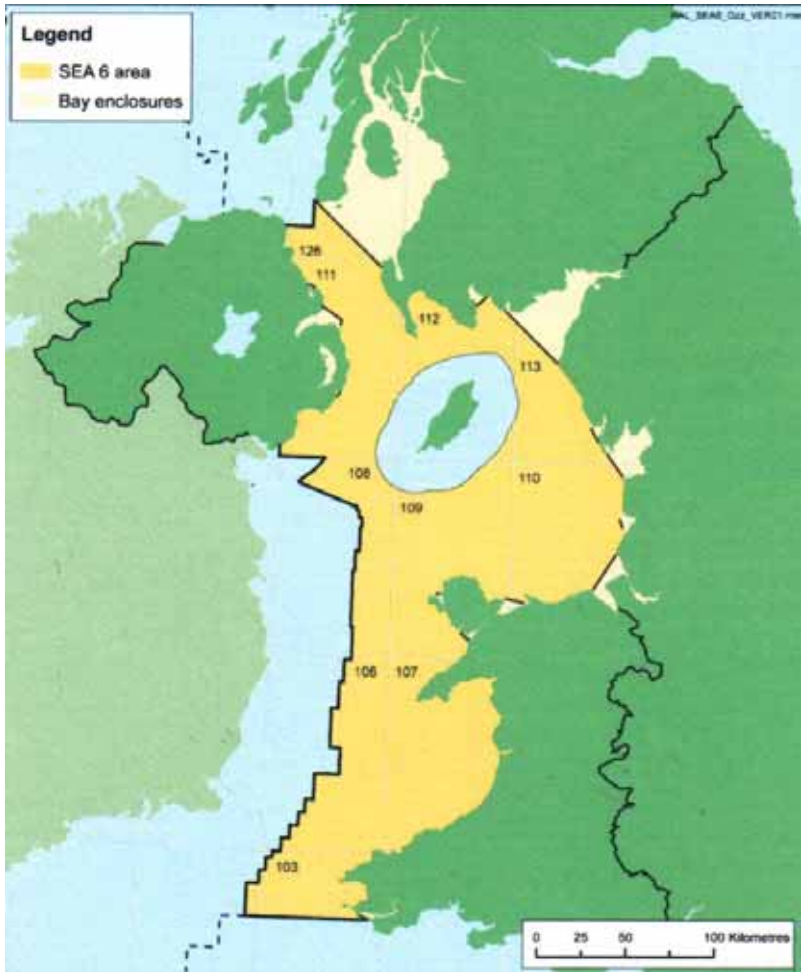
THE POTENTIAL SOCIO-ECONOMIC IMPLICATIONS OF LICENSING THE SEA 6 AREA



A REPORT
for the
DEPARTMENT OF TRADE AND INDUSTRY
by
MACKAY CONSULTANTS

THE POTENTIAL SOCIO-ECONOMIC IMPLICATIONS OF LICENSING THE SEA 6 AREA

A REPORT

for the
DEPARTMENT OF TRADE AND INDUSTRY
by
MACKAY CONSULTANTS

May 2005

CONTENTS

Mackay Consultants
Albyn House
Union Street
Inverness
IV1 1QA

Tel: 01463 223200
Fax: 01463 230869
e-mail: info@tonymackay.co.uk

"This document was produced as part of the UK Department of Trade and Industry's offshore energy Strategic Environmental Assessment programme. The SEA programme is funded and managed by the DTI and coordinated on their behalf by Geotek Ltd and Hartley Anderson Ltd."

1.0 INTRODUCTION

1.1 The UK Department of Trade and Industry (DTI) is conducting a Strategic Environmental Assessment (SEA) of licensing parts of the UK Continental Shelf (UKCS) for oil and gas exploration and production. This SEA 6 is the sixth in a series planned by the DTI, which will, in stages, cover the whole of the UKCS.

1.2 The SEA 6 area is shown on the map on the following page. It is the UK part of what is widely known as the Irish Sea, extending from the Mull of Kintyre in Scotland in the north to St David's Head in Wales in the south. It includes the area off the east coast of Northern Ireland but excludes the territorial waters of the Isle of Man.

1.3 Mackay Consultants were asked by Geotek Ltd and Hartley Anderson Ltd, on behalf of the DTI, to assess the socio-economic implications of licensing the SEA 6 area. This report sets out the results of our work, in relation to

