. Within East Ayrshire, the working age population cohorts (ages 16-64) are all projected to decrease, however the population aged 65 or over is projected to increase sharply. If these projections are borne out they would generate multiple implications for the available labour force, employment trends and public service delivery within East Ayrshire and Dumfries and Galloway.

## Employment & Economic Activity

15.10.26 Numerous factors influence the supply and demand of labour in the economy including working age population, migration, unemployment, skills and wages. In particular, the supply of appropriate labour to support the construction and operation of the Proposed Development would be a key factor in ensuring socio-economic benefits are realised by local communities.

### Earnings, Business Start-Ups and Job Density

15.10.27 The level of earnings is an important indicator of the general health of the local economy but also reflects economic activity in the area. In general, higher earnings indicate a prosperous economy comprised of sectors that pay well, whilst low earnings indicate the opposite. The 2014 average gross weekly pay for Dumfries and Galloway (£432.40) was lower than East Ayrshire (£491.70) and both of these were lower than the Scottish average (£520.20).

15.10.28 In respect of earnings, the Dumfries and Galloway Regional Economic Strategy 2014 - 2020: Baseline Study and Regional Economic Profile (2014) states that "*while increasing elsewhere, the average pay of full-time workers in Dumfries and Galloway has fallen in nominal terms since 2010 and is now the lowest in Scotland - and below that of Cumbria. This degree of difference is undoubtedly linked to the industrial structure of employment in the region; in particular the preponderance of low-skilled occupations, high numbers in low-wage sectors and the relatively low number of jobs in high-wage sectors such as finance and insurance. The higher than average employment in education, which is a high-wage sector, is insufficient to counter the preponderance of jobs in sectors with low average wages*".

- 15.10.29 The East Ayrshire Economic Development Strategy 2014 – 2025 notes that whilst business start-ups in 2012 within East Ayrshire reached 279 new companies, the rate of growth in businesses over the period 2009-2012 was slower than the Scottish average and the number of new businesses dropped in 2013 compared with 2012. This strategy also states that the area's "job density figure is below the Scottish average, which presents considerable problems for our job seekers in terms of entering the labour market locally. It effectively means that in East Ayrshire we have 77,900 people of working age (between 16 and 64) and we have a total number of jobs in the area of 45,000 or that for each job available there are two people looking for that work".

## Unemployment & Deprivation

- 15.10.30 Data from NOMIS (Official Labour Market Studies) (2015) shows that between March 2014 and April 2015, 77.1% of the working age population in Dumfries and Galloway<sup>10</sup> were economically active, compared with 76.8% in East Ayrshire and 77% across Scotland. The percentage of self-employed people in Dumfries and Galloway (14.1%) was approaching double that within East Ayrshire (7.5%) and the average for Scotland (8.3%) potentially reflecting the less industrialised nature of the local economy. The official unemployment rate between March 2014 and April 2015 for these geographies stood at:
- ▶ Dumfries and Galloway: 5.7%;
  - ▶ East Ayrshire: 8.7%; and
  - ▶ Scotland: 5.6%.
- 15.10.31 By comparison, data from the 2011 Census indicates that in March 2011, levels of unemployment within Dumfries and Galloway and East Ayrshire were 4.2% and 6.0% respectively, and the nearest 'locality' geographic unit to the Development Site, Kirkconnel and Kelloholm, recorded an unemployment rate of 7.2%. Due to methodological differences, these statistics cannot directly be compared with the latest available data from NOMIS (2015), however they indicate that unemployment has risen across both Dumfries and Galloway and East Ayrshire in recent years.
- 15.10.32 The Scottish Index of Multiple Deprivation (SIMD) identifies small concentrations of multiple deprivation areas across all of Scotland. 38 indicators of deprivation are used within SIMD 2012, looking at seven dimensions which are: Income; Employment; Health; Education; Housing; Access to Services; and Crime. The SIMD is separated out into data zones which are able to identify small areas of deprivation, with the level of deprivation increasing with the SIMD score. The 15% most deprived data zones in Scotland are shared out among local authorities to give the National Share of most deprived data zones. In 2012, Dumfries and Galloway had 1.3% of the National share (17<sup>th</sup> highest out of 32) whilst East Ayrshire had 3.3% of the National Share (10<sup>th</sup> highest out of 32). The SMID is also represented as a Local Share, which is the percentage of the local authority's data zones which fall within the 15% most deprived data zones in Scotland. Out of the 32 local authorities, Dumfries and Galloway was 17<sup>th</sup> highest with local share of 6.7% whilst East Ayrshire was the 9<sup>th</sup> highest with a local share of 20.8%.
- 15.10.33 One of the factors contributing to the SIMD is educational attainment. Data from the 2011 Census indicates that 34.1% of the population of East Ayrshire aged 16 and above have no qualifications, 7.3% higher level than the national average (26.8%). 24.4% of East Ayrshire's population aged 16 and above only have qualifications equivalent to "Level One"<sup>11</sup>, 1.3% higher than average for Scotland of 23.1%. 17.9% of East Ayrshire's population aged 16 and above have qualifications equivalent to "Level Four"<sup>12</sup>, 8.2% lower than the average for Scotland (26.1%).

<sup>10</sup> Working age population is defined by NOMIS as the population aged 16-64.

<sup>11</sup> Standard Grade, Access 3 Cluster, Intermediate 1 or 2, GCSE, CSE, Senior Certification or equivalent; GSVQ Foundation or Intermediate, SVQ level 1 or 2, SCOTVEC Module, City and Guilds Craft or equivalent; Other school qualifications not already mentioned (including foreign qualifications).

<sup>12</sup> Degree, Postgraduate qualifications, Masters, PhD, SVQ level 5 or equivalent; Professional qualifications (for example, teaching, nursing, accountancy); Other Higher Education qualifications not already mentioned (including foreign qualifications).

- 15.10.34 The Dumfries and Galloway Regional Economic Strategy Baseline Study and Regional Economic Profile (2014) notes that as measures in terms of employment, unemployment and wages, “the region has a poorly performing labour market relative to the Scottish average and to rural comparator regions with similar economic issues”. In this regard, the study states that Dumfries and Galloway’s GVA per head (£15,626) lags below the Scottish average (£20,571).
- 15.10.35 The findings above regarding unemployment and deprivation in East Ayrshire are emphasised within the East Ayrshire Economic Development Strategy 2014-2025, which observes that “the area’s employment profile lags behind its neighbours and is linked to hotspots of deprivation and inequality within our communities”.

**Economic Activities**

- 15.10.36 The Dumfries and Galloway Regional Economic Strategy 2014 - 2020: Baseline Study and Regional Economic Profile (2014) states: “Dumfries and Galloway has higher than average employment in skilled trades, caring, leisure and other service occupations, and lower than average employment in professional and associate professional/technical roles. This correlates with the industrial structure of employment in the region which also has a higher proportion of employment in the lowest skilled occupational groups than any of the comparator regions”.
- 15.10.37 The East Ayrshire Local Plan 2010 (paragraph 4.1) notes that “the business and industry profile of East Ayrshire is characterised by:
- ▶ A decline in agriculture and traditional engineering, textile and extraction industries;
  - ▶ Under representation of service, technology and business industries;
  - ▶ Pockets of high levels of deprivation and unemployment;
  - ▶ A legacy of brownfield and despoiled land generally unsuited for the needs of modern companies; and
  - ▶ Increased commuting to the Glasgow conurbation”.
- 15.10.38 Both the East Ayrshire Local Plan (2010) and the East Ayrshire LDP Proposed Plan (2015) highlight the current and historical importance of mining and tourism industries within rural areas, and light industrial and commercial industries within the main settlements of East Ayrshire. The East Ayrshire Economic Development Strategy 2014-2025 notes that “in sector terms, the service sector accounts for over half of all economic output from East and North Ayrshire with services accounting for 62% of total GVA while industrial activities including manufacturing and construction accounting for 37%. This indicates a greater reliance on the industrial sector than for Scotland as a whole, where the sector only accounts for 24% of GVA. The area is performing relatively well in public and other services, manufacturing, distribution, transport and communications and less well in financial and business service”.
- 15.10.39 A breakdown of employment by industry across relevant geographies including relevant wards is detailed in **Table 15.14**.

Table 15.14 % Employment by Industry (2011 Census)

% all in employment who work in	Castle Douglas & Glenkens Ward (DGC)	Mid and Upper Nithsdale Ward (DGC)	Cumnock and New Cumnock Ward (EAC)	Doon Valley Ward (EAC)	Dumfries and Galloway	East Ayrshire	Scotland
Agriculture, forestry and fishing (a)	11.61	10.36	4.0	2.6	8.7	2.5	2
Mining and quarrying (b)	0.38	2.11	4.55	2.8	0.5	1.4	1.4

% all in employment who work in	Castle Douglas & Glenkens Ward (DGC)	Mid and Upper Nithsdale Ward (DGC)	Cumnock and New Cumnock Ward (EAC)	Doon Valley Ward (EAC)	Dumfries and Galloway	East Ayrshire	Scotland
Manufacturing (c)	5.75	11.39	10.20	14.9	8.4	10.3	7.7
Electricity gas steam and air conditioning (d)	0.99	0.37	0.52	0.5	0.7	0.7	0.8
Water supply, sewage waste management and remediation activities (e)	0.97	1.06	1.02	0.9	1.1	0.8	0.8
Construction (f)	8.26	8.12	9.54	9.58	8.7	9.4	8.0
Wholesale and retail trade, including repair of motor vehicles and motorcycles (g)	15.15	13.25	13.32	16.96	15.8	15.6	15.0
Transport and storage (h)	4.72	3.9	5.39	5.49	5.3	4.8	5.0
Accommodation and food service activities (i)	6.78	5.1	3.70	5.21	6.8	4.7	6.3
Information and communication (j)	1.45	1.29	0.98	0.64	1.2	1.7	2.7
Financial and insurance activities (k)	1.64	1.19	1.70	1.02	1.3	2.8	4.5
Real estate activities (l)	1.41	1.62	0.88	0.68	1.2	0.8	1.2
Professional scientific and technical activities (m)	4.82	3.92	2.03	1.72	3.2	3.4	5.2
Administrative and support service activities (n)	2.7	3.29	3.69	3.88	3.3	4.6	4.3
Public administration and defence - compulsory social security (o)	4.95	5.45	7.55	5.09	6.1	7.0	7.0
Education (p)	8.40	7.67	7.06	5.77	7.2	6.8	8.4
Human health and social work activities (q)	15.08	15.9	19.67	25.24	16.3	18.3	15.0
Other industries (r, s, t, u)	4.93	4.00	4.19	4.49	4.3	4.5	4.9

15.10.40 **Table 15.14** indicates that East Ayrshire has a relatively diverse economic base, not dissimilar to that of Scotland as a whole, with strong health & social care, retail, construction and manufacturing sectors. In contrast, Dumfries and Galloway has a less industrialised and service orientated economic base, with a relatively high percentage of employees working in primary industries. **Table 15.14** also highlights the presence of localised high concentrations of employment in agriculture, mining, manufacturing, construction and transport within council wards relevant to the Development Site. A high concentration of employment with human health and social work is noted within the Doon Valley Ward.

