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## **17. Socio-economics, Tourism and Recreation**

### **17.1. Introduction**

17.1.1. This chapter of the Environmental Impact Assessment (EIA) evaluates the effects of the Shepherd's Rig Wind Farm ("the Proposed Development") on socio-economics, tourism and recreation and has been prepared by BiGGAR Economics.

17.1.2. The assessment has been undertaken on the basis of the proposal for a 19 turbine development. This includes a consideration of local tourism and recreation activity, employment generation, and any indirect economic effects from the development.

17.1.3. The individual turbine capacity will be 4.2 and 3.6 Megawatts (MW), with 17 turbines being of 4.2 MW capacity and 2 of 3.6 MW capacity. Based on these candidate turbines, the estimated installed maximum generation capacity from all of the wind turbines together would be 78.6 MW.

17.1.4. This chapter is structured as follows:

- Section 17.2, Assessment Methodology, an explanation of methods used to calculate the impacts of the Proposed Development;
- Section 17.3, Socio-Economic Context, an outline of key features of the local economy;
- Section 17.4, Socio-Economic Assessment, summarises the economic opportunities associated with the proposed development;
- Section 17.5, Significance of Socio-Economic Impacts, an analysis of the significance of socio-economic impacts on the study area;
- Section 17.6, Maximising Local Economic Benefits, a brief outline of activities that could increase the economic impact to local companies;
- Section 17.7, Wider Socio-Economic Benefits, an outline of expected benefits from non-domestic rates and community benefit funds;
- Section 17.8, Tourism and Recreation Context, identifies tourism and recreation related assets in the study area and reviews up-to-date studies relating to wind farms and tourism;
- Section 17.9, Significance of Tourism and Recreation Impacts, assesses impacts of the Proposed Development on tourism and recreation assets in the study area and their significance; and
- Section 17.10, Summary of Socio-Economic, Tourism and Recreation Impacts.

### **17.2. Assessment Methodology**

#### **Assessment of Socio-Economic Effects**

17.2.1. There is no specific legislation or guidance available on the methods that should be used to assess the socio-economic effects of a proposed onshore wind farm development for the purposes of an EIA. Therefore, to identify and assess the significance of predicted socio-economic effects, the assessment has been based on professional judgement for the degree of change resulting from the proposals, using methods commonly used in EIAs for proposed renewable energy developments, as outlined below.

- 17.2.2. The assessment of economic effects was undertaken using a model that has been developed by BiGGAR Economics specifically to estimate the socio-economic effects of wind farm developments. This model was also the basis of an assessment of the UK onshore wind sector for the then Department of Energy and Climate Change (DECC) and RenewableUK in 2012<sup>1</sup>, which was subsequently updated in 2015<sup>2</sup>. These assessments were based on case studies of the local, regional and national socio-economic effects of wind farms that have been developed in the UK in recent years.
- 17.2.3. This approach is considered industry best practice in the assessment of the socio-economic effects of the onshore wind sector, being used in reports for the DECC and RenewableUK. This model has been used by BiGGAR Economics to assess the socio-economic effects of numerous windfarms across the UK, with the results being accepted as robust at several public inquiries.
- 17.2.4. The assumptions made have been based on two main sources:
- Firstly, the analysis undertaken in the 2015 report on behalf of RenewableUK, which uses evidence from previous wind farms around the UK. This report examined the size and location of contracts for their development, construction, and operation & maintenance phases; and
  - Secondly, bespoke evaluation of the economies of the relevant study areas undertaken for this assessment. This was based on analysis of local, regional and national statistics.
- 17.2.5. Therefore, the contract values and quantifiable economic impacts in this assessment are calculated based on what would be expected of a typical wind farm, of the same capacity, built in this area. Decisions made by the developer during each stage of the development may result in the actual impacts deviating from those estimated in this assessment.

### **Stages in Socio-Economic Analysis**

- 17.2.6. To begin estimating the economic activity supported by the Proposed Development, it is first necessary to calculate the expenditure during the construction & development, and operational & maintenance phases. The total expenditure figure is then divided into its main components using calculated assumptions regarding the share that could be expected by main and sub-contractors. This provides an estimate for each main component contract that can be secured by companies in the Local Area<sup>3</sup>, Dumfries & Galloway, and Scotland.

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<sup>1</sup> Department of Energy and Climate Change, RenewableUK. (2012). Onshore wind: Direct and Wider Economic Impacts. Available at: [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/48359/5229-onshore-wind-direct--wider-economic-impacts.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/48359/5229-onshore-wind-direct--wider-economic-impacts.pdf). Accessed on: 15 May 2018.

<sup>2</sup> RenewableUK. (2015). Onshore Wind: Economic Impacts in 2014. Available at: [http://c.ymcdn.com/sites/www.renewableuk.com/resource/resmgr/publications/reports/onshore\\_economic\\_benefits\\_re.pdf](http://c.ymcdn.com/sites/www.renewableuk.com/resource/resmgr/publications/reports/onshore_economic_benefits_re.pdf). Accessed on: 15 May 2018.

<sup>3</sup> The 'Local Area' definition that is used in this assessment is the area defined by the three electoral wards of Castle Douglas and Crocketford, Dee and Glenkins and Mid and Upper Nithsdale.

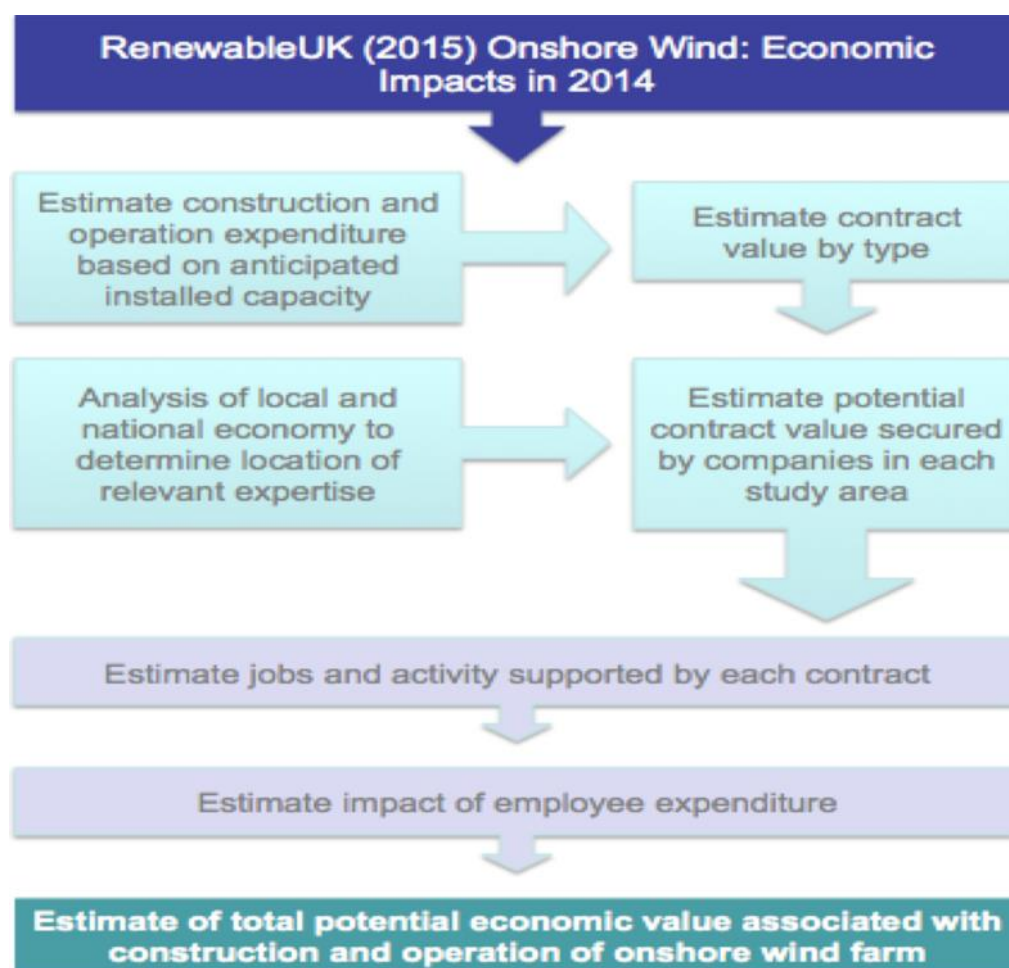
17.2.7. There are two sources of economic activity:

- First, the activity arising from each component contract and the jobs supported by them; and
- Second, the anticipated spending of wages in the study area from employees of the component contracts, also known as the income effect.

17.2.8. There are four key stages of this model:

- Estimation of total capital expenditure;
- Estimation of the value of component contracts that make up total expenditure;
- Assessment of the capacity of businesses in the study area to perform and complete component contract; and
- Estimation of economic impact from resultant figures.

17.2.9. These stages are illustrated in Figure 17.1 below.



**Figure 17.1 Approach to Economic Impact Assessment**

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## Tourism and Recreation Assessment

- 17.2.10. The potential effects of wind farm developments on the tourism and recreation sector is well-researched, and as such, key studies have been included for reference, including:
- Wind Farms and Tourism Trends, BiGGAR Economics<sup>4</sup>;
  - A Report on the Achievability of the Scottish Government's Renewable Energy Targets<sup>5</sup>;
  - The Economic Impacts of Wind Farms on Scottish Tourism<sup>6</sup>; and
  - Mountaineering Scotland's Survey of Members<sup>7,8</sup>.
- 17.2.11. Tourist attractions and accommodation will be identified within 15 kilometres (km) of the site boundary, in line with best practice. Tourist attractions include permanent fixtures (e.g. museums, castles and trails) as well as temporary events (e.g. music or arts festivals).
- 17.2.12. Important attractions attributed to Dumfries & Galloway are also identified due to their increased sensitivity, even if they lie outside of the 15 km study area.
- 17.2.13. The overall calculated effect of the Proposed Development on tourism and recreation assets is considered based on the method described below.

