

Appendix 12.1 The Economic Impact of Energy Isles Wind Farm

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BiGGAR Economics

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1 EXECUTIVE SUMMARY

The proposed Energy Isles Wind Farm is planned to consist of 29 turbines with a combined capacity of up to 200 megawatts (MW) and would be located near Gloup in the north of Yell.

Shetland's most important industries are fishing, aquaculture, agriculture and oil and gas, though many are also employed in construction and transport. Economic activity and wages are high in Shetland, but living costs are also higher than the Scottish average and some employers struggle to fill positions. However, wages are lower in Yell, Unst and Fetlar and living costs are higher than the Shetland average.

The economic impact of the proposed Energy Isles Wind Farm has been assessed based on the experience of what has happened at other onshore wind farms, including case studies of other onshore wind developments in Scotland, and analysis of the local economy. The economic analysis indicates that during the development and construction phase the proposed development is expected to contribute:

- £25.5 million and 223 job years in Shetland; and
- £87.9 million and 795 job years in Scotland (figures referring to Scotland include the impact arising in Shetland)

During each year the operation and maintenance of the proposed development could contribute:

- £0.6 million and 5 jobs in Shetland; and
- £1.4 million and 12 jobs in Scotland.

The applicant for the proposed development is Energy Isles Limited, a consortium of mainly Shetland-based businesses. This provides an opportunity for long lasting economic impacts since it will be in local ownership and it is likely that local businesses will re-invest any profits in Shetland. Energy Isles has also committed to maximising the local economic impacts of the proposed development through partnerships with Shetland College, engaging with local suppliers and working with other renewable energy developments.

The project is likely to benefit from the infrastructure already in place to support the oil and gas industry in Shetland. It will also require additional investments in infrastructure, that are expected to provide benefits for Yell, Unst and Fetlar that will continue after the construction phase is completed.

Energy Isles Wind Farm would also strengthen the needs case for investment in the proposed High Voltage Direct Current (HVDC) interconnector linking Shetland's island grid to the UK grid, as well as the proposed Maali interconnector between Shetland and Norway. These developments could:

- secure Shetland's future energy supply, by linking with wider electricity networks;
- support the competitiveness of Shetland's renewable energy sector by creating a market for its electricity production;
- connect the UK and Norway grids, with Shetland as a hub, increasing connection in the European electricity network;
- improve the UK's ability to balance supply and demand for electricity, which could reduce the cost for consumers; and

- support additional jobs and economic activity in their construction and operation.

The proposed Energy Isles Wind Farm development is expected to bring wider benefits to Yell, Unst and Fetlar, including community benefit fund of £1.0 million annually, and £30.0 million over the lifetime of the development. This could:

- support initiatives aimed at reducing fuel poverty, which affects households in Shetland at a much higher rate than Scotland as a whole;
- increase the local area's attractiveness to tourists through the development of visitor attractions and accommodation, a new strategy and better marketing; and
- support existing community councils and voluntary organisations that have seen their budgets cut, as well as new initiatives that could support entrepreneurship and business growth on the islands.

The jobs supported by the proposed development's operation and wider benefits could attract people to Shetland and sustain the local population by making it a more attractive place to live and work. The proposed development would also contribute non-domestic rates estimated at £2.7 million per year, or £79.7 million over the lifetime of the development, supporting the delivery of public services.

Sustainable tourism is an important industry in Shetland, albeit proportionately less important than for the Scottish economy as a whole. Many of Shetland's main attractions are located in Mainland Shetland, and the main attractions in the North Isles are located in Unst. There are also a small number of attractions, accommodation providers and coastal walks in Yell.

The effect of the proposed development on visitor attractions, accommodation providers and recreational routes within 15km radius from the wind farm has been carefully considered. No significant effects on tourism assets were found.

2 INTRODUCTION

This report has been prepared by BiGGAR Economics. It identifies and assesses the potential effects that Energy Isles Wind Farm, which would be located near Gloup in the northern part of Yell, could have in Shetland and Scotland. The proposed development is expected to consist of 29 turbines, each with a capacity of up to 7 megawatts (MW), and have a total installed capacity of up to 200MW.

2.1 Approach

The approach that has been taken in this assessment reflects best practice and is similar to the approach that has been taken in several other socio-economic and tourism assessments of onshore wind developments.

Before assessing potential socio-economic effects arising from construction or development, it is first necessary to place the proposed development in the context of the local economy. Therefore, a profile of the local economy has been created using available statistics, as well as considering the aspirations of the local community.

The economic impact of development, construction and operation of Energy Isles Wind Farm was then assessed, using a methodology that has been developed by BiGGAR Economics specifically to estimate the economic effects of wind farm developments. This approach is now considered industry best practice. This is based on research undertaken by BiGGAR Economics on behalf of RenewableUK in 2012, that was subsequently updated in 2015, which was based on case studies of the local, regional and national economic effects of wind farms developed in the UK.

The wider socio-economic effects of the proposed development were also considered, including the community benefit fund and the contribution made through non-domestic rates. The potential contribution to the community was aligned to the aspirations of the community.

An overview of the tourism and recreation assets was also undertaken, which considered the importance of the tourism sector to the local economy and how individual assets contribute to attracting visitors to the area. Tourism attractions, accommodation and paths within the vicinity of the proposed development were identified. After reviewing the literature on the relationship between wind farms and tourism, the potential effect of the proposed development on these assets was then assessed.

2.2 Report Structure

The remainder of this report is structured as follows:

- Chapter 3 provides a socio-economic context of the Shetland economy;
- Chapter 4 assesses the quantifiable economic impact of the construction and operation phases and discusses wider economic benefits;
- Chapter 5 highlights potential wider benefits including those associated with community benefit funding and business rates; and
- Chapter 6 considers any potential effects of the proposed development on the tourism economy.

3 SOCIO-ECONOMIC CONTEXT

This section presents details of the existing economic conditions in Shetland.

3.1 Strategic Context

3.1.1 Scotland's Economic Action Plan 2018-20¹

The Scottish Government's Economic Action Plan (October 2018) sets out how it plans to make Scotland a leader in technological and social innovations. It aims to deliver higher productivity and greater competitiveness, while transitioning to a carbon neutral economy through measures that support business, and encourage investment, innovation and upskilling.

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

- Investment: boosting private and public investment and delivering world-class infrastructure;
- Enterprise: ensuring a competitive business environment;
- International: growing exports and attracting international investment;
- Innovation: supporting world-leading innovation;
- Skills: providing a highly skilled workforce;
- Place: supporting thriving places;
- People: ensuring a sustainable working population where everyone can participate in and benefit from increased prosperity; and
- Sustainability: seizing the economic opportunities in the low carbon transition.

3.1.2 Scottish Energy Strategy²

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

In 2016, 54% of all electricity in Scotland was generated renewably, with a target of producing 100% from renewable sources by 2020. Renewable electricity increased to 70.1% in 2017. However, electricity represented 23.1% of all energy consumed in Scotland, and the overall share of renewables was 20.0%³. By 2030, the Scottish Government wants the proportion of all energy, including heat and transport, supplied from renewable sources to increase to 50%.

The Scottish Government has also highlighted that renewables present an economic opportunity as an expanding market which will continue to support Scottish growth. The Scottish Government will continue to support businesses in this sector. Remote island wind is highlighted as a particular area of opportunity, with the Scottish

¹ Scottish Government (2018), Economic Action Plan 2018-20. (accessed <https://economicactionplan.mygov.scot>)

² Scottish Government (2017), Scottish Energy Strategy: The Future of Energy in Scotland

³ Scottish Government (2018) Energy Statistics for Scotland Q3 Figures, December 2018 (accessed <https://www2.gov.scot/Resource/0054/00544656.pdf>)

Government providing full support to islands communities participating in the energy transition.

Additionally, the Scottish Government has emphasised the importance of communities benefitting from renewable energy generation, including through community benefit funds.

3.1.3 Shetland Islands Economic Development Strategy 2018-2022⁴

The Shetland Islands Council's Economic Development Strategy 2018-2022 sets out the current position and future aspirations of the Shetland council area, and will act as a policy framework for the work of the Council's Economic Development Service.