15.10.41 It is clear from **Table 15.14** that Dumfries and Galloway also has a diverse economic base, however there is a relatively high percentage of employment in agriculture, forestry and fishing due to the area's rural nature. The Dumfries and Galloway Regional Economic Strategy 2014-2020:



Baseline Study & Regional Economic Profile (2014) attributes the relatively poor economic performance of Dumfries and Galloway to several factors including:

- ▶ An “*over-representation*” of relatively low productivity agricultural and retail sector employment; and,
- ▶ Conversely, low proportions of employment in higher value-added sectors such as financial services and high-tech manufacturing.

### Accommodation & Hospitality

- 15.10.42 Owing to its remote location, the Development Site is not in close proximity to any hotels or Bed & Breakfasts (B&Bs), however a small number of small hotels and B&Bs are located within the nearest main settlements of Carsphairn, Kirkconnel, Sanquhar, Cumnock and New Cumnock. Data from the Ayrshire & Arran Tourism Strategy 2012-2017 indicates that accommodation across the Ayrshire and Arran region comprises a stock of 21,620 beds, split between serviced (7,360 beds) and non-serviced (14,260 beds) accommodation.
- 15.10.43 The Tourism in Scotland’s Regions (2014) report indicates that average monthly hotel occupancy levels across the Dumfries and Galloway and Ayrshire and Arran regions (including East Ayrshire) were 47% and 61% respectively. This data also shows distinct seasonal trends in hotel occupancy levels focused around peak summer months as both Dumfries and Galloway and Ayrshire and Arran recorded peak occupancy levels in August 2014 (81% and 65% respectively), with the lowest levels in December and January 2014 (22% and 26% respectively). The peak hotel occupancy levels are lower than the peaks achieved in regions such as Edinburgh and Lothians (93%) and Glasgow (88%), although these peaks can be attributed to the Edinburgh Festivals and the 2014 Commonwealth Games. Overall these occupancy statistics indicate that there is currently significant spare capacity within hotels across Dumfries and Galloway and Ayrshire and Arran, especially during the winter months.

## Recreation

### Recreational Activities

- 15.10.44 The majority of the Development Site is subject to the ‘right to roam’ under the Land Reform (Scotland) Act 2003 such that access for recreation (including walking and horse riding) is permitted over most of the Development Site.
- 15.10.45 The upland grassland characteristics of the Development Site are considered to offer a variety of potential recreational pursuits including, but not limited to: walking, running, orienteering and wild camping. Similar recreational pursuits can be undertaken within the surrounding area due to the presence of similar topography and similar land uses.
- 15.10.46 The Development Site hosts a number of small waterbodies which are potentially suitable for water based recreational activities (including angling), in particular the Water of Ken which flows through the centre of the Development Site from North West to South East. This watercourse flows through a series of lochs and reservoirs to the south east of the Development Site including Kendoon Loch and Loch Ken before connecting with the River Dee, a designated Freshwater Fish Salmonid Water. It should however be noted that there is no evidence of any other water based recreational activities taking place within the vicinity of the Development Site.

### Designated Walking Routes within the Development Site

- 15.10.47 All designated walking routes within the vicinity of the Development Site are illustrated on **Figure 15.1** and as shown, two Core Paths within the adopted Dumfries and Galloway Core Paths Plan are located within, or directly abut, the Development Site boundary:
- ▶ Core Path 215: Lorg Trail passes through the centre of the Development Site. This Core Path originates south west of the Development Site at the junction of the minor road from Smittons

Bridge to Lorg Bridge and the access track to Nether Holm of Dalquhairn, and runs north eastwards to the SUW and the slopes of Lorg Hill.

- ▶ Core Path 504: Southern Upland Way follows the same route as the part of the designated SUW designated trail located within Dumfries and Galloway. A section of the SUW (and thus also this Core Path) passes along the south eastern boundary of the Development Site.

15.10.48 No Core Paths within the adopted East Ayrshire Core Paths Plan are located within the Development Site.

15.10.49 As shown on **Figure 15.1**, the following Scottish Hill Tracks and Heritage Trails pass through the Development Site and also have other sections within the 5km ZTV of the Proposed Development:

- ▶ Scottish Hill Track 83: St John's Town of Dalry to Sanquhar;
- ▶ Scottish Hill Track 84: New Cumnock to St John's Town of Dalry by Glen Afton;
- ▶ Heritage Path: Old Road from New Cumnock to Dalquhairn; and
- ▶ Heritage Path: Sanquhar to Stroanpatrick Path.

#### Designated Walking Routes within 5km of the Development Site

15.10.50 As shown on **Figure 15.1**, other Core Paths (adopted by either East Ayrshire Council or Dumfries and Galloway Council) located outwith the Development Site but within 5km and within the ZTV of the Proposed Development are:

- ▶ DGC Core Path No. 51 Benbuie to Troston Hill;
- ▶ DGC Core Path No. 52 Cairnhead to Blackmark Hill;
- ▶ DGC Core Path No. 443 Bank Hill to Graystone Hill;
- ▶ DGC Core Path No. 446 Benbrack;
- ▶ DGC Core Path No. 216 Manquhill Hill;
- ▶ DGC Core Path No. 188 Corlae; and
- ▶ EAC Core Path No. C10: Coalfield Cycle Route.

15.10.51 No other designated walking or cycling routes are known to be located within 5km of the Development Site and within the ZTV of the Proposed Development.

15.10.52 In addition to the aforementioned SUW, the following long distance recreational routes are outwith 5km but within 35km of the Development Site and within the ZTV of the Proposed Development:

- ▶ Robert the Bruce Trail;
- ▶ Burns Heritage Trail; and
- ▶ Galloway Red Kite Trail.

15.10.53 It should be noted that whilst National Cycle Route (NCR) 7, part of the Sea to Sea (C2C) cycle route, is located within 35km of the Development Site, only an approximately 500m long section located approximately 31.3km from the nearest proposed turbine is within the blade tip ZTV of the Proposed Development. The fact that such a small section of the C2C track is within the blade tip ZTV ensures that no significant effects are likely to arise, so the receptor has been excluded from the assessment undertaken in **Chapter 9 – LVIA**; and also from further assessment as a potential recreational receptor in this ES chapter.

## Tourism: Economics

- 15.10.54 Scotland's Economic Strategy (Scottish Government, 2015) identifies "*Sustainable Tourism*" (i.e. tourism related industries) as one of five national Growth Sectors, which also includes "*Energy (including renewables)*". The Scottish Government's Annual Business Statistics for 2013 (the latest available edition) indicate that turnover in tourism related industries amounted to £6.69 billion in 2013, with GVA at basic prices from this sector amounting to £3.47 billion (Scottish Government, 2015). These levels are higher than those reached in any of the five preceding years, albeit that relatively similar levels of turnover and GVA at basic prices have been recorded since 2008. In both 2012 and 2013 the largest components of tourism related industries nationally by turnover were restaurants and mobile food service activities, hotel and similar accommodation, and beverage serving activities respectively.
- 15.10.55 In terms of the regional economic importance of tourism, the latest available statistics from the Scottish Government indicate that tourism-related employment provided 5,400 jobs and generated £91.1m GVA at basic prices in Dumfries and Galloway in 2013, with corresponding values of 2,200 tourism related jobs and £39.5m GVA in East Ayrshire (Scottish Government, 2015). These regional statistics contribute to the national totals of 196,900 tourism related jobs and £3,471.3bn GVA at basic prices in 2013 (Scottish Government, 2015). All of these statistics emphasise the importance of the tourism sector to both the regional and national economic base.

## Tourism: Visitor Statistics & Attractions

### Tourism in Scotland's Regions 2014 Report

- 15.10.56 The latest available visitor statistics are contained within the Tourism in Scotland's Regions 2014 report, published by Visit Scotland in September 2015. This document estimates that in 2014, UK tourists made approximately 829,000 trips to Ayrshire and Arran (including East Ayrshire), staying for an average of 2.9 nights and spending £124m. Whilst the average duration was less than the 3.3 night average stay recorded in 2013, the number of trips increased by approximately 120,000 and tourist expenditure also increased. Similarly, UK tourists made approximately 663,000 trips, staying for an average of 4.1 nights and spending £116m whilst in the Dumfries and Galloway region, and all of these figures are significantly higher than the corresponding values achieved in 2013.
- 15.10.57 Overseas visitors to the Dumfries and Galloway region made approximately 49,000 trips in 2014, staying for an average of 8.1 nights and spending £26m. Overseas visitors to the Ayrshire and Arran region made around 64,000 trips, staying for an average of 12.1 nights and spending approximately £37m. In both regions, the number and length of trips increased significantly from the levels recorded in 2013, however whilst tourist expenditure in Ayrshire and Arran increased by approximately £23m, it fell by approximately £20m in Dumfries and Galloway. No reasons are given within this report to explain these trends.
- 15.10.58 The report also identifies the top visitor attractions within Dumfries and Galloway and Ayrshire and Arran in 2014. Of these, the Galloway Forest Park, which covers the same land area as the internationally recognised Galloway Forest Dark Sky Park, is the only attraction within the ZTV of the Proposed Development. For the avoidance of doubt, the Scottish Dark Sky Observatory associated with the Galloway Forest Dark Sky Park, but located within East Ayrshire, is outwith the ZTV of the Proposed Development and is therefore not considered within the assessments provided in this ES chapter.
- 15.10.59 An analysis of **Figure 9.5 – ZTV to blade tip height** indicates that the Proposed Development may be visible from the tourist destinations and visitor attractions listed in **Table 15.15**, which are all within 35km of the Development Site. This list includes:
- ▶ all tourism and recreational receptors identified within **Chapter 9 – LVIA** as being within 35km of the Development Site and within the ZTV of the Proposed Development;
  - ▶ all receptors identified within **Chapter 10 – Historic Environment** as being within 35km of the Development Site, within the ZTV of the Proposed Development and accessible to visitors (i.e.

private listed buildings and buried heritage assets with no associated visitors centre are excluded); and

- ▶ receptors identified within Visit Scotland's Tourism in Scotland's Regions 2014 report, providing these are within 35km of the Development Site and within the ZTV of the Proposed Development.

15.10.60 Of note, the list of potential tourism receptors provided in **Table 15.15** excludes transport and recreational routes, as these have already been identified and scoped above.