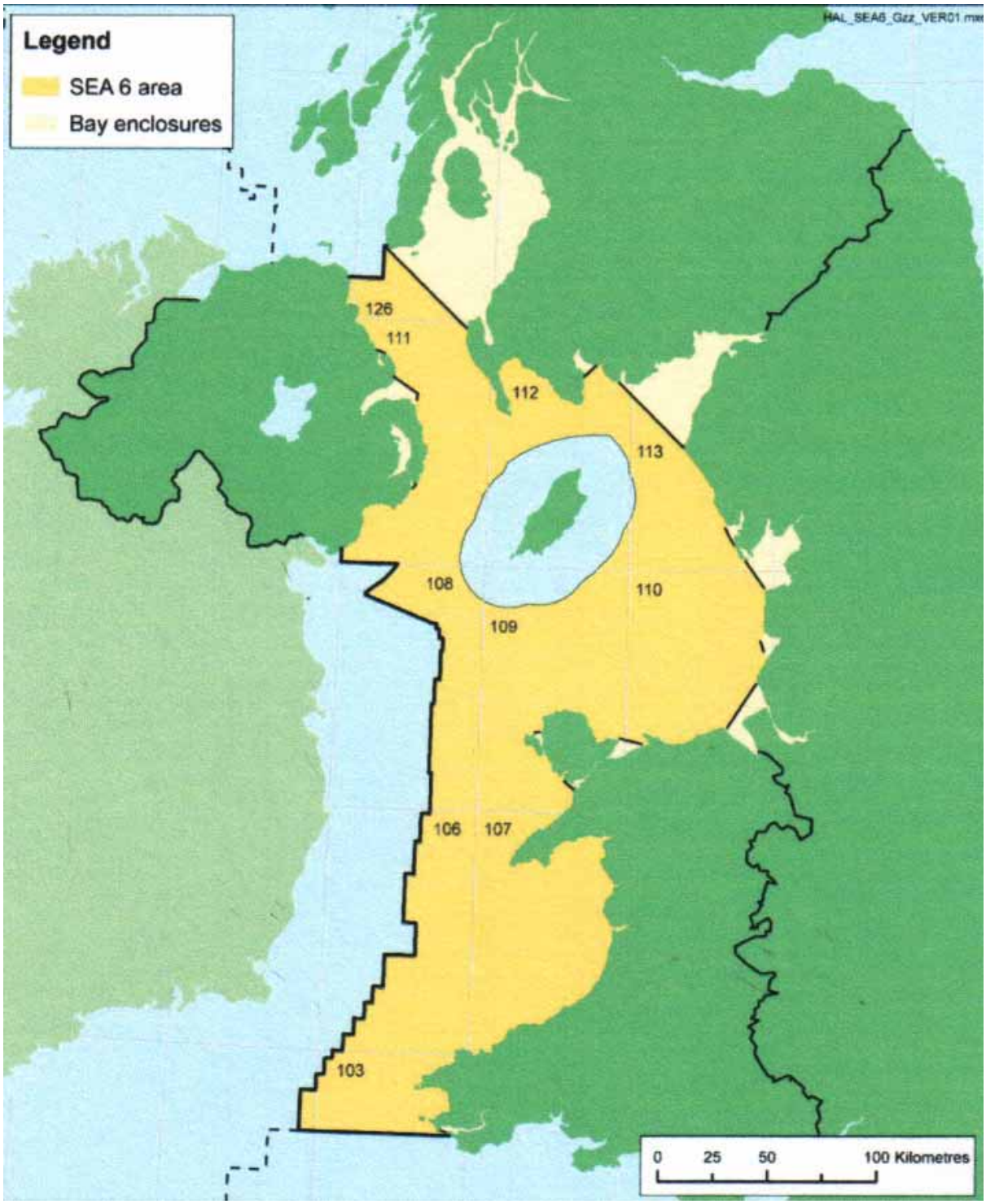
- oil and gas production, and reserves
- capital, operating and decommissioning expenditure
- employment
- tax revenues
- social impacts.

1.4 The structure of the report is similar with the previous reports we produced on the SEA 4 and 5 areas. We have also produced for the DTI a separate "SEA 6 : Economic and Social Baseline Study", which covers existing and proposed offshore wind farms in the area, in addition to offshore oil and gas activity. That report is also available on the SEA website.

1.5 The Department of Trade and Industry provided scenarios of possible exploration and development activity in the SEA 6 area. They are set out in Section 2 of this report.

1.6 We converted these scenarios into optimistic and pessimistic scenarios, and then used them to produce forecasts of: oil and gas production (see Section 5); oil and gas reserves (Section 5); expenditure (Section 6); employment (Section 8); and tax revenues (Section 9). The implications for existing facilities in the area are discussed in Section 7 and the potential social impacts in Section 10.

1.7 We are very grateful for all the information and help provided in the course of our research. However, the opinions expressed in this report are those of Mackay Consultants, unless clearly indicated otherwise.

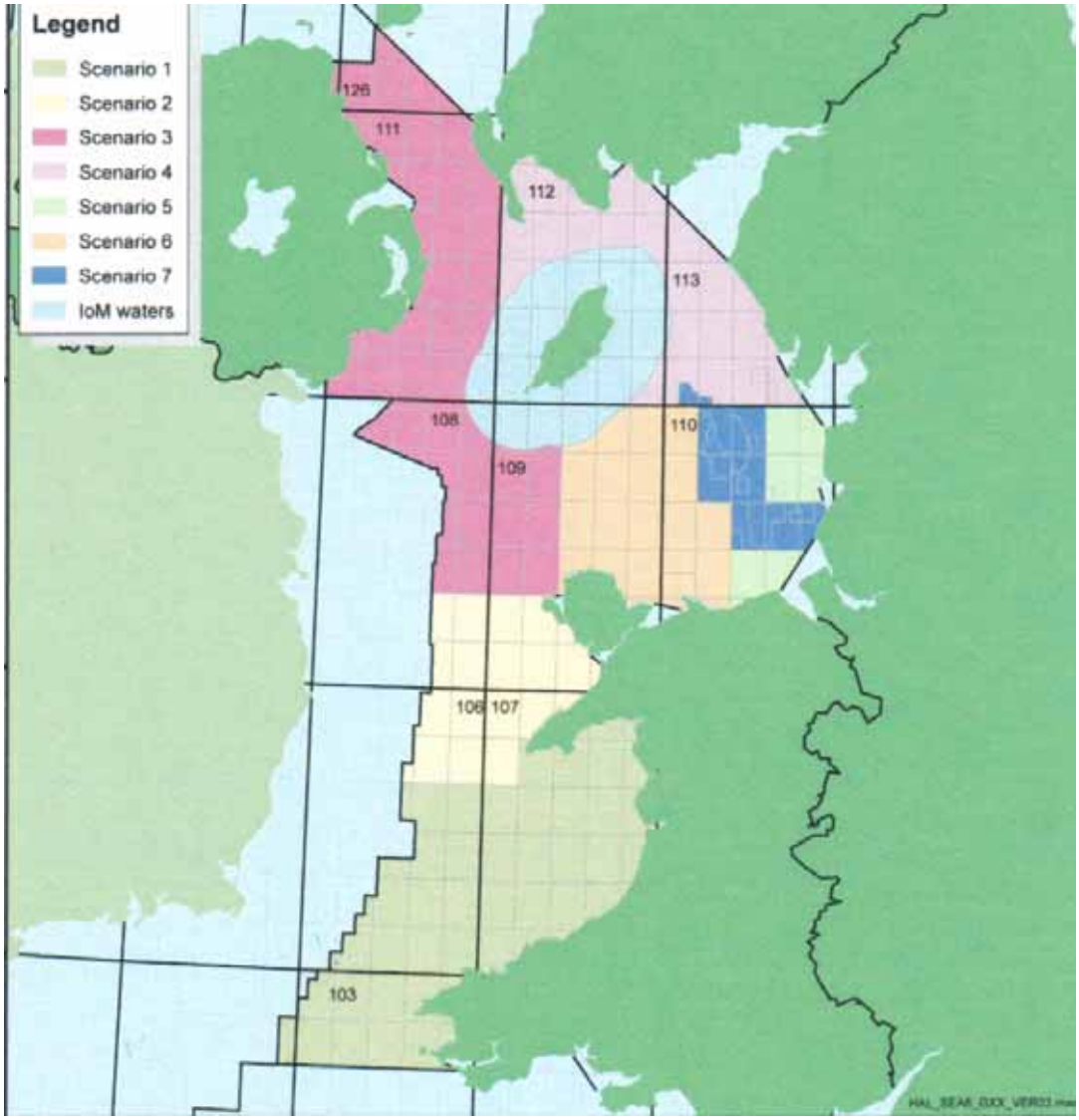

Legend
SEA 6 area
Bay enclosures
126
111
112
113
108
110
109
106
107
103
0
25
50
100 Kilometres

