Neart na Gaoithe Offshore Wind Farm: socioeconomic assessment

Technical Annex

June 2012

SQW

1: Introduction

1.1 This Socioeconomic Technical Annex presents further detail in relation to the following:

- Section 2: The main strategic policies of relevance to the Neart na Gaoithe project;
- Section 3: Baseline conditions in the study area;
- Section 4: Summary of skills development activities highlighted from consultations;
- Section 5: Impact assessment methodology;
- Annex A: References; and
- Annex B: Inputs and assumptions used in the modelling of the economic impact assessment.

1.2 This Annex should be read in conjunction with the socioeconomic ES chapter.

2: Strategic background

Introduction

2.1 The strategic background to offshore wind farms indicates strong policy support in terms of carbon reduction and economic growth. This is set out in the Scottish Government's Low Carbon Economic Strategy (LCES) for Scotland (2010)[1] which builds on the Government's Economic Strategy (GES) (2007)[2] and provides the overarching agenda to support the transition to a low carbon economy through amongst other actions the deployment of offshore renewables.

2.2 With regards to planning, the Scottish Planning Policy (2010)[3] states that development plans by planning authorities must be exercised with the objective of contributing to sustainable development. Scottish Planning Policy reinforces the importance of considering socioeconomic issues related to renewable energy projects:

> *'Development plans should support all scales of development associated with the generation of energy and heat from renewable sources, ensuring that an area's renewable energy potential is realised and optimised in a way that takes account of relevant economic, social, environmental and transport issues and maximises benefits.'*

2.3 The LCES suggests that offshore wind development alone could generate 28,000 direct jobs, a further 20,000 jobs in related industries and over £7bn investment in Scotland by 2020. The commercial opportunities within offshore wind are considered as a major area of future work and economic recovery for Scotland. The associated opportunities for inward investment are identified by LCES as a priority for Scottish Development International (SDI). Further, the LCES indicates a number of areas: legislative environment; investment; infrastructure; international engagement; innovation; leadership, skills and behaviours; and education that should be actively pursued.

2.4 Specifically, with respect to offshore renewables, the LCES points out the need to build on established skills and to make effective use of the existing workforce through the potential use of short flexible training modules that add to the individual's experience and qualifications e.g. skilled individuals with experience in the oil and gas sector working in offshore renewables. The Strategy also highlights the importance of Low Carbon Skills Fund which includes training/qualifications support for offshore wind technician training.

[1] Scottish Government, A Low Carbon Economic Strategy for Scotland, 2010. See: http://www.scotland.gov.uk/Resource/Doc/331364/0107855.pdf
[2] Scottish Government, The Government Economic Strategy, 2007. See: http://www.scotland.gov.uk/Resource/Doc/202993/0054092.pdf
[3] Scottish Government, Scottish Planning Policy, 2010. See: http://www.scotland.gov.uk/Resource/Doc/300760/0093908.pdf

2.5 Through the development of the Scottish Government's Renewables Action Plan (2009)[4] it was clear that an investment plan to support appropriate infrastructure for the emerging offshore wind sector was required. The resulting National Renewables Infrastructure Plan (N-RIP)[5] project developed a Scotland-wide proposal in three stages. This was led by Scottish Enterprise and Highlands & Islands Enterprise with active engagement of Local Authorities and forms a key element of the Route Map[6] developed by the Offshore Wind Industry Group.

2.6 N-RIP outlines support required for the development of a globally competitive offshore renewables industry based in Scotland. The emphasis is on creating clusters of economic activity throughout the supply chains around key locations in Scotland for manufacturing, installation, operation and management. It is reported that the total investment required for all 11 sites identified in N-RIP Stage 1 for offshore wind manufacturing is £223m. A set of clustered port sites which could support an offshore wind sector, manufacturing 750 complete offshore 'wind units' a year is envisaged. For Scotland's economy the direct economic impact of this manufacturing potential alone would support over 5,000 jobs and generate an annual GVA of £294.5m per annum.

2.7 The main conclusions from the N-RIP Stage 2 report are as follows:

- there is a 'stock' of sites in Scotland that could potentially meet industry demands. Investment decisions will be led by port owners;
- the public sector might co-invest with the private sector to finance development projects;
- based on offshore project developer feedback and SDI's enquires, most interest is being shown in sites in the Moray Firth[7] and Forth/ Tay cluster. As these sites receive the most interest, they should be the focus for initial investment; and
- the strategic importance of the development for economic growth ought to be recognised in the next review of the National Planning Framework.

2.8 Investment proposals for infrastructure development for offshore renewables will be treated as a 'high priority activity'. It is further pointed out that the key to the Government's decision making process for supporting port owners, sites need to be ready by 2013/14 and earlier for some users. Any funding decisions by Government in responding to business cases submitted by site owners will recognise the importance of ensuring investment is made early so that users are secured.

[4] Scottish Government, Renewable Action Plan, Renewable Energy Division, 2009. See: http://www.scotland.gov.uk/Resource/Doc/278424/0083663.pdf

[5] Scottish Enterprise and Highlands & Islands Enterprise, National Renewables Infrastructure Plan Stage 2, 2010. Note: N-RIP has three phases: the first one is development of spatial framework of first phase sites; the second is the development of investment plans for first phase sites by Delivery Group facilitated by SE/HIE; and the third is Delivery of phased investment at first phase sites based on industry demand. See: http://www.scottish-enterprise.com/your-sector/energy/energy-background/energy-reports/energy-renewable-energy-reports.aspx

[6] See: http://www.scotland.gov.uk/Publications/2010/09/28115850/0

[7] See further details in N-RIP Stage 2 document, Appendix 3 for Moray Firth Cluster (Nigg). In particular potential renewables infrastructure role; market use and interest; and infrastructure development requirement.

2.9 Table 2-1 presents a summary of some of the main policies, acts, regulations and strategy documents relevant to the Neart na Gaoithe offshore wind farm development. These are included for their geographical relevance.

Table 2-1: Policy context

Policy Level	Key acts, regulations, policies, initiatives	Policy context relevant to NnG
UK	• Department for Energy and Climate Change (2008) Climate Change Act 2008 • Department for Energy and Climate Change (2009) Renewable Energy Strategy • Department for Energy and Climate Change (2009) Low Carbon Transition Plan	At the UK level, the Government is committed to significantly reduce greenhouse gas emissions as part of a global effort to avoid the most dangerous effects of climate change. This is reflected by the legally binding target of at least 34% reduction in emissions by 2020 and 80% by 2050 as outlined by the Climate Change Act 2008. In line with these targets, the DECC (2009) Renewable Energy Strategy (RES) set out a clear path to achieving the target to source 15% of the UK's future energy needs from renewable sources by 2020. The RES stated that an integral part of achieving UK-wide renewable energy targets is a successful relationship between developers and local communities in which these technologies will arise. The RES formed a key element of the Low Carbon Transition Plan which sets out the measures required to achieve the interim target. It also details how the Government intends to reduce UK CO_2 emissions to 34% below 1990 levels by 2020 while keeping within the prescribed carbon budgets in the intervening period.
Scotland	• Scottish Government (2005) Choosing our future: Scotland's sustainable development strategy • Scottish Government (2007) Government Economic Strategy • Scottish Government (2009) Climate Change (Scotland) Act 2009 • Scottish Government (2010) Securing the Benefits of Scotland's Next Energy Revolution (Consultation Paper) • Scottish Government (2010) A Low Carbon Economic Strategy for Scotland: Scotland – A Low Carbon Society • Scottish Government (2010) Scotland's Offshore Wind Route Map: Developing Scotland's Offshore Wind Industry to 2020 • Scottish Government (2010) The Marine (Scotland) Act 2010 • Scottish Government (2010) Scottish Planning Policy • Scottish Government (2011) Blue Seas - Green Energy A Sectoral Marine Plan for Offshore Wind Energy in	Choosing our future: Scotland's sustainable development strategy' published in 2005 set out the steps which Scottish Government would take to respond and deliver the shared priorities set out in the UK Framework for sustainable development. Scottish Government reorganised to align with five strategic objectives including 'A Greener Scotland' to help deliver sustainable development through central and local government (via the Single Outcome Agreements). The Scottish Government Economic Strategy (GES) identified the energy sector as a key sector that could potentially offer the opportunity to strengthen Scotland's areas of international comparative advantage. This would be done through achieving critical mass and boosting productivity, with renewable energy development contributing to commitments to reduce carbon emissions and promote sustainable growth. The development of renewable energy technologies has been firmly established as a priority in Scotland. The Climate Change (Scotland) Act 2009 introduced statutory targets to reduce carbon emissions by 80% by the year 2020. 'The Marine (Scotland) Act 2010 is concerned with the physical, environmental, social, cultural and economic characteristics of the Scottish marine area and of the living resources which the area supports[8]. Scottish Planning Policy (2010) also highlights that development plans by planning authorities must be exercised with the objective of contributing to sustainable development. Scottish Planning Policy (2010) reinforces the importance of considering socio-economic issues related to renewable energy projects: "Development plans should support all scales of development associated with the generation of energy and heat from renewable sources, ensuring that an area's renewable energy potential is realised and optimised in a way that takes account of relevant economic, social, environmental and transport issues and maximises benefits." Blue Seas - Green Energy A Sectoral Marine Plan for Offshore Wind Energy in Scottish Territorial Waters Part A The Plan provides the overarching programme for offshore wind energy,