Table 15.15 Tourist Destinations and Visitor Attractions within 35km of Proposed Development

<b>Potential Tourism Receptors</b>
Robert the Bruce Trail
Burns Heritage Trail
Galloway Red Kite Trail
Galloway Forest Park
Andy Goldsworthy's Striding Arches on the summits of Benbrack, Colt Hill, Bail Hill and Cairnhead (although Cairnhead summit lies outwith the ZTV)
Burns Memorial
Cairnsmore of Carsphairn 797m AOD (Corbett)
Blackcraig Hill 700m AOD (Graham)
Windy Standard 698m AOD (Graham)
Loch Doon
Stroanfreggan Cairn and Stroanfreggan Craig Hill Fort Scheduled Monuments
Dumfries House Inventory Garden and Designed Landscape (GDL) and associated Listed Buildings
Craigengillan GDL
Auchincruive GDL
Sorn Castle Golf Club, Catrine
Merrick 843m AOD
Corserine 814m AOD
Shalloch on Minnoch 775m AOD
Mullwharchar 692m AOD
Millfore 657m AOD
Queensberry 697m AOD
Ballencleuch Law 689m AOD
Lamachan Hill 717m AOD
Green Lowther 732m AOD

- 15.10.61 The tourism and recreational attractions listed in **Table 15.15** represent potential receptors which may require further assessment in this ES chapter, subject to the exclusions detailed in **Section 15.12** below. For clarity, potential tourism receptors which are excluded from the detailed tourism assessment provided in **Table 15.17** are listed in **Appendix 15.A**.

### Predicted Trends in the Absence of Development

- 15.10.62 From the information acquired for this assessment, there is no indication that the baseline is in the process of any significant transition which would affect the evaluation of socio-economic impact of the Proposed Development.

### Information Gaps

- 15.10.63 No pertinent information gaps have been identified with regard to the baseline socio-economic situation.

## 15.11 Design Evolution

- 15.11.1 As detailed within **Chapter 3 – Site Selection and Design Evolution**, the design of the Proposed Development has taken account of all known technical and environmental constraints within the Development Site and has sought to minimise predicted landscape and visual effects and thus potential tourism effects which may be associated with such landscape or visual effects (see **Chapter 9 – LVIA**). The design process has also sought to minimise predicted adverse public access and recreational effects throughout all phases of the Proposed Development, whilst ensuring that the proposed network of onsite access tracks would result in beneficial public access and recreational effects.
- 15.11.2 Given that adverse visual effects have the potential to result in adverse effects on the attractiveness or tourism potential of some receptors, and that the scale of the Proposed Development largely determines predicted economic and employment effects, the design process has indirectly taken account of potential socio-economic, tourism and recreation effects.

## 15.12 Scope of Assessment

- 15.12.1 The remainder of this chapter describes and assesses the predicted socio-economic effects of the Proposed Development upon the baseline situation presented above. The Scope of Assessment set out in the Scoping Report focused on a desk based assessment to determine direct and indirect effects on economy and employment, indirect effects on tourism and recreational interests; and any cumulative effects on the economy, employment, tourism and recreation when taking into account other wind farm development.
- 15.12.2 The following areas have been scoped out of the socio-economic, tourism and recreational assessment, either during the scoping stage or through the EIA process:
- ▶ Individual effects on local residents and the local community due to visual impact (**Chapter 9**), traffic (**Chapter 14**), noise (**Chapter 7**) and shadow flicker (**Chapter 8**) as these are considered in the relevant ES chapter as noted;
  - ▶ Demographic effects due to the relatively short construction period (approximately 12 months) and the low magnitude of local employment generated. Owing to the relatively stable working age populations recorded in all relevant geographies it is predicted that any local demographic changes would be of negligible magnitude and there would be no discernible effects at regional and national levels;
  - ▶ Effects on the visitor attractiveness or tourism potential of identified tourism and recreational receptors located:
    - outwith 35km of the Development Site;

- within 35km of the Development Site but outwith the ZTV of the Proposed Development;
- within 35km of the Development Site, but with only very limited ZTV coverage of the Proposed Development to such a limited extent that the viewpoint analysis reported within the baseline section of **Chapter 9 – LVIA** confirms that views from these receptors would not experience significant visual effects (and therefore they are not subject to detailed assessment within **Chapter 9 – LVIA**); and
- beyond 10km of the Development Site and within the ZTV of the Proposed Development, but which are either assessed in the LVIA (**Chapter 9**) as not experiencing significant adverse visual effects or which are not identified by Visit Scotland as being within the top five visitor attractions in the Dumfries and Galloway or Ayrshire and Arran regions in 2014. Where the identified top five regional visitor attractions lie within 35km ZTV of the Proposed Development they are included within the tourism and recreational assessment provided in this ES chapter. In addition, the A713 National Tourist Route (Galloway) is located approximately 10.5km from the Development Site at its closest point so is included within the tourism and recreational assessment on a precautionary basis.

- 15.12.3 In all of the case listed above, potential tourism and recreational receptors would experience no or only limited and **'not significant'** adverse landscape and visual effects. It is therefore considered that there is no possibility that these receptors could experience significant effects in terms of visitor attractiveness and tourism potential. On this basis, these receptors have been scoped out of the tourism and recreational assessment provided in this ES chapter. For clarity, all tourism receptors which have been scoped out of this tourism assessment are listed in **Appendix 15.A**. For the avoidance of doubt this includes the Scottish Dark Sky Observatory (SDSO) as it is not located within the ZTV of the Proposed Development. Combined with the lack of proximity of the Development Site to the Galloway Forest Dark Sky Park and the limited ZTV coverage within the Dark Sky Park it is clear that there are no likely significant adverse effects on dark sky interests. Therefore in accordance with the Scottish Government's Planning Circular 3/2011 and Planning Advice Note 1/2013 (both regarding Environmental Impact Assessment) it is considered unnecessary and indeed disproportionate to undertake a detailed Dark Sky Assessment for the Proposed Development. Therefore a Dark Sky Assessment has been scoped out of this ES chapter.
- 15.12.4 Owing to the limited development activities likely to be required in order to construct the proposed 2.9km (approximate) of access track and the proposed erection of one 'permanent' anemometer mast and crane pad in East Ayrshire, it is considered that these elements of the Proposed Development in isolation are not likely to generate any significant economic or employment effects. Therefore in accordance with the applicable EIA regulations, there is no requirement to undertake an assessment of economic or employment effects which may arise solely as a result of proposed infrastructure in East Ayrshire. Instead, any economic and employment effects resulting from this infrastructure would contribute to the socio-economic effects likely to arise from the overall Proposed Development. The predicted economic and employment effects have therefore been assessed for the Proposed Development as a whole (i.e. the proposed elements in Dumfries and Galloway and East Ayrshire together).
- 15.12.5 Similarly, owing to their limited scale, the proposed infrastructure within East Ayrshire is not considered likely to generate any significant tourism effects. As detailed in **Chapter 9 – LVIA**, the predicted landscape and visual effects from the proposed infrastructure in East Ayrshire alone would be 'Not Significant' and of a lower level compared with predicted landscape and visual effects from the overall Proposed Development. In accordance with the EIA Scoping Response received from Visit Scotland, the assessment of tourism effects provided below therefore considers potential effects on tourism receptors from the Proposed Development as a whole. However, where possible, individual direct public access and recreation effects relating to land within Dumfries and Galloway and East Ayrshire are assessed separately.
- 15.12.6 **Sections 15.13 and 15.14** describe the potential effects that could arise from the construction, operation and decommissioning of the Proposed Development on the economy, employment and industry, on land use, public access and recreation, tourism and leisure. The cumulative effects that could occur are discussed in **Section 15.15**. Of note, the inclusion of potential effects in

**Sections 15.13-15.15** does not imply that likely residual effects would be significant, only that their likelihood and potential magnitude has been considered. Mitigation and enhancement measures are described in **Section 15.16**, with an assessment of the residual effects of the Proposed Development provided in **Section 15.17**.

## 15.13 Predicted Effects: Construction & Decommissioning

- 15.13.1 The socio-economic, tourism and recreation effects which are predicted to occur during decommissioning are anticipated to be similar in nature to the effects experienced during construction, albeit on a reduced scale. Decommissioning is expected to be of a shorter duration than the construction period, therefore the magnitude of all socio-economic, tourism and recreation impacts which occur during decommissioning would be lower than the same impacts occurring during the construction phase of the Proposed Development. In relation to the decommissioning of proposed access tracks, these are proposed to be retained within Dumfries and Galloway but due to the requirements of East Ayrshire Council, they would be removed within East Ayrshire. As such, it is anticipated that there would be some differences in decommissioning processes and associated socio-economic impacts across the Development Site, which are considered below.

### Economic Effects

- 15.13.2 As noted in **Section 15.3**, where effects cannot be quantified, the assessment of significance is undertaken using professional judgement and experience. This is considered to be the case for economic effects resulting from the capital investment of constructing, operating and decommissioning a wind farm where the assessment of significance is effectively based on the magnitude of change in monetary terms. The Proposed Development has the potential to generate a range of economic benefits for local businesses as it is anticipated that a reasonable proportion of the cost of the civil, electrical and grid connection work will be spent in Scotland, and locally in East Ayrshire and Dumfries and Galloway.
- 15.13.3 Indicative construction and decommissioning requirements for the Proposed Development are detailed in **Table 15.16**.

Table 15.16 Indicative Construction and Decommissioning Requirements

Required Services	Details
<b>Accommodation</b>	Workers would require the use of local accommodation, assumed to be within approximately 20km of the Development Site.
<b>Local amenities</b>	All workers during the construction period will require food, drink and other provisions, bringing trade to the local area.
<b>Development Site security</b>	Throughout the construction and decommissioning phases of the Proposed Development, security workers from the local area will be required to protect assets and ensure compliance with Construction Design and Management (CDM) Regulations 2015.
<b>Abnormal Load (turbines) and Crane Haulage</b>	Specialist haulage contractors will be required to deliver turbine components and cranes to the Development Site during the construction period.
<b>Road construction</b>	New and upgraded access roads and tracks within the Development Site will be required. A local supplier may be required for road surfacing.
<b>Balance of Plant construction</b>	Infrastructure including temporary construction compounds and a potential borrow pit will be required. This work will be undertaken by civil engineering contractors.
<b>Substation detailed design and construction</b>	Specialist contractors will be required to design and construct the on-site control building and substation, which will house all electrical and communications equipment for the Proposed Development.
<b>Turbine foundation detailed design and construction</b>	The final design of the foundations depends on the ground conditions and exact turbine specifications.
<b>Turbine manufacture</b>	The turbine manufacturer and manufacturing location is still to be confirmed. This is likely to be

Required Services	Details
	outside the UK, however there are several UK manufacturing options including the Wind Towers Scotland facility in Machrihanish near Campbeltown.
<b>Turbine erection</b>	Once transported to the Development Site, all turbines would be erected into position by specialist contractors likely to be available within Scotland.
<b>Landscaping</b>	Post construction landscaping works may be undertaken by a local contractor.
<b>Electrical switchgear design &amp; installation</b>	The Proposed Development requires the design and on-site installation of complex electrical systems and cabling.
<b>Power transmission design</b>	All electricity transmission cabling will need to be designed by a specialist company.
<b>Meteorological mast installation</b>	A specialist company will be required to install two permanent meteorological masts and monitoring equipment.
<b>Fencers</b>	Temporary construction fencing, and any permanent fencing required, may be installed by local contractors.
<b>Fuel supplies and delivery</b>	Machinery used during construction will require fuel supplies provided by a local distributor.
<b>Construction materials supply and delivery</b>	Materials for the construction phase will be sourced from local suppliers where possible including bricks, mortar, cement, concrete, stone, wood, steel, cabling, electricity poles etc.
<b>Sub-contractors</b>	Electrical fitters, carpenters, painters & decorators, plumbers may be required during the construction phase for various tasks.