### Method of Baseline Characterisation

- 17.2.14. To assess the effects on socio-economic, tourism and recreation factors on the baseline conditions, the following has been performed:
- A review of economic strategies in Scotland, Dumfries & Galloway and the Local Area;
  - An analysis of socio-economic statistics for Scotland, Dumfries & Galloway and the Local Area;
  - An analysis of tourism statistics in Scotland, Dumfries & Galloway and the Local Area; and
  - Identification of local tourism and recreation assets, including accommodation providers and public paths.
- 17.2.15. No field surveys have been performed by BiGGAR Economics for the socio-economic and recreational effects chapter.

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<sup>4</sup> BiGGAR Economics. (2016). Wind Farms and Tourism Trends in Scotland. Available at: <http://www.bigbareconomics.co.uk/wp-content/uploads/2016/07/Research-Report-on-Wind-Farms-and-Tourism-in-Scotland-July-16.pdf>. Accessed on: 15 May 2018.

<sup>5</sup> Scottish Parliament Economy, Energy and Tourism Committee. (2012). Report on the Achievability of the Scottish Government's Renewable Energy Targets. Available at: <http://www.parliament.scot/parliamentarybusiness/CurrentCommittees/57013.aspx>. Accessed on: 15 May 2018.

<sup>6</sup> Glasgow Caledonian University, Moffat Centre. (2008). The Economic Impacts of Wind Farm on Scottish Tourism. Available at: <http://www.gov.scot/resource/doc/214910/0057316.pdf>. Accessed on: 15 May 2018.

<sup>7</sup> Mountaineering Scotland. (2014). Wind Farms and Changing Mountaineering Behaviour in Scotland. Available at: [https://www.mountaineering.scot/assets/contentfiles/pdf/mcofs-wind-farm-survey-report\\_2014-reduced.pdf](https://www.mountaineering.scot/assets/contentfiles/pdf/mcofs-wind-farm-survey-report_2014-reduced.pdf). Accessed on: 15 May 2018.

<sup>8</sup> Mountaineering Scotland. (2016). Wind Farms and Mountaineering Behaviour in Scotland. Available at: <https://www.mountaineering.scot/assets/contentfiles/pdf/Wind-farms-and-mountaineering-behaviour-2016.pdf>. Accessed on: 15 May 2018.

### Effects Evaluation Methodology

- 17.2.16. The significance of the effect of the Proposed Development on each tourism and recreation asset and the economy for each study area is considered by determining the type and magnitude of change on each and the sensitivity of these economies.
- 17.2.17. The magnitude of change is assessed using the economic model and professional judgement, considering socio-economic effects from the Proposed Development on Dumfries & Galloway and Scotland.
- 17.2.18. The significance of effects from the Proposed Development on tourism and recreation assets are assessed with reference to evidence from research and comparable wind farm developments.
- 17.2.19. The significance classification of each economic, tourism and recreational asset is determined on the basis of the criteria provided below, in Table 17.1.
- 17.2.20. High and Medium effects are considered significant in relation to EIA regulations.

**Table 17.1: Significance Criteria**

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

### 17.3. Socio-Economic Context

- 17.3.1. This section details the socio-economic baseline and existing policies relevant to the Proposed Development.

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## Strategic Context

- 17.3.2. In March 2015, the Scottish Government published its economic strategy<sup>9</sup> with the two main purposes of increasing competitiveness and tackling inequality. The strategy outlined four main priorities to achieve these aims:
- Investing in Scotland's people, infrastructure and assets;
  - Promoting inclusive growth, which creates opportunity through a fair and inclusive jobs market, and regional cohesion to provide economic opportunities across all of Scotland;
  - Fostering a culture of innovation, which is open to change and new ways of doing things; and
  - Enabling Scotland to take advantage of international opportunities.
- 17.3.3. In 2017, 69% of all electricity in Scotland was generated renewably, with a target of producing 100% from renewable sources by 2020<sup>10</sup>.
- 17.3.4. Additionally, the Scottish Government has emphasised the importance of communities benefitting from renewable energy generation, including through community benefit funds and shared ownership.
- 17.3.5. The Dumfries and Galloway Regional Economic Strategy is designed for the period 2016 to 2020<sup>11</sup> and identifies key challenges for the region, including:
- A high proportion of jobs are part-time and there is a higher youth unemployment rate than elsewhere in Scotland;
  - A large percentage of the region is in areas defined as 'access deprived';
  - Poor or no mobile phone coverage from network operators; and
  - A decreasing and ageing population.
- 17.3.6. Strategic actions to address these challenges are also outlined, including:
- Support growing and higher value businesses as well as improving supply chains;
  - Invest in effective transport links and better ICT infrastructure; and
  - Maximise the potential of available employment land and property.
- 17.3.7. Tourism Scotland 2020<sup>12</sup>, created and maintained by the Scottish Tourism Alliance, is the national tourism strategy for Scotland. It was created in 2012 with the goal of increasing visitor-spend by one billion pounds, from £4.5 billion to £5.5 billion, by 2020. There are five key performance indicators associated with this goal to measure progress, which are:
- Grow visitor-spend by £1 billion from £4.5 billion to £5.5 billion by 2020;
  - Increase the advocacy score for Scotland from 25%;
  - Increase the average visitor-spend from £358.56;
  - Increase the total tourism employment figures from 185,100; and

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<sup>9</sup> Scottish Government. (2015). Scotland's Economic Strategy. Available at: <http://www.gov.scot/Publications/2015/03/5984>. Accessed on: 16 May 2018.

<sup>10</sup> Scottish Government. (June 2018). Energy Statistics for Scotland June 2018. Available at: <http://www.gov.scot/Resource/0053/00537653.pdf>. Accessed on: 12 Jul 2018.

<sup>11</sup> Dumfries and Galloway Council. (2016). Regional Economic Strategy 2016-2020. Available at: 2018, from: [http://www.dumgal.gov.uk/media/18717/Regional-Economic-Strategy-2016-2020/pdf/Regional\\_Economic\\_Strategy\\_2016\\_-\\_2020.pdf](http://www.dumgal.gov.uk/media/18717/Regional-Economic-Strategy-2016-2020/pdf/Regional_Economic_Strategy_2016_-_2020.pdf). Accessed on: 16 May 2018.

<sup>12</sup> Scottish Tourism Alliance. (2012). Tourism Scotland 2020. Available at: <http://scottishtourismalliance.co.uk/page/national-strategy/>. Accessed on: 16 May 2018.



- Increase total tourism turnover from £6.2 billion.
- 17.3.8. The strategy was reviewed in 2016 at the mid-term point of the policy with further priorities being identified to achieve the targets for 2020 set in 2012, including:
- Strengthening digital capabilities;
  - Strengthen industry leadership;
  - Enhance the quality of the visitor experience; and
  - Influence investment, specifically flight access & transport connectivity, built infrastructure, digital connectivity and business growth finance.
- 17.3.9. The Dumfries & Galloway Regional Tourism Strategy<sup>13</sup> is a plan created by the Dumfries & Galloway Council for growing the value of the tourism sector in the local authority by £30 million, from £300 million to £330 million, by 2020.
- 17.3.10. Three target areas have been identified in this plan, which include:
- 'Creating Authentic Experiences' – developing marine and coastal areas, creating more festivals and events and quality of food & drink;
  - 'Improving the Customer Journey' – creating tourism packages, providing improved tourism-related digital information and developing more tourism assets; and
  - 'Building our Capabilities' – training more individuals with tourism-related skills, improving infrastructure such as broadband and mobile network access and road quality.
- 17.3.11. Following funding from Dumfries & Galloway Council's Nithsdale Area Committee, the Moniaive Initiative have created the Glencairn and Moniaive Action Plan<sup>14</sup> for regenerating and developing the local community.
- 17.3.12. The action plan highlights four main priorities for this, including:
- Creating specialist housing for older people and housing help for families and younger people;
  - Increasing the number of community spaces and their accessibility;
  - Regenerating the high street through improving the appearance of buildings and utilising empty buildings; and
  - Improving the sustainability of local organisations and encouraging community involvement.

### **Socio-Economic Indicators**

- 17.3.13. The study area for the baseline environment will cover and compare three study areas, namely:
- Local Area, comprising of three of the 2017 electoral wards covering the Proposed Development and nearest settlement, including:
    - Castle Douglas and Crocketford (1);

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<sup>13</sup> Dumfries and Galloway Council. (2016). Dumfries and Galloway: Regional Tourism Strategy 2016-2020. Available at:

<http://scottishtourismalliance.co.uk/uploads/Destinations/Dumfries%20and%20Galloway%20Regional%20Tourism%20Strategy%202016-2020%20-%20Final.pdf>. Accessed on: 16 May 2018.