[8] Scottish Government; *Marine (Scotland) Act* 2010

Policy Level	Key acts, regulations, policies, initiatives	Policy context relevant to NnG
	Scottish Territorial Waters Part A The Plan • Scottish Enterprise (2010) National Renewables Infrastructure Plan (N-RIP) • Scottish Enterprise and Highlands and Islands Enterprise (2010) National Renewables Infrastructure Plan Stage 2 (N-RIP2)	short and medium term and has been subject to a strategic environmental assessment. The National Renewables Infrastructure Plan Stages 1 and 2 seeks to map out the key infrastructure required to enable the effective delivery of renewables and the retention of some economic benefit in Scotland. Stage 3 is currently underway.
Dundee	• Angus Council (2001) Dundee and Angus Structure Plan 2001-2016 • Dundee City Council (2005) Dundee Local Plan Review • Energy Training East[9] • Dundee Renewables[10]	The Dundee and Angus Structure Plan 2001-2016 aims for sustainable management of the area's environmental resources including providing a framework for renewable energy development and waste management. The Structure Plan makes positive provision for renewable energy generating developments where they are compatible with other environmental and community interest under the Environmental Resource Policy 10: Renewable Energy. The Dundee Local Plan promotes sustainable development of Dundee in terms of the environment, social and economic sustainability of the city. Regeneration is one of the key areas of economic intervention that has the ability to change the city for the better. The Local Plan reflects the key areas of Dundee's community regeneration strategy and includes: • stabilisation of communities, to arrest current population and economic decline • the need for partnership and teamwork • the need to balance development with protection of the city's natural environment • the importance of involving the community in the implementation, monitoring and review of planning and land use policy in the city • commitment to equal opportunities within the policies, proposals and recommendations of the Local Plan. Energy Training East was set up in March 2011 to train a workforce that would feed into renewable energy development, through a partnership between Dundee Renewables (including the Council), two universities, and three colleges. Dundee Renewables is a strategic partnership between public, private and academic sectors within Dundee, coming together to coordinate efforts at encouraging growth of the renewable energy sector.
Fife	• Fife Council (2006)Fife Council Structure Plan 2006-2026 • Invest in Fife[11]	Fife presents a considerable scope for harnessing energy from a range of renewable sources both in the landward areas and in surrounding coastal waters. The Council is encouraging the use of renewable energy technologies, including wind power, as an alternative to fossil fuels. Wind powered technologies may provide many wider economic, social and environmental benefits for research, development, manufacturing and service sectors in Fife. Policy R7 in the Fife Council Structure Plan provides the strategic guidance on proposals for wind powered turbine developments and Policy R3 states that: *"preference will be given to commercial 'onshore' wind farms within the identified broad areas of search based on the lower hill and less sensitive coastal landscape areas of Fife, defined by taking full account of landscape capacity, the natural, built and historic environment, wind speed and the amenity of nearby*

[9] http://www.dundeecity.gov.uk/news/index/article?article_ref=1369&year=2011&month=3
[10] http://www.dundeerenewables.com/
[11] http://www.investinfife.co.uk/

Policy Level	Key acts, regulations, policies, initiatives	Policy context relevant to NnG
		residents". In line with the Scottish Government's Economic Strategy, Fife Council has set out the 'Big 8' objectives including – 'Become the Leading Green Council' and 'Improve Conditions for Local Economic Development'. The renewable energy sector presents opportunities to attract new companies to Fife and the Council has stated that offshore wind is one area that is likely to lead to job creation. The Fife Structure Plan highlights the relative environmental quality of Fife's coastal communities, many of which have significant regeneration needs. Invest in Fife was set up to promote business and investment in Fife, as a business and investment support programme. There are a number of foci for development, with renewables identified as one of them - taking advantage of Fife's Energy Park, Renewables Innovation Centre, and Hydrogen Office.
Edinburgh	• City of Edinburgh Council (2004) Edinburgh and the Lothian's Structure Plan 2015 • Edinburgh City Council (2012) A strategy for jobs - The City of Edinburgh Council's economic strategy for 2012-17	The Edinburgh and the Lothian's Structure Plan 2015 promotes the development of renewable energy resources where this can be achieved in an environmentally acceptable manner, and requires local plans to set out the criteria against which renewable energy development will be assessed, including cumulative impacts. It should also consider whether it is appropriate to define broad areas of search, or specific sites, suitable for wind or other renewable energy developments. The Structure Plan supports development on the developed coast where it demonstrates a need for a coastal location, or contributes to the renewal and regeneration of the area. While development on the undeveloped coast will only be permitted where it demonstrates a need for a coastal location, and the benefits outweigh any detrimental environmental impact and that there are no alternative sites. The City of Edinburgh Council's economic strategy 2012-17 states that "Edinburgh has significant opportunities to take advantage of jobs growth in the renewable energy sector – not least through the Renewables East Enterprise Area at Port of Leith". A priority outcome for the future is support for inward investment and specifically recognising Edinburgh as centre of excellence in renewable energy.
East Lothian	• Edinburgh and the Lothian's Structure Plan 2015	The Edinburgh and the Lothian's Structure Plan 2015 identified above also applies to East Lothian. The East Lothian Council is supportive of the Government's policy to secure greater generation of energy from renewable sources.
Angus	• Angus Economic Development Strategy 2008-2011 - Angus Council (2008) Towards Sustainable Prosperity - An Economic Development Strategy for Angus	The economic development strategy document for Angus highlights that Angus is well positioned to take advantage of the "sustainability revolution" and that "there is scope to contribute to renewable energies at both community and regional levels" including wind. It is also reported that "focus will be given to stimulation of jobs in 'green tourism'… energy (particularly renewables)".
East Coast Councils	• East Coast Renewables[12]	East Coast Renewables, set up in May 2011, is an alliance of local authorities on the East Coast of Scotland, with the aim of promoting the east coast for renewable energy investment and creating new opportunities for local businesses.

Source: SQW

[12] http://www.eastcoastrenewables.org/

3: Socioeconomic baseline

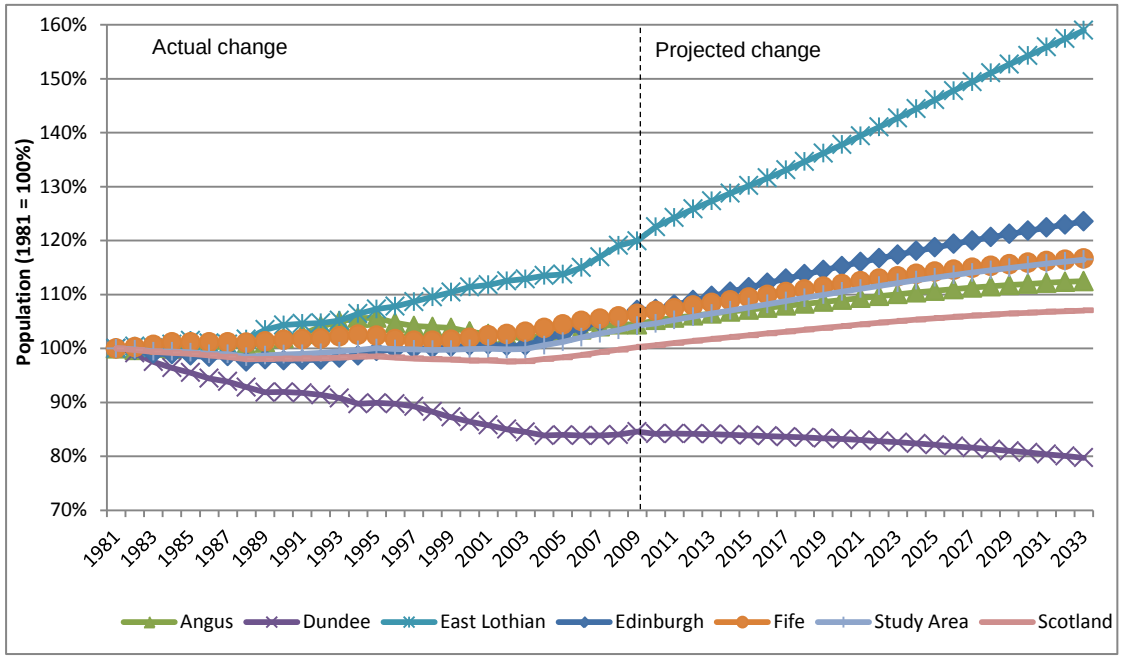
3.1 This section provides some further detail to that provided in the ES chapter on selected social and economic areas for the local authorities in the study area.