The strategy highlights that Shetland's economy has been very successful in recent years. In particular, Shetland's geographic position and natural resources have led to fisheries and energy, predominantly oil and gas, being the most significant sectors of the economy. In addition, Shetland has high levels of economic activity and a productive business base, with the unique local heritage also supporting ventures in the arts, food and drink, and tourism, and innovation supporting advances in renewable energy and telecommunications.

However, the islands also face difficulties. The population is ageing with some remote communities struggling to retain their population. Recruitment is also an issue and a fifth of employers report being unable to recruit qualified staff due to a lack of local labour. The UK's exit from the European Union is also a source of significant uncertainty and may have implications for key areas such as fisheries, energy and public services.

In order for Shetland to be a place where everyone can succeed, Shetland Islands Council has outlined six priority areas:

- encourage growth, development and diversification in the private sector, including adding value to local primary production, such as through fish processing;
- improve economic participation in local communities, including assisting community groups to develop key assets;
- link skills, research and development to economic need, including investigating development opportunities for key sectors and filling business's skills gaps;
- ensure Shetland's interests are represented in national, regional and external policy-making;
- improve the attractiveness of Shetland as a place to live, work, study, visit and invest; and
- increase the pace of innovation and the adoption of new technologies, including reducing dependence on fossil fuels and increasing installed renewable energy sources.

From concerted effort in these priority areas Shetland Islands Council has a number of ambitious targets, including creating 250 new private sector jobs by 2022, reducing the rate of underemployment, and reducing carbon emissions faster than the Scottish average.

⁴ Shetland Islands Council (2017), Economic Development Strategy 2018-2022

3.2 Economic Context

3.2.1 Population

The population of Shetland is 23,080, which represents 0.4% of the Scottish total. It has a relatively higher proportion of the population aged 0-15 (18.3%) than the Scottish average (16.9%), and the proportion of the population aged 16-64 is 62.2%, compared to the average of 64.4%.

The proportion of the population aged 20-29 (11.0%) is lower than the Scottish average (13.6%), suggesting that many young people migrate from Shetland once they reach adulthood. A study on young people in Shetland⁵ found that 24% are 'committed leavers' and '18% are 'reluctant leavers', with broadening their life horizons (88%) and access to training and employment opportunities (82%) cited as the most common reasons for leaving.

Table 3-1 – Population, 2017

	Shetland	Scotland
Total	23,080	5,424,800
0-15	18.3%	16.9%
16-64	62.2%	64.4%
20-29	11.0%	13.6%
65 and over	19.4%	18.7%

Source: National Records of Scotland (2018), Mid-Year Population Estimates (Current Geographical Boundaries) 2017

Projections to 2041 show that the population of Shetland is expected to fall to 22,700, down 2.2% compared with 2016, whilst the population of Scotland as a whole is expected to increase by 5.3% in the same period.

Shetland is also projected to have a smaller working age population in 2041 with 55.9% aged 16-64 (compared to 58.9% in Scotland) and will also see an increase in the proportion aged 65 and over to 27.3% (compared to 25.3% in Scotland).

By 2041 Shetland is likely to have a lower population and a smaller working age population, which would be reflected in fewer families living in the islands and in reduced school enrolment. These demographic projections underline the importance of increasing the attractiveness of Shetland as a place where to live, study and work, which was identified as one of the six priorities in the Shetland Islands Economic Development Strategy 2018-2022.

⁵ HIE (2015), Our Next Generation - Young People in Shetland Attitudes and Aspirations

Table 3-2 – Population Projections, 2016-2041

	Shetland		Scotland	
	2016	2041	2016	2041
Total	23,200	22,700	5,404,700	5,693,201
0-15	18.2%	16.8%	16.9%	15.8%
16-64	62.8%	55.9%	64.6%	58.9%
65 and over	19.0%	27.3%	18.5%	25.3%

Source: National Records of Scotland (2017), Population Projections 2016-2041

3.2.2 Labour Market

As can be seen in Table 3-3, the economic activity rate in Shetland is relatively high at 85.4%, compared to 77.5% in Scotland. Furthermore, the unemployment rate in Shetland is 2.2%, significantly lower than the level of 4.1% for Scotland, confirmed by the lower claimant count, which in December 2017 was 0.3% compared to 1.2% in Scotland. Although this suggests that the labour market is very tight, it should be noted that the underemployment rate, defined as people who would like to work more hours, is 14.8% in Shetland, higher than the Scottish average of 8.0%.

Evidence from an employment survey undertaken by Shetland Islands Council found that for 23% of companies the basic employability of candidates is considered a problem, while 20% said they could not fill vacancies, due to a lack of local labour⁶. These figures are higher in the manufacturing and construction sectors.

High participation rates and difficulty in finding employees with the required skills may be the result of high levels of out-migration, although given the requirement for skilled labour it may be that the existing population are unable to fill the vacancies.

Table 3-3 – Labour Market Indicators, 2017

	Shetland	Scotland
Economic Activity Rate	85.4%	77.5%
Unemployment Rate	2.2%	4.1%
Claimant Count, Dec 2017	0.3%	1.2%
Underemployment rate	14.8%	8.0%
Cannot fill vacancies due to a lack of labour*	20%	-
Employability of candidates is a problem*	23%	-

Source: ONS (2018), Annual Population Survey Jan 2017 – Dec 2017. Shetland Islands Council (2018), Employment Survey 2017

The annual median gross pay in the Shetland Islands, according to the ONS⁷, is £31,619, about 11% higher than the Scottish average of £28,371. However, information from the Shetland Islands Council indicates that the median income in Yell, Unst and Fetlar was 22% lower than in the rest of Shetland⁸.

⁶ Shetland Islands Council (2018), Employment Survey 2017

⁷ ONS (2018), Annual Survey of Hours and Earnings 2017

⁸ Shetland Islands Council (2017), Yell, Unst and Fetlar Infographic

The cost of living in Yell, Unst and Fetlar is 13% higher than in Shetland as a whole and 62% higher than the UK⁹. This is similar to the findings of a report by Highlands and Islands Enterprise, which found that residents of remote Scottish islands such as the Shetland Islands can often have living costs 20-40% higher than residents in urban Britain¹⁰.

One of the main contributors to the extra costs are higher fuel bills, which are often related to houses being in a state of disrepair or lacking typical features such as central heating. In Shetland, the level of fuel poverty (defined as spending more than 10% of income on heating) is 50%, higher than the Scottish average of 31%. The level of extreme fuel poverty (defined as spending more than 20% of income on heating) is 22%, compared to 8% for Scotland. Fuel poverty particularly affects older households, that have limited income and spend more time at home.

Table 3-4 – Pay and Fuel Poverty

	Shetland	Scotland
Annual median gross pay	£31,619	£28,371
Fuel Poverty*	50%	31%
Extreme Fuel Poverty*	22%	8%

Source: ONS (2018), Annual Survey of Hours and Earnings 2017. *Scottish Government (2018), Scottish House Condition Survey 2014-2016 – Local Authority Analyses

In a survey recently undertaken by Shetlands Island Council it was found that fuel poverty rates in Shetland were 53%. The highest levels were in remote rural areas, and the North Isles were found to have the highest rates in Shetland, with 64% of households in fuel poverty¹¹.

3.2.3 Industrial Structure

The most important component of the Shetland economy in 2017 is Agriculture, Forestry and Fishing¹², which accounts for 17.2% of employment, compared to 3.2% in Scotland. This category includes fishing and aquaculture, which accounts for a significant proportion of jobs in Shetland, as well as agriculture, including crofting.

Mining, quarrying and utilities corresponds to 1.7% of employment and, although the proportion is lower than in Scotland as a whole (2.6%), this forms a high value element of Shetland’s economy, as a result of the oil and gas sector, including through the Sullom Voe terminal.

A further 7.0% of Shetland employment is in manufacturing (similar to Scotland where the proportion is 7.1%), with around a third of manufacturing jobs associated with processing fish and other seafood.