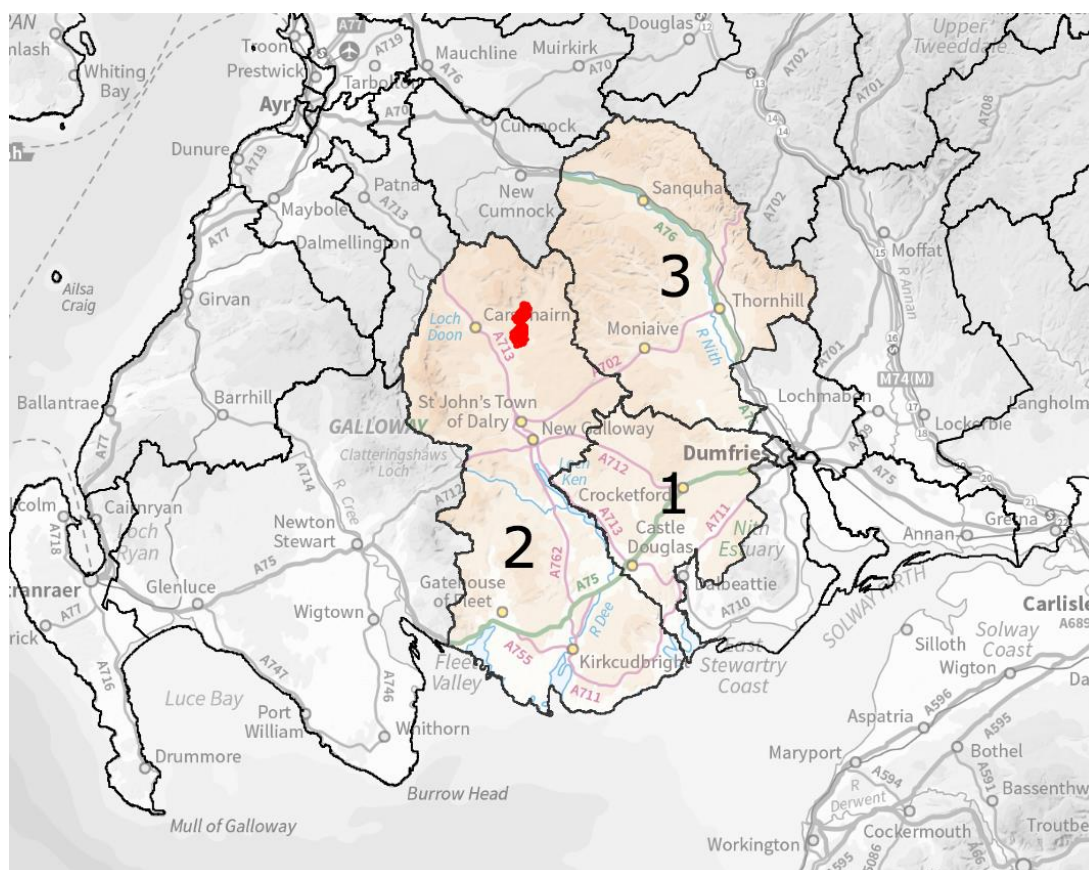
<sup>14</sup> Moniaive Initiative. (2016). Glencairn and Moniaive Community Action Plan 2016. Available at:

<https://moniaiveinitiative.files.wordpress.com/2016/08/mi-glencairn-and-moniaive-action-plan.docx>. Accessed on: 17 May 2018.



- Dee and Glenkens (2); and
- Mid and Upper Nithsdale (3).
- Dumfries and Galloway Council Area; and
- Scotland.

17.3.14. The 2017 electoral wards making up the Local Area are displayed below in **Figure 17.2**, with the number corresponding to the associated ward name above. The Site of the Proposed Development is shown in red.



**Figure 17.2 Illustration of 'Local Area', Site shown in red**

17.3.15. It should be noted that the economic data regarding the industrial structure of the Local Area was not available at the 2017 electoral ward level. In this case, a "best-fit Local Area" has been constructed using 2011 datazones.

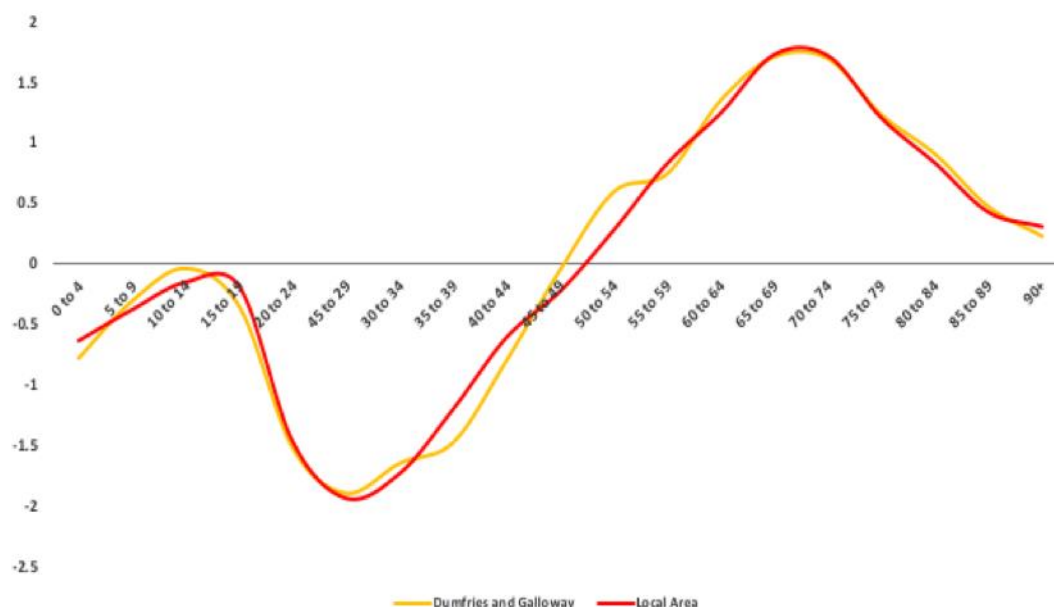
17.3.16. In 2016, the Local Area had a combined population of 29,804 compared with 30,023 in 2011, a fall of 0.7%<sup>15</sup>. This shows a smaller reduction in the local population than that of Dumfries and Galloway. Overall in Scotland, the population rose by 2.0% up to 5,404,700 in 2016.

<sup>15</sup> Statistics.Gov.Scot (2018) Electoral Ward Profiles Available at:  
<https://statistics.gov.scot/atlas/resource?uri=http://statistics.gov.scot/id/statistical-geography/S92000003>  
Accessed on: 14 May 2018

**Table 17.2: Total Population and Change**

	Local Area	Dumfries & Galloway	Scotland
Total Population, 2011	30,023	151,410	5,299,900
Total Population, 2016	29,804	149,520	5,404,700
Change (%)	-0.7	-1.2	+2.0

17.3.17. **Figure 17.3** shows the demographic of the population of the Local Area and Dumfries & Galloway compared to the population of Scotland (where the Scottish population is the baseline)<sup>16</sup>. In the Local Area and Dumfries & Galloway, there is a larger population of older adults in the age brackets from 50 to 89, and a lower proportion in the age brackets 20 to 44 compared with the Scottish average. Such population structure could be the result of young adults leaving the area for work and study opportunities.



**Figure 17.3 Population Composition Compared to Scottish Average (%), 2016**

17.3.18. Population projections were not available at the level of the Local Area. However, they are shown below for Dumfries & Galloway and Scotland<sup>17</sup>. These are given in Table 17.3.

<sup>16</sup> ONS (2017) Mid-year Population Estimates Available at: <https://www.nomisweb.co.uk/query/construct/summary.asp?mode=construct&version=0&dataset=31#> Accessed on: 14 May 2018

<sup>17</sup> National Records of Scotland (2018) Principle Population Projections, Available at: <https://www.nrscotland.gov.uk/statistics-and-data/statistics/statistics-by-theme/population/population-projections/sub-national-population-projections/2016-based> Accessed on: 16 May 2018

**Table 17.3: Population Projections, 2016-2041 - Principle Projections**

	Dumfries & Galloway			Scotland		
	2016	2041	Change (%)	2016	2041	Change (%)
Total Population	149,520	141,818	-5.2	5,404,700	5,693,201	+5.3
<16	23,614	20,816	-11.8	915,917	901,970	-1.5
16-64	88,999	73,017	-18.0	3,489,931	3,350,710	-4.0
>64	36,907	47,985	+30.0	998,852	1,440,521	+44.2

- 17.3.19. The projections forecast an aging population for both Dumfries & Galloway and Scotland over the next 25 years, with the number of over 64-year olds expected to increase by 30% in Dumfries & Galloway and 44.2% in Scotland.
- 17.3.20. Furthermore, the population of working age (16 to 64-year olds) and those under 16 years of age are expected to decline over the 25-year period for both Dumfries & Galloway and Scotland.
- 17.3.21. Overall the population in Scotland is forecast to increase by 5.3% with the increasing number of those over 64-years old offsetting the decline in younger age groups.
- 17.3.22. Statistics for economic activity were not available at the Local Area level; however, they were accessible for Dumfries & Galloway and Scotland<sup>18</sup>. These are given in Table 17.4

**Table 17.4: Economic Activity and Unemployment Rate, 2016**

	Dumfries & Galloway	Scotland
Economic Activity Rate, 2016	78.5%	76.7%
Economically Inactive, 2016	21.5%	23.3%
Claimant Rate, 2016	1.6%	2.1%
Unemployment Rate, 2016	4.6%	4.9%
Median Gross Annual Pay, 2016	£24,400	£28,000

- 17.3.23. The economic activity rate in Dumfries & Galloway was 78.5%, higher than the Scottish average of 76.7%. Additionally, there was a lower percentage of people who were claimants, economically inactive and unemployed in Dumfries & Galloway compared to Scotland overall.
- 17.3.24. Table 17.4 also suggests that Dumfries & Galloway has a lower wage economy compared to that of Scotland, with the median gross annual pay being £3,600 less than that of the Scottish average<sup>19</sup>.

<sup>18</sup> ONS (2018) Annual Population Survey 2016 Available at: <https://www.nomisweb.co.uk/query/construct/summary.asp?mode=construct&version=0&dataset=17>  
Accessed at: 15 May 2018

<sup>19</sup> ONS (2018) Annual Survey of Hours and Earnings Available at: <https://www.nomisweb.co.uk/query/construct/summary.asp?mode=construct&version=0&dataset=30>  
Accessed at: 15 May 2018

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- 17.3.25. The relative importance of each industrial sector to the economies of the study areas is shown in Table 17.5, which displays the industrial structure of the Local Area, Dumfries & Galloway and Scotland as a percentage of the total employment<sup>20</sup>.
- 17.3.26. Both the Local Area and Dumfries & Galloway have a higher percentage of total employment than the Scottish average in manufacturing and transport & storage. This presents opportunities for component contracts in the construction & development and decommissioning phases to be delegated to businesses within the Local Area and Dumfries & Galloway.
- 17.3.27. Conversely, the construction sector is smaller in the Local Area, making up 0.5% of employment. The percentage of total employment in Dumfries & Galloway is similar to the structure of the national economy. These statistics suggest that the component contracts related to the construction & development of the Proposed Development may need to be spread over a wider area, with regards to local businesses.
- 17.3.28. The professional, scientific and technical sector in the Local Area and Dumfries & Galloway employs a smaller proportion of total employment compared to Scotland. The Local Area employs 0.9% less whilst Dumfries & Galloway employs 2% less than the Scottish average. This sector is related to the operation & maintenance phase of the wind farm, and although the percentage of total employment is lower than the national average, it still presents opportunities for component contracts to be assigned to businesses within the Local Area and Dumfries & Galloway.
- 17.3.29. Accommodation & food services as well as arts, entertainment, recreation & other services are considered tourism-related sectors. In the Local Area, there is a higher percentage of total employment in both sectors, suggesting that tourism is a bigger contributor to the local economy than the national average. These two sectors make up 17.6% of total employment in the Local Area.
- 17.3.30. Dumfries & Galloway also has a larger accommodation & food sector, percentage-wise, than the Scottish average. The arts, entertainment & recreational sector in Dumfries & Galloway is 0.7 percentage points smaller than the Scottish average. The two tourism-related sectors make up 13.5% of total employment in Dumfries & Galloway, compared to 12.5% in Scotland.
- 17.3.31. The combined tourism-related sectors in the Local Area and Dumfries & Galloway are proportionally larger than in Scotland overall.

