

13. SOCIO-ECONOMICS

Executive Summary

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

- describe the baseline;
- summarise the assessment methodology and significance criteria used;
- describe the likely significant effects of the consented Viking Wind Farm (a 103 turbine layout); and
- describe the likely significant effects of the proposed varied development and describe how these differ from the effects of the consented Viking Wind Farm.

The assessment of the likely significant effects of the consented Viking Wind Farm confirmed that significant beneficial effects would be realised through the construction and operational phases of development. The likely significant beneficial effects of the proposed varied development are considered to be enhanced by the proposed variations to the specification of the turbines within the Description of Development.

The consented Viking Wind Farm and proposed varied development is a 50:50 joint venture between the community owned Viking Energy Shetland LLP and SSE plc. The purpose of the variation application is to improve the economics of the scheme in order to find a route to market, in turn enabling the community to realise the benefits from their investment in the project. Of the 50% of the project owned by the Shetland community, 90% is owned by the Shetland Charitable Trust (with the remaining 10% owned by local private investors). Shetland Charitable Trust is a charity set up to benefit the inhabitants of Shetland. Its aims are to provide public benefit to, and improve the quality of life for, the people of Shetland. Given the scale of the wind energy resource in Shetland, the project and the related grid connection to the mainland would provide significant financial returns for the community while providing significant intergenerational economic and social benefits for Shetland.

Economic analysis carried out for the consented Viking Wind Farm based on an established model¹ has identified beneficial effects for both the local, Scottish and UK supply chain, contributing to wider industrial strategy. The overall capital investment associated with the consented Viking Wind Farm would be approximately £511 million². The capital investment associated with the proposed varied development would be approximately £611 million³.

It is estimated that up to 8% of the overall value of contracts could be realised in Shetland, with up to 27% realised in the rest of Scotland (RoS), and a further 21% in the rest of the United Kingdom (RoUK). The remaining 44% of the economic benefits would be realised in the rest of the world (RoW).

Overall, supply chain opportunities for UK companies are estimated to be worth at least £319 million for the consented Viking Wind Farm and £342 million for the proposed varied development. Significant indirect socio-economic benefits would include job creation and skills training opportunities, especially for those within the North East Oil and Gas industry who have key transferable skills and expertise. It is anticipated that the direct job creation would comprise approximately 790.9 job years in Shetland, 1,449.9 job years in RoS and 1054.5 job years in RoUK. It is anticipated that around 35 permanent operational and maintenance related job would be

¹ BiGGAR Economics (2015) Onshore Wind: Economic Impacts in 2014, Renewable UK

² Based on £1.38 million per MW, with a generation capacity of 370.8 MW.

³ Based on £1.38 million per MW, with a generation capacity of 442.9 MW

created in the operational phase of the development for both the consented Viking Wind Farm and the proposed varied development. Although it is noted that the employment, skills and training benefits are likely to be the same for both the consented Viking Wind Farm and the proposed varied development, the purpose of the variation application is to improve the economics of the scheme in order to find a route to market, such that the likelihood of the socioeconomic benefits being realised is materially increased as a result of the proposed variation.

Indirect and strategic socio-economic benefits would also be associated with the proposed marine HVDC cable grid connection to the UK mainland. The grid connection would provide strategic grid benefits for the UK including security of supply, diversification of the UK's electricity generation mix, and the possibility of encouraging further inward and cross-border investment in trans-European interconnector projects and new marine technologies (floating offshore wind, deep water offshore wind and wave and tidal).

13.1 Introduction

13.1.1 This chapter reports on the economic impacts associated with the construction and operation and decommissioning of the proposed varied development and the likely significant effects on the socio-economic baseline. The specific objectives of the chapter are to:

- describe the baseline;
- summarise the assessment methodology;
- describe the likely significant effects of the consented Viking Wind Farm (a 103 turbine layout); and
- describe the likely significant effects of the proposed varied development and describe how these differ from the effects of the consented development.

13.1.2 This chapter has been prepared by Ramboll Environment and Health UK Limited (Ramboll).

13.2 Methodology

Scope of the Assessment

13.2.1 The scope of this chapter is to assess the changes in the socio-economic effects of the proposed varied development upon Shetland, Scotland and the UK as a whole. The potential for significant effects are considered with reference to the proposed varied development, as described in Chapter 2: Description of Development.