Construction accounts for 8.6% of employment, higher than the Scottish level of 5.7%, which may be associated with higher maintenance costs of Shetland’s older accommodation. The transport and storage sector is also important in the economy,

⁹ Shetland Islands Council (2017), Yell, Unst and Fetlar Infographic <https://www.shetland.gov.uk/communityplanning/images/YUFV0.2.png>

¹⁰ Highlands and Islands Enterprise (2013), A Minimum Income Standard for Remote Rural Scotland

¹¹ Shetlands Island Council (2018), Consultation of a Fuel Poverty Strategy for Scotland – Response

¹² Agriculture, Forestry and Fishing is one of 18 broad industrial sectors included in the ONS Business Register and Employment Survey (BRES), which make comparison with Scotland possible. It should be noted that this category includes aquaculture, which is responsible for significant employment on Shetland, and forestry, which is likely to be negligible.

accounting for 7.8% of total employment, compared to 4.2% in Scotland, which is partly driven by Shetland’s need to import many products.

Sectors that are generally considered high value, such as professional, scientific and technical services (4.1%), information and communication (1.4%) and finance and insurance (0.3%) are underrepresented compared to the Scottish economy, where these sectors respectively account for 6.9%, 2.7% and 3.2% of employment.

In Shetland the total number of part-time, full-time and self-employed workers is 16,145. The number of jobs as a proportion of the total population is higher in Shetland (0.70) than in Scotland (0.48). This reflects the high economic participation rates in Shetland, as well as the nature of the labour market where many people work more than one job, e.g. in crofting and aquaculture.

Table 3-5 – Industrial Structure, 2017

	Shetland	Scotland
Agriculture, forestry and fishing*	17.2%	3.2%
Mining, quarrying and utilities	1.7%	2.6%
Manufacturing	7.0%	7.1%
Construction	8.6%	5.7%
Motor trades	1.1%	1.7%
Wholesale	2.7%	2.9%
Retail	7.0%	9.5%
Transport and storage	7.8%	4.2%
Accommodation and food services	5.6%	7.6%
Information and communication	1.4%	2.7%
Financial and insurance	0.3%	3.2%
Property	0.4%	1.3%
Professional, scientific and technical services	4.1%	6.9%
Business administration and support	4.7%	7.5%
Public administration and defence	5.0%	6.1%
Education	7.0%	7.5%
Health	13.3%	15.6%
Arts, entertainment, recreation and other services	5.9%	4.6%
Total Employment	16,145	2,589,000

Source: ONS (2018), Business Register and Employment Survey 2017; *The sector includes aquaculture and forestry. Although forestry is expected to have a negligible role in the Shetland economy, the sector provides a meaningful comparison with the Scottish economy.

3.3 Volunteering and Community Organisations

Shetland has a strong tradition of volunteering, with 9,500 people formally registered to volunteer in around 1,000 voluntary and community third sector organisations. This represents a volunteering rate of over 50%, which is the highest rate in Scotland,

where the figure is 27%. Around 10% of these volunteers are young, with many achieving the Saltire Award¹³.

Voluntary Action Shetland (VAS), the body which supports and develops the third sector in Shetland, is involved in several of the community schemes in Shetland, including Market House, from where VAS and 18 other organisations, are run. It also supports charities that are aimed at young people, carers and parents, as well as training to build capacity.

However, VAS's income has decreased in recent years: in 2015 total income was around £800,000, but by 2018 it had decreased to around £700,000¹⁴. An earlier report¹⁵ on community involvement in Shetland found that although Shetland has a strong sense of solidarity and a vibrant third sector, council funding has decreased recently and is expected to decrease further. Yell Community Council have noted that 'Community Council budgets throughout Shetland have been significantly reduced further for this financial year and the Yell Community Council are sorry to say that they will now be working with more limited resources for the funding of local projects and private roads'¹⁶. This suggests that funding from other sources is likely to become more important in the future.

The report on community involvement also conducted a survey of volunteers, which found that they are being asked to do more with less, and a small number of volunteers feel they are asked to do too much, leading to burnout. There is an understanding that some communities do not have individuals with the skills to be useful and that poor planning has led to a generation that is not prepared to volunteer, which is considered a necessity to maintain the social and economic fabric of the community.

3.4 Socio-economic Context Summary

The most important industries for Shetland are fishing, aquaculture, agriculture and oil and gas, though a significant proportion of the population are also employed in the construction and transportation sectors. Although economic activity is high and unemployment is low, the rate of underemployment is higher than average, and many employers struggle to find qualified candidates.

Wages are high compared to the Scottish average, but the cost of living is also higher. In Yell, Unst and Fetlar wages are lower than the Shetland average and the cost of living is higher. The working age population is relatively smaller than the Scottish average, and this trend is set to continue with the proportion of the population aged 65 and over set to increase. Demographic trends suggest that the working age population is likely to decrease, reducing the number of families living in Shetland as well as future school rolls.

Community spirit is strong on the islands with about 1,000 voluntary and community third sector organisations, and the proportion of the population that volunteers is the highest in Scotland. However, the funding has become more constrained as a result of lower council funding.

¹³ Economic Development/Shetland Islands Council (2017), Shetland in Statistics 2015 and 2016

¹⁴ Volunteering Action Scotland – Annual Reports 2016-2018

¹⁵ Shetland Partnership (2014), Strengthening Community Involvement at this Time of Change

¹⁶ <https://www.shetland-communities.org.uk/subsites/ycc/> Accessed 21/09/2018

4 ECONOMIC IMPACT

4.1 Methodology

4.1.1 Assessment of Socio-Economic Effects

Analysis of economic impacts was undertaken using a model that has been developed by BiGGAR Economics specifically to estimate the economic impacts of wind farm developments. This model was also the basis of the UK onshore wind sector for the then Department of Energy and Climate Change (DECC) and RenewableUK in 2012¹⁷. This was subsequently updated in 2015¹⁸. The assessments are based on case studies of the local, regional and national economic impacts of wind farms that have been developed in the UK in recent years.

Although there are no recognised methodologies for assessing the impact of wind farms, this approach is now considered best practice, having been used in reports for the DECC and RenewableUK. This model has been used by BiGGAR Economics to assess the economic effects of numerous wind farms across the UK and the results have been accepted as robust at several inquiries.

The economic model was based on two main sources: the analysis undertaken in the 2015 report on behalf of RenewableUK, which examined the size and location of contracts for the development, construction and operation of existing wind farms; and a bespoke analysis of the economies of the relevant study areas using local and national statistics.

4.1.2 Stages in Socio-Economic Analysis

The starting point for estimating the likely economic activity supported by the proposed development was to consider the level of expenditure during the construction and development, and operation and maintenance phases of the proposed development. The next step was to break this expenditure down into its main components and make reasonable assumptions about what would be expected to accrue to the main contractors and sub-contractors.

Applying these assumptions to the initial expenditure provided an estimate of the amount of each component contract that could be secured by companies in Shetland and Scotland. There are two sources of economic activity: the first arising from each of the component contracts and the jobs they support; the second is from anticipated spending in the relevant study areas of people employed in these contracts (the income effect).