- 15.13.4 The Generation Costs and Deployment Potential of Renewable Energy Technologies in the UK (2011) report, the BiGGAR report (2015) and the O’Herlihy report (2006) all recognise the importance of the capital spend during construction. The economic impact assessment set out within the O’Herlihy report (2006) splits construction spend by turbine manufacturing and construction and installations costs. This is of particular relevance to the Proposed Development, as the case studies used are of a similar scale to the Proposed Development. The O’Herlihy report (2006) identifies that approximately 65% of the total capital spend for a proposed wind farm relates to the cost of manufacturing wind turbines, with the remaining 35% related to onsite construction (balance of plant) and installation work. The BiGGAR Report (2015) supports this analysis as it calculates that turbine manufacturing accounts for 64.4% of total capital expenditure, balance of plant contracts account for 28.6% and grid connections account for 7.1%.
- 15.13.5 The BiGGAR report (2015) calculates that the weighted average construction cost per MW is £1.32m, with the majority of case study projects spending within 15% of this figure. On this basis, and an assumed maximum deployment of 15 x 3.3MW turbines and therefore up to 49.5MW installed capacity, the construction phase of the Proposed Development (including turbine manufacture) could result in construction expenditure of up to £65.34m. However, the Review of the Generation Costs and Deployment Potential of Renewable Energy Technologies in the UK report (DECC, 2011) estimates the total capital cost of a wind farm greater than 5MW constructed in 2015 to be between £1.17m and £1.80m per MW installed<sup>13</sup>. Therefore using DECC’s figures from 2011, the capital cost of the Proposed Development is estimated to be up to between £57.92m and £89.10m. This range of figures underpins the calculations detailed below regarding predicted economic and employment effects from the construction of the Proposed Development.
- 15.13.6 The BiGGAR (2015) report states that 12% of the total capital costs of an onshore wind farm (i.e. including turbine manufacturing, balance of plant and grid connection) are typically spent locally (in this case, Dumfries and Galloway and East Ayrshire), 36% spent in the Region/Nation (Scotland) and 47% spent within the UK. For the Proposed Development this results in a range of between £6.95m (12% of £57.92m) and £10.69m (12% of £89.10m) being spent locally and a range of between £20.85m (36% of £57.92m) and £32.08m (36% of £89.10m) spent within Scotland. Considering this and taking account of the presence of required facilities, amenities, construction materials and labour skills, it is reasonable to predict that a large proportion of ‘local’ spend (in

<sup>13</sup> All figures in this section are rounded to 2 decimal places



Dumfries and Galloway and East Ayrshire) will be in relative close proximity to the Development Site.

- 15.13.7 Using the expenditure distribution profile from the O'Herlihy report (2006) and figures from The Generation Costs and Deployment Potential of Renewable Energy Technologies in the UK (2011) report, the manufacturing of the turbines for the Proposed Development could generate capital expenditure of between £37.65m and £57.91m (65% of £57.92m and £89.10m). The balance of plant construction works including potential grid connection work could generate capital spend of between £20.27m and £31.19m (35% of 57.92m and £89.10m). Using the latest available figures from the BiGGAR Report (2015), with total capital expenditure of £65.34m the manufacturing of the turbines could result in capital expenditure of up to approximately £42.08m (64.4% of £65.34m), the balance of plant construction phase could result in capital expenditure of up to approximately £18.68m (28.6% of £65.34m) and grid connection work could result in capital expenditure of up to approximately £4.64m (7.1% of £65.34m). .
- 15.13.8 Owing to the remoteness of the Development Site, the absence of any nearby main settlements and the proposed use of access roads to both the north and south for construction traffic, economic effects resulting from the construction and decommissioning phases of the Proposed Development are likely to be distributed relatively widely rather than being concentrated within a limited number of settlements. Based on these assumptions and all of the calculations provided above, the on-site contribution to the economy would result in a Medium magnitude of change at the 'local' level (i.e. across East Ayrshire and Dumfries and Galloway) and also within the locality of the Development Site (i.e. the Castle Douglas and Glenkens ward of Dumfries and Galloway and the Cumnock and New Cumnock ward of East Ayrshire). At council ward and local authority levels the predicted level of beneficial short term economic effects would therefore be Moderate and '**not significant**'. At a national level, taking account of both on-site work and potential offsite turbine manufacturing within the UK, this level of investment would result in a Low magnitude of change, which is considered to be '**not significant**'.
- 15.13.9 It is therefore considered that the economic effects during the construction of the Proposed Development would result in temporary, beneficial and '**not significant**' effects at council ward, local authority and national levels. Owing to the reduced level of development activity likely to be required during the decommissioning phase of the Proposed Development (thus the reduced magnitudes of change at all spatial scales), all economic effects likely to be generated throughout the decommissioning phase are also considered to be temporary, beneficial and '**not significant**'.

#### Accommodation

- 15.13.10 Employment associated with the construction of the Proposed Development would be likely to increase occupancy in nearby hotels and other short term accommodation, as well as increasing trade in local hospitality establishments. However, it is not likely to result in an overwhelming influx of local accommodation or hospitality bookings at a particular point in time. These potential changes are considered to represent a Medium positive magnitude of change on local accommodation receptors, resulting in a temporary beneficial moderate effect which is considered '**not significant**'. The effects generated by the decommissioning of the Proposed Development are considered to be temporary, beneficial and '**not significant**'.

#### Employment Effects

- 15.13.11 The BiGGAR (2015) report in Table 6: GVA and Employment Ratios (Construction Phase) estimates that average total turnover per employee during the construction phase of a wind farm is £137,942. If replicated during the construction of the Proposed Development this could result in local employment across East Ayrshire and Dumfries and Galloway ranging from to 50.38 FTE (£6.95m ÷ £137,942) up to 77.50 FTE (£10.69m ÷ £137,942), and Scottish level employment ranging between 151.15 FTE (£20.85m ÷ £137,942) up to 232.56 FTE (£32.08m ÷ £137,942) throughout the construction period.<sup>14</sup>

<sup>14</sup> It is acknowledged that these calculations do not provide a breakdown of predicted turbine manufacture, balance of plant and grid connection employment split across local, regional (Scotland) and UK geographies, however providing

- 15.13.12 In addition to the predicted employment levels calculated above, it is expected that further employment would be sustained or created through induced and indirect economic effects. This would be likely to occur through the supply chain and the impact of wages and salaries on the local economy including increased hotel occupancy rates through contractors staying in the local area, with the baseline (**Section 15.10**) identifying that the tourism and hospitality industry is an important source of employment across both Dumfries and Galloway and East Ayrshire. This would enable the retention of employment related economic benefits in the local economy. However, the extent of these indirect and induced employment effects cannot accurately be determined until individual contractors are appointed, which would only take place after any consent for the Proposed Development is granted by Scottish Ministers. Furthermore, indirect and induced employment benefits would also be dependent on the extent to which employees of the successful contractors decide to spend their income on local goods and services.
- 15.13.13 It should be noted that the number of construction workers employed would depend on the duration of the construction programme and may vary if the programme is altered. It is further acknowledged that the number of construction related FTEs would vary depending on project specific requirements and that construction phase employment would only be sustained for a temporary period.
- 15.13.14 On the basis of the economic assessment outlined above and utilising the methodology identified in **Sections 15.3 – 15.7**, a qualitative assessment of the significance of potential employment levels has been carried out. Employment at the 'local' level is considered to have Medium sensitivity across Dumfries and Galloway and East Ayrshire and also within the locality of the Development Site (i.e. the Castle Douglas and Glenkens ward of Dumfries and Galloway and the Cumnock and New Cumnock ward of East Ayrshire) due to the level of the existing construction workforce in these geographical areas (see **Table 15.14**). The predicted increase in employment during the construction phase would be of temporary/short term benefit and is considered to represent a Small to Medium magnitude of change at the local level (i.e. at both council wide and ward levels) owing to the number of jobs created. This would result in a temporary beneficial Slight level of effect across East Ayrshire and Dumfries and Galloway, and a temporary beneficial Moderate level of effect within the locality of the Development Site (i.e. the ward level), both of which would be '**not significant**'. At the national level, the predicted increase in employment during construction is a temporary/short term beneficial effect of Negligible-Small magnitude of change, owing to the limited number of jobs created when compared with the national levels of jobs in the onshore wind energy sector (5,400 FTE jobs – Scottish Government, 2015). This would also result in a temporary, beneficial but '**not significant**' effect on employment.
- 15.13.15 It is therefore considered that the construction related employment effects of the Proposed Development would result in temporary, beneficial effects that are considered '**not significant**' in EIA terms. The effects generated by the decommissioning of the Proposed Development are considered to be temporary, beneficial and '**not significant**'.

## Land Use Impacts

- 15.13.16 The Development Site is currently used as grazing land for livestock (sheep). The construction process would require the temporary closure of this grazing land in construction areas and may result in temporary relocation of livestock within the wider Development Site.
- 15.13.17 Owing to its current land use and given that the Development Site does not comprise prime agricultural land, it is considered to have Low sensitivity to land use change. Therefore with a Small magnitude of change predicted there would be a temporary, neutral land use change effect during construction and decommissioning phases, which is considered '**not significant**'.

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such statistics would involve more complicated analysis which would be of limited value, especially given that the location of all contractors would not be confirmed until after any consent is granted for the Proposed Development by Scottish Ministers.

## Public Access

- 15.13.18 All Core Paths are considered to have a high sensitivity in terms of guaranteed public access due to their protection under the Land Reform (Scotland) Act 2003. Long distance walking routes including the SUW are also considered to have a high sensitivity in terms of public access due to the importance afforded to long distance walking and cycling routes within the NPF3. Scottish Hill Tracks, Heritage Paths and other promoted paths are considered to have medium sensitivity in terms of public access, as they are not statutorily protected but are recognised walking routes.
- 15.13.19 Dumfries and Galloway Core Path 215, Scottish Hill Track 84: New Cumnock to St John's Town of Dalry by Glen Afton and the Old Road from New Cumnock to Dalquhairn Heritage Path all intersect with proposed access tracks within the Development Site. Direct effects from the construction of the Proposed Development on public access and recreation would be limited to users of these routes, as no other designated routes intersect with any proposed infrastructure or construction activities.
- 15.13.20 The intersection between a proposed access track and Core Path 215 would occur adjacent to a proposed watercourse crossing over the Water of Ken within Dumfries and Galloway, whilst the intersection between a proposed access track and Scottish Hill Track 83 and an overlapping Heritage Path would occur within East Ayrshire. In both cases, proposed access tracks would cross these walking routes at a single point, rather than utilising stretches of these routes, which would limit the duration and extent of potential disruption to users of these routes.
- 15.13.21 In addition to temporary disruption to designated walking routes as assessed in detail below, during the construction phase the 'right to roam' normally enjoyed across the Development Site through the provisions of the Land Reform (Scotland) Act 2003 would be restricted where construction activities are taking place, for health and safety reasons and to ensure compliance with the CDM Regulations 2015.
- 15.13.22 The Development Site as a whole is considered to have low sensitivity in relation to public access owing to its remote location and lack of visitor facilities. The impact of temporarily restricting the 'right to roam' is therefore considered to represent a Small magnitude of change in terms of public access, resulting in a Negligible and '**not significant**' level of effect. Effects on designated access routes are considered in the following sections.