Population

Population change

3.2 Figure 3-1 shows the actual and projected population change for each local authority and Scotland as a whole between 1981 and 2033. While Scotland's population has remained broadly static between 1981 and 2009, there were dramatic changes within the local authority regions of interest – the population of Dundee fell by 15% while Angus' population rose by 5%, Fife's rose by 6%, Edinburgh's rose by 7% and East Lothian's increased by 20%. According to the General Registrar of Scotland's (GROS) latest population projections[13], these patterns are set to continue. For example, the population of Dundee is estimated to fall to around 135,000 in 2030 and East Lothian's is forecast to increase to almost 125,000 in the same time period.

Figure 3-1: Actual and projected population change, 1981 - 2033



Source: Mid-year population estimates and GROS Population Projections Scotland (2008 based) – ONS

[13] GROS, 2009: http://www.gro-scotland.gov.uk/files2/stats/projected-population-of-scotland-2008-based/projected-population-of-scotland-2008-based-publication/projected-population-of-scotland-2008-based.pdf

Industrial structure and employment

Productivity and GVA

3.3 Productivity, as measured by Gross Value Added[14] (GVA), varies widely across the study area. The geographies at which GVA is measured (NUTS 3 regions[15]) do not align exactly to the local authorities which make up the study area so this data should be treated with caution. However, it does give an indication of the differences in productivity across the study area. Table 3-1 shows that the approximate GVA in the study area totalled £29,355 billion in 2008 (the latest year for which data are available), almost 30% of the total Scottish GVA. Average GVA per head within the study area was very similar to the Scottish average at £20,308 but this hides wide disparities within the study area itself. Edinburgh's GVA per head was £34,562 while the GVA per head in the other regions of the study area is below the Scottish average.

Table 3-1: GVA and GVA per head, 2008

NUTS 3 regions	Total GVA (£m)	GVA per head (£)
Angus and Dundee	4 527	17,909
Clackmannanshire and Fife	5,995	14,539
East Lothian and Midlothian	2,512	14,220
Edinburgh	16,301	34,562
Study Area	29,335	20,308 (average)
Scotland	103,532	20,031

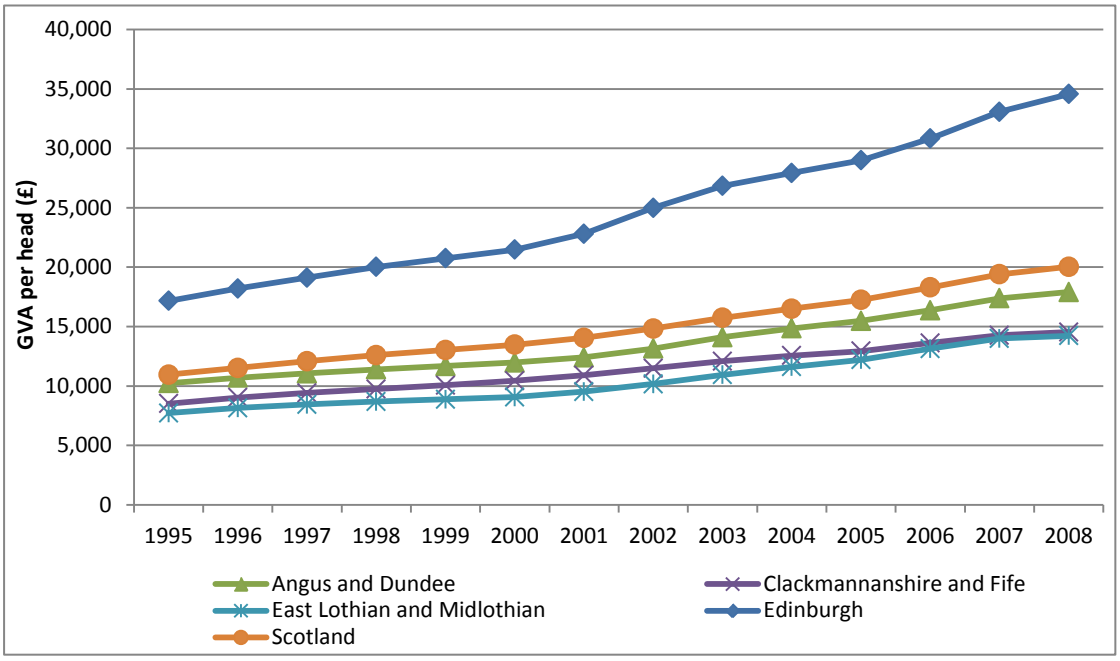
Source: Sub-regional Productivity Data – ONS

3.4 Figure 3-2 shows how GVA per head has changed between 1995 and 2008. Edinburgh's GVA per head has grown at a faster rate than the rest of Scotland but East Lothian and Midlothian and Clackmannanshire and Fife's rates of GVA per head growth has been slightly lower than that for Scotland.

[14] GVA is a key measure of the economic performance of a region. GVA is the difference between the value of inputs used in the production of goods and services and the value of the output that is created. It is mainly made up of employees wages and company profits.

[15] Nomenclature of Units for Territorial Statistics (NUTS) was created by the European Office for Statistics (Eurostat) as a single hierarchical classification of spatial units used for statistical production across the European Union. At the top of the hierarchy are the individual member states of the EU: below that are levels 1 to 3. See http://www.statistics.gov.uk/geography/nuts.asp for details.

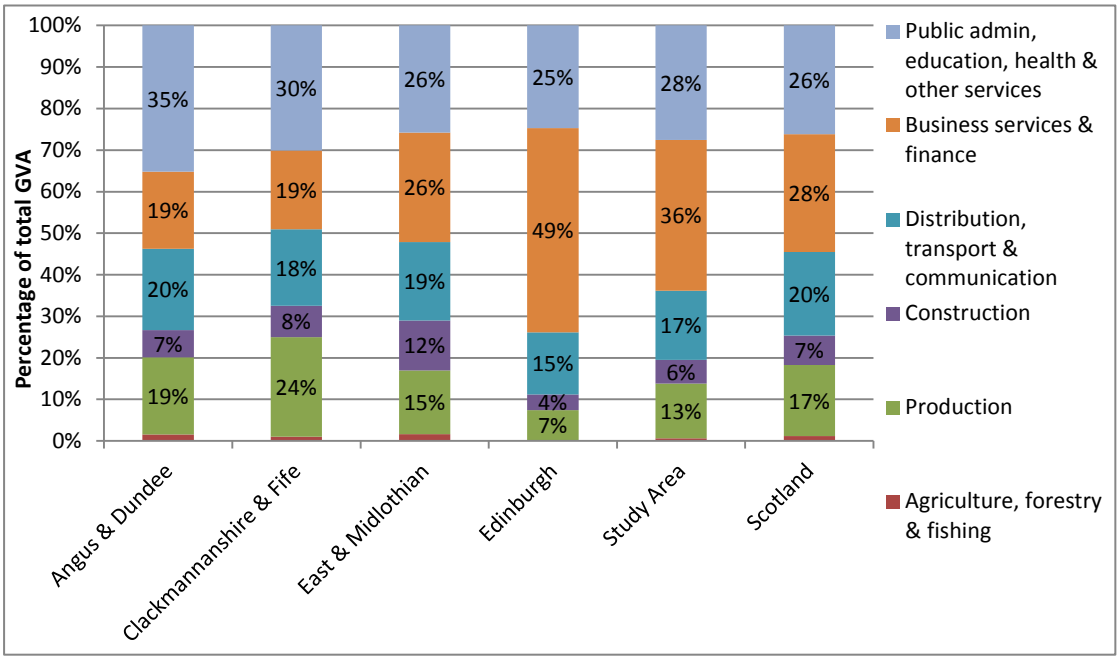
Figure 3-2: GVA per head by NUTS 3 region, 1995 to 2008