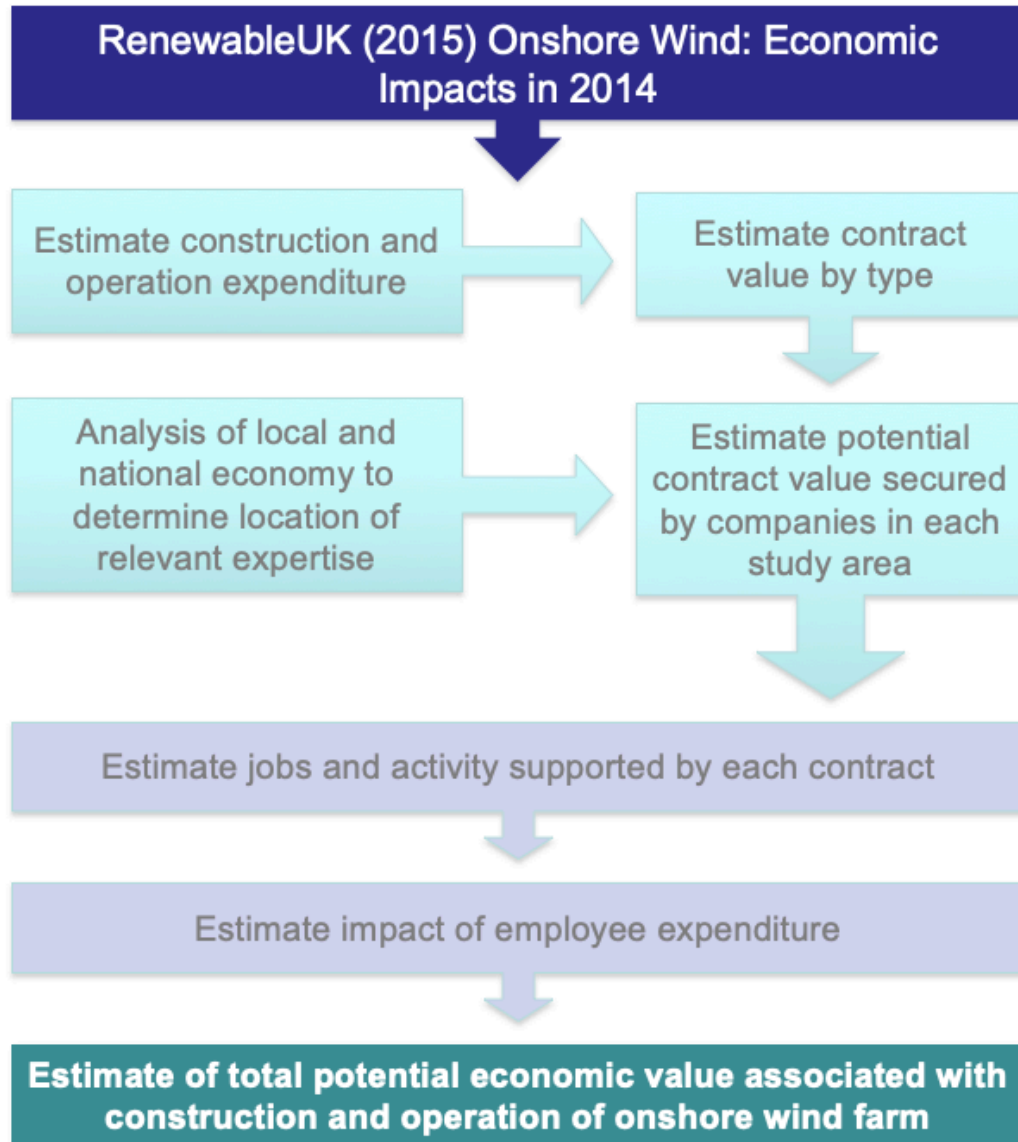
There are four key stages involved in this model:

- estimating the total capital expenditure;
- estimating the breakdown of capital expenditure into component contracts and subcontracts;
- assessing the capacity of the business case in each study area to carry out the contracts; and
- using the resulting figures to estimate the economic impact.

¹⁷ Department of Climate Change, RenewableUK (2012), Onshore Wind: Direct and Wider Economic Impacts

¹⁸ RenewableUK (2015), Onshore Wind: Economic Impacts in 2014

Figure 4.1 – Approach to Economic Impact Assessment



Source: BiGGAR Economics

4.2 Construction and Development

Energy Isles Wind Farm is expected to have an installed capacity of 29 turbines, each with a capacity of up to 7MW. This suggests that the total capacity of up to 200MW, depending on the turbines selected.

Using research undertaken by BiGGAR Economics on behalf of RenewableUK in 2015, the average expenditure on the construction and development of wind farms can be estimated based on the average spend per MW, the average spend per turbine, or a combination of the two, as appropriate. On the basis of this methodology, the total development and construction cost was estimated to be £237.9 million.

This expenditure is split into four main categories of contracts. These are:

- development and planning, which includes project development, legal and financial and project management;

- balance of plant, which includes civil and project management, roads, substations buildings, turbine foundations, landscaping and electrical installation;
- turbines, which includes tower manufacture, other manufacture, assembly, and transport; and
- grid connection, which includes engineering services, construction, electrical components and industrial equipment and machinery.

The proportion of development and construction spending that is spent on each of the main categories of contracts was also from BiGGAR Economics research into wind farms currently in operation. This found that the largest proportion of expenditure was on turbine related contracts (71.4%), followed by balance of plant (19.9%), grid connection (5.0%) and development and planning (3.7%). As turbine size increases, the share of total expenditure accounted for by balance of plant, grid connection and development and planning is expected to decrease.

Table 4-1 – Development and Construction Expenditure by Contract Type

	% of CAPEX	Value (£m)
Development and Planning	3.7%	8.8
Balance of Plant	19.9%	47.4
Turbine	71.4%	169.8
Grid Connection	5.0%	11.9
Total	100%	237.9

Source: BiGGAR Economics Assumptions. RenewableUK (2015), Onshore Wind: Economic Impacts in 2014.

The economic impact of the development and construction phase was estimated for Shetland and Scotland. 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. This analysis was based on the averages from the RenewableUK report and analysis of the industrial make-up of Shetland. To estimate the expenditure for each contract in each of the study area these percentages were applied to the estimated size of each component contract. Note that throughout this economic impact section all values depicted for Scotland are inclusive of Shetland figures.

This suggests that Shetland could secure contracts worth £24.5 million, which is equivalent to 10% of the total capital expenditure (Capex). The largest opportunity for Shetland would be balance of plant contracts, where it could be expected to secure £12.5 million.

It was also estimated that Scotland (which includes Shetland) could secure 34% of the total Capex, worth £82.0 million. The largest contracts could be secured in balance of plant contracts (£32.0 million).

Table 4-2 – Development and Construction Expenditure by Study Area and Contract

	Shetland		Scotland	
	%	(£m)	%	(£m)
Development and Planning	18%	1.6	63%	5.5
Balance of Plant	26%	12.5	68%	32.0
Turbine	3%	5.9	19%	32.6
Grid Connection	38%	4.6	100%	11.9
Total	10%	24.5	34%	82.0

Source: BiGGAR Economics

The contracts which may be awarded in the study areas would represent an increase in the turnover of businesses in these areas. The impact that this increase in turnover could have was estimated using industry specific data from the Annual Business Survey. This survey gives the turnover per employee for each of the industries involved, which allows the employment from any increase in turnover to be estimated.

The employment impacts during the development and construction phase are reported in job years because the contracts would be short term. Job years measures the number of years in 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.

In this way, development and construction impacts were estimated to support 204 job years in Shetland and 676 job years in Scotland.

Table 4-3 – Development and Construction Contract by Study Area (job years)

	Shetland	Scotland
Development and Planning	17	58
Balance of Plant	105	256
Turbine	52	285
Grid Connection	30	77
Total	204	676

Source: BiGGAR Economics

There would also be knock on effects from the direct employment during the proposed development because the people who are employed on the project will have an impact on the wider economy when they spend their salaries. A proportion of this spending will be in Shetland, supporting businesses that rely on consumer spending, and so supporting employment in the wider Shetland economy.

The research undertaken by BiGGAR Economics for RenewableUK in 2012 found that the average salary for employees in the onshore wind sector is £34,600. It was therefore estimated that £23.4 million would be paid to staff directly employed in Scotland during the development and construction phase of the proposed development. Staff based in Shetland would be paid £7.1 million during this period.

In order to estimate the economic impact of these salaries it was estimated that employees living in Shetland would spend 40% of their salaries in Shetland and workers living in the rest of Scotland would spend 74% of their salaries in the rest of

Scotland. The assumption was based on data provided in the Scottish Government’s Input-Output tables.

The economic impact of this increased expenditure was estimated using the average GVA/turnover and turnover/employee ratios for the whole economy as reported in the Annual Business Survey.