### Assessment of Direct Public Access Impacts within Dumfries and Galloway

- 15.13.23 To ensure safe construction of the proposed bridge over the Water of Ken, and in accordance with the CDM Regulations 2015 and the Land Reform (Scotland) Act 2003 (as amended), it may be necessary to divert a localised section of Core Path 215 for the duration of the construction of this watercourse crossing and associated access track. It is proposed to leave access tracks located within Dumfries and Galloway in-situ after the end of the consented operating period of the Proposed Development, so whilst site traffic would utilise the watercourse crossing and access track during decommissioning works it would not be necessary to divert Core Path 215 during the decommissioning phase.
- 15.13.24 It is envisaged that any required localised diversion would be formed within the immediate vicinity of Core Path 215 at the outset of the bridge construction works programme by stripping vegetation to create a passable surface. Signage and way markers would be deployed to assist walkers using this localised diversion, which would likely only extend to a few hundred metres in length and would remain on similar topography to the existing route. Taking account of the High sensitivity of Core Path 215, it is considered that the magnitude of change to public access (inconvenience to path users but continuity of access) would be Small, resulting in a temporary Slight/Moderate and '**not significant**' level of effect.
- 15.13.25 For the avoidance of doubt, whilst a section of the SUW, associated Core Path 504 and Scottish Hill Track 83: St John's Town of Dalry to Sanquhar all pass along the same stretch of path on the eastern boundary of the Development Site within Dumfries and Galloway, and the B729 enters the Development Site from the south, none of these routes are predicted to experience any direct public access effects during the construction or decommissioning phases of the Proposed

Development. In accordance with the CDM Regulations (2015) and the Scottish Outdoor Access Code, signage warning the public of construction activities and associated hazards in close proximity to these routes would be deployed during the construction and decommissioning phases of the Proposed Development, however this signage would not prevent members of the public from using these routes.

#### Assessment of Direct Public Access Impacts within East Ayrshire

- 15.13.26 To ensure safe construction and subsequent decommissioning of the section of proposed access track within East Ayrshire which intersects with Scottish Hill Track 84 and the overlapping Old Road from New Cumnock to Dalquhairn Heritage Path, it may be necessary to temporarily restrict but not prevent public access to a localised section of this route. It is anticipated that such restrictions would include a reduced path width, fencing around construction areas immediately adjacent to or on part of the route, and the potential need to escort walkers along this section of route when construction activities are taking place. However, only a very small extent of land would be directly affected over the anticipated short duration of construction and decommissioning works necessary to construct and later remove this specific intersection and it is anticipated that this Scottish Hill Track and Heritage Path would remain open continuously. Therefore taking account of predicted temporary disruption and inconvenience to path users the predicted magnitude of change is assessed as Medium, resulting in a **moderate** and '**Not Significant**' level of effect on public access within East Ayrshire.

#### Recreation

- 15.13.27 Aside from temporarily disrupting public access, the construction of the Proposed Development is not expected to generate any direct effects on specific recreational pursuits within the Development Site, which is considered to have low sensitivity as it is not actively used for specific land based recreational purposes and lacks any onsite recreational facilities.
- 15.13.28 **Chapter 10, Geology, Hydrology and Hydrogeology** of the ES concludes that, with the adoption of recommended mitigation measures, the Proposed Development would not result in any residual significant effects on water quality within waterbodies on or off the Development Site. As a result, no adverse direct or indirect effects are predicted for angling and water related recreational activities (e.g. canoeing, kayaking, etc.).
- 15.13.29 In terms of indirect effects, as much of the construction work would only be visible from within the Development Site and its immediate surroundings, indirect (visual) effects would not infringe upon the enjoyment of specific recreational activities (excluding users of designated walking routes) and thus would only result in a temporary Negligible magnitude of change, which is '*not significant*' in EIA terms.
- 15.13.30 With regard to indirect amenity effects on designated walking routes within the Development Site, the level and duration of potential temporary noise and visual effects would vary depending on the nature of individual construction and decommissioning activities being undertaken across the Development Site. Overall it is considered that the close proximity of potentially intense and prolonged construction and decommissioning activities to designated walking routes within Dumfries and Galloway would generate a temporary Medium magnitude of (negative) change on the amenity value of localised sections of affected routes during periods of construction activity, namely:
- ▶ A short section of the SUW, associated Dumfries and Galloway Core Path 504 and Scottish Hill Track 83: St John's Town of Dalry to Sanquhar, all located approximately 200m east of proposed Turbine 15 and a section of access track.
  - ▶ A short section of Dumfries and Galloway Core Path 215 immediately adjacent to the proposed Water of Ken watercourse crossing and associated access track.
- 15.13.31 The high sensitivity of these specific Core Paths and Long Distance Routes (as they all form part of regional and national networks intended to facilitate recreational activities) means that the assessed localised **Medium** magnitude of change on these specific receptors within Dumfries and

Galloway would generate a localised temporary '**significant**' adverse amenity effect. Construction activities would generate at most a Moderate and '**not significant**' adverse amenity effect on designated walking routes within East Ayrshire, as these routes are not located close to locations where intense and prolonged construction works are likely to take place.

- 15.13.32 All of the affected routes extend considerably beyond the Development Site and affected sections are not themselves known visitor attractions, so in overall terms it is considered that the predicted localised temporary '**significant**' amenity impacts on short sections of routes within Dumfries and Galloway would neither discourage the public from using these designated routes nor detract from the overall experience of users. Therefore, when designated routes are considered in their wider context, it is considered that the routes located closest to proposed construction and decommissioning works would experience a **Small** magnitude of change during periods of intense construction/decommissioning activity whilst other routes located further away would experience a **Negligible** magnitude of change. Consequently, all predicted indirect effects on the amenity value of these routes during the construction and decommissioning phases of the Proposed Development would be '**not significant**' in EIA terms.

## Tourism

- 15.13.33 Any significant effects on tourism during the construction and decommissioning periods of the Proposed Development are not anticipated given the temporary nature of this activity and the fact that much of the construction work would only be visible from specific locations within the Development Site boundary, which is not itself a known visitor attraction.
- 15.13.34 **Chapter 14 – Traffic and Transport** of this ES predicts that the construction of the Proposed Development will result in an increase of 24,804 construction HGV movements over the anticipated 12 month construction programme, equating to approximately 94 HGV movements over an average day. It is also predicted that the maximum average increase of 391 daily movements would occur during month 4 of the construction programme. As set out in **Chapter 14**, the construction of the Proposed Development would split construction deliveries across two site entrance routes, would seek to avoid deliveries at peak traffic periods and would implement the measures proposed within the draft Construction Traffic Management Plan (CTMP). The assessment provided in **Chapter 14** of the ES concludes that the predicted temporary increase in construction traffic would represent a residual '**not significant**' effect and that with the implementation of the proposed CTMP the actual movement of abnormal vehicles would also result in a '**not significant**' level of adverse traffic effects. Consequently, adverse effects on road users including tourists during construction are therefore also assessed as being '**not significant**'.
- 15.13.35 Taking into account limited visibility of construction and decommissioning activities outwith the Development Site and the predicted Not Significant level of traffic effects, potential construction and decommissioning effects resulting from traffic movements on tourism receptors are considered '**not significant**'.

## 15.14 Predicted Effects: Operation

### Economics Effects

- 15.14.1 The BiGGAR report (2015) estimates the level of operational investment for a wind farm of greater than 5MW to be between £23,000 and £130,000 per year per MW installed. The report explains that the large differential in this cost range is due to differences in the size of developments, land contracts and whether or not turbines were still under warranty across the case study projects examined. The weighted average cost was £59,867 per MW installed per annum.
- 15.14.2 On this basis the Proposed Development has the potential to generate up to between £1.14m (49.5MW x £23,000) and £6.40m (49.5MW x £130,000) each year during its operational life<sup>15</sup>. Using the weighted average operations and maintenance cost of £59,867 per MW installed per annum quoted within the BiGGAR report (2015), this would generate up to approximately £2.96m

<sup>15</sup> All figures in this section are rounded to 2 decimal places.

of operations and maintenance expenditure per annum throughout the Proposed Development's operational life. Therefore, over the 25 year period of operation, the Proposed Development is predicted to generate total operations and maintenance expenditure of up to between £28.5m and £160m.

- 15.14.3 In terms of the geographical distribution of operations and maintenance expenditure, the BiGGAR report (2015) states that 42% of expenditure occurs locally and 58% is within the region/nation. Therefore it is predicted that the Proposed Development could result in up to between £478,800 (42% of £1.14m) and £2.69m (42% of £6.40m) of local annual operations and maintenance expenditure and up to between £661,200 (58% of £1.14m) and £3.71m (58% of £6.40m) of annual operations and maintenance expenditure within Scotland. It should however be noted that the BiGGAR report (2015) identifies that operating costs vary throughout the life of a wind farm, with costs noticeably increasing from the baseline position after five years due to increased maintenance requirements.
- 15.14.4 The operation and maintenance of the Proposed Development would provide an annual contribution to the local economy throughout its consented operating period. Within the locality of the Development Site (i.e. the Castle Douglas and Glenkens ward of Dumfries and Galloway and the Cumnock and New Cumnock ward of East Ayrshire) this would represent a Small magnitude of change due to an anticipated noticeable increase in expenditure. At local, regional and national scales, predicted economic effects associated with the operation of the Proposed Development are considered to be long term and beneficial but '**not significant**'.
- 15.14.5 Wind farms are liable for business rates, which represents an economic effect additional to the direct socio-economic effect generated through to operations and maintenance expenditure. The rateable value of wind farms in Scotland is determined on a case-by-case basis based on the installed capacity and load rate; the Scottish Assessors Association has published Practice Note 2, Valuation of On-shore Turbines/Wind Farm in order to help calculate the rateable value. It suggests where the load rate is unknown, a figure of 25% is used giving a rateable value of £18,557 per MW for a wind farm of >10MW. On this basis, the rateable value for a 49.5MW wind farm is therefore £918,571.50 per year. Using the current Scottish Assessors Multiplication Rates (48.2 pence in the pound including supplement<sup>16</sup> the business rates payable by the Proposed Development are estimated at £442,751.46 per year. At the national level, this is considered to be a Negligible magnitude of long term beneficial change which would result in a Slight to Negligible level of effect, which is considered '**not significant**'. It should be noted that these rates may be subject to relief or supplements that are not known at this stage.
- 15.14.6 Overall the proposed effects during the operational phase of the Proposed Development on the economy would result in a long term and beneficial effect that is considered '**not significant**'.