2.0 DTI SCENARIOS

2.1 The Department of Trade and Industry (DTI) provided us with the following scenarios of possible activity in the SEA 6 area. The area can be subdivided into seven constituent areas, as follows:

(1) Cardigan Bay and St Georges Channel Basin (Quadrants 103 and southern half of 106 and 107);
(2) Caernarfan Bay (108/24)
(3) West Irish Sea (111,108 and 109)
(4) East Irish Sea (112 and 113)
(5) Eastern Flanks of the Mature Irish Sea (110/4, 110/5, 110/8, 110/9 and 110/10)
(6) Western Flanks of the Mature Irish Sea (109 and 110 west of fields)
(7) **Mature Irish Sea (110 and Millom field).**

2.2 These seven scenario areas are shown on the figure below.



(1) Cardigan Bay and St Georges Channel Basin

Prospectivity

2.3 There is a proven gas reserve in the St George's Channel area where an exploration well (Well 103/1-1, drilled in 1994) discovered gas in the Upper Jurassic sands. Other prospectivity has been demonstrated by oil and gas shows encountered at most stratigraphic levels in wells in the basin. However, it is possible that oil in shallower (<2500 ft) Jurassic reservoirs will be significantly biodegraded and that compaction and subsequent uplift of formations may have affected the integrity of the top seal formations. Studies indicate that the Lower Jurassic Lias Group mudstones are likely to be fully mature in the axial region of the St Georges Channel Basin. Two wells in the St Georges Channel proved reservoir quality sandstones in the Middle Jurassic.

Potential activity under existing licences within the area

2.4
- only an appraisal well on the gas discovery in block 103/1 is likely in the near future
- if the appraisal well is successful further seismic may be required for field delineation and a development is possible.

Scenarios for assessment of potential activity following future licensing

2.5 Licensing after SEA 6 will be likely dependent on the results of the appraisal well in Block 103/1. It is considered unlikely that further blocks will be applied for in this area during a 24th Round. For assessment purposes the following activity scenario will be used:
- a maximum of 10 blocks under Frontier licences
- up to 500 km^2 3D seismic data
- if licensed, a well could be drilled within 4 years of award on a Frontier licence.

(2) Caernarfon Bay

Prospectivity

2.6 The Westphalian Coal Measures are predicted to be widespread beneath the Caernarfon Basin and may have been mature for gas generation; however, neither of the two wells drilled in Caernarfon Bay encountered economic accumulations of oil or gas. Exploration Well 107/1-1 (drilled in 1992) proved the presence of basal Triassic Sherwood sandstone and the potential for Lower Permian Collyhurst reservoir.

Potential activity under existing licences within the area

2.7
- None

Scenarios for assessment of potential activity following future licensing

2.8 It is considered unlikely that further blocks will be applied for in this area during a 24th Round. For assessment purposes the following activity scenario will be used:
- a maximum of 10 blocks under Frontier licences
- up to 500 km^2 3D seismic data
- if licensed, a well could be drilled within 4 years of award on a Frontier licence.

(3) West Irish Sea Basin

Prospectivity

2.9 Large parts of the West Irish Sea Basin remain unexplored, but the few wells that have been drilled in the Solway and Peel basins did not encounter potential reservoirs or accumulations of oil or gas.

Potential activity under existing licences within the area

2.10
- None

Scenarios for assessment of potential activity following future licensing

2.11 It is considered unlikely that further blocks will be applied for in this area during a 24th Round. For assessment purposes the following activity scenario will be used:
- a maximum of 10 blocks under Frontier licenses
- up to 500 km^2 3D seismic data
- if licensed, a well could be drilled within 4 years of award on a Frontier licence.

(4) East Irish Sea Basin

Prospectivity

2.12 Structural closures in the Triassic Ormskirk Sandstone Formation of the Sherwood Sandstone Group provide the main target in the East Irish Sea Basin. The Permian Collyhurst Sandstone Formation forms a secondary target in the basin. The Collyhurst demonstrates close similarities with the Leman Sandstone of the Southern North Sea, which originally prompted exploration in the area, but no Permian production has been established in the area to date.

2.13 Triassic Ormskirk gas discoveries were made by exploration Wells 113/29-2 (1992) and 113/28-2 (1994). Another undeveloped gas discovery lies in Block 113/27, the well found an accumulation in the Permian Collyhurst, but the primary Triassic Helsby reservoir did not flow. Further prospectivity in the area has been identified by the BGS.

Potential activity under existing licences within the area

2.14
- Field development plans for simultaneous gas and wind farm development of what is now called Ormonde North and South Fields are now under review. Ormonde will be a phased co-generation development. Phase 1 includes drilling and completion of production wells at Ormonde South (Block 113/29), installation of a removable gas turbine generator platform, a transformer hub platform and cable connected to the wind farm to be installed in Block 113/28a. Phase 2 includes drilling and completion of production wells at Ormonde North (Block 113/28) and relocation of the gas turbine generator platform from Ormonde South to Ormonde North. A number of alternative export routes are still being evaluated for gas and power.
- An exploration well may be drilled in either Block 113/21 or 22 in 2005. Further seismic (up to 500 km^2 3D seismic data) may be acquired.

Scenarios for assessment of potential activity following future licensing

2.15 There may be some interest in Licences in this area with potentially one block being applied for under a Traditional Licence with a firm well and up to 200 km^2 of 3D seismic. For assessment purposes in addition to the above the following activity scenario will be used:

- a maximum of 10 blocks under Frontier licences
- up to 500 km^2 3D seismic data
- if licensed, a well could be drilled within 4 years of award on a Frontier licence.