13.2.2 The chapter considers both the direct economic benefits associated with the capital expenditure on constructing the wind farm, and the gross value added (GVA), i.e. the value of goods and services produced as a result of the proposed varied development in construction and operation. The socio-economic effects are assessed for both the proposed varied development in isolation, and cumulatively based on effects on the local and national economy.

13.2.3 The chapter also provides a summary of the tourism features in the local area.

Consultation

13.2.4 No new consultation relating to the scope of this assessment has been undertaken since the consent was granted in 2012.

Baseline Conditions

Desk Study

13.2.5 The desk study undertaken included data gathered by National Records of Scotland, Highlands and Islands Enterprise and Visit Scotland, as well as reports published on behalf of the Department of Energy and Climate Change and Renewables UK. Full references are given where data sources are quoted.

Modelling Methodology

13.2.6 A desk-based study was undertaken to identify the relevant aspects of the local economy, existing land uses, tourism and recreational assets in the areas with 10 km of the site.

13.2.7 The calculation of economic effects during construction and operation has been made with reference to published research^{4,5}. This research was published after the preparation of the ES and ES Addendum and is now widely used as the basis for assessing the economics effects associated

⁴ BiGGAR Economics (2015) Onshore Wind: Economic Impacts in 2014, Renewable UK

⁵ BiGGAR Economics (2012). Onshore Wind – Direct and Wider Economic Impacts. Renewable UK and Department of Energy and Climate Change, (DECC), https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/48359/5229-onshore-wind-direct--wider-economic-impacts.pdf

with onshore wind farm development. The assessment of magnitude and significance of economic effects has been made based on qualitative judgement, with reference to the scale at which the effect is likely to result in either a detectable/material or fundamental change/influence on employment and economic conditions, with reference to the criteria in Table 13.1.

Table 13.1: Significance Criteria	
Significance	Description
Major	High magnitude change to key elements/features of the baseline socio-economic conditions such that the character/composition of the baseline will be subject to long term and fundamental change.
Moderate	Medium magnitude change to one or more key elements/features of the baseline socio-economic conditions such that the character/composition of the baseline condition will be subject to material medium to long term (but not fundamental) change.
Minor	Low magnitude change to one or more elements/features of the baseline socio-economic conditions such that the character/composition of the baseline condition will be subject to detectable but not material, short to medium term change; the underlying composition of the baseline condition will be similar to the pre-development situation.
Negligible	Very low magnitude change from baseline conditions. Change is barely distinguishable, approximating to a “no change” situation.

Cumulative Baseline.

13.2.8 Cumulative projects which have the potential to contribute to changes in the socio-economic baseline (e.g. in terms of demands on employment) are likely to be other large-scale construction projects. This assessment provides a qualitative review of the cumulative projects, based on those wind farms identified in Figure 4.6.

Assumptions and Limitations

13.2.9 This assessment has made assumptions regarding the construction and operational costs for a remote island wind farm in terms of the capital cost per MW and salary per employee; typical distribution of costs between development and planning, plant, turbines and grid connection; and also, that the distribution of spend between the local and national economies will follow common trends, based on published research⁶. It is noted that the actual distribution of economic benefit derived from the capital investment and magnitude of capital investment may vary from these assumptions and will be subject to commercial tendering. However, these are considered reasonable assumptions for the purposes of characterising the socio-economic effects in the EIA Report and are broadly consistent with socio-economic assessment methodology used in other Scottish wind farm environmental impact assessments.

It is noted that the purpose of this assessment is not to compare the socioeconomic effects of the proposed varied development with those anticipated in the ES or ES Addendum (which envisaged building a wind farm with Renewables Obligation Scotland financial incentives). The chapter compares the effects of the consented Viking Wind Farm and the proposed varied development, based on the generation capacity as the only variable.