Source: Sub-regional Productivity Data – ONS

3.5 Figure 3-3 provides a breakdown of the GVA contribution of different sectors. There are wide variations across the study area compared to Scotland. For example, in Angus and Dundee and Fife, the production (manufacturing) industries generate a greater proportion of the GVA (19% and 24%) than in Scotland (17%), while the construction sector is larger in East Lothian (12%) than Scotland (7%). Edinburgh's business and financial services sector accounts for almost half (49%) of the city's GVA compared to 28% in Scotland as a whole. The lower GVA per head values in Dundee, Fife and East Lothian compared to the rest of Scotland and Edinburgh in particular reflect the sectoral make up of these regions. Sectors such as primary production and manufacturing are more important to Dundee, Fife and East Lothian than Edinburgh but tend to yield lower GVA per head than the key sectors in Edinburgh, such as business services and finance, which have a high GVA per head value.

Figure 3-3: GVA contribution by sector, 2008



Source: Sub-regional Productivity Data – ONS

Economic activity

Employment

3.6 The proportion of the working age population in employment across the study area is similar to the Scottish average, around 71% for the year October 2009 to September 2010 (Table 3-2). Within the study area, there are some differences. For instance, Dundee has tended to have a lower level of employment compared to the other three local authority areas. Edinburgh has seen a large fall in the employment rate between 2008/09 and 2009/10.

Table 3-2: Employment rate, 2004 - 2010

	Angus	Dundee	East Lothian	Edinburgh	Fife	Study area	Scotland
Oct 2004 - Sep 2005	76.0%	68.8%	77.1%	74.0%	74.8%	**74.0%**	72.7%
Oct 2005 - Sep 2006	76.8%	68.8%	77.0%	75.0%	73.6%	**74.1%**	73.0%
Oct 2006 - Sep 2007	77.0%	70.3%	74.8%	74.7%	73.5%	**74.0%**	73.8%
Oct 2007 - Sep 2008	77.0%	70.4%	75.9%	75.9%	74.5%	**74.9%**	74.2%
Oct 2008 - Sep 2009	75.4%	68.8%	75.6%	73.8%	70.8%	**72.6%**	72.3%
Oct 2009 - Sep 2010	73.1%	68.9%	72.4%	69.6%	72.0%	**70.8%**	71.0%

Source: Annual Population Survey – ONS

Transport and infrastructure

3.7 The study area is home to six main port facilities (Leith, Dundee, Methil, Rosyth, Burntisland and Kirkcaldy) owned by Forth Ports, and two airports (Edinburgh and Dundee). The

National Renewable Infrastructure Plan (N-RIP) Stage 2 (Scottish Enterprise and Highlands & Islands Enterprise, 2010) identifies port locations for potential offshore wind manufacturing which fall into three broad geographic clusters, of which 'Forth/Tay' is identified as one. In addition to manufacturing, this cluster is also highlighted as having potential for installation uses and operations and maintenance.

3.8 Within the Forth/Tay cluster, the following ports are identified as key assets in supporting the development of offshore wind farms: Leith, Dundee and Methil. The following is highlighted in relation to these ports:

- Leith – the site can support large scale manufacturing, installation activities and operations and maintenance. Gamesa has announced the Port of Leith as the site for its new UK plant for the manufacture of wind turbines. The investment in the Port of Leith is expected to be €150 million, creating 800 jobs (Scottish Government, 2012);
- Dundee – Scottish Enterprise have confirmed Dundee as a key location for offshore wind manufacturing; and
- Methil – Burntisland Fabrications (BiFab) operates from both the Fife Energy Park in Methil and also from bases in Burntisland and Arnish and is a major player in the manufacture of jackets for offshore wind turbines. In January 2012, Samsung Heavy Industries announced a £100 million investment in an offshore wind manufacturing facility at Methil in in Fife, expected to create 500 new jobs

3.9 The key ports identified by the N-RIP 2 report located within the study area are Dundee Port, the Fife Energy Park and Leith. An overview of the facilities which could potentially be used by the offshore renewables industry at each of these sites is provided by N-RIP 2 and is shown below.

Leith

Leith is a strong location for large scale manufacturing, installation activities and operations and maintenance for the renewables industry. The port is owned and operated by Forth Ports PLC. In total Leith Docks covers a total water area of 100 hectares and a total land area of 158 hectares. The current masterplan designates 150 acres for renewable activities. Additional land may be available within the docks and offsite at adjoining industrial areas.

Potential Offshore Renewables Infrastructure Role: Leith can support large scale manufacturing, installation activities and operations and maintenance

Market Use and Interest: The port currently supports a wide range of shipping activities including offshore oil and gas support. Leith is also home for research, development and manufacture of the Pelamis wave to energy marine device. A biomass powered electrical and thermal generating plant is proposed and is progressing through a consent process.

Source: Scottish Enterprise and Highlands and Islands Enterprise (2010) National Renewables Infrastructure Plan Stage 2

Dundee

The Port of Dundee currently offers 60 acres of development land for the renewables sector, all in the ownership of Forth Ports. If there was a need there may be potential to extend this through the reclamation of additional land at the east end of the existing Port boundary (c 20 acres). Outwith the port estate, two principal sites have been identified to support Renewables development in the city – Claverhouse and Linlathen, both owned by Dundee City Council and within 3 miles of the port, offer 140 and 240 acres available for immediate development. There is also a number of private sector owned sites within the area.

Potential Offshore Renewables Infrastructure Role: There is potential for a major turbine manufacturing facility and a tower manufacturing facility to co-locate on the site, with capacity for a number of supply chain operations within the existing site. A detailed developer requirement for an Operation and Maintenance facility has been incorporated into the planning of the site.

Market Use and Interest: The Port of Dundee is a strong regional port handling a wide range of bulk agricultural and forest products and providing servicing and supply to the oil and gas industry. The port currently hosts a refinery and various fabrication and engineering uses, with a proposed Biomass generation facility currently progressing consent with a potential operational date of 2014.

An extensive range of interests from the renewables sector have been received for the port including turbine manufacture, tower manufacture and operations and maintenance.

Source: Scottish Enterprise and Highlands and Islands Enterprise (2010) National Renewables Infrastructure Plan Stage 2

Energy Park, Fife/Methil

Energy Park, Fife at Methil can accommodate a range of offshore renewables supply chain companies. BiFab is already located in Energy Park Fife and is a major player in the manufacturing of jackets for offshore wind turbines. Located on the former Kvaerner oil fabrication yard at Methil, the 54 hectare Energy Park is a joint venture between Scottish Enterprise and Fife Council. The site has two quaysides extending to a total of 340m and is adjacent to Methil Harbour owned and operated by Forth Ports as well as the Methil Docks Business Park, together creating the larger Fife Energy Zone. There is also the opportunity for additional off-site land, in close proximity to the quayside.

SE owns the site but there is a joint venture agreement with Fife Council. Currently c 14 hectares of land is available on site. Land reclamation is a possibility but this has still to be investigated in detail. Further land exists at Methil Docks Business Park, Forth Ports land at Methil and in other nearby Strategic Land Allocations.