(5) Eastern Flanks of the Mature Irish Sea

Prospectivity

2.16 Triassic Ormskirk and Permian Collyhurst leads have been identified by the BGS, but they are poorly defined on 2D seismic data. Exploration Well 110/8a-5 encountered only minor amounts of oil and was not tested, the elongate N/S block structure could be re-licensed, appraised and if successful, and potentially subsea tied back existing infrastructure.

Potential activity under existing licences within the area

2.17
- None

Scenarios for assessment of potential activity following future licensing

2.18 There may be some interest in Licences in this area with potentially two blocks being applied for under Traditionl Licences with a firm well each and up to 500 km^2 of 3D seismic. For assessment purposes in addition to the above the following activity scenario will be used:

- a maximum of 10 blocks under Frontier licences
- up to 500 km^2 3D seismic data
- if licensed, a well could be drilled within 4 years of award on a Frontier licence.

(6) Western Flanks of the Mature Irish Sea

Prospectivity

2.19 Numerous wells on the western flank of the mature Irish Sea basin have encountered potential reservoirs or accumulations of gas. The 110/12a-1 well encountered a small gas column in Triassic Ormskirk reservoir. Shows were encountered in the 112/30-1 well at Carboniferous level; however the presence and deliverability of Carboniferous reservoirs are unproven. The BGS has identified Triassic Ormskirk prospectivity that could be developed as subsea tiebacks to existing infrastructure.

Potential activity under existing licences within the area

2.20
- None

Scenarios for assessment of potential activity following future licensing

2.21 Very limited interest is expected in this area. For assessment purposes in addition to the above the following activity scenario will be used:

- a maximum of 10 blocks under Frontier licence
- up to 500 km^2 3D seismic data
- if licensed, a well could be drilled within 4 years of award on a Frontier licence.

(7) Mature Irish Sea

Prospectivity

2.22 Established production and identified prospectivity is found in the Triassic Ormskirk reservoir, and currently there is limited ullage in existing facilities. The 110/14-1 well encountered oil, but further appraisal is required. Additional exploration prospectivity is identified in structurally complex traps.

Potential activity under existing licences within the area

2.23
- Calder field began production in 2004 and phase 2 development will include Crossans and Darwen fields
- An appraisal of the 110/14-2 gas discovery well may be drilled in 2005, which could be developed via Calder
- Exploration drilling in Block 110/14 may progress in 2005
- There may be an appraisal well of the oil discovery 110/14-1. A vertical well would be necessary to confirm the interpretation, but development could be via a long offset well from the Lennox platform until the Lennox field oil is depleted and the oil pipeline is converted to a gas pipeline
- There are no current plans for seismic acquisition. However, there are only three 3D proprietary (but now released) seismic surveys in the mature fields area, acquired in 1994/5. It is likely that new seismic will be acquired in the next 5 years to delineate infield and near field potential (250-500 km^2 3D seismic).

Scenarios for assessment of potential activity following future licensing

2.24 There may be some interest in Licences in this area. For assessment purposes in addition to the above the following activity scenario will be used:
- a maximum of 10 blocks applied for under a Frontier or Promote licence
- up to 500 km^2 3D seismic data
- if licensed, a well could be drilled within 4 years of award on a Frontier or Promote licence.

Economic impact scenarios

2.25 We have converted the DTI scenarios into two scenarios – optimistic and pessimistic – for the purposes of the socio-economic impact analysis. The pessimistic scenario assumes the development of two small fields – one oil, one gas – as subsea tiebacks to the existing facilities in the SEA 6 area. The optimistic scenario assumes that in addition to those there will be two larger field developments – one oil, one gas – which will require new production facilities.

2.26 It would obviously be possible to have a pessimistic scenario in which there were no new developments but in the context of this report we believe it is more useful to assume a small level of additional production and expenditure.

2.27 The pessimistic scenario therefore assumes the development of two small fields of similar size. The oil field will produce up to 5,000 barrels per day (bpd) from recoverable reserves of 1 million tonnes (or 7.5 million barrels). The gas field will produce up to 25 million cubic feet per day (mcfd) from recoverable reserves of 10 billion cubic metres (350 billion cubic feet). In each case we have assumed a five year production life, with three years at peak output and two years at 50% of that level.

2.28 These assumptions are comparable with some of the existing small fields in the SEA 6 area, as detailed in Section 4 of this report.

2.29 The estimated development cost of each of these two fields is £50 million. Both would be single well subsea tiebacks to existing production facilities.

2.30 The two "optimistic" fields are assumed to be about ten times larger than the pessimistic fields. Thus the oil field will produce up to 50,000 barrels per day from recoverable reserves of 127.5 million barrels (17.0 million tonnes), with a ten year lifetime. The gas field will produce up to 250 million cubic feet per day from recoverable reserves of 3500 billion cubic feet (100 billion cubic metres), also with a ten year lifetime.

2.31 These assumptions are comparable with some of the existing large fields in the SEA 6 area, as detailed in Section 4.

2.32 The estimated development cost of each of these two fields is £250 million. Both would require new production platforms, although the gas field may be able to use one of the existing gas pipelines to an onshore terminal.

2.33 In addition, there will be seismic surveys and exploration drilling. For the pessimistic scenario we have assumed two exploration wells and for the optimistic scenario ten exploration and appraisal wells.

3.0 THE SOCIETY AND ECONOMY OF THE SEA 6 AREA

3.1 For ease of analysis we have subdivided the SEA 6 area into the following areas:

- **Cumbria**
- **Lancashire**
- **Merseyside**
- **Wales**
- **Northern Ireland**
- **South West Scotland**
- **Isle of Man**

3.2 Detailed descriptions of the society and economy in each of these areas are given in the separate "SEA 6 Economic and Social Baseline Study". The following are brief summaries.

3.3 The emphasis is on the key economic activities relevant to this SEA 6 study, namely:

- **offshore oil and gas**
- **offshore wind farms**
- **ports, ferries and shipping services**
- **fishing**
- **tourism**

Cumbria

3.4 Cumbria is the northernmost part of England, with a lengthy coastline in the SEA 6 area extending from the Solway Firth in the north to Morecambe Bay in the south. The local authorities are Cumbria County Council and six districts. Our interests are in the four districts with coasts – **Allerdale, Copeland, Barrow** and **South Lakeland**. The other two "onshore" districts are Carlisle and Eden.