⁶URL: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/48359/5229-onshore-wind-direct--wider-economic-impacts.pdf (accessed 21 August 2018)

13.3 Baseline Conditions

Current Baseline

Population and Demographics

- 13.3.1 The total population in the Shetland Islands Council area is 23,080 (to the end of June 2017)⁷. The population as a whole saw a slight (0.5%) increase from 2016 to 2017. In general, the population trend over the 20-year period between 1997 and 2017 was one of slight growth, with an overall population increase of 1.1%. Over the same period, Scotland’s national population increased by 6.7%. Projections for the next 10-year period anticipate a further small increase in population of 0.2%.

Employment and Economy Sectors

- 13.3.2 Total employment in the Shetland Islands Council area is approximately 13,400 jobs⁸. Employment by sector is summarised in Table 13.1.
- 13.3.3 The largest sector of employment in Shetland is the public sector (public administration, education and health). This is broadly in line with the national average, while most other sectors are under-represented compared to the national average. Agriculture and fishing accounts for more than seven times the national average, with transport, communication and construction also slightly higher than the national average⁹.

Sector	Percentage of Total
Public admin. education and health	31%
Distribution, hotels and restaurants	16%
Agriculture and fishing	11%
Transport and communications	10%
Construction	10%
Financial, profession and business	8%
Manufacturing	6%
Other services	5%
Other	3%
Total	100%

- 13.3.4 The overall value of the local economy was calculated in 2011 to be £1,091,421,269, with Shetland’s Gross Regional Domestic Product calculated to be £485,000,000¹⁰.

Tourism and Recreation

- 13.3.5 Key tourism and recreation features in the study area include:
- National Cycle Network Route 1 passes along the B9075, B9071 and A971 around the edge of the site but does not pass through it.
 - The Shetland Core Paths Plan 2009 identifies the following paths which are partially within the site boundary:

⁷ <https://www.nrscotland.gov.uk/files/statistics/council-area-data-sheets/shetland-islands-council-profile.html>. Accessed 21 August 2018

⁸ Highlands and Islands Enterprise (2014) Shetland Area Profile

⁹ Highlands and Islands Enterprise (2017) Occupational Segregation in Shetland

¹⁰ Shetland Islands Council (2014) Shetland In Statistics, Ed 41, Economic Development Unit, Shetland Islands Council (NB 2017 Ed 42 does not contain economic performance statistics)

- Burn of Lunklet waterfall path (from B9071 at East Burra Firth); and
- Weisdale Hill circuit (from A971 at Scord of Sound).
- The following core paths are in the vicinity of the site but located outside the boundary:
 - Sand Water circuit (at B9075/A970 junction); and
 - Loch of Voe circuit (at B9071/A970 junction).

13.3.6 The latest available visitor statistics are contained within the Visit Scotland's Tourism in Scotland's Regions 2016 report (Visit Scotland, 2017). This document estimates that in 2016 UK tourists made approximately 1,855,000 trips to the Highlands and Islands (which includes Shetland). Overseas visitors to the same region made approximately 596,000 trips in 2016. Specific visits to Shetland are estimated at 73,262 for 2017¹¹.

13.3.7 Visit Scotland promotes Shetland as a destination to experience 'Shetland's unique cultural heritage', 'history' and 'scenic drama'. The top five tourist attractions by visitor numbers are the Shetland Museum and Archives, Scalloway Museum, Jarlshof, Shetland Jewellery and Tangwick Haa Museum. None of these attractions are in the vicinity of the site.

Cumulative Baseline

13.3.8 A number of other proposed wind farms have been identified on Shetland, which have received consent and have not yet been constructed. These other projects include Peel Energy's Beaw Field Wind Farm (17 turbines) located north of Burravoe on Yell, Hillhead (single turbine), Brae (single turbine), Luggies Knowe (two of three consented are unbuilt); and Culterfield (three turbines). In addition, there are operational turbines at Burradale, Luggies Knowe, Gremista and Hillhead. The only other wind farm which is 'in planning' is Mossy Hill near to Lerwick.

13.3.9 There are no known other major construction projects planned on Shetland. The construction of the Shetland Gas Plant at Sullom Voe, which was considered in the ES and ES Addendum, has now been completed and therefore there is no potential for cumulative changes in the baseline.

Future Baseline

13.3.10 The economic and tourism baseline is not expected to change significantly between the time of this assessment and the completion of the proposed varied development.