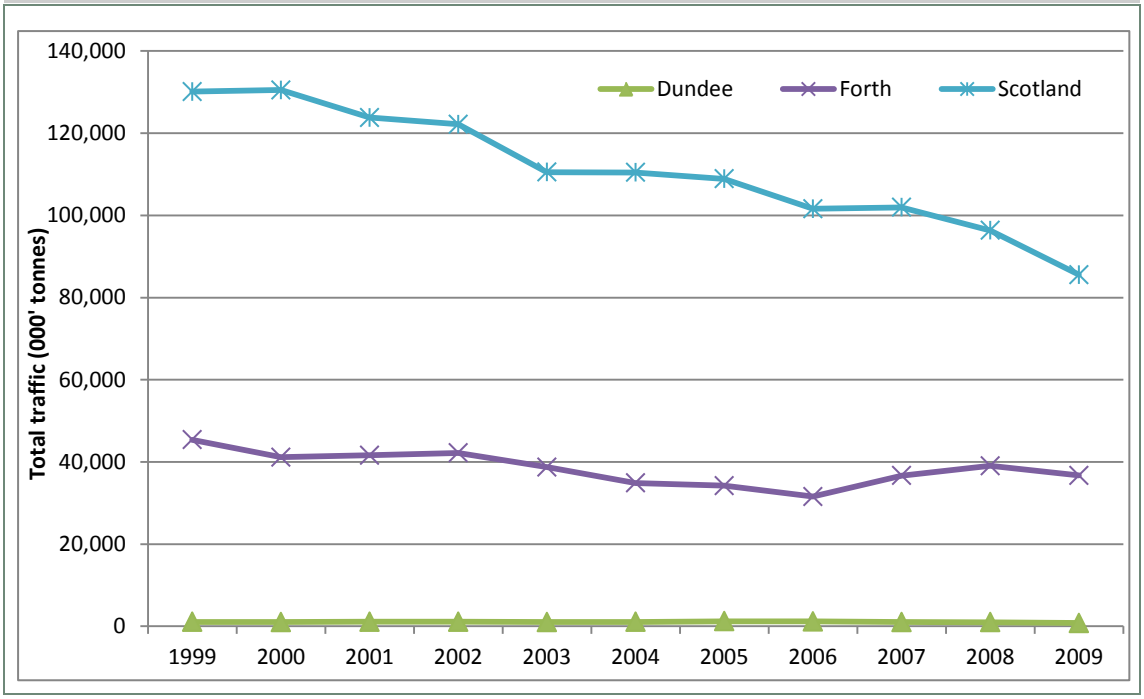
Potential Offshore Renewables Infrastructure Role: BiFab is a major player in the manufacturing of jackets for offshore wind turbines. It is anticipated that the remaining site(s) will go to companies in the supply chain.

Market Use and Interest: Interest to date from the remaining site(s) has come predominantly for supply chain companies that would have a complementary use to existing BiFab use. For some interests looking for manufacturing sites the remaining space has to date been deemed too small.

Source: Scottish Enterprise and Highlands and Islands Enterprise (2010) National Renewables Infrastructure Plan Stage 2

3.10 Other important port facilities include Burntisland and Rosyth, both owned by Forth Ports[16]. In total, the Forth Ports (Leith, Rosyth, Methil and Burntisland) accounted for freight traffic of almost 37 million tonnes in 2009 and are therefore the largest Scottish ports. To put this into context, Clyde and Sullom Voe, the second and third largest ports in Scotland, dealt with freight traffic of 12.5 and 11.3 million tonnes respectively Figure 3-4. Dundee handled a total of less than one million tonnes last year.

Figure 3-4: Freight tonnage in key ports and Scotland



Source: Scottish Government (2010) Scottish Transport Statistics No 29: 2010 Edition

3.11 Other smaller harbours include, in East Lothian; Cockenzie, Fisherrow, Port Seton, Dunbar and North Berwick and in Fife; St Andrews, Crail, Cellardyke, Anstruther, Pittenween, St Monans and Elie. Use of these harbours varies and, whilst commercial use, including fishing, remains important, there is an increasing demand for leisure based activities at many of these harbours.

Quality of Life

Deprivation

3.12 Although assessing quality of life can be considered a subjective exercise, there are a number of measures which can be used as a proxy. One key source is the Scottish Index of Multiple

[16] The ownership of Forth Ports has changed but the company still operates as Forth Ports.

Deprivation (SIMD). The SIMD is the Scottish Government's official tool for identifying small area concentrations of multiple deprivation across Scotland. The SIMD ranks each of the 6,505 Scottish data zones[17] against each other based on an aggregation of seven SIMD sub-domains: Income; Employment; Health; Education, Skills and Training; Housing; Geographic access; and Crime.

3.13 The data zones are ranked from one, being the most deprived, to 6,505, the least deprived.

3.14 Table 3-3 shows the percentage of data zones within each of the local authorities in the study area that are within the top 10% most deprived data zones in Scotland. It is clear that Dundee suffers from a high level of deprivation: 22% of the city's 179 data zones are among the most deprived 10% nationally; income, employment education, skills and training and housing are all major issues in some areas of Dundee.

3.15 In contrast, Angus, Fife, East Lothian and Edinburgh have a much lower share of Scotland's most deprived data zones: 8% of Edinburgh's data zones and 6% of Fife's are among the worst 10% nationally. Edinburgh does however have housing issues and more than a tenth of Edinburgh and Fife's data zones are within the worst 10% nationally for housing. The remote nature of Angus means that 20% of its data zones are with the worst 10% nationally for geographic access.

Table 3-3: Percentage of data zones within the most deprived 10% nationally, by SIMD domain

	Number of data zones	Overall deprivation	Income	Employment	Health	Education skills & training	Housing	Geog-raphic access	Crime
Angus	142	1%	4%	1%	0%	1%	0%	20%	9%
Dundee	179	22%	22%	25%	12%	22%	36%	0%	9%
Fife	453	6%	6%	8%	2%	8%	0%	5%	10%
East Lothian	120	0%	2%	0%	0%	2%	1%	9%	3%
Edinburgh	549	8%	8%	7%	7%	9%	21%	0%	13%
Study Area	**1443**	**8%**	**8%**	**8%**	**5%**	**9%**	**13%**	**4%**	**10%**

Source: Scottish Index of Multiple Deprivation 2009

3.16 Table 3-4 shows the percentage of data zones within each of the local authorities that are within the top 10% least deprived data zones in Scotland. East Lothian and Edinburgh are home to some of the most affluent and least deprived neighbourhoods in Scotland as is reflected in Table 3-4.

[17] Data zones are defined as groups of 2001 Census output areas and have populations of between 500 and 1,000 household residents. See: http://www.scotland.gov.uk/Publications/2005/02/20697/52626

Table 3-4: Percentage of data zones within the least deprived 10% nationally, by SIMD domain

	Number of data zones	Overall deprivation	Income	Employment	Health	Education, skills & training	Housing	Geographic access	Crime
Angus	142	5%	5%	4%	4%	5%	13%	6%	21%
Dundee	179	7%	6%	3%	4%	8%	9%	6%	8%
Fife	453	8%	9%	8%	10%	7%	15%	5%	8%
East Lothian	120	10%	9%	8%	15%	15%	12%	10%	13%
Edinburgh	549	32%	20%	27%	29%	25%	11%	26%	4%
Study Area	**1443**	**17%**	**13%**	**14%**	**16%**	**14%**	**12%**	**14%**	**8%**

Source: Scottish Index of Multiple Deprivation 2009

Earnings

3.17 The ONS publishes data on earnings using two different measures: workplace based and resident based. The values for resident and workplace based earning differ because of commuting patterns. For example, East Lothian's resident based median earnings are higher than the workplace based earnings because many people commute into Edinburgh for work but live in East Lothian. The same is true of Fife.

3.18 Earnings across the study area vary, particularly residence based earnings. Residence based earnings in Edinburgh and East Lothian are higher than the Scottish average but Dundee and Angus have lower earnings on average. Workplace earnings in all of the local authority areas except Edinburgh are lower than the Scottish average.