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<sup>20</sup> ONS (2018) Business Register and Employment Survey 2016 Available at:  
<https://www.nomisweb.co.uk/query/construct/summary.asp?mode=construct&version=0&dataset=189>  
Accessed at: 15 May 2018

**Table 17.5: Industrial Structure (% of Total Employment), 2016**

	Local Area	Dumfries & Galloway	Scotland
Agriculture, forestry & fishing (part)	3.4	1.6	3.0
Mining, quarrying & utilities	1.4	1.5	2.6
Manufacturing	9.9	10.7	7.0
Construction	0.5	5.3	5.4
Motor trades	0.8	2.5	1.9
Wholesale	7.0	3.9	3.0
Retail	13.1	12.3	9.5
Transport & storage	4.5	4.9	4.2
Accommodation & food services	10.1	9.0	7.3
Information & communication	1.7	0.9	2.9
Financial & insurance	0.2	0.8	3.3
Property	1.3	1.5	1.5
Professional, scientific & technical	6.0	4.9	6.9
Business administration & support services	2.1	4.5	7.3
Public administration & defence	1.3	4.9	5.9
Education	11.8	8.2	7.3
Health	15.0	18.0	15.9
Arts, entertainment, recreation & other services	7.5	4.5	5.2
<b>Total Employment</b>	<b>10,125</b>	<b>60,975</b>	<b>2,588,500</b>

17.3.32. In summary, the area around the Proposed Development is a predominantly rural area, which has similar socio-economic characteristics to other rural areas in Scotland<sup>21</sup>. In particular, the Local Area and Dumfries & Galloway has an older than average population which is projected to fall in the future. The working age population is more likely to be economically active than the Scottish average; however, the wages of those in employment are lower than the Scottish average.

#### **17.4. Socio-Economic Assessment**

17.4.1. Using the methodology described in Section 17.2, this section considers the socio-economic impact of the Proposed Development's two phases:

- Construction and development; and
- Operation and maintenance.

<sup>21</sup> Scottish Government (2018) Rural Scotland Key Facts 2018 Available at: <https://www2.gov.scot/Publications/2018/10/4125> Accessed on 9 October 2018

## Construction and Development

- 17.4.2. The construction and development cost of the Proposed Development was estimated by applying the expected installed capacity by the industry average construction and development costs per MW.
- 17.4.3. The application is for 19 turbines with a total generation capacity from the turbines of up to 78.6 MW.
- 17.4.4. According to research undertaken by BiGGAR Economics on behalf of RenewableUK in 2015, average expenditure on the construction and development of wind farm is approximately £1.5 million per MW. Therefore it is estimated that this phase of the Proposed Development will require an investment of £115.5 million.
- 17.4.5. The expenditure was split into four main categories of contracts:
- Development and planning;
  - Balance of plant;
  - Turbines; and
  - Grid connection.
- 17.4.6. The proportion of construction and development spending on each of the main categories was also from BiGGAR Economics research into wind farms currently in operation. This found that the largest proportion of capital expenditure (capex) was on turbine-related contracts (57.8%), followed by balance of plant (25.6%), development and planning (10.2%) and grid connection (6.3%).

**Table 17.6: Construction and Development Expenditure**

	% of capex	Value (£m)
Development and Planning	10.2	11.8
Turbines	57.8	66.7
Balance of Plant	25.6	29.6
Grid Connection	6.3	7.3
Total	100.0	115.5
Note totals may not sum due to rounding		

- 17.4.7. The economic impact of the construction and development phase was estimated for Dumfries & Galloway and Scotland. In order to do this, it was necessary to estimate the proportion of each type of contract that might be secured in each of the study areas. The assumptions were based on the average from the RenewableUK research, analysis of the industries and professions in each study area, and BiGGAR Economics previous experience. To estimate the expenditure for each contract in each of the study areas, these percentages were applied to the estimated size of each component contract.
- 17.4.8. This suggested that Dumfries & Galloway would be able to secure £18.1 million, equivalent to 16% of the total capital expenditure. The largest opportunity for Dumfries & Galloway would be the contracts related to the balance of plant, as the Local Authority could secure up to 29% of these contracts, worth up to £8.6 million. The breakdown is summarised in Table 17.7 below.



- 17.4.9. Whilst Scotland was estimated to be able to receive contracts worth £48.0 million, equivalent to 42% of the total capital expenditure. The largest opportunity for the nation would be the contracts related to the balance of plant, as the country could secure up to 68% of these contracts, worth up to £20.0 million.

**Table 17.7: Construction and Development Expenditure**

	Dumfries & Galloway		Scotland	
	%	£m	%	£m
Development and Planning	17	2	77	9.1
Turbine	6	4.3	17	11.6
Balance of Plant	29	8.6	68	20.0
Grid Connection	44	3.2	100	7.3
<b>Total</b>	<b>16</b>	<b>18.1</b>	<b>42</b>	<b>48.0</b>

\*Totals may not sum due to rounding.

- 17.4.10. The contract values potentially awarded would represent an increase in turnover of businesses in these areas. The impact that this increase in turnover has on employment was estimated using industry-specific data from the Annual Business Survey<sup>22</sup>. The survey gives the turnover per employee of each of the industries involved, which allows the employment from any increase in turnover to be estimated.
- 17.4.11. The employment impacts during the construction and development phase are reported in job years, rather than full-time equivalents (FTEs), as the contracts would be short-term. Job years measures the number of years of full-time employment generated by a project. For example, an individual working on this project for 18 months would be reported as 1.5 job years.
- 17.4.12. In this way, the construction and development impacts were estimated to support 186 job years in Dumfries & Galloway, with 91 job years being related to the balance of plant contracts. In Scotland, 495 job years are estimated to be supported, of which 194 job years are related to the balance of plant contracts.

**Table 17.8: Construction and Development Employment in Job years**

	Dumfries & Galloway	Scotland
Development and Planning	21	97
Turbine	38	101
Balance of Plant	74	160
Grid Connection	20	48
<b>Total</b>	<b>154</b>	<b>405</b>

- 17.4.13. There would also be knock on effects from the direct employment during the construction and development of the Proposed Development as employees

<sup>22</sup> Office for National Statistics. (2018), Annual Business Survey Revised Results 2016 Available at: <https://www.ons.gov.uk/businessindustryandtrade/business/businessservices/bulletins/uknonfinancialbusiness/economy/2016revisedresults> Accessed on: 20 May 2018



spend a proportion of their salaries in the wider economy, creating indirect benefits. The research undertaken by RenewableUK in 2012 found that the average salary for employees in the onshore wind sector is £34,613.

- 17.4.14. It was therefore estimated that £5.3 million would be paid in salaries to staff directly employed during the construction and development phase of the Proposed Development in Dumfries & Galloway. Overall in Scotland employees' salaries are estimated to total £14 million directly during this phase.
- 17.4.15. In order to estimate the economic impact of these salaries in each of the study areas it was necessary to make assumptions regarding the location of employee expenditure. It was assumed that salaries from the employees of the wind farm would spend 10% of their salaries to businesses in the local area, 40% to those in Dumfries & Galloway and 74% to those in Scotland. The assumptions for each of the location of spend in Scotland is based on data provided in the Scottish Government's Input-Output Tables<sup>23</sup>.
- 17.4.16. The economic impact of the increased expenditure was estimated using the average GVA/turnover and turnover/employee for the whole economy as reported in the Annual Business Survey<sup>24</sup>. In this way, it was possible to estimate the induced impact direct employees would create in the construction and development phase.
- 17.4.17. In Dumfries & Galloway, direct employees could spend £2.6 million, supporting 18 job years and £0.9 million GVA. Whilst in Scotland, employees could spend £12.6 million which would support 87 job years and £4.3 million GVA during the construction and development phase.

**Table 17.9: Construction and Development Spending Impact**

	Dumfries & Galloway	Scotland
Employee Spend (£m)	2.6	12.6
GVA (£m)	0.9	4.3
Employment (job years)	18	87

- 17.4.18. The total impact during the construction and development phase is the sum of the direct impacts and the induced impacts from the expenditure of direct employees. The total combined impact was estimated to be £1.5 million and 16 job years in the local area, £19.0 million and 204 job years in Dumfries & Galloway and £52.3 million and 582 job years in Scotland.