13.4 Assessment of Effects

Potential Capital Expenditure - Construction Phase

13.4.1 The estimated development and construction cost for the consented Viking Wind Farm and for the proposed varied development has been calculated based on an estimated capital expenditure of £1.38 million per installed megawatt (MW).

13.4.2 Based on an installed capacity of 370.8 MW, the capital expenditure for the consented Viking Wind Farm would be approximately £511.7 million. The capital expenditure for the proposed varied development, based on an installed capacity of 442.9 MW would be approximately £611.2 million.

13.4.3 Based on economic research for the onshore wind industry¹², it is anticipated that this value would be divided approximately as follows: development and planning costs (10%), balance of plant (26%), turbines (58%) and grid connection costs (6%).

13.4.4 It is anticipated that approximately 8% of the overall value of contracts could be realised in Shetland, with up to 27% realised in the rest of Scotland (RoS), and a further 21% in the rest of the

¹¹ Shetland Islands Visitor Survey 2017, March 2018, Shetland Islands Council and VisitScotland, URL <https://www.visitscotland.org/binaries/content/assets/dot-org/pdf/research-papers/shetland-report-may-18.pdf> (accessed 18/9/18)

¹² BIGGAR Economics (2015) Onshore Wind: Economic Impacts in 2014, Renewable UK.

United Kingdom (RoUK). Based on the model used for this assessment, the overall supply chain opportunities for UK companies would be worth £286.56 million for the consented Viking Wind Farm and £342 million for the proposed varied development.

Geographic Distribution	Consented Viking Wind Farm	Proposed Varied Development
Local (Shetland)	£40.94 m	£48.88 m
Regional (Scotland)	£138.16 m	£164.97 m
National (United Kingdom)	£107.46 m	£128.31 m

- 13.4.5 In addition to the capital expenditure, construction employment and spending in the local economy would provide beneficial effects in the regional and the Scottish economy. Significant indirect socio-economic benefits would include job creation and skills training opportunities, especially for those within the North East Oil and Gas industry who have key transferable skills and expertise. It is anticipated that the direct job creation would comprise approximately 790.9 job years in Shetland, 1,449.9 job years in RoS and 1054.5 job years in RoUK, with an estimated salary cost of £114 million¹³. It is noted that the employment, skills and training benefits are likely to be the same for both the consented Viking Wind Farm and the proposed varied development.
- 13.4.6 The construction stage employment would generate indirect (induced) economic benefits through spending both locally and nationally. Based on the assumption that 33% of the salaries paid for jobs in Shetland would be spent in the local economy, the local spend would equate to approximately £9 million, supporting 62 job years and £3.1 million in gross value added (GVA). The induced economic benefit for the national (Scotland) economy would comprise £46.1 million in employee spend, resulting in 319.2 job years and £15.86 million in GVA¹⁴. As with employment, skills and training, it is noted that the employment, skills and training benefits are likely to be the same for both the consented Viking Wind Farm and the proposed varied development.
- 13.4.7 The consented Viking Wind Farm and the proposed varied development would generate an uplift in employment for the local area and region as a whole. Overall this assessment concludes that the short-term construction related employment, and indirect induced spending related effects would result in material change locally (within Shetland) leading to a moderate and locally significant benefit for the duration of the construction phase for the consented Viking Wind Farm. The construction phase effect is considered be negligible to minor and not significant at the regional and national scale. Although the capital investment would be higher for the proposed varied development, this assessment concludes that the change would not be sufficient to change the overall conclusions. It is noted, however, that given the aim of the proposed varied development is to improve the economics of the scheme, the proposed variation materially increases the likelihood of the benefits being realised.
- 13.4.8 The ‘in combination’ cumulative construction stage effects with other wind farm developments in Shetland are considered to enhance the beneficial effects by potentially extending both the geographical distribution of additional spending and the duration of the construction periods; however overall the effects are likely remain moderate and significant locally for the duration of the construction works, and negligible to minor and not significant at the regional and national scale. When both the consented and proposed varied development is considered alongside all onshore wind development in Scotland, the consented and proposed varied development contribute to a significant cumulative beneficial effect for the Scottish economy.