In this way, it was possible to estimate that direct employees could spend £2.8 million in Shetland, which would support 19 job years of employment, and £1.0 million GVA. In Scotland, direct employees could spend £17.2 million, which would support £5.9 million GVA and 119 job years.

Table 4-4 – Development and Construction Contract by Study Area (job years)

	Shetland	Scotland
Employee Spend (£m)	2.8	17.2
GVA (£m)	1.0	5.9
Employment (job years)	19	119

Source: BiGGAR Economics

The total economic impact during the construction and development phase is the sum of the direct impacts and the impact from the expenditure of direct employees. As a result, it was estimated that the total economic impact would be £25.5 million and 223 job years in Shetland, and £87.9 million GVA and 795 job years in Scotland.

Table 4-5 – Economic Impact during Development and Construction

	Shetland	Scotland
Economic Impact (£m)	25.5	87.9
Employment (job years)	223	795

Source: BiGGAR Economics

4.3 Operation and Maintenance

The operation and maintenance impact of the proposed development was estimated annually, as the impact would persist throughout the lifespan of the proposed development.

Annual expenditure on operations and maintenance was estimated based on analysis undertaken in the 2015 RenewableUK report (RenewableUK, 2015). It was estimated that the annual operations and maintenance expenditure associated with the proposed development could be up to £4.1 million. Over the 30-year life of the project this could amount to £121.9 million¹⁹. This excludes land agreements, as well as non-domestic rates and community benefit, which are considered in Chapter 5.

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

Based on this information it was assumed that residents of Shetland could secure 15% of the contracts and 33% of the contracts could be secured from within Scotland.

¹⁹ Totals may not sum due to rounding

In this way it was estimated that operation and maintenance could generate £0.6 million of additional turnover in Shetland and £1.4 million in Scotland.

Table 4-6 – Operation and Maintenance Expenditure by Study Area

	Shetland		Scotland	
	%	(£m)	%	(£m)
Operation and maintenance	15%	0.6	33%	1.4

Source: BiGGAR Economics

As with the construction phase, the contract values awarded in each of the study areas represent an increase in the turnover in those areas. The economic impact of this increase in turnover was estimated in the same way as the construction expenditure, using the Annual Business Survey.

In this way it was estimated that turnover generated by the operation and maintenance of the proposed development would support 5 jobs per year in Shetland and 10 jobs in Scotland.

Table 4-7 – Operation and Maintenance by Study Area (jobs)

	Shetland	Scotland
Operation and maintenance	5	10

Source: BiGGAR Economics

As with the 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.

Adding together direct and induced impacts during the operation and maintenance phase, it was estimated that the total economic impact of up to £0.6 million and 5 jobs in Shetland and £1.4 million and 12 jobs in Scotland.

Table 4-8 – Economic Impact during Operation and Maintenance

	Shetland	Scotland
Economic Impact (£m)	0.6	1.4
Employment (jobs)	5	12

Source: BiGGAR Economics

By providing high quality local jobs, the proposed development may attract more people of working age to Yell, Unst and Fetlar. This could boost their population and, if these workers had families, boost school enrolments. Other measures, discussed in Chapter 5, would also be expected to contribute to making the North Isles an attractive place to live and work, supporting the existing population and potentially attracting new people.

4.4 Decommissioning

To date there has been limited decommissioning of onshore wind installations in the UK. Therefore, there the impact of decommissioning the proposed development is based on cost estimates provided in the 2012 industry report on behalf of RenewableUK and the DECC. This found that wind energy developers anticipated

expenditure of decommissioning wind farms to be £34,555 per MW, It was therefore estimated that cost of decommissioning of the proposed development would be £6.9 million.

It was assumed that Shetland would be able to secure 50% of the decommissioning contracts and that Scotland would be able to secure 90%. In this way it was estimated that Shetland could secure contracts worth £3.5 million and 16 job years of employment, and Scotland could secure contracts worth £6.2 million and 29 jobs.

Table 4-9 – Decommissioning Assumptions

	Shetland	Scotland
Proportion of contracts secured	50%	90%
Contract value (£millions)	3.5	6.2
Employment (job years)	16	29

Source: BiGGAR Economics

Those employed to decommission the proposed development would have an impact on the economy by spending in their wages in the same way that those employed in other stages will. The process for estimating the impact of this expenditure was the same as described for the construction and operational phases.

Adding together direct and induced impacts during the decommissioning phase, it was estimated that the total economic impact of up to £3.5 million and 18 job years in Shetland and £6.5 million and 34 job years in Scotland.

Table 4-10 – Economic Impact during Decommissioning

	Shetland	Scotland
Value (£millions)	3.5	6.5
Employment (job years)	18	34

4.5 Maximising Local Impact

4.5.1 Best Practice in Supply Chain Development

Best practice is set out in a 2014 report by RenewableUK²⁰, which considered how developers can increase economic impacts in the local area. There are six main recommendations:

- maximise local presence and begin early – identify potential suppliers in the area and build local visibility before construction;
- partnerships work – work with local authority and business groups to spread information and to gather intelligence over potential local suppliers;
- the developer as an enabler – use the information gathered to inform local-content requirements on primary contractors exploiting your bargaining position;

²⁰ RenewableUK (2014), Local Supply Chain Opportunities in Onshore Wind.

- provide the right information at the right time – allow businesses to get ready and develop capacity by engaging them early in the process and giving them information in the right format;
- Communicate technical requirement early – communicate requirements early and explain how the procurement process works; and
- Demonstrate local content in planning, if that is possible – insert local-content commitments in the planning application where applicable and undertake post-construction auditing.

4.5.2 Energy Isles Wind Farm Supply Chain Development

There is scope for Shetland businesses to secure contracts in the construction and operation of the wind farm. This section discusses measures that can be implemented to maximise impacts.

As recommended in the RenewableUK report, the first step that can be taken by developers, before construction starts, is to establish their presence in the local area. Given that Energy Isles includes a consortium of 54 mainly Shetland-based businesses, the developers have an awareness of potential suppliers, which may include some of the businesses that make up the consortium.

Two meet-the-buyer events have been held, the first in late 2018 and the second in early 2019. The first event held in Lerwick was facilitated by Highland and Islands Enterprise and was attended by renewable energy developers and more than 100 representatives of the local supply chain. After the success of this event the Shetland Renewable Development Network (SRDN) was established to provide a platform for the Shetland supply chain and developers to interact. This will help to maximise opportunities, accelerate competitiveness, improve skills and create employment.

Through the SRDN partnerships will be developed with Shetland Islands Council, Business Gateway Shetland, and Highlands and Islands Enterprise to provide information to other local businesses. Partnerships will also be developed with local education providers, such as Shetland College, to ensure that appropriate training can be provided to upskill businesses that currently do not have the capacity to bid for contracts. Guidance and support will be extended to these businesses when applying for relevant grants and other support as this may be key to ensuring that they upskill and meet the developer's requirements for suppliers. This could be arranged in collaboration with other proposed energy developments, such as Viking Wind Farm.

The second event was held in Yell to ensure local North Isles businesses had the opportunity to attend. The Energy Isles construction manager attended both events and held meetings with a number of Shetland based companies, and registered 16 companies. On the Energy Isles website there is a dedicated supplier page²¹ with details of the local procurement policy and registration details to allow businesses to register as a local supplier.

In addition, a Local Contractor Policy will be implemented where additional weight in the tendering process will be given to primary contractors that show a clear commitment to increasing local content in their supply chains. This will be supported by putting in place an online platform that makes it easy for contractors to bid for contracts.

²¹ <https://www.energyisles.co.uk/suppliers>

An auditing process will be undertaken so that the amount of local content sourced during the construction phase is recorded. This can be used to provide feedback on the local benefits of the onshore wind sector to the local business community and other local stakeholders.

4.6 Facilitating Infrastructure

Given the scale of the proposed development and local labour market conditions (with high levels of employment and low unemployment), there may be a requirement to bring some workers to the area during its construction phase, who may then remain in Shetland. Incoming workers will support local accommodation providers and existing infrastructure that was built for oil and gas extraction projects.