#### Accommodation

- 15.14.7 Owing to its remote location, the Development Site is not in close proximity to any hotels or Bed & Breakfasts, however a number of small hotels and B&Bs are located within the nearest main settlements of Carsphairn, Kirkconnel, Sanquhar, Cumnock and New Cumnock.
- 15.14.8 Operations and maintenance activities would be likely to increase occupancy in hotels and other short term accommodation within the nearest main settlements (i.e. both within East Ayrshire and Dumfries and Galloway), as well as increasing trade in hospitality establishments, throughout the operational phase of the Proposed Development. However, this is not likely to result in an overwhelming influx of local accommodation or hospitality bookings at a particular point in time or concentrated within one particular settlement. Owing to the predicted limited frequency and scale of operations and maintenance activities, these potential changes are considered to represent a Small positive magnitude of change on local accommodation receptors, resulting in a long term beneficial Slight effect which is considered '**not significant**'.
- 15.14.9 Whilst there could be theoretical and actual visibility of the Proposed Development from tourist accommodation receptors there is no quantifiable evidence available to indicate that this would be

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<sup>16</sup> See <http://www.saa.gov.uk/ratespayable.html> for full details of applicable rates.

likely to generate any significant adverse effects relating to the visitor attractiveness or tourism potential of such receptors (thus also in terms of accommodation, occupancy levels, business turnover and wider socioeconomic effects). This conclusion is supported by findings from the review of academic research, surveys and polls regarding public and tourist attitudes to wind farms which is detailed in **Appendix 15.B**.

## Employment Effects

- 15.14.10 There would be potential for both national and local employment creation through the requirement for maintenance of the Proposed Development. Taking account of the predicted neutral effect on land use and the not significant effect on tourism and recreation receptors as assessed below, it is not anticipated that the Proposed Development would result in any job losses.
- 15.14.11 The BiGGAR (2015) report in Table 9: GVA and Employment Ratios (Operations and Maintenance) estimates that average total turnover per employee during the operational phase of a wind farm is £121,935. If replicated during the operational phase of the Proposed Development this could result in total employment ranging from up to 9.35 FTE (£1.14m ÷ £121,935) to 62.49.FTE (£6.40m ÷ £121,935) per annum.
- 15.14.12 In terms of the geographical distribution of predicted operations and maintenance employment:
- ▶ Local annual operations and maintenance expenditure (i.e. within Dumfries and Galloway and East Ayrshire) could create up to between 3.93 FTE (£478,800 ÷ 121,935) and 22.06 FTE (£2.69m ÷ £121,935) jobs per annum locally during the operational phase of the Proposed Development. The location and duration of all jobs would depend upon specific operations and maintenance requirements;
  - ▶ National annual operations and maintenance expenditure (within Scotland) could create up to between 5.42 FTE (£661,200 ÷ £121,935) and 30.43 FTE (£3.71m ÷ £121,935) jobs per annum in Scotland during the operational phase of the Proposed Development. The location and duration of all jobs would depend upon specific operations and maintenance requirements.
- 15.14.13 In summary, the Proposed Development is predicted to generate operations and maintenance related employment ranging between 3.93 FTE – 22.06 FTE jobs across Dumfries and Galloway and East Ayrshire whilst 5.42 - 30.43 FTE jobs could be created within Scotland. This increase in employment is considered to be a beneficial Negligible magnitude of change across East Ayrshire and Dumfries and Galloway but a Small magnitude of change within the locality of the Development Site (i.e. within the Cumnock and New Cumnock council ward). Operational effects on employment at the national level would not be discernible. Therefore, the operation of the Proposed Development is predicted to have a beneficial slight to negligible effect on employment at the local level. These effects are considered '**not significant**'.

## Land Use Impacts

- 15.14.14 In terms of land use change, with the exception of the permanent land take required for proposed infrastructure, existing long term land management practices could continue unaffected by the Proposed Development. In particular, normal agricultural practices are expected to continue unimpeded. In addition, a new viable land use (i.e. a wind farm) would be established, which is considered to represent a beneficial land use change. This Small magnitude of change would result in a long term beneficial effect, which is considered '**not significant**'.

## Public Access

- 15.14.15 During the operational phase of the Proposed Development, the public would enjoy unrestricted access to the Development Site under the general 'right to roam' enshrined in the Land Reform (Scotland) Act 2003. Temporary and localised public access restrictions to open land and to sections of walking routes would only apply if it is necessary to undertake intensive maintenance or upgrading to on-site infrastructure including turbines and access tracks, in accordance with the CDM Regulations 2015 and the Scottish Outdoor Access Code. The frequency, duration and extent of any required public access restrictions during maintenance works would be minimal, so a Negligible and '**not significant**' effect on public access is predicted.

- 15.14.16 During the operational phase, the public would have access to approximately 17.7km of new on-site access tracks, with approximately 2.9km being located in East Ayrshire and approximately 14.8km being located in Dumfries and Galloway. In addition, the Proposed Development would involve the construction of 14 new watercourse crossings, including a new bridge across the Water of Ken immediately adjacent to Dumfries and Galloway Core Path 215. This would enhance the existing network of publicly accessible routes onsite, in particular by completing a loop between Dumfries and Galloway Core Path 215 and Scottish Hill Track 84 (which straddles the administrative boundary between Dumfries and Galloway and East Ayrshire) and by facilitating public access to remote moorland located east of the Water of Ken (within Dumfries and Galloway).
- 15.14.17 The predicted beneficial Moderate and '**not significant**' effect on public access would be permanent within Dumfries and Galloway, where it is proposed to retain access tracks during the decommissioning phase, and would be a long term effect within East Ayrshire, where EAC requirements necessitate the removal of proposed access tracks as part of the decommissioning phase.

## Recreation

- 15.14.18 The SUW is one of Scotland's Great Trails and is routed 'coast to coast' from Port Patrick in the west to Cockburnspath Path in the east. Of its 341km length, 110km lies within 35km of the Development Site and the nearest section of the route follows the eastern boundary of the Development Site. As detailed on **Figure 15.1**, the SUW within a 5km radius of the Proposed Development overlaps with the routes of Core Path 504 (DGC), Scottish Hill Track 83 (St. John's Town of Dalry to Sanquhar) and parts of the Heritage Path Sanquhar to Stroanpatrick. The latter also overlaps with Core Path 215 (linked with Core Path 443 and 188) which runs through the Development Site. The Scottish Hill Track 84 New Cumnock to St John's Town of Dalry by Glen Afton (which follows the Heritage Path Old Road from New Cumnock to Dalquhairn) crosses the proposed northern access track and continues in a north south direction to the west of the Development Site. Other Core Paths in the surrounding area includes East Ayrshire Core Path 10 to the northwest and a number of Dumfries and Galloway Core Paths (446, 216, 52 and 51) located partly within forested areas to the south and southeast of the Development Site.
- 15.14.19 The SUW is considered to have a high sensitivity to amenity impacts as the NPF3 notes the importance of long distance walking routes generally as a significant tourism resource, for active travel purposes and for their contribution to health and wellbeing outcomes. Individual Core Paths and other identified routes are considered to have a medium sensitivity reflecting their primary purposes of providing local countryside access and/or connectivity.
- 15.14.20 A detailed sequential assessment of visual effects on the SUW is presented in **Chapter 9 – LVIA**, concluding that an overall fragmented length of approximately 5.8km of the SUW would experience significant visual effects, assuming a worst case scenario. However, taking account of planned forestry management and tree planting, which would alter the screening of the Proposed Development, the stretch of the SUW which would experience significant visual effects would reduce to approximately 4km, located to the east and south east of the Development Site. Parts of the SUW would also experience significant cumulative visual effects, taking account of existing schemes (Wind Standard, Windy Standard Extension, Whiteside Hill and Hare Hill) and the proposed Windy Rig Wind Farm. As noted above, the SUW overlaps with Core Path 504, Scottish Hill Track 83 and parts of the Heritage Path to Stroanpatrick and as such, these routes will also, in sections, experience significant visual effects. From a user experience, it is noted that there are existing wind farms along sections of these routes and as such, this type of renewable energy development is not unfamiliar. It is further recognised that users of these paths will have differing opinion of wind farm developments. Overall, these routes will continue to provide wider countryside access whether local or long distance and the addition of the Proposed Development would add to the experience for some users whilst in sections where significant visual effects are predicted would detract for some. However, as per the evidence review outlined in **Section 15.9** above and detailed in **Appendix 15.B**, there is no conclusive data to suggest that the Proposed Development would adversely impact on the recreational usage of these routes.
- 15.14.21 In summary, the Proposed Development would be seen in the context of a varied landscape, and views towards the Proposed Development are unlikely to detract substantially from the overall



experiential attractiveness of walking the SUW or associated routes. The Proposed Development would generate a **Small** magnitude of change on the SUW and associated routes (and thus a **Moderate to Slight** level of effect) on their visitor attractiveness and tourism potential. The overall predicted effect is considered '**not significant**'.

- 15.14.22 Lorg Trail Core Path 215 (which overlaps with the Heritage Path to Stroanpatrick) crosses the Development Site and links with Core Path 443 (for approximately 7.5km) and SUW to the north and Core Path 188 (for approximately 3.1km) to the south. Lorg Trail (approximately 6km) starts at the junction of the minor road from Smittons Bridge to Lorg Bridge with the access track to Nether Holm of Dalquhairn. It then continues northeast between Lorg Hill and Altry Hill to the junction with the SUW where it turns northwest to follow a forestry track traversing the slopes of Lorg Hill. The assessment in **Chapter 9 – LVIA**, concludes that significant visual effects would occur along sections of these routes, but that the majority would not experience significant visual effects due to intervening topography and forestry. As concluded for Core Path 505 and the SUW above, it is not anticipated that the Proposed Development would discourage potential path users. Taking account of the length of the routes, a **Small to Medium** magnitude of change on the visitor attractiveness and tourism potential of these receptors (and thus a **Slight to Moderate** level of effect) is predicted. The predicted level of effect is considered '**not significant**'.
- 15.14.23 Core Path 10 (Coalfield Cycle Route) to the northwest of the Development Site follows part of the Scottish Hill Track 84 and the Heritage Path to Dalquhairn. The visual assessment provided in **Chapter 9 – LVIA** concludes that significant (including cumulative visual) effects would be experienced on parts of this route, although overall the visibility of the Proposed Development would be intermittent and it is not anticipated that this would discourage the use of this route. Taking account of the length of the route, it is considered that the Proposed Development would generate a **Small** magnitude of change on the visitor attractiveness and tourism potential of the route, resulting in a predicted '**not significant**' level of effect.
- 15.14.24 Dumfries and Galloway Core Paths 446, 216, 52 and 51 are located to the south of the Development Site. Only limited sections of these routes are within the ZTV of the Proposed Development and in these areas Views towards the Proposed Development would largely be screened by the intervening commercial forestry, although it is acknowledged that felling operations are on-going. Significant visual effects are not predicted for these routes, although significant cumulative effects are predicted for parts of Core Path 446 as per **Chapter 9 – LIVA**. A Negligible to Small magnitude of change on the attractiveness of each of these receptors are predicted and are considered '**not significant**'.
- 15.14.25 Given that the specific site of the Proposed Development is not a recognised tourism destination and is not actively used for specific land based recreational purposes other than for general walking activities, the operation of the Proposed Development would not result in direct effects upon specific recreational activities.
- 15.14.26 **Chapter 13 - Geology, Hydrology and Hydrogeology** of this ES concludes that with the adoption of recommended mitigation measures, the Proposed Development would not result in any residual significant effects on water quality within waterbodies on and off the Development Site, including the Water of Ken and Afton Reservoir. As a result, no adverse effects are predicted for angling and water related recreational activities (e.g. canoeing and kayaking, etc.).