3.5 Cumbria is a very rural area and includes the well known Lake District, which is one of the most popular visitor destinations in the UK. It is also remote from the main centres of population and economic activity in England.

3.6 The population of Cumbria is approximately 490,000. It increased by +1.4% between 1981 and 2001, which was significantly below the +5.0% in England and +4.4% in the UK as a whole. There were significant geographical differences within the county : the population of Eden increased by a massive +15.3% and that of South Lakeland by +7.9%; but those of the other four districts fell.

3.7 The population is relatively old. For example, 46% of the Cumbrian population is aged 45 or over, compared with an average of 40% in the North West region. The South Lakeland and Eden districts are particularly popular with retired people.

3.8 Economic output and income levels per person in Cumbria are significantly below the national averages. The main reason for that is the structure of the local economy, with a preponderance of low income industries such as tourism and agriculture.

3.9 Nevertheless, Cumbria has a higher-than-average share of employment in the manufacturing sector. The largest manufacturing employers are the British Nuclear Fuels' Sellafield complex in Copeland and the BAE Systems shipyards in Barrow. Employment at these facilities is expected to fall substantially over the next decade so the local economies face major challenges.

3.10 We were provided with a copy of "An Economic Assessment of Cumbria 2004" produced for the Cumbria Economic Intelligence Partnership. Statistics in the "Economic Assessment" show that in 1995 Cumbria's gross value added (GVA) per person was 90% of the UK average and 101% of the North West average. However, by 2001 those figures had fallen to 75% and 86% respectively.

3.11 A similar picture is given by data from the Annual Survey of Hours and Earnings (ASHE), undertaken by the Office for National Statistics (ONS). The average gross weekly pay of full-time workers in Cumbria in 2004 was £429.2. That was –16.1% below the English average of £515.5 and –15.0% below the UK average of £504.9.

3.12 Cumbria is involved in the offshore oil and gas industry in the SEA 6 area. The landfall terminals for the Morecambe Bay gas fields are located at Barrow-in-Furness. Further information is given in Section 4 and in the Barrow notes below.

3.13 Cumbria is also involved in the offshore wind farm industry. Offshore Energy Resources and Solway Offshore are currently developing the Robin Rigg project in the Solway Firth, which will have 60 turbines with a capacity of up to 216 MW. Warwick Energy are currently developing the Barrow project off Walney Island, which will have 30 turbines with a capacity of up to 108 MW. Further details are given in Section 3 of the baseline report.

3.14 Ormonde Energy have also proposed an innovative joint offshore gas/wind farm development offshore Barrow. Details of that are given in Section 4.

3.15 The Round 2 wind farms also include two possible developments in the same area, known as Walney and West Duddon. Details of those are given in Section 3 of the baseline report.

3.16 The lengthy coastline has various ports and harbours, including Silloth, Maryport, Workington, Whitehaven and Barrow. There are no passenger ferries but a range of freight services, as described in Section 4 of the baseline report and summarised below.

3.17 Fish landings in Cumbria in 2003 totalled 12,265 tonnes, with a value of £12.3 million. Shellfish accounted for 91% of the value, demersal 8% and pelagics 1%.

3.18 The DEFRA statistics list four ports in Cumbria, with the following landings in 2003:

	weight (tonnes)	value (£)
Flookburgh, Coast Road and Barrow	9,004	9,005,475
Whitehaven	2,425	2,166,890
Workington	587	398,155
Maryport	249	276,048

3.19 The Flookburgh landings were dominated by cockles. Presumably this is the Morecambe Bay cockle fishery, where there was a tragic loss of life in 2004.

3.20 Tourism is a vital part of the Cumbrian economy, notably in the Lake District. Tourism on the coast is on a much smaller scale but it is nevertheless important in some areas, particularly on the south coast. Further details are given in Section 6 of the baseline report.

Allerdale

3.21 Allerdale has the section of the Cumbrian coastline from near Carlisle on the Solway Firth to just south of Workington, which is the main town and administrative centre. The other settlements on the coast include Maryport and Silloth.

3.22 The population of Allerdale is approximately 95,000. It fell by –2.3% between 1981 and 2001, in contrast with the +1.4% rise in Cumbria and +5.0% in England as a whole.

3.23 The service sector now dominates the local economy, as elsewhere in the country. However, the primary and manufacturing sectors are still relatively important.

3.24 Unemployment in April 2005 totalled 1,140, which was 2.0% of the population. That compares with 1.9% in Cumbria, 2.5% in the North West and 2.4% in the UK as a whole.

3.25 Income levels are significantly below the Cumbrian and UK averages. The Annual Survey of Hours and Earnings shows that the average gross weekly pay of full-time workers in Allerdale in 2004 was just £369.6. That was –13.9% below the Cumbrian average of £429.2 and –26.8% below the UK average of £504.9.

3.26 The average gross weekly pay of Allerdale residents (as distinct from people who work in the area) was significantly higher at £418.3, reflecting local commuting patterns.

3.27 Allerdale has no involvement in the offshore oil and gas industry in the SEA 6 area. However, it is very close to the Riggs Bay wind farm, currently being developed in the Solway Firth. The wind farm will clearly be visible from the north coast of Allerdale.

3.28 There are three ports in Allerdale which involve maritime activity in the SEA 6 area:

- Silloth
- Maryport
- Workington

Detailed information on the ports' activities is given in Section 4 of the baseline report.

3.29 Silloth handled about 150,000 tonnes of freight in 2003, of which over 99% was inward. The main cargoes are grain for the Carr's Flour Mills and fertilisers.

3.30 Maryport is now a fishing and leisure port, with no commercial traffic. It has a 161 berth marina and is one of the two main centres in Cumbria for sailing.

3.31 Workington handled 258,000 tonnes of freight in 2003, of which about 74% was inward and 26% outward. The main cargoes are forest products, agricultural products and steel for local businesses.

Copeland

3.32 Copeland lies to the south of Allerdale, with a lengthy coastline from just north of Whitehaven to just north of Barrow-in-Furness. The main centres are Whitehaven and Millom on the coast and – inland – Cleator Moor and Egremont. Two thirds of the borough is within the Lake District National Park.