The construction of the wind farm would also require investments in the North Isles' infrastructure network that would facilitate the transport of component parts and materials necessary for construction. These are expected to provide benefits for Yell, Unst and Fetlar that will continue after the construction phase is completed.

4.7 Supporting Interconnectors

In addition to generating impacts associated with its construction and operation Energy Isles Wind Farm, by adding up to 200MW of capacity in Shetland, supports the needs case for the development of the High Voltage Direct Current (HVDC) interconnector from Shetland to Scotland. Energy Isles Wind Farm also supports the case for the proposed Maali interconnector, connecting Shetland and Norway.

These developments could:

- secure Shetland's future energy supply, by linking with wider electricity networks;
- support the competitiveness of Shetland's renewable energy sector by creating a market for its electricity production;
- connect the UK and Norway grids, with Shetland as a hub, increasing connection in the European electricity network;
- improve the UK's ability to balance supply and demand for electricity, which could reduce the cost for consumers; and
- support additional jobs and economic activity in their construction and operation.

5 WIDER BENEFITS

5.1 Community Benefit

The proposed development would have an installed capacity of up to 200MW and would provide community funding of £5,000 per MW in line with Scottish Government guidance. This suggests the annual contribution of the fund to projects within the community would be £1.0 million, and that over the 30-year lifetime of the project this would equate to £30.0 million.

Table 5-1 – Community Benefit Payments

	Value (£m)
Funding per MW	£5,000
Installed Capacity (MW)	200
Annual Contribution	£1.0 million
Lifetime Contribution	£30.0 million

Source: Arcus Consulting

As an illustration of the level of employment that could be supported by a Community Benefit Fund, figures from the Scottish Council of Voluntary Organisations²² finds a total turnover of £5.8 billion in Scotland’s voluntary sector, supporting full-time equivalent staff of 106,800. This means that the turnover per FTE staff member in the voluntary sector was £54,300.

By applying this ratio to the annual community benefit funding it was estimated that 18 full-time equivalent jobs could be supported in the voluntary sector by a community fund of this scale.

5.2 Fund Structure and Governance

Although community benefit funds can be managed using several different structures, such as the incorporation of a limited liability company or through existing community councils, the creation of a development trust may be the organisational framework best placed to maximise local social and economic benefits. In this context, the developer’s efforts in engaging with the local communities through the Energy Isles Wind Farm Community Liaison Group (CLG) and the support the Community Councils are receiving from Foundation Scotland provide a framework for the creation of a structure managing the community benefits.

In early 2019 the Community Councillors attended a workshop with Foundation Scotland to start a conversation about community benefit linked to the Energy Isles project in order to make the best use of the possible benefit for the community.

At the workshops the group identified the challenges and opportunities facing the communities in the next thirty years. The group also identified the structures already in place to meet the challenges and opportunities and how might the community benefit might assist in building a sustainable future in Yell, Unst and Fetlar.

The benefit fund could also develop partnerships with local and regional organisations, such as Shetland Islands Council and Skills Development Scotland. These could help to develop projects that would benefit the local communities,

²² SCVO (2018), State of the Sector 2018

manage projects (either directly or by contracting with a third party) and also contribute to project funding.

5.3 Community Aspirations

5.3.1 Fuel Poverty

Rates of fuel poverty and extreme fuel poverty are considerably higher in Shetland than in Scotland and the North Isles have the highest levels of fuel poverty in Shetland. Fuel poverty is the result of a combination of low incomes, poor energy efficiency and high energy costs.

Experience from the work conducted by the charity THAW in Orkney suggests that each intervention (for example, improved boilers and insulation) to deal with fuel poverty costs £1,339 on average, although more than one intervention may be required per property. Across Fetlar, Unst and Yell there are less than 1,000 residential properties, so even assuming that the average home needs a £5,000 intervention, this would be equal to less than 5 years of community benefit. In addition, there is potential to receive match funding from other organisations.

Although measures to improve energy efficiency can have a positive impact, another is improving income among residents.

5.3.2 Tourism

Evidence from the 2017 Shetland Islands Visitor Survey suggests that Yell and Unst are the least visited parts of Shetland. Given the recent success Shetland has had in attracting visitors (the number of visitors increased by 13% between 2013 and 2017²³), tourism represents an opportunity for the local community.

In order to seize this opportunity new visitor attractions are needed in Yell, Unst and Fetlar, which may build on the natural assets that already exist, such as beaches, proximity to the sea, landscapes and heritage. Although developing tourism assets will depend in part on local entrepreneurs, the Community Benefit Fund could be used to support the tourism sector by providing initial funding, as well as contributing towards training and support for new businesses.

In addition to new visitor attractions, investments in tourist accommodation would be needed, which could be funded via the Community Benefit Fund, such as that construction of a bunkhouse that could be operated by the community or an individual. It could also improve marketing of existing accommodation providers.

New and existing businesses could also be supported by the developing and building on existing work taking place in Unst to create a tourism strategy and website for the North Isles. This would enable Yell, Unst and Fetlar to more effectively market the North Isles as a destination, promote local visitor attractions and accommodation businesses.

5.3.3 Social and Entrepreneurial

Community benefit funding could also strengthen the social and human capital of inhabitants and improve the opportunities available to young people. Recent cuts have meant that less resources have been available to Community Councils and volunteer groups operating within the local area. Because the activities promoted by

²³ Shetland Tourism Strategy 2018-2023, http://realtaevents.co.uk/wp-content/uploads/2018/10/Tourism-Strategy-FINAL-23_10_18.pdf

these groups improve community life and can foster skills development, the Community Benefit Fund could provide funding to these organisations.

Additionally, the local community could also benefit from activities aimed at creating business opportunities and fostering entrepreneurship in the area, which could limit emigration of young people. For example, business development courses could be funded, which may be aimed at local young people, or competitions could be organised that develop entrepreneurship skills. Similarly, funding could be used to provide grants and loans aimed at young people who, after having left the Islands, would like to return and start their own businesses.

5.4 Non-Domestic Rates

The proposed development will be liable to non-domestic rates, the payment of which will contribute directly to public sector finances. Although, the rateable value of the proposed development is not known the load factor, one of its main determinants, is expected to be relatively high. Burradale Wind Farm, a 3.7MW wind farm that has been in operation in Shetland since 2000, has a load factor of 52%, which is significantly above the UK average of around 28%²⁴.

The number of wind farms with a similar scale and load factor as Energy Isles Wind Farm is limited, however analysis of wind farms with load factors over 35% suggest that the rateable value may be in the region of £27,000 per MW. Assuming an installed capacity of up to 200MW and a rateable value per MW of £27,000 (which is likely to be an underestimate) the total rateable value of the proposed development would be £5.4 million. For businesses with a rateable value of over £51,000 there is a poundage rate of £0.518 per £1 of rateable value.

It is estimated that the development could contribute £2.7 million annually to public finances and that over 30 years it could contribute £79.7 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.

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

²⁴ Shetland Aerogenerators, Burradale Wind Farm. <https://www.burradale.co.uk>

6 TOURISM ASSESSMENT

6.1 Tourism Context

In 2017/18 a survey²⁵ was undertaken on behalf of Shetland Islands Council, in partnership with VisitScotland, to better understand the visitor profile, visitor journey, visitor experience and volume of visitors to Shetland. This included surveying people at major departure points, an online survey and a small number of in-depth interviews.

This study estimated that there were about 73,300 visitors to Shetland in 2017, of which over half (52.0%) were leisure visitors, 36.0% were business visitors and 12.0% were visiting friends and relatives (VFR). Business visitors account for a greater proportion of visitors in Shetland than in Scotland as a whole, where those travelling on business account for 16.3%²⁶. Visitors were estimated to spend a total of £23.2 million in Shetland (this excludes the cost of travel to Shetland). Leisure visitors accounted for 56.3% of the total, compared to business visitors and VFR visitors, who accounted for 36.4% and 7.3% of spending respectively.