¹³ Based on an average salary of £34,600 per job, cited in BIGGAR Economics (2012). Onshore Wind – Direct and Wider Economic Impacts. Renewable UK and Department of Energy and Climate Change, (DECC)

¹⁴ The induced economic impact was estimated using the average GVA/turnover and turnover/employee for the whole economy as reported in the Annual Business Survey, Office for National Statistics (2017), Annual Business Survey Provisional Results 2016

Operational Effects – Expenditure

- 13.4.9 Annual operations and maintenance expenditure would be expected to be approximately £26.5 million (based on £59,867 per MW) for the consented Viking Wind Farm. It is anticipated that approximately 25% of this operational expenditure could be secured locally within the Shetland economy, with the balance secured within the RoUK. The annual operational and maintenance expenditure, and regional split is not anticipated to be materially different for the proposed varied development. This expenditure is assessed as a negligible beneficial (not significant) in the context of the overall Shetland economy.
- 13.4.10 Overall it is estimated that the operation and maintenance of both the consented Viking Wind Farm and the proposed varied development would require approximately 35 full-time employees. In the context of an employment market on Shetland with approximately 3000 ‘skilled trade’ workers, a 1% increase is assessed to be minor beneficial (not significant) effect.
- 13.4.11 The consented Viking Wind Farm and the proposed varied development would both generate an uplift in employment for the local area and region as a whole. It is anticipated that overall, the operational beneficial effects associated with the proposed varied development would not materially change from the operational phase effects identified for the consented Viking Wind Farm, with both resulting in a likely negligible beneficial effect (not significant).

Community Benefit

- 13.4.12 Of the 50% of the project owned by the Shetland community through Viking Energy Shetland LLP, 90% is owned by the Shetland Charitable Trust (with the remaining 10% owned by local private investors). Shetland Charitable Trust is a charity set up to benefit the inhabitants of Shetland. Its aims are to provide public benefit to, and improve the quality of life for, the people of Shetland. Given the scale of the wind energy resource in Shetland, the project and the related grid connection to the mainland would provide significant financial returns for the community while providing substantial intergenerational economic and social benefits. This community ownership opportunity is the largest of its kind in the UK, and, will be delivered in addition to the project’s community benefit package.
- 13.4.13 Practice in relation to community benefit funds has moved on since the preparation of the ES and ES Addendum, when £2500 per installed MW of capacity was proposed. The Applicant has committed to providing a community benefit fund of £5000 per installed MW of capacity. As such, on the basis of the candidate turbines listed in Chapter 1: Introduction, this would equate to £1,854,000 per year for the consented Viking Wind Farm and £2,214,500 per year for the proposed varied development. This additional community funding is considered to represent a material change in the availability of funds for community projects and would result in a moderate and significant beneficial effect for the lifetime of the wind farm for both the consented Viking Wind Farm and the proposed varied development.
- 13.4.14 The Scottish Energy Strategy¹⁵ confirms the Scottish Government target to achieve at least 1 GW of renewable energy generation capacity in community ownership by 2020. The proposed varied development would make a significant contribution towards the national policy target, as the largest example of shared ownership in the UK.

Tourism and Recreation Effects

- 13.4.15 No direct adverse effects on tourism or recreation receptors are anticipated. The site does not currently provide any material recreational value and is not located near to any of the key tourism sites in Shetland.

¹⁵ Scottish Government (2017a) Scottish Energy Strategy: The Future of Energy in Scotland. December 2017, URL: <http://www.gov.scot/Publications/2017/12/5661/0> (accessed 20/03/2018)

Cumulative Effects

13.4.16 Should the Beaw Field (Yell) wind farm and the Mossy Hill wind farms proceed, the addition of the proposed varied development would result in enhanced beneficial effects associated with operational phase expenditure and local jobs, although overall the effect is anticipated to remain negligible to minor and not significant.

13.4.17 It is anticipated that the other developments would also contribute to community benefit funds, further increasing the overall fund size. The Beaw Field and Mossy Hill wind farm proposals have a nominal combined capacity of approximately 104.4 MW¹⁶, therefore the addition of consented Viking Wind Farm would increase the community benefit fund by more than threefold, or the proposed varied development would increase the fund more than fourfold. The combined cumulative effect is considered to be material, moderate and significant.