**Table 17.10: Economic Impact During Construction and Development**

	Dumfries & Galloway	Scotland
Economic Impact (£m)	19.0	52.3
Employment (job years)	204	582

<sup>23</sup> Scottish Government. (2017). Input-Output Tables 2014 Available at: <https://www2.gov.scot/Topics/Statistics/Browse/Economy/Input-Output/Downloads> Accessed on 10 May 2018

<sup>24</sup> Office for National Statistics. (2018), Annual Business Survey Revised Results 2016 Available at: <https://www.ons.gov.uk/businessindustryandtrade/business/businessservices/bulletins/uknonfinancialbusiness/economy/2016revisedresults> Accessed on: 20 May 2018

## Operation and Maintenance

- 17.4.19. The operation and maintenance impact of the Proposed Development was estimated as the impact that would persist throughout the 25-year lifespan of the Proposed Development.
- 17.4.20. Annual expenditure on operations and maintenance was estimated by multiplying the installed capacity by the industry average annual expenditure per MW on operations and maintenance. The annual expenditure per MW was estimated as £59,867 in the 2015 RenewableUK report.
- 17.4.21. The Proposed Development was expected to have an installed capacity from the turbines of up to 78.6 MW, which implies that the annual operations and maintenance expenditure associated with the Proposed Development is £4.7 million.
- 17.4.22. In order to estimate the economic impact of the operations and maintenance expenditure in each of the study areas, it was first necessary to estimate the proportion of the contracts that could be secured in each of these areas. These assumptions were based on the contract proportions reported in the RenewableUK report and the analysis of the industries present in each of the study areas.
- 17.4.23. Based on this information it was assumed that Dumfries & Galloway could secure 50% whilst Scotland could secure up to 75% of the contracts.
- 17.4.24. From these assumptions, it was estimated that each year operations and maintenance would generate £2.4 million in Dumfries & Galloway and £3.5 million in Scotland.

**Table 17.11: Operation and Maintenance Expenditure**

	Dumfries & Galloway		Scotland	
	%	£m	%	£m
Operation and Maintenance	50	2.4	75	3.5

- 17.4.25. As with the construction phase, the contract values awarded in each of the study areas represent an increase in turnover in those areas. The economic impact of the increase in turnover was estimated in the same way as the construction expenditure, using the Annual Business Survey<sup>25</sup>.
- 17.4.26. In this way, it was estimated that turnover generated by the operation and maintenance of the Proposed Development could support 44 job years in Dumfries & Galloway and 66 job years in Scotland.

**Table 17.12: Employment from Operation and Maintenance**

	Dumfries & Galloway	Scotland
Direct job years	44	66

<sup>25</sup> Office for National Statistics. (2018), Annual Business Survey Revised Results 2016 Available at: <https://www.ons.gov.uk/businessindustryandtrade/business/businessservices/bulletins/uknonfinancialbusiness/economy/2016revisedresults> Accessed on: 20 May 2018

- 17.4.27. As with construction expenditure, there will also be knock on effects from the direct employment during the operation of the Proposed Development. The people who will be employed will have an impact on the wider economy by spending their salaries. This was estimated using the same method as for the construction and development phase.
- 17.4.28. Adding together the direct and induced impacts from the spending of direct employees during the operation and maintenance, it was estimated that the total economic impact would be 48 jobs and £2.6 million in Dumfries & Galloway, and 78 jobs and £4.1 million in Scotland.

**Table 17.13: Economic Impact During Operation and Maintenance**

	Dumfries & Galloway	Scotland
Economic Impact (£m)	2.6	4.1
Employment (job years)	48	78

## 17.5. Significance of Socio-Economic Impacts

- 17.5.1. A review of the impacts on the economies of Dumfries & Galloway and Scotland by the Proposed Development in both its construction & development and operation & maintenance phases were undertaken. Each impact has had the significance of its effects assessed and determined. The criteria and description for each significance level is detailed in Table 17.1.

### Construction and Development Phase

- 17.5.2. **Dumfries & Galloway's Economy** is expected to receive 204 job years and £19.0 million from the construction and development phase of the Proposed Development. It is expected that the significance of the construction and development phase on the economy of Dumfries & Galloway will be **Low (Positive)** and therefore **Not Significant** as per the EIA regulations.
- 17.5.3. **Scotland's Economy** is expected to receive 582 job years and £52.3 million from the construction and development phase of the Proposed Development. Compared to the scale and size of the Scottish Economy it is expected this contribution will have a **Negligible (Positive)** impact and therefore **Not Significant** as per the EIA regulations.

### Operation and Maintenance Phase

- 17.5.4. **Dumfries & Galloway's Economy** is expected to receive 48 job years and £2.6 million over the 25-year lifetime of the Proposed Development during the operation and maintenance phase. Due to the scale of the economy of Dumfries & Galloway this contribution is expected to have a **Negligible (Positive)** impact and therefore **Not Significant** as per the EIA regulations.
- 17.5.5. **Scotland's Economy** is expected to receive 78 job years and £4.1 million over the 25-year lifetime of the Proposed Development during the operation and maintenance phase. This contribution is expected to have a **Negligible (Positive)** impact due to the size and scale of the Scottish Economy and therefore **Not Significant** as per the EIA regulations.

## 17.6. Maximising Local Economic Benefits

17.6.1. The assessment is based on the experience of comparable developments elsewhere and a review of the local socio-economic context. In order to maximise the economic effects associated with the Proposed Development, it will be necessary for local contractors to engage with the opportunities that arise, which can be aided by the Applicant increasing awareness of these opportunities.

## 17.7. Wider Socio-Economic Benefits

### Community Benefit Funding

17.7.1. The Scottish Government has published guidance on community benefit funding, recommending a minimum of £5,000 per MW installed capacity per year<sup>26</sup>. As the scheme is expected to have an output from the wind turbines of 78.6 MW, this would suggest an annual contribution to the fund of up to £393,000. Over the 25-year lifetime of the Proposed Development, this would equate to a total of £9,825,000.

**Table 17.14: Community Benefit Fund**

	Local Area
Funding per MW (£)	5,000
Installed Capacity (MW)	78.6
Annual Contribution (£)	393,000
Lifetime Contribution (£)	9,825,000

17.7.2. Contribution from this fund can be expected to be invested in redeveloping local communities, diversifying and addressing the specific challenges faced by the local economy outlined in their respective action plans, such as those raised in the Glencairn and Moniaive Community Action Plan<sup>27</sup>.

17.7.3. There are a number of active community benefit funds that were established by onshore wind farms across Dumfries and Galloway. Previous grants have been awarded to a range of projects<sup>28</sup>, including those which could assist the communities in attracting visitors to the area, including:

- An award of £231,135 from the old Luce Community Benefit Fund to purchase and redevelop the Brambles Café in Wigtownshire;
- An award of £20,000 from the Annandale and Nithsdale Community Benefit Company to support the Theatre Royal in Dumfries;
- An award of £15,000 from the Annandale and Nithsdale Community Benefit Company to increase the number, diversity and quality of events as part of the Dumfries and Galloway Arts Festival; and

<sup>26</sup> Scottish Government. (2017). Scottish Government Good Practice Principles for Community Benefits from Onshore Renewable Energy Developments Available at: <https://www2.gov.scot/Publications/2013/11/8279> Accessed on: 18 May 2018

<sup>27</sup> Moniaive Initiative. (2015). Glencairn and Moniaive Action Plan Available at: <https://moniaiveinitiative.org.uk/glencairn-and-moniaive-action-plan/> Accessed on 14 May 2018

<sup>28</sup> Foundation Scotland (2018), Grant Map Available at <https://www.foundationscotland.org.uk/grants-and-funding-for-organisations/grant-map/> Accessed on 14 May 2018

- An award of £9,194 from the Kilgallioch Community Benefit Fund to support the Stranraer Oyster Festival.

17.7.4. As an illustration of the level of employment that could be supported by a Community Benefit Fund, figures from the Scottish Council for Voluntary Organisations give a total turnover of £4.9 billion in Scotland's voluntary sector, supporting full-time equivalent staff of 83,350, meaning that the turnover per full-time equivalent staff member in the voluntary sector was £58,788<sup>29</sup>.

17.7.5. By applying this ratio to the annual funding, it was estimated that up to 7 full-time equivalent jobs could be supported in the voluntary sector by a community fund of this scale, should the local community elect to utilise the fund in this way.

### **Community Ownership**

17.7.6. The Applicant is offering the community the option of a 10% of shared ownership arrangement in the Proposed Development. This opportunity has been the subject of pre-application consultation. The offer of shared ownership, if taken up, could also lead to further net economic benefits.

### **Non-Domestic Rates**

17.7.7. The Proposed Development will be liable for non-domestic rates, the payment of which will contribute directly to public sector finances. Guidance from the Scottish Assessors Association from 2010 recommends a Load Factor of 25% for the area considered and a rateable value of £18,557 using the system up to 1<sup>st</sup> April 2018<sup>30</sup>.

17.7.8. The rateable value system has undergone a recent revaluation, in which the hypothetical gross income achievable, accreditation type and valuation of capital assets at the site location need to be considered which will affect the final figure<sup>31</sup>. The values of these variables are unknown at this stage; therefore, an indicative assumption have been made to assess the approximate value of Non-Domestic Rates.

17.7.9. Based on the recent changes, the average rateable value of wind farms across Dumfries and Galloway as of spring 2018 was £23,328 per MW<sup>32</sup>. Given that the Proposed Development will have an expected output from the wind turbines of up to 78.6 MW, it is estimated that the total rateable value will be approximately £1.8 million. Given a poundage rate of £0.492 per £1 of rateable

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<sup>29</sup> Scottish Council for Voluntary Organisations (2014) SCVO State of the Sector Available at: <https://scvo.org.uk/policy-research/evidence-library/2014-state-of-the-sector-statistics-2014> Accessed on 14 May 2018

<sup>30</sup> Scottish Assessors Association. (2010). Practice Note 2: Valuation of Onshore Wind Turbines/Wind Farms Available at: [https://www.saa.gov.uk/wp-content/uploads/2017/01/Wind\\_Farms.pdf](https://www.saa.gov.uk/wp-content/uploads/2017/01/Wind_Farms.pdf), Accessed on 14 May 2018

<sup>31</sup> Scottish Assessors Association. (2016). Valuation of Onshore Wind Turbines/Wind Farms Available at: <https://www.saa.gov.uk/blog/document-search/wind-turbineswind-farms-on-shore/> Accessed on 14 May 2018

<sup>32</sup> BiGGAR Economics Analysis of Scottish Assessors Association Website

value<sup>33</sup>, it is estimated that the Proposed Development could contribute £0.9 million annually to public finances, and over 25 years could contribute £22.2 million. However, the actual contribution will depend on variables such as the actual load factor, and the potential for any relief from non-domestic rates.

- 17.7.10. These non-domestic rates, by providing an additional revenue stream, will support the delivery of government services.