Table 6-1 – Volume and Value of Visitors to Shetland, 2017

	Volume	Value	Average £ per trip
Leisure	38,096	£13.1m	£343
VFR	8,791	£1.7m	£191
Business	26,374	£8.5m	£320
Total	73,262	£23.2m	£317

Source: Shetlands Islands Council and VisitScotland (2018), Shetland Islands Visitor Survey

The expenditure of visitors in Scotland was £11.3 billion in 2017²⁷, so tourism spending in Shetland in 2017 accounted for around 0.2% of the Scottish total, compared Shetland's population share of 0.4%. This is consistent with statistics on employment in accommodation and food services, which represents 5.6% of employment in Shetland and 7.6% of employment in Scotland (see Table 3-5).

Overseas visitors accounted for 33.0% of visitors and 34.0% of spending and visitors from the rest of the UK accounted for 37.0% of visitors and 40.9% of spending (Table 6-2). The largest spending categories were accommodation, food and drink, and travel costs in Shetland.

Table 6-2 – Volume and Value of Leisure Visitors to Shetland, 2017

	Volume	Value	Average £ per trip
Scotland	11,429	£3.2m	£276
Rest of UK	14,096	£5.4m	£380
Overseas	12,572	£4.5m	£354
Total	38,096	£13.1m	£343

Source: Shetlands Islands Council and VisitScotland (2018), Shetland Islands Visitor Survey

The main reason cited by leisure visitors for visiting Shetland were the scenery and landscape (57%), which was most popular among overseas visitors and visitors from

²⁵ Shetland Islands Council and VisitScotland (2018), Shetland Islands Visitor Survey 2017

²⁶ Visit Scotland (2017) Key Facts on Tourism 2016

²⁷ VisitScotland (2018), Scotland's Tourism Performance - Summary Report 2017

the rest of the UK, followed by always wanted to visit (50%), history and culture (33%) and 'To get away from it all' (24%).

Table 6-3 – Reasons for Visiting Shetland

	%
Scenery and landscape	57%
Always wanted to visit	50%
History and culture	33%
To get away from it all	24%
Been before and wanted to come again	22%
To visit family/friends	22%
Interest in archaeology	15%

Source: Shetlands Islands Council and VisitScotland (2018), Shetland Islands Visitor Survey

As can be seen in Table 6-4, the majority of visitors to Shetland spend time in Lerwick and South/Central Mainland. About 45% of visitors go to Yell and 46% to Unst.

Table 6-4 – Areas of Shetland Visited

	%
Lerwick	98%
South Mainland	79%
Central Mainland	72%
North Mainland	55%
West Mainland	60%
Unst	46%
Yell	45%

Source: Shetlands Islands Council and VisitScotland (2018), Shetland Islands Visitor Survey

6.1.1 Attractions

The most visited attractions in Shetland, as well as the number of visitors and distance from the proposed boundary, are presented in Table 6-5. They are all located in Mainland and at least 30km from the proposed development.

As can be seen, the largest attraction is the Shetland Museum and Archives with 84,084 visitors. This is less than for similar tourism destinations, for example the largest attraction in Orkney attracts 179,487 visitors and the largest in the Outer Hebrides attracts 223,684 visitors.

Table 6-5 – Regional Attractions in Shetland, 2016

	Number of Visitors	Approximate Distance from Proposed Site Boundary (km)
(1) Shetland Museum and Archives	84,084	56
(2) Scalloway Museum	21,659	59
(3) Jarlshof Prehistoric and Norse Settlement	15,892	89
(4) Shetland Jewellery	10,617	48
(5) Tangwick Haa Museum	7,447	31

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

The North Isles of Shetland include Yell, Unst and Fetlar. The most popular attractions in the North Isles are listed in Table 6-6. All of the most popular attractions are in Unst. The most popular attraction is Hermaness Nature Reserve and Visitor Centre on the east coast of Unst, which attracts 54% of visitors to the North Isles.

Table 6-6 – Visitor Attractions in Shetland Visited – North Isles

	%
Hermaness Nature Reserve and Visitor Centre	54%
Unst Heritage Centre	44%
Viking Unst	36%
Muness Castle	22%

Source: Shetlands Islands Council and VisitScotland (2018), *Shetland Islands Visitor Survey*

There are also a small number of attractions in Yell, which were identified through a search on VisitScotland’s website. These include the Old Haa Museum in Burravoe on the southern tip of Yell, which is open from late April to the end of September. The museum has artefacts relating to Shetland’s social and natural history, as well as a tearoom and garden. It also acts as a social hub for local people.

Shetland Gallery is located at Sellafirth, approximately 2km to the east of the proposed development, and is the northernmost art gallery in the UK, exhibiting contemporary art and high-end craft by well-known Shetland artists.

There are also two memorials to shipwrecks that have occurred near Yell. The White Wife at Otterswick, about 12km from the proposed development, is the restored figurehead from a German ship which sank in 1924, with the loss of four sailors. The Gloop Memorial commemorates the loss of 58 men in a sudden storm in 1881. It was built in 1981 and is located about 1km from the proposed development.

There are also a small number of attractions in Unst, near Haroldswick. These attractions, which are about 15km from the proposed development, include the Unst Heritage Centre, which exhibits local artefacts and is open throughout the summer, as well as the Valhalla Brewery and Saxa Vord Distillery, each of which offer tours and are respectively the most northern brewery and distillery in the UK.

6.1.2 Walking Routes

A compilation of walking routes is published by Walkhighlands. In addition, www.Shetland.org lists several walks in Yell. These walks include:

- Hoega Ness and Ladies Hole from Burravoe, a 5.2km coastal walk on a peninsula to the south of Burravoe, which is about 18km from the proposed development;
- The White Wife of Otterswick, a 6.6km walk to the east of Otterswick, which passes the White Wife and is about 11km to the south of the proposed development;
- Burra Ness and the broch, a 7.0km coastal walk to the south of Cunnister and Gutcher, which is about 3km to the south-west of the proposed development at its closest point;
- Sands of Breckon and Gloup Ness, a 9.1km walk about 0.5km to the north of the proposed development. It follows the coastline from Gloup past the beach at Breckon Sands, and loops back around, connecting with the B9083 as it returns to Gloup;
- Gloup Voe and Scordaback, a 3.8km walk from Gloup south along the coast of Gloup Voe/Mare's Pool before crossing into the proposed site at Burn of Hildigill. The walk then moves out of the proposed development to the east of Burn of Rett then returns to Gloup; and
- Stuis of Graveland, an 11.5km walk that begins near Grimister, then moves north and west to the western shore, then further north to the tip of the small peninsula. At its closest point the proposed development is about 1km to the east of the walk.

6.1.3 Accommodation

There are also a number of accommodation providers in Yell and Unst, of which the majority are self-catering accommodation or bed and breakfasts.

As can be seen in Table 6-7, there are four accommodation providers within 5km of the proposed development in Yell and one in Unst. These include providers at Grimister to the south, Gutcher and Belmont to the east, and one provider near Breckon Sands to the north-east.

There are three providers in both Yell and Unst that are 5-10km from the proposed development. These include accommodation at Mid Yell, West Sandwick and the Windhouse Lodge Böd. In Unst these include the Gardiesfauld Youth Hostel and Caravan Park at Uyeasound, as well as two providers at Clivocast.

A further two accommodation providers in Yell are 10-15km from the proposed development, at Aywick. There are five in Unst, mainly around Baltasound, including the Baltasound Hotel.

Table 6-7 – Local Accommodation Providers

Distance	Number of Providers
Yell	
0-5km	4
5-10km	3
10-15km	2
Unst	
0-5km	1
5-10km	3
10-15km	5

Source: BiGGAR Economics

6.1.4 Tourism Context Summary

About 73,000 people visited Shetland in 2017, spending £23 million, with the most important reason for visiting cited as scenery and landscape. Many of its main attractions, such as the Shetland Museum, Scalloway Museum and Jarlshof, are located in Mainland, and the main attractions in the North Isles are in Unst. Almost half of Shetland visitors spend time in Yell and Unst.