## Tourism

- 15.14.27 The Proposed Development has the potential to indirectly affect tourism and recreational activities outwith the Development Site boundary through generating landscape and visual effects at tourism destinations, areas/routes where recreational pursuits are undertaken, and communication routes regularly frequented by tourists.
- 15.14.28 Owing to the expected minimal level of maintenance activity required, **Chapter 14 – Traffic and Transport** of this ES concludes that traffic associated with the operational phase of the Proposed Development would not result in any residual significant traffic or transport related effects which could potentially generate wider socio-economic tourism or recreational effects.

- 15.14.29 Individual tourism receptors located within 35km of the Development Site and within the ZTV of the Proposed Development are listed in **Table 15.15** (see **Section 15.10 – Baseline Information**). Detailed assessments of potential landscape and visual and cultural heritage effects on these receptors have been undertaken where appropriate, as detailed in **Chapter 9 – LVIA** and **Chapter 10 – Historic Environment**. It is important to note that any adverse effects identified within ES **Chapters 9** and **10** relate only to those subject specific assessments in terms of the receptors as identified in each chapter, rather than necessarily to potential effects on visitor attractiveness and tourism. Informed by the aforementioned subject specific assessments, an assessment of effects on visitor attractiveness and tourism potential at relevant receptors is therefore provided in **Table 15.17**.
- 15.14.30 The determining factor within the assessment provided below in **Table 15.17** is the extent to which predicted adverse effects on the physical environment may reduce the attractiveness of individual tourist destinations or visitor attractions, thereby potentially resulting in a reduction in visitor numbers.

Table 15.17 Assessment of Operational Effects on Visitor Attractiveness and Tourism Potential

Receptor Name	Assessment
<b>Potential Tourist Routes</b>	
<p><b>Local roads within 10km of the Development Site:</b></p> <p><b>B729 between Craigdarroch and east of Knoehead.</b></p> <p><b>Minor road from Smittons Bridge to Lorg Bridge.</b></p> <p><b>Minor road from Penpont to Polskeoch.</b></p>	<p>The B729 runs west-east from Carsphairn to Moniaive where it links with the A702. The visual assessment provided in <b>Chapter 9 – LVIA</b> concludes that the overall the level of effect would be Slight and <b>'not significant'</b>. Taking account of existing and consented development would not alter this conclusion, however if application sites (being wind farm application sites in the surrounding area) are also considered, the combined level of effect would range from Substantial and <b>'significant'</b> (due to the Longburn scheme) to No View.</p> <p>The minor road from Smittons Bridge to Lorg Bridge lies entirely within 10km of the Development Site. The visual assessment provided in <b>Chapter 9 – LVIA</b> concludes that the level of effect would range from Moderate and <b>'not significant'</b> to None. Taking account of existing and consented development would not alter this conclusion, however if application sites are also considered the combined level of effect would range from Substantial/Moderate and <b>'significant'</b> (due to the Proposed Development and the Longburn scheme) to No View.</p> <p>A 13km (approximate) section of the minor road from Penpont to Polskeoch starts, from Charnlockfoot Cottages to Polskeoch is within 10km of the Development Site. At the closest point the route is located at approximately 1.6km distance from the nearest proposed turbine. The Proposed Development would be visible along a length of approximately 5km when travelling southwest. The visual assessment provided in <b>Chapter 9 – LVIA</b> concludes that the overall level of effect ranges from Moderate and <b>'not significant'</b> to None. Taking account of cumulative developments would not alter this conclusion.</p> <p>None of the aforementioned roads are designated tourist routes, however it is recognised that they are potential receptors due to their role in facilitating access to visitor attractions and forming part of a holistic visitor experience. As such the determining factors for this assessment are the extent to which the Proposed Development would adversely affect the visitor experience of road users, and whether or not this may result in high numbers of tourists avoiding travelling to visitor attractions or tourist destinations using these roads.</p> <p>Views of the Proposed Development would be intermittent along all of the assessed roads, so within the context of a longer travel journey these views would be experienced within a varied landscape setting. Furthermore, the primary focus of drivers would be on the road rather than surrounding landscapes. Taking these factors into account it is considered that whilst visibility of the Proposed Development (both individually and in combination with other wind farms) could momentarily affect visitor experience (a Medium magnitude of change) this would be insufficient to affect overall visitor experience (a Small to Negligible magnitude of change). Consequently the level of effect regarding the attractiveness of these roads to tourist users would be <b>'not significant'</b>.</p>
<p><b>Afton Road (also promoted as a Scottish Hill Track and Heritage Path).</b></p>	<p>The visual assessment provided in <b>Chapter 9 – LVIA</b> concludes that the overall level of effect would be Slight/Negligible to None and <b>'not significant'</b>. Taking account of existing and consented developments would result in a Substantial / Moderate and Significant level of combined effect (due to Afton Wind Farm) and the addition of proposed schemes would not alter this conclusion.</p> <p>Given that views of the Proposed Development would only be experienced along two relatively short sections of the Afton Road and would largely be screened by vegetation, and whilst visibility of the Proposed Development in combination with Afton Wind Farm could momentarily affect the experience of users (a negligible to Small magnitude of change), it is considered that this would be insufficient to affect the overall experience of users (a Negligible magnitude of change). Consequently the level of effect regarding the attractiveness of the Afton Road to tourist users would be <b>'not significant'</b>.</p>
<p><b>A76</b></p>	<p>The visual assessment provided in <b>Chapter 9 – LVIA</b> concludes that the overall level of effect would be Slight/Negligible to None and <b>'not significant'</b>. Taking account of existing and consented development would not alter this conclusion, however if application sites are also considered the combined level of effect would range from Substantial / Moderate and <b>'significant'</b> (due to the High Cumnock and Garleffan schemes) to No View.</p> <p>The ZTV indicates that theoretical visibility would be concentrated between Mauchline and New Cumnock and fragmented or absent south of New Cumnock, except for a short section south of Thornhill. In addition partial screening would be provided by built form and vegetation. Therefore whilst visibility of the Proposed Development in combination with other proposed schemes could momentarily affect the experience of users (a Negligible to Small magnitude of change) it is considered that this would be insufficient to affect the overall experience of users (a Negligible magnitude of change). Consequently the level of</p>

Receptor Name	Assessment
	effect regarding the attractiveness of the A76 to tourist users would be ' <b>not significant</b> '.
<b>A713 National Tourist Route</b>	<p>Approximately 36km of this 80km route from Ayr to Castle Douglas is located within 20km of the Development Site. The visual assessment provided in <b>Chapter 9 – LVIA</b> concludes that the overall level of effect would be Moderate to No View and not significant. Taking account of existing and consented developments would not alter this conclusion, however also taking account of proposed schemes, the level of cumulative visual effect would be Substantial/Moderate and '<b>significant</b>' due to the proposed Quantans Hill Wind Farm.</p> <p>Owing to limited visibility combined with a lack of proximity to the Development Site, it is considered that the Proposed Development would generate a Negligible magnitude of change on the attractiveness of this receptor. The predicted level of effect is therefore considered '<b>not significant</b>'.</p>
<b>Identified Summits/Hillwalking Areas</b>	
<b>Windy Standard 698m AOD</b> <b>Blackcraig Hill 700m AOD</b> <b>Cairnsmore of Carsphairn 797m AOD</b>	<p><b>Windy Standard</b> is a hill summit in the Southern Uplands located to the southeast of the Afton Reservoir. The summit and much of its slopes to the north-west are covered with the turbines of the existing Windy Standard Wind Farm. The assessment provided in <b>Chapter 9 – LVIA</b> notes that the Proposed Development would not bring wind farm development closer to Blackcraig Hill and would be seen largely as an extension of existing and consented wind farm schemes. The magnitude of visual change at the summit of Windy Standard from the addition of the Proposed Development into the landscape would be Low and the level of effect would be Moderate and '<b>not significant</b>'. Taking account of cumulative development, the combined level of effect would be Substantial and <b>significant</b> due to the existing Windy Standard and Windy Standard Extension wind farms, the consented Afton Wind Farm and the South Kyle, Pencloe and Benbrack application sites.</p> <p><b>Blackcraig Hill</b> is a hill in the Southern Uplands located to the south of New Cumnock and to the north of the Proposed Development. The assessment provided in <b>Chapter 9 – LVIA</b> notes that the Proposed Development would not bring wind farm development closer to Blackcraig Hill and would be seen largely as an extension of existing and consented wind farm schemes. The magnitude of visual change at the summit of Blackcraig Hill is assessed as Medium and the level of effect as Substantial/Moderate and '<b>significant</b>'. Taking account of cumulative development, the combined level of effect would be Substantial to Substantial / Moderate and <b>significant</b> due to the consented Afton Wind Farm.</p> <p><b>Cairnsmore of Carsphairn</b> is a hill summit located to the south-east of Dalmellington. ES Viewpoint 9: Cairnsmore of Carsphairn (<b>Figure 9.36 a/b/c/d</b>) illustrates the views from this summit. The Proposed Development would appear against the landscape at a distance of 5.7km. All of the 15 proposed turbines (including all hubs) would be visible and would appear as a simple and cohesive design with minimal overlapping. The assessment provided in <b>Chapter 9 – LVIA</b> notes that the Proposed Development would not bring wind farm development closer to Blackcraig Hill and would be seen largely as an extension of existing and consented wind farm schemes. The magnitude of visual change at the summit of Cairnsmore of Carsphairn is assessed as Medium to Low and the level of effect would be <b>Substantial / Moderate to Moderate</b> and '<b>significant</b>'. Cumulative effects when considering proposed developments would be '<b>significant</b>' due to the proposed Windy Rig scheme.</p> <p>It is acknowledged that the Proposed Development would result in some significant adverse visual effects (including cumulative visual effects) at the summits of these three receptors. However when taking account of all aspects of hillwalking as a recreational and tourist activity (i.e. not merely views from hill summits in good weather conditions) there is no quantifiable evidence available to indicate that this would generate any significant adverse effects in terms of visitor attractiveness or tourism potential. On this basis, the Proposed Development would generate a Small magnitude of change on the attractiveness and tourism potential of these hillwalking receptors. Therefore the predicted levels of individual and cumulative effects for all three receptors are considered '<b>not significant</b>'.</p>
<b>Tourist Destinations</b>	
<b>Andy Goldsworthy's Striding Arches on the summits of</b>	<p>The Striding Arches are a series of three red sandstone arches, designed by Andy Goldsworthy, as land art located around the glen of Cairnhead, at the head of the Water of Dalwhat, on the hill summits of Benbrack, Colt Hill and Bail Hill. A fourth arch designed by Andy Goldsworthy (The Byre) is located in the glen itself. Each arch stands just under four metres high, with a span of about seven metres. When designing and locating the arches the intention was</p>