Table 3-5: Average (median) gross annual full-time earnings – workplace based

	Workplace based		Residence based	
	2010	2002 - 2010 change	2009	2002 - 2009 change
Angus	£20,897	15%	£23,548	24%
Dundee	£23,966	22%	£23,031	30%
Fife	£24,163	34%	£24,374	31%
East Lothian	£23,101	17%	£25,690	32%
Edinburgh	£27,848	29%	£27,818	29%
Scotland	£25,221	32%	£25,106	31%

Source: Annual Survey of Hours and Earnings - workplace analysis and resident analysis

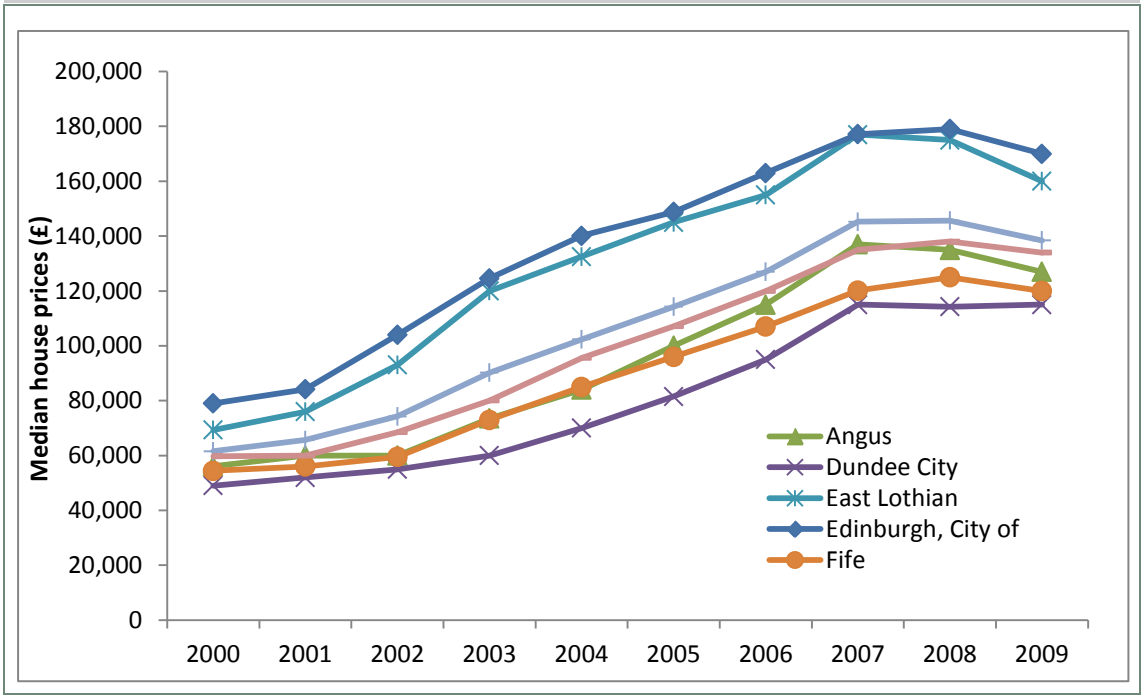
Housing

3.19 Residential property transactions are recorded by Registers of Scotland[18]. Prices are based on second hand and new build sales. Median house prices in Angus (£127,000), Dundee (£115,000) and Angus (£120,000) were less than the Scottish average of £134,000 (Figure 3-

[18] http://www.ros.gov.uk/

5). Edinburgh (£170,000) and East Lothian (£160,000) were significantly above the national average. In all areas prices peaked in 2008 but declined by as much as 8% in 2009. The median house price in the study area was £138,400 in 2009.

Figure 3-5: Median house prices



Source: Scottish Neighbourhood Statistics

Tourism and leisure

Visitor numbers and value

3.20 Visit Scotland estimates that in 2009, almost five million visitor trips were made to Angus and Dundee, Fife and Edinburgh and the Lothians (Table 3-6). It is important to note that these figures do not exactly match to the study area geography as they also include visits to Midlothian and West Lothian. Nevertheless, the majority of these visitors are likely to visit Dundee, Fife, East Lothian and Edinburgh and therefore provide an important source of information on the importance of tourism to the study area. The visitor trips to these areas in 2009 were associated with a spend of just over £1.3 billion.

Table 3-6: Estimated tourist trips, 2009

Area	Number of trips	Total spend (£m)
Angus and Dundee	500,000	105
Fife	670,000	184
Edinburgh and Lothians	3,790,000	1,020

Source: Visit Scotland, available at http://www.visitscotland.org/pdf/vs_eastern.pdf

Employment in tourism

3.21 The scale of tourism within the study area can be estimated by using business data for specific industries. Using the Scottish Government's definition, the following SIC codes make up the tourism industry (Table 3-7):

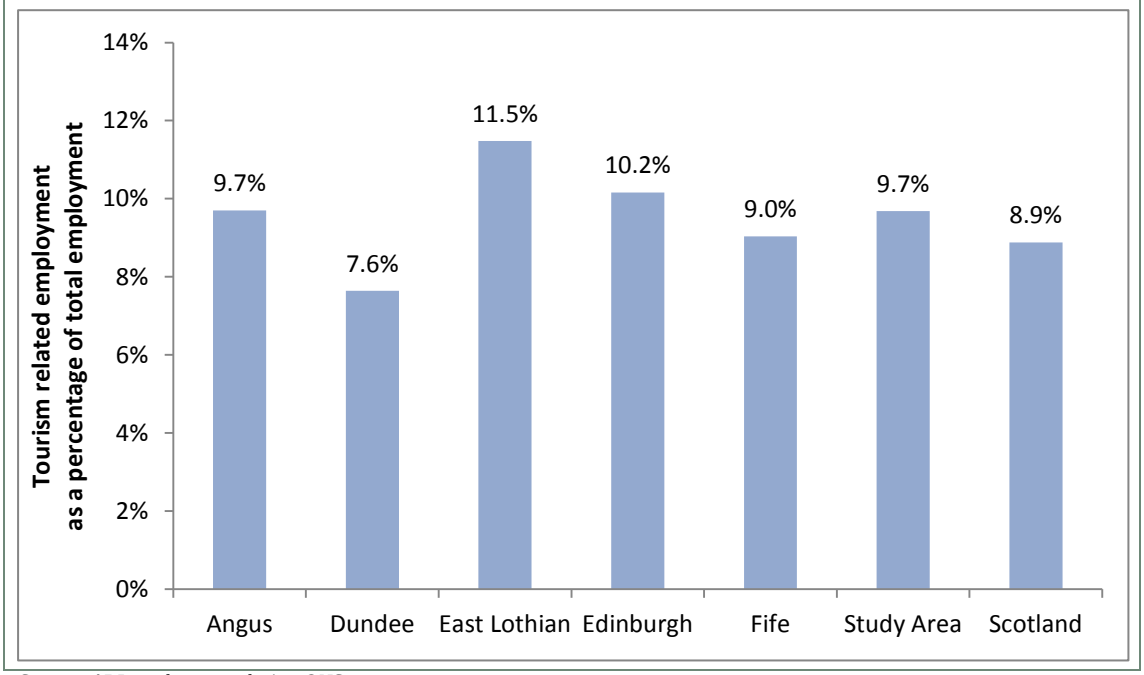
Table 3-7: Scottish Government definition – tourism industry related SIC

Industry	SIC 2003
Hotels	55.1
Camping sites	55.2
Restaurants	55.3
Bars	55.4
Activities of travel agencies etc.	63.3
Library, archives, museums etc.	92.5
Sporting activities	92.6
Other recreational activities	92.7

Source: Scottish Government, Profile of Scottish Tourism-Related Sector 2010: http://www.scotland.gov.uk/Resource/Doc/933/0104706.xls

3.22 It is important to note that while these SIC codes are accepted as clearly being relevant to tourism, not all employees and businesses operating within these classifications will be supported by tourism spend alone. Figure 3-6 shows the proportion of the total number of employees that are employed in tourism related businesses. For Angus, Edinburgh, East Lothian and Fife, tourism plays a greater role in the local economy than for Scotland as a whole. Overall, the study area has almost the same level of tourism related activity (in terms of employment) compared to Scotland as a whole.

Figure 3-6: Employment in tourism as a % of total employment, 2008



Source: ABI employee analysis - ONS

4: Skills development activities

4.1 Input was received from Angus Council, Dundee City Council, Fife Council, City of Edinburgh Council, East Lothian Council, Scottish Enterprise and Visit Scotland in order to inform the assessment of the potential socioeconomic effects of the project.