## 17.8. Tourism and Recreation Context

- 17.8.1. This section discusses the tourism and recreation context of the Local Area, Dumfries & Galloway and Scotland. This section covers the employment supported, types of visitors and attractions in the vicinity.

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

- 17.8.3. Tourism and recreation is important to the economy of Dumfries & Galloway with 6,000 people being employed in Sustainable Tourism in 2015<sup>34</sup>, accounting for 11% of total employment. Sustainable Tourism figures were not available for the Local Area. However, as shown in Table 17.5, the industries which are important to this sector, namely Food and Accommodation Services and 'Arts, Entertainment, Recreation and Other Services', do have a greater employment concentration in the Local Area than in Dumfries and Galloway as a whole. This would suggest that in the Local Area, tourism plays a more important role than in Dumfries and Galloway as a whole.

- 17.8.4. The Sustainable Tourism sector showed signs of growth over the five year period with gross value added at basic prices (GVA) increasing by £49.6 million in Dumfries & Galloway and £856.7 million in Scotland. Employment also grew during this time, with an increase in employment of 700 in Dumfries & Galloway and 33,600 in Scotland, as shown in Table 17.5.

**Table 17.5: Sustainable Tourism Employment and GVA (2015)**

	Dumfries & Galloway	Scotland
Employment, 2010	5,300	183,400
GVA (£m), 2010	79.6	2,904.1
Employment, 2015	6,000	217,000
GVA (£m), 2015	119.9	3,760.8
Employment Growth	13.2%	18.3%

<sup>33</sup> Scottish Parliament Information Centre. (2017). Non-domestic rates and the 2017 Revaluation, Available at: [http://www.parliament.scot/ResearchBriefingsAndFactsheets/S5/SB\\_17-20\\_Non-domestic\\_Rates\\_and\\_the\\_2017\\_Revaluation.pdf](http://www.parliament.scot/ResearchBriefingsAndFactsheets/S5/SB_17-20_Non-domestic_Rates_and_the_2017_Revaluation.pdf), Accessed on 14 May 2018

<sup>34</sup> VistiScotland (2017) Tourism in Scotland's Regions 2016 Available at: [https://www.visitscotland.org/binaries/content/assets/dot-org/pdf/research-papers-2/insights---tourism-in-scotlands-regions-2016\\_update-may-18.pdf](https://www.visitscotland.org/binaries/content/assets/dot-org/pdf/research-papers-2/insights---tourism-in-scotlands-regions-2016_update-may-18.pdf), Accessed on 14 May 2018

GVA Growth	50.6%	29.5%
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- 17.8.5. The visitors to Dumfries and Galloway are given by country of residence in Table 17.16. This shows that largest market in both Dumfries & Galloway and Scotland are tourists from Great Britain, with visitors from Scotland, England and Wales making up the largest proportion. 93.8% of visitors to Dumfries & Galloway are British residents whilst on average across Scotland, 80.7% of visitors were residents of Great Britain. These figures indicate that Dumfries & Galloway has a higher dependency on the domestic visitor market compared to the Scottish average.
- 17.8.6. As a result of its proximity, the English tourism market is of particular importance to Dumfries & Galloway with over half (52.8%) of visitors arriving from England.
- 17.8.7. The overseas market accounts for 6.3% of total visits, compared to 19.3% in Scotland.

**Table 17.16: GB and Overseas Trips by Country of Residence (2016)**

	Dumfries & Galloway	Scotland
Scotland	268,000	5,461,000
England	355,000	5,803,000
Wales	7,000	249,000
USA	7,000	451,000
Germany	4,000	355,000
France	1,000	152,000
Canada	2,000	149,000
Australia	3,000	132,000
Italy	1,000	123,000
Netherlands	4,000	115,000
Poland	3,000	138,000
Spain	2,000	89,000
Sweden	2,000	89,000
Rest of the World	10,000	954,000
<b>Total</b>	<b>672,000</b>	<b>14,261,000</b>
Note totals may not sum due to rounding		

- 17.8.8. Of the overseas visitors to Dumfries & Galloway, £13.0 million was added to the local economy; for Scotland as a whole, overseas visitors spent £1,850.0 million. This equates to an average spend per overseas visitor of £309.5 in Dumfries & Galloway and £673.2 overall in Scotland.
- 17.8.9. In both Dumfries & Galloway and Scotland, the USA account for the most overseas visitors as well as the largest amount of tourist spend of any single overseas market (Table 17.17).



**Table 17.17: Overseas Tourist Spend (£m) (2016)**

	<b>Dumfries &amp; Galloway</b>	<b>Scotland</b>
USA	4	510
Germany	1	212
France	1	75
Canada	1	130
Australia	2	102
Italy	<1	92
Netherlands	1	62
Poland	<1	20
Spain	<1	40
Sweden	<1	43
Rest of World	3	564
<b>Total</b>	<b>13</b>	<b>1,850</b>

17.8.10. The domestic market contributes the largest proportion for both number of visits and overnight stays for both Dumfries & Galloway and Scotland, as shown in Table 17.8.

17.8.11. For both Dumfries & Galloway and Scotland, overseas visitors on average stayed for longer than those visiting from Great Britain, staying 1.6 nights more on average in Dumfries & Galloway and 4.3 night more on average in Scotland as shown in Table 17.18.

**Table 17.18 GB and Overseas Average Trip Duration (2016)**

	<b>Dumfries &amp; Galloway</b>	<b>Scotland</b>
GB Nights (000's)	2,634	38,876
Overseas Nights (000's)	243	21,229
Average GB Nights	4.2	3.4
Average Overseas Nights	5.8	7.7

17.8.12. The Dumfries & Galloway accommodation occupancy figures in Table 17.19 confirm that the tourism sector is affected by seasonality, with peak occupancy in the summer-months and lower demand during the rest of the year.

**Table 17.19: Accommodation occupancy (%) (2016)**

	Dumfries & Galloway		
	Hotel	Guesthouse / B&B	Self-Catering
January	26	17	14
February	36	15	22
March	36	21	25
April	44	42	39
May	62	51	33
June	66	46	64
July	66	63	62
August	75	69	88
September	74	58	65
October	60	43	50
November	45	30	22
December	29	21	23
<b>High</b>	<b>75</b>	<b>69</b>	<b>88</b>
<b>Low</b>	<b>26</b>	<b>17</b>	<b>14</b>
<b>Average</b>	<b>52</b>	<b>40</b>	<b>42</b>

- 17.8.13. The closest major attraction, as defined by VisitScotland (Table 17.20), to the Proposed Development's site boundary is the Galloway Forest Park. Galloway Forest Park is located to the West of the Proposed Development, with the shortest distance being 3.3 kilometres (km) to the East.

**Table 17.20: Top Five Most-Visited Attractions in Dumfries & Galloway**

Name	Number of Visitors	Approximate distance from proposed site boundary (km)
(1) Gretna Green Famous Blacksmith's Shop	794,543	64.6
(2) Galloway Forest Park	433,640	3.3
(3) Mabie Farm Park	76,500	30.3
(4) Threave Garden	73,595	29.7
(5) Mabie Forest	68,442	28.7

- 17.8.14. The location of the top five most-visited attractions are displayed below with the site boundary of the Proposed Development shown in red in **Figure 17**.



**Figure 17.4: Top Attractions and the Proposed Development**

17.8.15. Other local attractions listed by VisitScotland<sup>35</sup> and TripAdvisor<sup>36</sup> within 15 km of the site boundary of the Proposed Development include:

- The Striding Arches – three sandstone arches designed by landscape artist Andy Goldsworthy and built from sandstone sources from Dumfries & Galloway, located on the hilltops near Cairnhead, 7km to the East;
- Carsphairn Heritage Centre – A centre housing an annual exhibition on the local history, with historical buildings located nearby, 5km to the West;
- Forrest Estate Experiences & Sport Clays – A centre for country sports such as clay-shooting and fishing, located in a privately-owned 11,000-acre estate, 8km to the South-West;
- The Catstrand Community, Arts and Visitor Centre – A centre providing theatre, music, comedy, storytelling, exhibitions, films and community events, as well as visitor information, 13km to the South; and
- New Galloway Golf Club – A golf club promoting its views of the Galloway landscape and wildlife, including red squirrels, red deer, hares and red kites, 14km to the South.

17.8.16. As not all attractions in the Local Area are permanent fixtures, such as festivals and events, those within 15 km of the Proposed Development have also been identified using VisitScotland and TripAdvisor. These include:

- Moniaive Michaelmas Bluegrass Festival – A music festival providing music workshops and live music;
- Moniaive Folk Festival – A music festival with workshops, dancing performances and exhibits;
- Knockengoroch World Ceilidh – A music and dance festival; and
- Dumfries and Galloway Arts Festival – With numerous venues across Dumfries & Galloway in towns including St John's Town of Dalry, New

<sup>35</sup> VisitScotland. (2018). Things to Do: Dumfries & Galloway. Available at: <https://www.visitscotland.com/info/see-do/search-results?prodtypes=acti%2Cattr%2Creta%2Ctour&loc=Dumfries+%26+Galloway&locpoly=111&locprox=0>. Accessed on: 17 May 2018.

<sup>36</sup> TripAdvisor. (2018).

Galloway, Moniaive, Penpont, Tynron, Kirkland as well as additional locations such as Craigdarroch house. The festival hosts musical performances, musicals, plays, comedy sketches, etc.