13.5 Mitigation

13.5.1 No significant adverse socio-economic effects have been identified. As a result, no mitigation is required or proposed as part of the proposed varied development.

13.6 Additional Good Practice

13.6.1 Good practice management measures carried forward from the 2009 ES to be used during the construction phase include:

- A commitment to develop a communication strategy to be used to provide consistent and regular updates to the public and other interested parties;
- the use of the SSE Open4Business procurement portal to encourage local suppliers to tender for work packages – Tier 1 and Tier 2 suppliers will be required to list available contracts through SSE's Open4Business online procurement portal for transparency and ease of access for local supplies;
- the utilisation of raw materials from local sources, where possible; and
- careful planning of vehicle movements through a traffic management plan to minimise disruption to local traffic during the construction period.

13.6.2 Good practice measures to be implemented during the operation phase include:

- Ongoing monitoring of the community benefit scheme;
- commitment to an access plan that maximises the potential benefits of the development through provision of public access through organised tours, development of mountain bike routes away from restricted areas, promotion of alternative walking routes, improvement in car parking, promotion of Shetland as a sustainable community with respect to energy production to generate an energy tourism market and the development of tourism view points; and
- the provision of information and interpretation about the wind farm at appropriate locations near to or within the wind farm.

Monitoring

13.6.3 The monitoring to be employed during the construction phase includes the following activities:

- establishment of a Shetland Wind Farm Environmental Advisory Group (SWEAG) to examine and advise on the environmental impacts of the Viking wind farm during construction, operation and decommissioning.

13.6.4 The measures to be employed during the operational phase include:

¹⁶ Based on the assumption of a 3.6 MW candidate turbine.

- monitoring of the effectiveness of any community benefit scheme with respect to strategic goals achieved, expenditure over time and other Key Performance Indicators (KPIs);
- ensuring training is available for local people to take advantage of direct new job opportunities, and encouraging training in the tourism sector; and
- encouraging promotion of Shetland as a tourist destination, especially promoting its green credentials.

13.7 Summary and Conclusions

- 13.7.1 This chapter considered the potential for effects on socio-economic indicators, tourism and recreation.
- 13.7.2 The assessment has identified that the both the consented Viking Wind Farm and the proposed varied development would support a locally significant number of job years during construction and operation within the context of the Shetland labour market. The proposed varied development, as a result of the increased investment value and the increased renewable energy generation capacity, would lead to enhanced socio-economic benefits when compared with the consented development. Overall the socioeconomic effects of the capital investment, employment and gross value added to the economy are considered to result in beneficial effects (short term during construction, and long term for operational phased effects). The benefits would be significant at the local level for both the consented development and the proposed varied development during construction.
- 13.7.3 In terms of operational effects, the benefits associated with operational expenditure are assessed as negligible to minor and not significant for both the consented Viking Wind Farm and the proposed varied development. The community benefit funding offered by both the consented Viking Wind Farm and the proposed varied development is considered to provide a material change to the funds available for community projects in Shetland and is therefore assessed as a locally significant long term (for the life of the wind farm) beneficial effect.
- 13.7.4 With regard to tourism effects, there are not considered to be any sensitive tourism receptors that have the potential to be adversely affected by the proposed varied development, due to its location away from key tourist sites in Shetland. This conclusion is considered valid for both the consented Viking Wind Farm and the proposed varied development.
- 13.7.5 It is noted that the proposed varied development would also generate an enhanced significant beneficial socio-economic effect as a result of the shared ownership model, whereby 50% of the proposed varied development is owned by the local community and of that 50%, 90 % is owned by the Shetland Charitable Trust.
- 13.7.6 Finally, the aim of the proposed varied development is to improve the economics of the scheme, such that the likelihood of the benefits identified here being realised is materially increased should the variation be granted consent.

Glossary and Abbreviations

Abbreviation	Expanded Term / Definition
RoS	rest of Scotland
RoUK	rest of United Kingdom
RoW	rest of World
GVA	gross added value
MW	megawatt
SWEAG	Shetland Wind Farm Environmental Advisory Group
KPIs	Key Performance Indicators