There are two attractions in Yell, the Old Haa Museum and Shetland Gallery, and a further two monuments to shipwrecks. There are also a cluster of attractions near Saxa Vord in Unst. There are a number of walks in Yell, predominantly by the coast, with two to the north of the proposed development, near Gloup. Local accommodation providers are predominantly self-catering and there are a small number in Yell and Unst located within 5 kilometres, including one near Breckon Sands. The majority of attractions and accommodation providers are located further away from the proposed site.

6.2 Evidence on the Effect of Wind Farms on Tourism

6.2.1 BiGGAR Economics (2017), Wind Farms and Tourism Trends in Scotland²⁸

The most recent study undertaken of the effects of constructed wind farms on tourism in Scotland was 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.

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%.

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 farms, while employment in sustainable tourism also grew significantly. The analysis found no

²⁸ BiGGAR Economics. (2016). Wind Farms and Tourism Trends in Scotland.

correlation between tourism employment and the number of turbines at the Local Authority level.

The study also considered the impact on employment at a much smaller, more granular level, in data zones up to 15km 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.

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.

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.

6.2.2 Glasgow Caledonian University (2008), The Economic Impact of Wind Farms on Scottish Tourism²⁹

Whilst now a decade old, this study 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.

The literature review, which particularly considered international studies, found that there is little evidence of negative outcomes in sensitive areas, as they generally do not 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.

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. 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.

A 2012 report³⁰ commissioned by the Scottish Government subsequently found that the findings of the Glasgow Caledonian report were robust, and that there had been no adverse effect on tourism in the areas considered in the original report.

²⁹ Glasgow Caledonian University. (2008). The Economic Impacts of Wind Farms on Scottish Tourism.

³⁰ ClimateXchange. (2012). The Impact of Wind Farms on Scottish Tourism.

6.2.3 VisitScotland (2012), Wind Farm Consumer Research³¹

In 2011, VisitScotland commissioned a survey 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%) agreed 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.

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 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."³²

6.2.4 Mountaineering Scotland Surveys^{33 34}

Whilst mountaineering and hillwalking are not activities that will be particularly relevant in Yell, Unst and Fetlar, previous research on tourism and wind farms does include research undertaken by Mountaineering Scotland, a membership body that represents Scottish hillwalkers and mountaineers.

In 2014, Mountaineering Scotland, conducted a survey of its members, which concluded that wind farms could have an adverse effect on Scottish mountaineering, with many responding that they would avoid areas with wind farms. 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.

In 2016, Mountaineering Scotland conducted another survey 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 may not therefore 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.

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

³¹ VisitScotland. (2012). Wind Farm Consumer Research.

³² Press and Journal. (2015). Tourists turn away from Highlands because of turbines. Retrieved April 2018, from <https://www.pressandjournal.co.uk/fp/news/inverness/689818/tourists-turn-away-from-highlands-because-of-turbines/>

³³ Mountaineering Council of Scotland. (2014). Wind farms and changing mountaineering behaviour in Scotland

³⁴ Mountaineering Council of Scotland. (2016). Wind farms and mountaineering in Scotland.

mountains less. However, 2% of respondents said they go to the mountains more often, and like to see wind farms.

6.2.5 Scottish Parliament Economy, Energy and Tourism Committee (2012), Report on the achievability of the Scottish Government's renewable energy targets³⁵

In 2012, following an inquiry into the achievability of the Scottish Government's renewable energy targets, which included a review of some of the evidence presented above, the Scottish Parliament's Economy, Energy and Tourism Committee concluded that:

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

Whilst care always needs to be taken in terms of the planning process and decisions on the siting of individual projects in areas popular with tourists and in our more rural and remote rural areas, no witness has provided the Committee with robust, empirical evidence, as opposed to anecdotal comment and opinion, that tourism is being negatively affected by the development of renewable projects. 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."

6.2.6 Conclusion on the Evidence on the Effect of Wind Farms on Tourism

A review of the economic impact literature to date has found that there is limited evidence to suggest that there is a link between the development of wind farms and tourism, and the literature that suggests there may be shows that the potential effect would relatively be small. However, an analysis of the potential effects on individual tourism assets was nevertheless undertaken and this is summarised below.

6.3 Tourism Assessment

6.3.1 Methodology

A detailed review of the impact that the proposed wind farm will have on visitor attractions, accommodation providers and recreational routes within a 15-km distance of the proposed development was conducted.

The significance criteria that have guided the assessment are listed and explained in Table 6-8.

³⁵ Scottish Parliament Economy, Energy and Tourism Committee. (2012). Report on the achievability of the Scottish Government's renewable energy targets

Table 6-8 Significance Criteria

Significance	Description
Major	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.
Moderate	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.
Minor	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.

Source: BiGGAR Economics

6.3.2 Local Tourism Attractions

The main attraction of the Old Haa Museum is its collection of historic objects, an archive and exhibitions on contemporary art and craft, which show the historic and cultural heritage of Yell. The proposed development is not expected to affect the museum’s attractiveness and therefore the effect has been assessed as **negligible**.

Shetland Gallery prides itself of the title of “most northerly art gallery in the UK”. It showcases work from local artists and high-end craftsmanship. The effect of the proposed development on the ability of the Gallery to attract visitors is considered to be **negligible**.

The White Wife of Otterswick and the Gloup Memorial are two statuary memorials that commemorate shipwrecks off the coast of Yell. Their significance to passers-by and walkers is likely to be unaffected by the proposed wind farm. Thus, the impact is assessed as **negligible**.

The Unst Heritage Centre is home to a collection of religious, military and educational artefacts, which are unlikely to be affected by the proposed development. The effect is considered **negligible**.

Valhalla Brewery is the most northerly brewery in the UK and offers tours to visitors. The proposed wind farm is not expected to affect the tours and will have no impact on its location. As such the effect is expected to be **negligible**. The same considerations apply to the Saxa Vord Distillery and the effect is assessed as **negligible**.

6.3.3 Local Accommodation

Five accommodation providers are located at a distance of less than 5km from the proposed development: four are in Yell and one in Unst. Providers in Grimister, Gutcher and Belmont emphasise their relative remoteness, ease as a base for exploring the North Isles and views out towards the water, which are unlikely to be

affected by the proposed development. For these four providers the effect is considered to be **negligible**.

The remaining provider is located 1km to the north-east of the proposed development, near Breckon Sands. This self-catering property is marketed mainly as being at the edge of the world with sea views and as being ideal for fishing and walking. The attractiveness is not likely to be significantly affected and is assessed as **minor**.

Other five accommodation providers are located at a distance of between 5 and 10km from the proposed development. These are two B&Bs, two cottages and a camping bod. The expected effect from the proposed development on these providers is assessed as **negligible**.

Between 10 and 15km from the development there are other seven accommodation providers. These include one hotel with a 24-room capacity – the Baltasound Hotel – two B&Bs, a guest-house and three self-catering units. The impact on these accommodation providers is expected to be **negligible**.

6.3.4 Local Recreational Routes

Hoega Ness and Ladies Hole from Burravoe and the White Wife of Otterswick are two trails that are distant from the proposed development and likely to have no or limited views of it. Consequently, the impact is assessed as **negligible**.

Burra Ness and the broch is a trail that at its closest passes 3km away from the proposed development. The trail is mostly on the coast-line and as such it is unlikely that the development will have any visual impacts. The impact is therefore **negligible**.

Sands of Breckon and Gloup Ness is a trail loop in the North of Yell. Although the trail is predominantly local and has sea views, the proposed development may be visible on the inland part of the loop and the effect is thus assessed as **minor**.

Gloup Voe and Scordaback crosses the development. The track is 4km long and starts at the Gloup Memorial. Given its predominantly local use and brevity the effect is assessed as **minor**.

Stuis of Graveland is a circular walk on a peninsula to the west of the proposed development, with views on a clifftop scenery to the west. The proposed development is located to the east of walk, and the effect is expected to be **negligible**.

6.3.5 Summary of Tourism Assessment

The tourism assessment has shown that the effect of the proposed wind farm is expected to be negligible and not to alter the appeal that the existing visitor attractions have. The wind farm is expected to have a limited impact on one accommodation provider and on two recreational routes. The impact on all the remaining accommodation providers and recreational routes was assessed to be negligible.