3.33 The population of Copeland is about 70,000. It declined by –5.0% between 1981 and 2001. That was the largest fall in the county and contrasts with the +1.4% rise in Cumbria and +5.0% in England as a whole.

3.34 The local economy was originally dependent on coal, iron and steel, all of which have disappeared. Total employment in the borough is now about 30,000, of whom about 12,000 work at the British Nuclear Fuels Ltd (BNFL) complex at Sellafield. The latter number is predicted to decline to just 4,000 by 2016. Thus Copeland faces some very big challenges over the next decade.

3.35 Unemployment in April 2005 totalled 1,157, which was 2.7% of the population. That compares with 1.9% in Cumbria, 2.5% in the North West and 2.4% in the UK as a whole.

3.36 The Annual Survey of Hours and Earnings shows that the average gross weekly pay of full-time workers in Copeland in 2004 was just £543.1. That was +26.5% above the Cumbrian average of £429.2 and +7.6% above the UK average of £504.9.

3.37 Apart from BNFL, most of the other jobs in Copeland are in the service sector, particularly health and social work, retail, education and public administration.

3.38 As far as this SEA 6 study is concerned, Copeland has no current involvement in the offshore oil and gas industry nor the offshore wind farms.

3.39 Whitehaven is the only port in the area. It is the main fishing port in Cumbria, with landings of 2,425 tonnes in 2003, valued at just under £2.2 million. The port has no other commercial traffic.

3.40 There is a 200 berth marina in the inner harbour. Visitor attractions include the Beacon heritage centre and The Rum Story.

3.41 Tourism is on a small scale in Copeland. South of Whitehaven the coast is dominated by the Sellafield nuclear power station and the Sellafield Visitor Centre is actually one of the most popular visitor attractions in the area. Other attractions on this part of the coast include the Ravenglass and Eskdale steam railway (also known as "La'al Ratty") and Muncaster Castle.

Barrow-in-Furness

3.42 The Barrow Borough Council area is a small part of Cumbria in the south, including the Furness peninsula. Barrow-in-Furness is the main population and economic centre.

3.43 The population of the area is approximately 72,000. It declined by –2.0% between 1981 and 2001, in contrast with the +1.4% increase in Cumbria and +4.0% in England as a whole.

3.44 The service sector now dominates the local economy, as elsewhere in the country. However, the manufacturing sector is relatively large. The biggest employer is the former Vickers shipyards, which are now owned and operated by BAE Systems.

3.45 Employment at the shipyards has fallen by about 10,000 since 1990. Taking into account subcontractors and other multiplier effects, the total job losses have probably been about 15,000.

3.46 Unemployment in April 2005 totalled 1,240, which was 2.9% of the population. That was the highest rate in Cumbria and well above the 1.9% average.

3.47 Income levels in Barrow are above the Cumbrian average. According to the 2004 Annual Survey of Hours and Earnings (ASHE), the gross weekly pay of full-time workers in Barrow averaged £453.8. That was +5.7% above the Cumbrian average but –10.1% below the UK average.

3.48 Apart from the shipyards, most employment is in the service sector, particularly health services, retailing, education and public administration. Other important private sector employers are Kimberley Clark (paper tissues) and Centrica/British Gas.

3.49 West Lakes Renaissance have produced a master plan for the development of Barrow, with a £100 million budget, most of which would come from the North West Development Agency (NWDA). The plan includes an innovation park, marina and village, which are forecast to generate up to 1500 jobs.

3.50 Barrow has a substantial involvement in the offshore oil and gas industry in the SEA 6 area. It is the landfall terminal for the gas and liquids from the Morecambe Bay gas fields. The terminal is owned and operated by Centrica Energy, and is actually divided into two distinct parts. Reference is often made to two Centrica subsidiaries, Hydrocarbon Resources Ltd (HRL) and British Gas. About 200 people work at the Barrow terminals.

3.51 Barrow is also heavily involved with the proposed offshore wind farm developments in the area. Warwick Energy are currently developing the Barrow project off Walney Island, which will have 30 turbines with a capacity of up to 108 MW. Further details are given in Section 3 of the baseline report.

3.52 Ormonde Energy have also proposed an innovative joint offshore gas/wind farm development offshore Barrow. Details of that are given in Section 4.

3.53 The Round 2 wind farms also include two possible developments in the same area, known as Walney and West Duddon. Details of those are given in Section 3 of the baseline report.

3.54 The port of Barrow, which is owned by the ABP group, handled 241,000 tonnes of freight in 2003. Most of that was limestone exports. Other traffic include condensate exports from the gas terminal, nuclear fuels for BNFL's Sellafield and Preston plants, and the occasional cruise liner. More information is given in Section 4 of the baseline report.

South Lakeland

3.55 South Lakeland has the southern part of the Cumbrian coast from Barrow in the west to the border with Lancashire in the east, which is the northern part of Morecambe Bay. Settlements on the coast include Ulverston and Grange-over-Sands.

3.56 The area's population is approximately 105,000. It increased by +7.9% between 1981 and 2001, in marked contrast with the declines in the other three coastal districts in Cumbria.

3.57 The South Lakeland economy is dominated by tourism, notably in the Lake District National Park. Most employment is in the service sector, as elsewhere.

3.58 Unemployment in April 2005 totalled 432, which was just 0.7% of the population.

3.59 Income levels in South Lakeland are well below the regional and national averages. According to the 2004 Annual Survey of Hours and Earnings (ASHE), the gross weekly pay of full-time workers averaged £401.5. That was –6.5% below the Cumbrian average and –20.5% below the UK average. However, the average for South Lakeland residents (as distinct from people who work there) was much higher at £502.4.

3.60 South Lakeland has no involvement in the offshore oil and gas industry. There are no ports nor harbours in the area but the Morecambe Bay cockle fishery is very important, as mentioned above.

Lancashire

3.61 Lancashire is a large region, with a population of about 1.4 million. Much of the region is industrial and urban.

3.62 The interest of the SEA 6 study is confined to the four coastal areas in Lancashire, namely:

- **Lancaster City**
- **Blackpool**
- **Wyre Borough**
- **Fylde Borough**

West Lancashire also has a small coastline but there is no significant economic activity there.

3.63 Lancaster, Wyre and Fylde are second tier local authorities, coming under the Lancashire County Council. Blackpool is an unitary authority.