4.2 The consultations highlighted a number of skills development activities/ initiatives related to the offshore wind and renewables market:

- Dundee University Centre for Renewable Energy (DUCRE) brings together expertise in a wide range of disciplines including; Physics, Electronics, Nanotechnology, Civil & Mechanical Engineering, Mathematics, Geography, Botanics, Town Planning, Architecture, Remote Sensing, The Centre for Energy, Petroleum and Mineral Law and Renewable Energy. The Masters degree in Renewable Energy and Environmental Modelling is designed to enable graduates able to make an immediate contribution to the renewable energy sector. This is complemented by leading edge research under the Scottish Universities Physics Alliance (SUPA) Energy Theme;
- Energy Training East brings together the universities and colleges of Tayside within one alliance to offer training, and research and development expertise to support the renewable energy industry. The five institutions (University of Abertay, University of Dundee, Dundee College, Angus College and Perth College University of the Highlands and Islands) are all within a 22 miles radius of the Dundee Port;
- The University of St Andrews is playing a key role in fuel cell research and helping companies enter the renewable energy market; and
- European Regional Development Fund (ERDF) Priority 3 funding is providing support for the up skilling of existing skills through Dundee College (work at height offshore). Higher National Diploma (HND) and Higher National Certificate (HNC) courses are being developed for school leavers to prepare them for opportunities in offshore wind.

5: Impact assessment methodology

5.1 The impact assessment is based on the pattern of expenditure anticipated by the project and provided by Mainstream Renewable Power. This is converted to GVA and employment estimates using data from the Scottish Government Input-Output Tables.

5.2 This section presents the methodology used for fitting the project sub-phases to the Scottish Input-Output Tables industry group classifications and provides detail on multipliers used for estimating the indirect and induced effects of the project. All the steps involved in the impact assessment methodology are set out in ES chapter.

Fitting project sub-phases to the Scottish Input-Output table industry group classifications

5.3 In order to estimate the direct GVA associated with each sub-phase, a ratio of expenditure to GVA has been applied to the relevant expenditure values. To do this, the sub-phases have been mapped against standard industrial classification (SIC) codes which are used in statistical publications to categorise different sectors of the economy. It is important to acknowledge that this mapping is a 'best fit' exercise because offshore wind does not conform to the current SIC codes. This issue is summarised by the Scottish Government as follows:

> *"the renewable energy industry is not assigned a Standard Industrial Classification code and therefore is not identified as a separate sector of the economy for statistical reporting purposes. While some portion of renewable energy related output and employment will be captured in other energy sectors, for example large electricity generators based in Scotland will have a renewable energy division, other activities focussed on servicing the sector will be categorised under the core function of the business, for example, manufacturing or business services."*[19]

5.4 The supply chain activities associated with each sub-phase of the project are mapped against SICs. The fit between wind farm activity and these industry groups is presented in Annex B.

5.5 These SIC codes have in turn been mapped against the Scottish Government Input-Output Table classifications (Annex B). The Scottish Government's Input-Output Tables provide a complete picture of the flows of goods and services in the economy. For each sector, they also provide estimates of total turnover and GVA. These estimates have been used to calculate expenditure to GVA ratios (project expenditure is equivalent to turnover for the project's suppliers). The latest Input-Output Tables were published in 2010 but are based on 2007 data. These figures have been adjusted using the HM Treasury GDP deflator[20]. The figures used in the assessment are presented in Table 5-1.

[19] Scottish Government (2010) Towards a Low Carbon Economy for Scotland: Appendix. Available from: http://www.scotland.gov.uk/Publications/2010/03/22115357/0

[20] HM Treasury GDP deflator. See: http://www.hm-treasury.gov.uk/data_gdp_guide.htm

Table 5-1: Turnover, GVA, ratios by industry

Input-Output classification	Turnover (industry totals in £ million)	GVA (industry totals in £ million)	Turnover to GVA ratio
57: Structural Metal Products	1,093.8	419.6	2.61
71: Insulated wire & cable	116.3	39.6	2.94
88: Construction	19,182.6	7,557.4	2.54
95: Water transport (sea/ coastal activities)	322.1	147.7	2.18
97: Supporting and auxiliary transport activities, activities of travel agencies	5,254.4	2,107.3	2.49
100: Banking & Finance	6,998.1	4,461.9	1.57
101: Insurance and pension funding, except compulsory social security	5,835.3	2,014.3	2.90
112: Architectural and engineering activities and related technical consultancy, technical testing and analysis	4,144.4	2,391.9	1.73

Source: Scottish Government Input-Output tables 2007 (2010). Available from http://www.scotland.gov.uk/Topics/Statistics/Browse/Economy/Input-Output/IOAllFiles2007 ; and SQW assumption for water transport GVA based on ONS data.

5.6 The appropriate turnover to GVA ratios shown in Table 5-1 above were applied to the expenditure estimates for each sub-phase in each year and geography. It is assumed that the expenditure to GVA ratios remain constant across the study area and the rest of Scotland. This provides estimates of the gross direct GVA in each year for both the study area and the rest of Scotland.

5.7 There are two areas where the data in the Input-Output Tables have not been used:

- The proportion of expenditure associated with offshore work requires hire or ownership of specialist vessels. For this reason, the ratio of turnover and GVA to employment is likely to be greater relative to many other phases of the work. This is not accurately captured in the Input-Output Tables. To address this, the assessment used more detailed employment to GVA figures published by ONS at four digit SIC level produced by the ONS[21]. The ONS classification used is "*sea and coastal water transport"*, which includes vessel services for cable laying and heavy lifting, and produces a GVA per employee estimate of £141,000 (this has been inflated to 2011 prices using the HM Treasury GDP deflator);

- It is also difficult to use SIC codes and industry ratios in operations and maintenance, where much of the expenditure is on the hire or purchase of capital goods (helicopters and vessels) rather than employment. Due to the difficulty in categorising this phase, data from Vestas Offshore (Oxford Economics, 2010) report has been used to provide estimates of direct and indirect operations and maintenance employment per installed megawatt of offshore generation. Although it is recognised that there may be economies of scale associated with the project given its larger scale than other offshore wind farms currently operating in UK waters, this report provides evidence

[21] ONS, Labour productivity measures from the ABI: 1998 to 2007Economic & Labour Market Review | Vol 4 | No 5 | May 2010

of the scale of operations and maintenance employment. The employment per megawatt (MW) values used in this assessment are as follows (Oxford Economics, 2010):

- 0.19 direct jobs per MW;
- 0.16 indirect jobs per MW (calculation based on figures provided in Vestas Offshore report).

5.8 These ratios are used to provide a measure of the employment and GVA that would be supported by the expenditure anticipated in each geographical area.

Multipliers

5.9 The indirect and induced impacts are measured using standard Type II GVA and employment multipliers.

5.10 For Scotland, the Scottish Input-Output Tables have been used to identify multipliers for each of the individual project sub-phases. The study area multipliers are estimated by reducing the Scottish multiplier values to reflect the relative smaller geographical area and more limited supply chain links associated with the study area.

5.11 A complete list of multipliers used in the assessment is shown in Appendix B.

Annex A: References

Angus Council (2008) Towards Sustainable Prosperity - An Economic Development Strategy for Angus

Angus Council (2001) Dundee and Angus Structure Plan 2001-2016

Department of Energy and Climate Change (2008) Climate Change Act 2008

Department for Energy and Climate Change (2009) Renewable Energy Strategy

Department for Energy and Climate Change (2009) Low Carbon Transition Plan

Dundee City Council (2005) Dundee Local Plan Review 2005

Fife Council (2006) Fife Council Structure Plan 2006-2026

HM Treasury (2003) The Green Book, Appraisal and Evaluation in Central Government

HM Treasury (2012) GDP Deflators

Marine Scotland (2011) Economic Assessment of the Short Term Options for Offshore Wind Energy in Scottish territorial Waters: Costs and Benefits to Other Marine Users and Interests

Office for National Statistics (2011) Mid-year Population Estimates

Office for National Statistics (2011) Annual Population Survey

Office for National Statistics (2010) Sub-regional Productivity Data

Office for National Statistics (2010) Annual Survey of Hours and Earnings - resident analysis

Office for National Statistics (2010) Annual Survey of Hours and Earnings - workplace analysis

Office for National Statistics (2010) Annual Business Inquiry - Employee Analysis

Office for National Statistics (2010) Annual Business Inquiry - Workplace Analysis

Office for National Statistics (May 2010) Labour productivity measures from the ABI: 1998 to 2007 Economic & Labour Market Review | Vol 4 | No 5 |

Oxford Economics (2010) Analysis of the Employment Effects of the Operation and Maintenance of Offshore Wind Parks in the UK. A Report for Vestas Offshore

Registers of Scotland (2010) House Price Statistical Report

Scottish Government (2011) Blue Seas - Green Energy A Sectoral Marine Plan for Offshore Wind Energy in Scottish Territorial Waters Part A The Plan