- 17.8.17. Scotland's Great Trails and the National cycle routes are also considered, those passing within 15 km of the site boundary include:
- The Southern Upland Way – One of Scotland's Great Trails stretching 230 kilometres from Portpatrick on the South-West coast to Cockburnspath on the East coast.
- 17.8.18. No National Cycle Routes pass within 15 km of the proposed site boundary.
- 17.8.19. In addition to the Great Trails and National Cycle Routes, there are other core paths and trails that are used by recreational walkers and cyclists that pass within 15 km of the site boundary. These include:
- Stroanfreggan Heritage Trail;
  - Dundeugh Hill
  - Forest Lodge Forest Walks
  - Garryhorn Mine Paths;
  - Bardennoch Heritage Path; and
  - Polmaddy Pack Road.
- 17.8.20. Tourism accommodation within 15 km of the proposed site boundary includes:
- Two accommodation facilities in Carsphairn 5km to the West, including two B&Bs;
  - One accommodation facility along the Water of Ken 2km to the East, including one self-catering lodge;
  - One accommodation facility along Carsfad Loch 5km to the South, including one self-catering lodge;
  - Four accommodation facilities in Moniaive 15km to the East, including four self-catering lodges;
  - One accommodation facility near Auchenbrack 15km to the East, including one self-catering lodge;
  - Three accommodation facilities in St. Johns Town of Dalry 12km to the South, including one Inn, one self-catering lodge and one B&B;
  - Four accommodation facilities in New Galloway 14km to the South, including two self-catering lodges, one camping park and one hotel; and
  - Seven accommodation facilities near the A712 12km to the South, including seven self-catering lodges.

### **Evidence on the Effect of Wind Farms on Tourism and Recreation**

- 17.8.21. Whilst now a decade old, the **Economic Impacts of Wind Farms on Scottish Tourism**<sup>37</sup> study by Glasgow Caledonian University is perhaps the most comprehensive on the impacts of wind farms on tourism in Scotland, incorporating a literature review, an intercept survey of tourists currently in the studied areas, an internet survey, a Geographic Information Systems (GIS) study about the effect on accommodation and economic analysis of the results. The study covered the areas of Caithness and Sutherland, Perth Kinross and Stirling, Dumfries and Galloway, and the Scottish Borders.

<sup>37</sup> Glasgow Caledonian University. (2008). The Economic Impacts of Wind Farms on Scottish Tourism. Available at: <http://www.gov.scot/resource/doc/214910/0057316.pdf>. Accessed on: 16 May 2018.

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- 17.8.22. The literature review, which particularly considered international studies, found that:
- There is little evidence of negative outcomes in sensitive areas, as they generally don't have wind farms approved.;
  - Although a significant number of individuals reported a loss of value, some thought that they enhanced the landscape;
  - In Denmark, an established wind farm market, turbines are seen as a positive impact on the landscape;
  - Hostility to wind farms decreases over time; and
  - There is no evidence to suggest serious negative economic impacts of wind farms on tourists.
- 17.8.23. The intercept survey carried out on tourists in Scotland found that although 25% viewed wind farms negatively, the majority had either a positive or neutral view, and negative views were less widely held among hill walkers. Furthermore, respondents who had seen a wind farm were less likely to be hostile to them. Although a significant minority (20-30%) preferred landscapes without wind farms, very few would change their future intention to revisit Scotland based on them.
- 17.8.24. A 2012 report<sup>38</sup> commissioned by the Scottish Government subsequently found that the findings of the Glasgow Caledonian report were robust, and that there had been no adverse effect on tourism in the areas considered in the original report.
- 17.8.25. Since the study by Glasgow Caledonia University was produced in 2008, there has been a significant growth in both the installed capacity of onshore wind energy in Scotland and the tourism economy. In 2008, there was 1.7 GW of installed wind energy capacity in Scotland, and by 2017, this had increased to 7.6 GW<sup>39</sup>. If there were to be negative impacts for the tourism sector associated with the development of onshore wind energy, they would have become apparent in this time period; however, this is not the case.
- 17.8.26. In 2011, VisitScotland commissioned **Wind Farm Consumer Research**<sup>40</sup> into attitudes of tourists towards wind farms, which surveyed 2,000 people in the UK and 1,000 people in Scotland, who had visited Scotland recently. Although the majority (86-91%) were in agreement about the importance of the natural scenery and landscape, for most of the respondents (80-83%) their decision to stay in the UK for a short holiday would not be affected by the presence of a wind farm. In general, the respondents did not feel that wind farms ruined the tourism experience.
- 17.8.27. In response to criticism in 2015 that this research was now out of date, VisitScotland indicated that it planned to update the work and in a newspaper

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<sup>38</sup> ClimateXChange. (2012). The Impacts of Wind Farms on Scottish Tourism. Available at: [https://www.climateexchange.org.uk/media/1686/the\\_impact\\_of\\_windfarms\\_on\\_scottish\\_tourism.pdf](https://www.climateexchange.org.uk/media/1686/the_impact_of_windfarms_on_scottish_tourism.pdf). Accessed on: 16 May 2018.

<sup>39</sup> Department for Business, Energy and Industrial Strategy (2018) - Renewable electricity capacity and generation Available at: <https://www.gov.uk/government/statistics/energy-trends-section-6-renewables> Accessed on: 14 May 2018

<sup>40</sup> VisitScotland. (2012). Wind Farm Consumer Research. Available at: [http://www.visitscotland.org/pdf/Windfarm%20Consumer%20Research%20final\\_docUpdatedx.pdf](http://www.visitscotland.org/pdf/Windfarm%20Consumer%20Research%20final_docUpdatedx.pdf). Accessed on: 16 May 2018.

article a spokesperson said that: "VisitScotland supports the drive for renewable energy and recognises the potential of Scotland's vast resource. It is well documented that the vast majority of potential visitors would not be discouraged from visiting Scotland on account of windfarm developments. "Windfarms and other renewable energy projects are a part of the landscape in nearly every destination in the world"<sup>41</sup>.

- 17.8.28. In addition, data published by Strava<sup>42</sup>, an app that records activity on cycling and running routes, demonstrated that many people are recreationally using tracks created during the construction of wind farms, including Bowbeat Wind Farm, near Peebles in the Scottish Borders, and Hagshaw Hill, near Douglas in Lanarkshire. In the four years prior to December 2015, when the data was released, 13,000 miles were covered on 82 tracks around 23 wind farms. Additionally, this data does not record runners or cyclists who do not use the Strava app, or recreational walkers and horse riders, and therefore these numbers are considered to be conservative.
- 17.8.29. In 2012, an inquiry was held by the Scottish Parliament's Economy, Energy and Tourism Committee into the achievability of the Scottish Government's renewable energy targets, which included a review of some of the evidence presented above. In the final report, entitled **Report on the Achievability of the Scottish Government's Renewable Energy Targets**<sup>43</sup>, the committee concluded that:
- 17.8.30. "Several witnesses made assertions that there would be a negative impact on Scotland's tourism industry from renewable developments. However, these assertions were contradicted by research evidence from VisitScotland and others".
- 17.8.31. Whilst care always needs to be taken in terms of the planning process and decisions on the siting of individual projects in areas popular with tourists and in our more rural and remote rural areas, no witness has provided the Committee with robust, empirical evidence, as opposed to anecdotal comment and opinion, that tourism is being negatively affected by the development of renewable projects. However, given the importance of this issue, the Committee recommends that VisitScotland and the Scottish Government continue to gather, and take account of, evidence from visitors to Scotland."
- 17.8.32. In 2014, Mountaineering Scotland, a membership body that represents Scottish hillwalkers and mountaineers, conducted a survey<sup>44</sup> of its members, which found that wind farms had an adverse effect on Scottish mountaineering,

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<sup>41</sup> Press and Journal. (2015). Tourists Turn Away from Highlands Because of Turbines. Available at: <https://www.pressandjournal.co.uk/fp/news/inverness/689818/tourists-turn-away-from-highlands-because-of-turbines/>. Accessed on: 16 May 2018.

<sup>42</sup> The Scotsman. (2015). GPS App Tracks Scots Using Green Energy Routes. Available at: <https://www.scotsman.com/lifestyle/gps-app-tracks-scots-using-green-energy-routes-1-3986279>. Accessed on: 16 May 2018.

<sup>43</sup> Scottish Parliament Economy, Energy and Tourism Committee. (2012). Available at: <http://www.parliament.scot/parliamentarybusiness/CurrentCommittees/57013.aspx>. Accessed on: 16 May 2018.

<sup>44</sup> Mountaineering Council of Scotland. (2014). Wind Farms and Changing Mountaineering Behaviour in Scotland. Available at: [https://www.mountaineering.scot/assets/contentfiles/pdf/mcofs-wind-farm-survey-report\\_2014-reduced.pdf](https://www.mountaineering.scot/assets/contentfiles/pdf/mcofs-wind-farm-survey-report_2014-reduced.pdf). Accessed on: 16 May 2018.



with many responding that they would avoid areas with wind farms. Wind farms were also found to reduce the scale of Scottish tourism.

- 17.8.33. However, the survey has attracted criticism, including from its own members, some of whom felt that it was difficult to express positive attitudes about wind farms and that questions were biased in favour of negative opinions. The questions were also asking about future behaviour, which may be different in practice. Furthermore, given Mountaineering Scotland's history of opposition to wind farms, it may not be considered independent, and the survey was conducted without independent oversight. Additionally, the survey may not be representative of all hill walkers, or tourists more generally.
- 17.8.34. In 2016, Mountaineering Scotland conducted another survey<sup>45</sup> of its members, which aimed to address some of the issues raised by the previous survey such as asking about current behaviour, and asking more neutral questions about wind farms, though as with the earlier study, it also lacked independent oversight, and therefore, may not be representative of broader groups of hill walkers or tourists more widely. There is also no reason to expect the survey results to be representative of tourists more generally.
- 17.8.35. When asked about the impact of wind farms on plans to walk and climb, the majority of respondents (75%) answered that wind farms have no effect on their plans, although some expressed that they may decrease their enjoyment. Some (22%) responded that they go as often, but avoid areas with wind farms, while 1% go to the mountains less. However, 2% of respondents said they go to the mountains more often and like to see wind farms. This would suggest that the development of wind farms in Scotland would have an overall positive impact on the number of people who participate in hill walking; however, it may change which parts of the country that recreational walkers utilise.
- 17.8.36. The most recent study undertaken of the effects of constructed wind farms on tourism in Scotland was the **Wind Farms and Tourism Trends in Scotland**<sup>46</sup> report completed by BiGGAR Economics in October 2017. The study looked at National, Regional and Local Areas, comparing employment change between 2009 and 2015, based on the location of wind farms constructed in the intervening years. This was an updated study of work previously published in 2016.
- 17.8.37. The analysis considered the effect on tourism employment at the National, Regional and Local level, noting that while the capacity of wind farms has more than doubled over the period under consideration, employment in tourism related sectors had increased by more than 15%.
- 17.8.38. The report also looked at tourism employment at the Local Authority level and found that this was not strongly correlated with growth in wind farms. Over the six-year period, almost all Local Authorities increased the number of wind

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<sup>45</sup> Mountaineering Council of Scotland. (2016). Wind Farms and Mountaineering in Scotland. Available at: <https://www.mountaineering.scot/assets/contentfiles/pdf/Wind-farms-and-mountaineering-behaviour-2016.pdf>. Accessed on: 16 May 2018.