3.64 Lancashire has some involvement in the key SEA 6 industries. The Morecambe Bay gas fields are supplied from Centrica's base at Heysham, where about 100 people work. BHP Billiton also use this base to supply the Liverpool Bay fields. Further details are given in Section 4.

3.65 Lancashire may also be involved in the offshore wind farm industry. One of the Round One sites is Shell Flats, about seven kilometres offshore Cleveleys.

3.66 Heysham is the main UK terminal for the Isle of Man ferry services, which are operated by Isle of Man Ferries. There are also cargo services to/from Belfast and Warrenpoint in Northern Ireland and Dublin in the Republic.

3.67 There is a small port at Glasson Dock on the River Lune a few miles south of Lancaster, operated by Glasson Grain. There is a daily cargo service with the Isle of Man and also a 260 berth marina.

3.68 Further south the port of Fleetwood handles a large share of Northern Ireland traffic, with Stena Line operating a ro-ro service to/from Larne. There is also a 300 berth marina in the harbour.

3.69 Fishing is on a relatively small scale in Lancashire. Fleetwood was one of the best known fishing ports in the UK but fishing activity there has declined substantially. There is also the Morecambe Bay cockle fishery, which was mentioned above.

3.70 Marine-related tourism in Lancashire is important. Blackpool is one of the best known seaside resorts in the UK. Morecambe also used to be a very popular resort but has declined in recent years. Lytham St Annes is a more "genteel" resort, a few miles south of Blackpool.

Lancaster

3.71 The population of the Lancaster City Council area is approximately 135,000. Of those, about half live in Lancaster itself. The coastline includes the seaside resort of Morecambe and the port of Heysham, which is the supply base for the Morecambe Bay gas fields. The area also has a large rural hinterland.

3.72 Lancaster's population increased by +7.0% between 1981 and 2001. That compares with a +4.4% rise in the UK as a whole and a –3.0% fall in the North West. The local increase was one of the highest in the region.

3.73 The local economy is now dominated by the service sector, as elsewhere in the UK. The manufacturing sector is relatively small. The primary sector is relatively large, because of the continuing importance of agriculture in the rural hinterland. The health sector is now the largest employer in the area. The University of Lancaster is the second and the nuclear power stations at Heysham the third.

3.74 Unemployment is low. The April 2005 total was 1,640, which was 2.0% of the population. That compares with 1.8% in Lancashire as a whole, 2.5% in the North West and 2.4% in the UK.

3.75 Income levels are a little below the national average. The average gross weekly pay of full-time employees in Lancaster in 2004 was £500.4, according to the Annual Survey of Hours and Earnings (ASHE). That was +7.4% above the Lancashire average of £466.0 and just –0.9% below the UK average of £504.9. The average for residents of Lancaster (as distinct from people who work there) was a little lower at £481.0.

3.76 Lancaster is one of the few parts of the SEA 6 area directly involved with the offshore oil and gas industry. Both the Morecambe Bay and Liverpool Bay fields are supplied from the supply base at Heysham, which is operated by Centrica. About 100 people work there. Further details are given in Section 4.

3.77 Lancaster is unlikely to have any direct involvement in the offshore wind farm industry in the near future. However, four such farms are proposed offshore Barrow-in-Furness and they may be visible from Morecambe and Heysham.

3.78 Lancaster's main involvement in the energy industry is through the Heysham 1 and 2 nuclear power stations, which are owned and operated by British Energy.

3.79 In relation to the fishing industry the only Lancashire port listed in the DEFRA statistics is Fleetwood in the Wyre district (see below). However, the statistics show £9 million worth of cockles landed in 2003 in "Flookburgh, Coast Road and Barrow" in Cumbria. This is presumably the Morecambe Bay cockle fishery, where there was a tragic loss of life in 2004.

3.80 Marine-related tourism in the area is centred on the seaside resort of Morecambe. Morecambe has a very rundown appearance now, however. Lancaster City Council gave us information on various initiatives to revitalise the resort, including the redevelopment of the iconic Midland Hotel.

3.81 We were informed of tentative plans for a Bay Bridge from North Morecambe to Barrow, which is a distance of about eight miles. There had been earlier plans for a tidal barrage in the bay.

Wyre

3.82 Travelling south, the Wyre Borough Council area includes the coastline from the boundary with Lancaster to just north of Blackpool. The main settlements on the coast are Fleetwood and Cleveleys.

3.83 The population of Wyre is approximately 106,000. It increased by +6.0% between 1981 and 2001. That compares with a +4.4% rise in the UK as a whole and a –3.0% fall in the North West.

3.84 The local economy is now dominated by the service sector, as elsewhere in the UK. Employment in public administration is about twice the national average. So too is the primary sector because of the fishing industry in Fleetwood and the agricultural industry in the rural hinterland. Obversely, the manufacturing sector is relatively small.

3.85 Unemployment is very low. The April 2005 total was 821, which was just 1.3% of the population. That compares with 1.8% in Lancashire as a whole, 2.5% in the North West and 2.4% in the UK.

3.86 The average gross weekly pay of full-time employees in Wyre was £416.4 in 2004, according to the Annual Survey of Hours and Earnings (ASHE). That was –10.6% below the Lancashire average and –17.5% below the UK average. The average for residents of Wyre (as distinct from people who work there) was much higher, however, at £482.5.

3.87 Wyre has no current involvement in the offshore oil and gas industry in the SEA 6 area. However, we were informed that some Fleetwood-based firms had been involved in the development phases of the Morecambe Bay gas fields.

3.88 The area may be involved in the offshore wind farm industry. One of the Round One sites is Shell Flats, about seven kilometres offshore Cleveleys. Further details are given in Section 3 of the baseline report.

3.89 Fleetwood is the only port in the area. Stena Lines operate a ro-ro ferry service to/from Larne in Northern Ireland, which is mainly used by commercial traffic. Stena recently took over the service from P&O.

3.90 Fleetwood was one of the best known fishing ports in the UK but fishing there is now on a very small scale. There is still an important fish market, however, and fish for that is trucked to Fleetwood from elsewhere. The DEFRA statistics show fish landings of 1006 tonnes, valued at £940,000 in 2003. Demersal species accounted for 76% of the value and shellfish 24%.