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

Scottish Government (2010) Scottish Planning Policy

Scottish Government (2010) Scottish Transport Statistics No 29: 2010 Edition

Scottish Government (2010) The Marine (Scotland) Act 2010

Scottish Government (2010) Scottish Planning Policy

Scottish Government (2010) Profile of Scottish Tourism-Related Sector

Scottish Government (2010) Input Output Tables 2007

Scottish Government (2010) Securing the Benefits of Scotland's Next Energy Revolution (Consultation Paper)

Scottish Government (2010) A Low Carbon Economic Strategy for Scotland: Scotland – A Low Carbon Society

Scottish Government (2010) Scotland's Offshore Wind Route Map: Developing Scotland's Offshore Wind Industry to 2020

Scottish Neighbourhood Statistics (2010) Housing Statistics for Scotland

Scottish Enterprise (2010) National Renewables Infrastructure Plan (N-RIP)

Scottish Government (2009) Renewable Action Plan, Renewable Energy Division

Scottish Government (2009) Climate Change (Scotland) Act 2009

Scottish Government (2009) Scottish Index of Multiple Deprivation

Scottish Government (2005) Choosing our future: Scotland's sustainable development strategy

Scottish Government (2007) The Government Economic Strategy

Scottish Enterprise and Highlands and Islands Enterprise (2010) National Renewables Infrastructure Plan Stage 2 (N-RIP2)

Skills development Scotland (2011) Skills Investment Plan for the Energy Sector

The City of Edinburgh Council (2004) Edinburgh and the Lothian's Structure Plan 2015

The City of Edinburgh Council (2012) A strategy for jobs - The City of Edinburgh Council's economic strategy for 2012-17

VisitScotland (2010) Research and Statistics.

Annex B: Economic impact model key inputs and assumptions

Project expenditure by Phase (£m)

For each project phase, enter the total estimated expenditure

Project phase	Total Expenditure (£m)
Consenting & Development	
Consenting & development	40.0
Manufacture	
Technical and commercial management	20.0
Supply: Turbines, transformers & towers and Scada	545.0
Supply: Foundations	270.0
Supply: Cables	180.0
Supply: Substations	85.0
Construction/Installation	
Installation: Foundations, MetMast and turbines	200.0
Installation: Cable lay and testing and commissioning	30.0
Operations	
Operation & maintenance	31.0
Other costs	20.0
Decommissioning	
Decommissioning	230.0
Total	1,651.0

Source: Mainstream Renewable Power

Geographical breakdown of expenditure - low case

Project phase	Expenditure in Study Area (%)	Expenditure in rest of Scotland	Expenditure in rest of UK	Expenditure elsewhere (%)	Total expenditure (%)
Consenting & Development					
Consenting & development	25%	45%	25%	5%	100%
Manufacture					
Technical and commercial management	10%	60%	20%	10%	100%
Supply: Turbines, transformers & towers and scada	0%	0%	50%	50%	100%
Supply: Foundations	0%	0%	50%	50%	100%
Supply: Cables	10%	0%	0%	90%	100%
Supply: Substations	0%	0%	50%	50%	100%
Construction/Installation					
Installation: Foundations, MetMast and turbines	10%	0%	0%	90%	100%
Installation: Cable lay and testing and commissioning	10%	90%	0%	0%	100%
Operations					
Operation & maintenance	100%	0%	0%	0%	100%
Other costs	0%	0%	100%	0%	100%
Decommissioning					
Decommissioning	20%	25%	25%	30%	100%

Source: Mainstream Renewable Power

Geographical breakdown of expenditure - high case

For each project phase, please estimate where expenditure will be located

Project phase	Expenditure in Study Area (%)	Expenditure in rest of Scotland	Expenditure in rest of UK	Expenditure elsewhere (%)	Total expenditure (%)
Consenting & Development					
Consenting & development	25%	45%	25%	5%	100%
Manufacture					
Technical and commercial management	40%	40%	20%	0%	100%
Supply: Turbines, transformers & towers and scada	60%	20%	10%	10%	100%
Supply: Foundations	100%	0%	0%	0%	100%
Supply: Cables	80%	0%	0%	20%	100%
Supply: Substations	50%	20%	0%	30%	100%
Construction/Installation					
Installation: Foundations, MetMast and turbines	10%	0%	0%	90%	100%
Installation: Cable lay and testing and commissioning	10%	90%	0%	0%	100%
Operations					
Operation & maintenance	100%	0%	0%	0%	100%
Other costs	40%	40%	20%	0%	100%
Decommissioning					
Decommissioning	40%	20%	20%	20%	100%

Source: Mainstream Renewable Power

Multipliers, turnover to GVA ratios and GVA per employee values (see below)

5.12 The table below provides multipliers, turnover to GVA ratios and GVA per employee values used in the economic modelling.

5.13 The figures in *red italics* are averages of where there is more than SIC code for a project sub-phase.

Summary table of assumptions

		Type II employment multipliers		Type II GVA multipliers		Turnover to GVA ratio		GVA per employee (£)	
Project Phase	**Input-Output Industry Group**	**Study Area**	**Scotland**	**Study Area**	**Scotland**	**Study Area**	**Scotland**	**Study Area**	**Scotland**
Consenting & development									
Consenting & development	112: Architectural and engineering activities and related technical consultancy, technical testing and analysis	1.48	1.78	1.44	1.70	1.73	1.73	57,554	57,554
	100: Banking & Finance	1.56	1.89	1.29	1.46	1.57	1.57	105,474	105,474
		1.52	*1.83*	*1.37*	*1.58*	*1.65*	*1.65*	*81,514*	*81,514*
Manufacture									
Technical and commercial management	112: Architectural and engineering activities and related technical consultancy, technical testing and analysis	1.48	1.78	1.44	1.70	1.73	1.73	57,554	57,554
Supply: Turbines, transformers & towers	57: Structural Metal Products	1.55	1.86	1.52	1.83	2.61	2.61	60,090	60,090
Supply: Foundations	57: Structural Metal Products	1.55	1.86	1.52	1.83	2.61	2.61	60,090	60,090
Supply: Cables	71: Insulated wire & cable	1.38	1.60	1.59	1.93	2.94	2.94	36,417	36,417
Supply: Substations	88: Construction	1.71	2.19	1.67	2.14	2.54	2.54	61,678	61,678
Construction/installation									
Installation: Foundations, MetMast and turbines	88: Construction	1.71	2.19	1.67	2.14	2.54	2.54	61,678	61,678
	95: Water transport	1.56	1.91	1.46	1.76	2.18	2.18	153,732	153,732
		1.64	*2.05*	*1.57*	*1.95*	*2.36*	*2.36*	*107,705*	*107,705*
Installation: Cable lay and testing and commissioning	88: Construction	1.71	2.19	1.67	2.14	2.54	2.54	61,678	61,678
	95: Water transport	1.56	1.91	1.46	1.76	2.18	2.18	153,732	153,732
	112: Architectural and engineering activities and rela	1.48	1.78	1.44	1.70	1.7	1.7	57,554	57,554
		1.59	*1.96*	*1.53*	*1.87*	*2.15*	*2.15*	*90,988*	*90,988*
Operation and maintenance									
Operation & maintenance	97: Supporting and auxiliary transport activities, activities of travel agencies	1.90	2.49	1.71	2.19	2.49	2.49		
	112: Architectural and engineering activities and related technical consultancy, technical testing and analysis	1.48	1.78	1.44	1.70	1.73	1.73		
	57: Structural Metal Products	1.55	1.86	1.52	1.83	2.61	2.61		
	95: Water transport	1.56	1.91	1.46	1.76	2.29	2.29		
		1.62	*2.01*	*1.53*	*1.87*	*2.28*	*2.28*		
Other costs	101: Insurance and pension funding, except compulsory social security	2.57	3.73	1.72	2.25	2.90	2.90		
Decommissioning									
Decommissioning	112: Architectural and engineering activities and related technical consultancy, technical testing and analysis	1.48	1.78	1.44	1.70	1.73	1.73	57,554	57,554
	95: Water transport	1.56	1.91	1.46	1.76	2.18	2.18	153,732	153,732
		1.52	*1.84*	*1.45*	*1.73*	*1.96*	*1.96*	*105,643*	*105,643*