<sup>46</sup> BiGGAR Economics. (2016). Wind Farms and Tourism Trends in Scotland. Available at: <https://biggareconomics.co.uk/wp-content/uploads/2017/11/Wind-Farms-and-Tourism-Trends-in-Scotland-Oct17.pdf>. Accessed on 16 May 2018.



farms, while employment in sustainable tourism also grew significantly. The analysis found no correlation between tourism employment and the number of turbines at the Local Authority level.

- 17.8.39. The study also considered the impact on employment at a much smaller, more granular level, in data zones up to 15 km from developments. The sites considered were constructed between 2009 and 2015. As these sites did not exist in 2009, comparing employment in 2009 and 2015 was considered an effective measure of the effect of wind farms on local employment, while excluding construction impacts, such as wind farm related employees staying in local accommodation.
- 17.8.40. At the Local Authority level in these smaller areas, no link was found between the development of a wind farm and tourism related employment. In 21 out of the 28 areas considered, employment in this sector grew. In 22 of the areas, employment either grew faster or decreased less than the rate for the relevant Local Authority as a whole.
- 17.8.41. Overall, the conclusion of this study was that published national statistics on employment in sustainable tourism demonstrate that there is no relationship between the development of onshore wind farms and tourism employment at the level of the Scottish economy, at the local authority level, nor in the areas immediately surrounding wind farm development.
- 17.8.42. There is a need for the evidence base into wind farms and tourism to be as up-to-date as possible to reflect the growing public support for onshore wind energy. The Department for Business, Energy & Industrial Strategy has tracked the public opinions<sup>47</sup> related to onshore wind energy and other forms of energy production. This has found that since 2012, when the first survey was carried out, to 2018, public support for onshore wind has grown from 66% to 76%. It would be expected that the increase in public support for onshore wind energy would lead to a reduction in concerns from the public regarding tourism and onshore wind.

## **17.9. Significance of Tourism and Recreation Impacts**

- 17.9.1. A review of the impacts on accommodation facilities and tourism and recreation assets by the Proposed Development was undertaken. The assessment is on the impacts on the tourism and recreation economy and therefore for each asset it was necessary to consider:
- Will the proposed development impact on the behaviour of visitors/tourists that use the asset?
  - If so, will this change in behaviour result in changes to the spending patterns of these visitors/tourists?

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<sup>47</sup> Department for Business, Energy & Industrial Strategy (2018) Public Attitudes Tracking Survey Wave 1 - 25, Available via: <https://www.gov.uk/government/statistics/energy-and-climate-change-public-attitudes-tracker-wave-25> , Accessed on 18 May 2018

17.9.2. Each impact has had the significance of its effects assessed and determined. The criteria and description for each significance level is detailed in Table 17.1 resulting in either:

- very little or no change in visitor spending then the significance is 'Negligible';
- a detectable, but not material, change in visitor spending then the significance is 'Low';
- a material change in visitor spending then the significance is 'Medium'; or
- a fundamental change in visitor spending then the significance is 'High'.

### **National & Regional Attractions**

17.9.3. **The Galloway Forest Park** covers an area of 966 km<sup>2</sup> and the closest edge of which is located approximately 3.3 km west of the Proposed Development. The Park is known for its scenery, natural landscape, Dark Skies classification, and due to its visitor numbers, is considered an attraction of National importance. The boundary of the Proposed Development is located approximately 15 km east of the core Dark Skies area within the Forest Park. It is expected that the Proposed Development will have 'very little' impact on the behaviour of visitors/tourists that use the Park because the Proposed Development is outside the boundary of the Park, and due to its distance from the Core Dark Skies zone and the overall size of the Park. Therefore the significance of any impact is expected to be **Negligible** and **Not Significant** as per the EIA regulations.

17.9.4. The remaining **Regional Attractions**, ranging from 28.7 km to 64.6 km include:

- Gretna Green Famous Blacksmith Shop;
- Mabie Farm Park;
- Threave Garden; and
- Mabie Forest.

17.9.5. These attractions are not considered to have their main characteristics affected by the Proposed Development. Due to the expectation that the tourism assets' characteristic will not be affected it is expected that the Proposed Development will have 'very little' or 'no' impact on the behaviour of visitors/tourists that use these attractions. Therefore, the significance of the impact is expected to be **Negligible** and **Not Significant** as per the EIA regulations.

### **Local Attractions**

17.9.6. The five identified **Local Attractions** within 15 km include:

- The Striding Arches;
- Carsphairn Heritage Centre;
- Forrest Estate Experiences & Sport Clays;
- The Catstrand Community, Arts and Visitor Centre; and
- The New Galloway Golf Club.

17.9.7. These attractions are not expected to have their characteristics affected by the Proposed Development. For this reason, it is expected that the Proposed Development will have 'very little' or 'no' impact on the behaviour of

visitors/tourists that use these attractions. Therefore, the impact from the Proposed Development is expected to be **Negligible** and **Not Significant** as per the EIA regulations.

17.9.8. The four identified **Festivals & Events** within 15 km include:

- Moniaive Michaelmas Bluegrass Festival;
- Maniaive Folk Festival;
- Knockengoroch World Ceilidh; and
- Dumfries & Galloway Arts Festival.

17.9.9. These events are not expected to have their features or characteristics altered by the Proposed Development, and it is expected that the Proposed Development will have 'very little' or 'no' impact on the behaviour of visitors/tourists that use these attractions. Therefore, the impact is expected to be **Negligible** and **Not Significant** as per the EIA regulations.

### **Great Trails**

17.9.10. The **Southern Upland Way** (SUW) passes within close proximity to the Proposed Development, approximately 740 metres from the site boundary at its closest point. The Proposed Development will be visible from the SUW, which passes a lot of different sites of interest over the 212 miles from coast to coast. Many hikers, chose to walk shorter sections of the SUW, and the Proposed Development would be located long the section between St John's Town of Dalry to Sanquhar. This includes other wind farm developments which are visible along the route. There is no reason to think that the visibility of this particular wind farm, in this section of the SUW, will have any additional positive or negative impact on the existing number of individuals choosing to walk this route. Therefore, the impact is assessed as **Negligible** and **Not Significant** as per the EIA regulations.

### **Local Paths**

17.9.11. The identified core paths and heritage trails within 15 km include:

- Stroanfreggan Heritage Trail;
- Dundeugh Hill
- Forest Lodge Forest Walks
- Garryhorn Mine Paths;
- Bardennoch Heritage Path; and
- Polmaddy Pack Road.

17.9.12. These paths and trails do not pass through the boundary of the Site, and there will be no restrictions on access to these paths during the construction process. The operation of the Proposed Development is not expected to alter their features or characteristics, and it is expected that the Proposed Development will have 'very little' or 'no' impact on the behaviour of visitors/tourists that use these paths. Therefore, the impact is assessed as **Negligible** and **Not Significant** as per the EIA regulations.

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### Tourism Accommodation

- 17.9.13. The tourism accommodation that is located nearest the site is the self-catering accommodation located along the Water of Ken, approximately 2 km to the east of the Site. The facility, named **River Ken Cottage**, advertises its isolation and views across the valley with reviewers specifically identifying these attributes as the reason for booking and also wanting to return. The Zone of Theoretical Visibility (ZTV) analysis shows that between 15 and 19 turbines will be visible from this site. Due to the proximity of the Proposed Development to the River Ken Cottage, it is the most likely tourism receptor to experience any effects. These could be positive, increasing the demand for such facilities in the low season during the construction phase and negative, depending on the visual and other impacts that the Proposed Development would have on the cottage, and subsequent demand. The empirical evidence on this topic would suggest that there is no data to suggest that wind farms have negative effects on tourism providers; in addition BiGGAR Economics has not encountered any such tourism receptors in over ten years of working on wind energy projects. The significance is expected to be **Low** and **Not Significant** as per the EIA regulations.
- 17.9.14. The **remaining 23 accommodation facilities**, ranging from 5 km to 15 km away, are not expected to have their characteristics altered by the Proposed Development during either phase of its life, and it is expected that the Proposed Development will have 'very little' or 'no' impact on the behaviour of visitors/tourists that use these facilities. Therefore, therefore the significance of the impact is expected to be **Negligible** and **Not Significant** as per the EIA regulations.

**17.10. Summary of Socio-Economic, Tourism and Recreation Impacts**

**Table 17.21: Summary of Impacts**

<b>Name</b>	<b>Significance of Impact</b>	<b>Significance as per EIA regulations</b>
<b>Economic Impact (Construction &amp; Development)</b>		
Dumfries & Galloway: 204 job years, £19.0 million	Low (Positive)	Not Significant
Scotland: 582 jobs years, £52.3 million	Negligible (Positive)	Not Significant
<b>Economic Impact (Operation &amp; Maintenance)</b>		
Dumfries & Galloway: 48 jobs, £2.6 million	Negligible (Positive)	Not Significant
Scotland: 78 jobs, £4.1 million	Negligible (Positive)	Not Significant
<b>National and Regional Attractions</b>		
The Galloway Forest Park	Negligible	Not Significant
Remaining Four Regional Attractions	Negligible	Not Significant
<b>Local Attractions</b>		
Local Attractions	Negligible	Not Significant
Festivals and Events	Negligible	Not Significant
<b>Paths and trails</b>		
Southern Upland Way	Negligible	Not Significant
Local Paths	Negligible	Not Significant
<b>Tourism Accommodation</b>		
River Ken Cottage	Low	Not Significant
Remaining 23 Accommodation Facilities	Negligible	Not Significant