Receptor Name	Assessment
<p><b>Benbrack, Colt Hill, Bail Hill and Cairnhead (although Cairnhead summit lies outwith the ZTV)</b></p>	<p>that each one should be linked by sightlines, although in reality, commercially managed forestry and the undulating landform restricts views between the arches when travelling between them.</p> <p>The Striding Arch sculpture at Benbrack can be accessed via a short diversion from the SUW along Core Path 446. The Striding Arch at Colt Hill can be similarly accessed by diverting from the SUW along the edge of the forest up to the hill summit. The direction of each of these is signposted from the SUW. The Striding Arch on the summit of Bail Hill is difficult to access and there are currently no paths leading to this. The Striding Arches website advises that the route from one hill-top to another around the perimeter of the glen is approximately 16km long and walkers require an OS map and a compass.</p> <p>ES Viewpoint 1: The Striding Arches - Colt Hill (<b>Figure 9.28a/b/c/d/e/f</b>), ES Viewpoint 5: The Striding Arches – Benbrack (<b>Figure 9.32a/b/c/d/e/f</b>) and ES Viewpoint 8: The Striding Arches – Bail Hill (<b>Figure 9.35a/b/c/d</b>) illustrate views from the arches directly towards the Proposed Development. The ZTV analysis confirms that there would be no view of the Proposed Development from Cairnhead or 'The Byre'. The Viewpoint Assessment (<b>Appendix 9.B</b> of this ES) concludes that significant visual effects will be experienced when standing at the arches looking directly towards the Proposed Development.</p> <p>It is acknowledged that the Proposed Development would result in some significant effects on directional views from the hill summits where three of the Striding Arch sculptures are located towards the Development Site. However, the importance of these tourism receptors relates to the introspective nature of the Striding Arch sculptures as viewed in close proximity and to outward views from each sculpture directly towards the others, rather than the importance of the summits for hillwalking or the views obtained by looking directly in the direction of the Proposed Development. On this basis, it is considered that the Proposed Development would generate a Negligible - Small magnitude of change on the attractiveness and tourism potential of these receptors. Therefore the predicted level of effect is considered '<b>not significant</b>'.</p>
<p><b>Burn's Memorial</b></p>	<p>This cairn was erected in 1973 adjacent to Afton Road approximately 10.5km north of the Development Site. Both sides of the Afton Road adjacent to the Memorial, and the area around the cairn and picnic benches, are planted with mature broadleaved trees which would screen views to the south towards the Proposed Development. Views from the cairn are orientated east towards Glen Afton Water. It is unlikely that any views would be available in summer and in winter only glimpses of the Proposed Development may be available. The visual assessment provided in <b>Chapter 9 – LVIA</b> therefore concludes that the level of visual effect would be not significant.</p> <p>Owing to very limited predicted visibility and a lack of immediate proximity, the Proposed Development would generate a Negligible magnitude of change on the attractiveness and tourism potential of this receptor. Therefore the predicted level of effect is considered '<b>not significant</b>'.</p>
<p><b>Galloway Forest Park (including Corserine, Merrick and Shalloch an Minnoch hill summits) and the Galloway Forest Dark Sky Park</b></p>	<p>The Galloway Forest Park is 300 square miles of forestry and wider landscape within Dumfries and Galloway managed by Forestry Commission Scotland. It is Britain's largest forest park. The main area of the Galloway Forest Park is located at a distance of approximately 12km from the Development Site at its closest point. Theoretical visibility across the park is fragmented and limited almost solely to the hill summits including Corserine, Merrick and Shalloch on Minnoch. ES Viewpoint: 16 Corserine (<b>Figure 9.43a/b/c</b>) and Wild Land Viewpoints (<b>Figures 9.63 to 9.65</b>) illustrate potential views of the Proposed Development from within the Forest Park. The visual assessment provided in <b>Chapter 9 – LVIA</b> concludes that the overall level of effect would be not significant.</p> <p>Owing to a lack of proximity to the Development Site, the Proposed Development would generate a Negligible magnitude of change on the attractiveness and tourism potential of the Galloway Forest Park (including Corserine, Merrick and Shalloch an Minnoch hill summits). Whilst some significant adverse cumulative visual effects could occur as a result of the Proposed Development in combination with other proposed schemes, there is no quantifiable evidence available to indicate that this would be likely to generate any significant adverse effects in terms of visitor attractiveness or tourism potential, especially considering the distance of the Development Site from the Galloway Forest Park and when taking account of all aspects of hillwalking.</p> <p>In relation to dark sky tourism, owing to the lack of proximity of the Development Site to the Galloway Forest Dark Sky Park, the limited theoretical and actual visibility of the Proposed Development from within the Park (due to screening provided by intervening landforms forestry), and the Applicant's proposal to deploy infrared aviation safeguarding lighting on proposed turbines and anemometer masts (as opposed to visible lighting), it is considered that the Dark Sky</p>

Receptor Name	Assessment
	<p>Park would not experience significant adverse light pollution effects from the Proposed Development . This assessment conclusion is supported by the body of evidence recently prepared by Dr Stuart Lumsden (University of Leeds) to accompany applications for the consented Dersalloch Wind Farm and proposed South Kyle, Benbrack and Enoch Hill Wind Farms, which concludes that infrared aviation lighting attached to wind turbines and anemometer masts would, where visible above the horizon and viewed through specialist telescopes, only result in a minor impact on amateur astronomy within the Dark Sky Park. Furthermore, any potential visual effects arising from the Proposed Development would occur during daylight hours and not in close proximity to the Dark Sky Park, so would be very unlikely to deter visitors to the Park from their primary purpose of viewing the night sky.</p> <p>Consequently in terms of both visual and light pollution matters, it is considered that the Proposed Development would generate a Negligible magnitude of change on the attractiveness and tourism potential of the Galloway Forest Park (including Corserine, Merrick and Shalloch an Minnoch hill summits) and the Galloway Forest Dark Sky Park. The predicted level of effect is therefore considered '<b>not significant</b>'.</p>

- 15.14.31 The assessment provided in **Table 15.17** above demonstrates that the Proposed Development would not result in any significant adverse effects on the visitor attractiveness or tourism potential of any individual identified tourist receptor.
- 15.14.32 The landscape assessment provided in **Chapter 9 – LVIA** concludes that the Proposed Development would not significantly alter the perceptual characteristics of the host landscape whilst **‘significant’** effects on landscape character would be contained within up to 1km from the Development Site in all directions by steep topography and vegetation. **‘Significant’** cumulative effects on landscape character would similarly be contained within 2km from existing, consented and proposed wind farms within the Southern Uplands with Forest: Ken LCA (excluding effects from other proposed schemes the overall cumulative effect on landscape character is assessed in Chapter 9 – LVIA as **‘not significant’**). Related to these findings, as per the detailed assessment of effects on landscape designations provided in **Chapter 9 – LVIA** there would be no significant effects on the special qualities or integrity of designated landscapes. Therefore it can be concluded that whilst scenic landscapes including the sensitive Glen Afton Valley are located relatively close to the Development Site, the tourism value of these landscapes would not be significantly affected by the Proposed Development.

## 15.15 Predicted Effects: Cumulative Impact

### Economic and Employment

- 15.15.1 **Figures 9.6a and b** illustrate proposed and existing cumulative wind farm schemes within 35km of the Development Site. All phases of these schemes are considered to have the potential to give rise to cumulative socio-economic effects due to their proximity to the Proposed Development.
- 15.15.2 Considering the Proposed Development together with existing wind farms nearby, this is likely to generate a beneficial effect for the local economy as a result of local employment and local expenditure throughout all phases of each wind farm. These economic and employment effects would increase further if all of the proposed wind farm schemes detailed on **Figures 9.6a and 9.6b** were also consented, constructed, operated and decommissioned. Given the scale of impacts predicted for the Proposed Development alone, it is considered that there is the potential for **‘significant’** beneficial effect on the local economy at ward level when considered specifically in combination with other existing or wind farms within the planning system. The cumulative impact at a national (Scotland) level represents a Small magnitude of change, resulting in a **‘not significant’** effect.

### Recreation and Tourism

- 15.15.3 There is the potential for cumulative landscape and visual related effects on tourism, recreation and the amenity value of the local area. Details of the cumulative visual effects are set out in **Chapter 9**. As set out in **Tables 15.17 and 15.18**, whilst significant cumulative visual effects would be experienced from some tourist and recreational receptors including designated walking routes, it is considered that this would not result in any significant adverse cumulative effects in terms of visitor attractiveness or the tourism potential of individual receptors.
- 15.15.4 In summary, the cumulative effect on recreation and tourism as a result of the Proposed Development is considered to be **‘not significant’**.

## 15.16 Mitigation and Enhancement Measures

- 15.16.1 The assessments detailed in **Section 15.12-15.15** indicate that the Proposed Development has the potential to result in temporary, beneficial local economic significant effects during its construction phase at ward level. Notwithstanding this, the applicant has pledged to provide local community funding which would be delivered during the operational phase of the Proposed Development. In accordance with the Scottish Government’s Good Practice Principles for Community Benefits from

Onshore Renewable Energy Developments document (2013, revised in 2015 for factual accuracy), this funding aims to ensure that local communities share the socio-economic benefits which would be generated from the Proposed Development. Given that the applicant would provide £5,000 per MW of installed capacity, the Proposed Development has the potential to generate up to £6,187,500 (£247,500 per annum for 25 years) of local community funding.

## 15.17 Residual Effects

- 15.17.1 The assessments presented in this ES chapter demonstrate that the Proposed Development would potentially result in residual temporary, beneficial but '**not significant**' local economic effects during construction. Residual economic effects during operation and decommissioning would also be beneficial, but '**not significant**'. Additional economic, employment and land use effects during construction, operation and decommissioning of the Proposed Development would be '**not significant**'. Residual effects on public access and recreational activities during the construction phase, and effects on tourism during the operational phase, would all be adverse but '**not significant**'.
- 15.17.2 Once operational, the Proposed Development would generate a beneficial Moderate and '**not significant**' effect on public access and recreation, as the proposed network of access tracks would offer improved public access into the Development Site and would enhance connectivity between existing designated walking routes which are intended to facilitate recreational pursuits. This beneficial effect would be permanent within Dumfries and Galloway, where it is not proposed to remove proposed access tracks during the decommissioning phase and would be a long term effect within East Ayrshire, where EAC requirements necessitate the removal of proposed access tracks as part of the decommissioning phase. However it should be noted that any decommissioning plans would be subject to ongoing review and should the tracks remain, the beneficial effect would also be present within East Ayrshire. All other predicted residual effects arising from the construction, operational and decommissioning phases of the Proposed Development on identified tourism or recreational receptors, recreational pursuits or public access would be '**not significant**'.

## 15.18 References

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