3.91 Tourism in Fleetwood has also declined from the heyday of the 1950s and 1960s, although there is some spill-over from nearby Blackpool. About £1 million of Objective 2 money was spent on improvements to the pier and promenade.

3.92 There is a 300 berth marina in Fleetwood harbour which promotes itself as "a good location from which to cruise Morecambe Bay and the Irish Sea".

Blackpool

3.93 Blackpool is an unitary authority with a population of about 142,000. It fell by –4.6% between 1981 and 2001. That compares with a fall of –3.0% in the North West but an increase of +4.4% in the UK as a whole.

3.94 The local economy is now dominated by the service sector, as elsewhere in the UK. Tourism is the single most important industry, of course.

3.95 Unemployment is relatively high at the present time. The April 2005 total was 2,580, which was 3.1% of the population. That compares with 1.8% in Lancashire, 2.5% in the North West and 2.4% in the UK.

3.96 Income levels are significantly below the regional and national averages. The average gross weekly pay of full-time employees in Blackpool in 2004 was £459.1. That was –2.2% below the North West average of £469.5 and –9.1% below the UK average of £504.9.

3.97 However, the average for residents of Blackpool (as distinct from people who work there) was much lower at just £380.5. That was –19.2% below the North West average and –24.6% below the UK average.

3.98 Blackpool has a small involvement in the offshore oil and gas industry in the SEA 6 area. Both Centrica and BHP Billiton fly their offshore crews to/from the Morecambe Bay and Liverpool Bay fields by helicopter from Blackpool Airport. The airport is actually located in neighbouring Fylde (see below) rather than in Blackpool itself.

3.99 Turning to tourism, Blackpool, according to the Lonely Planet Guide, "the unchallenged doyen of the tacky British seaside resort … has stubbornly refused to fade in spite of the challenge of budget holidays to southern Spain and other destinations where the sun is guaranteed to shine".

3.100 "Basically, Blackpool offers little else but unadulterated fun. Its famous "golden mile" is packed with amusement arcades, fairground rides, fish-and-chip shops, pubs and bingo halls that are aimed to distract and divert with almost complete abandon. It's not sophisticated but the aggressive marketing strategy that backs it all up certainly is : it cleverly combines the time-tested British tradition of a holiday by the sea with the high-tech 21st-century amusements that are bound to thrill even the most unresponsive kid."

3.101 The tourist attractions in Blackpool include the Tower, three piers, the Pleasure Beach and the Illuminations. There are also plans for a Las Vegas-type casino.

Fylde

3.102 Fylde is located to the south of Blackpool and has a small part of the coastline on the north shore of the Ribble estuary and river. The main coastal settlement is Lytham St Anne's, which is sometimes referred to as the two separate towns of St Anne's and Lytham.

3.103 The population of Fylde is approximately 73,000. It increased by +6.5% between 1981 and 2001. That compared with a +3.8% increase in Lancashire as a whole and +4.4% in the UK.

3.104 The economy is now dominated by the service sector, as elsewhere in the country. The percentage of employment in "public administration and defence" is nearly twice the national average. The manufacturing sector is also relatively large because of the presence of BAE Systems and British Nuclear Fuels.

3.105 Unemployment is very low at the present time. The April 2005 total was 415, which was just 1.0% of the population. That compares with 1.8% in Lancashire, 2.5% in the North West and 2.4% in the UK.

3.106 Income levels are well above the regional and national averages. The average gross weekly pay of full-time employees in Fylde in 2004 was £540.1. That was +15.0% above the North West average and +7.0% above the UK average. The average for residents of Fylde (as distinct from people who work there) was a little lower at £529.1.

3.107 Fylde has a small involvement in the offshore oil and gas industry in the SEA 6 area. Blackpool airport is located in the borough and is the helicopter base for both the Morecambe Bay and Liverpool Bay fields.

3.108 There are no ports nor harbours in Fylde. However, there is a marina at Preston, about 15 miles up the River Ribble.

3.109 Lytham St Anne's is a much more genteel and upmarket resort than Blackpool, which is just a few miles north. It also has a championship golf course which hosts major events such as the British Open.

Merseyside

3.110 Merseyside is another region with a large population. Our interest is primarily in the two local authorities with coasts on the SEA 6 area, namely:

- **Sefton**
- **Wirral**

Reference also needs to be made to

- **Liverpool**.

3.111 The Liverpool Bay oil and gas fields are located in this area but there is no direct involvement with Merseyside. Gas from the fields goes to the Point of Ayr terminal in North Wales and the oil is loaded into tankers at sea. The supply base is Heysham in Lancashire and the helicopters use Blackpool airport, also in Lancashire.

3.112 The port of Liverpool is one of the busiest and most important in the United Kingdom. Most of the port's facilities, which are owned and operated by Mersey Docks, are actually located in Sefton and Wirral rather than in Liverpool itself.

3.113 ABP operate a small port at Garston further up the River Mersey. The Manchester Ship Canal links the Mersey with Manchester.

3.114 There are ferry services between Liverpool and Belfast, Liverpool and Dublin, and also between Liverpool and Douglas in the Isle of Man.

3.115 Fish landings in Liverpool in 2003 totalled 203 tonnes, with a value of £464,124. Most of the landings were scallops and sole.

3.116 Liverpool has established itself as an important tourist destination but tourism activity there is not directly relevant to this SEA 6 study. However, seaside tourism is important in Southport.

Sefton

3.117 Sefton has a lengthy coastline in the SEA 6 area, extending from just south of Preston to just north of Liverpool. Bootle and Southport are the main population centres.

3.118 The population of Sefton is about 280,000. It fell by –5.8% between 1981 and 2001. That compares with a +5.0% increase in England as a whole but a –10.5% decline in Merseyside. The populations of all five local authority areas in the Merseyside region fell.

3.119 Unemployment in April 2005 totalled 4,299 which was 2.6% of the population. That compares with 2.5% in the North West and 2.4% in the UK as a whole.

3.120 Income levels are well below the UK and North West averages. The Annual Survey of Hours and Earnings (ASHE) shows that the average gross weekly pay of full-time workers in Sefton in 2004 was £444.9. That was –11.9% below the UK average of £504.9 and –5.2% below the North West average of £409.5. The average gross weekly pay of Sefton residents (as distinct from people who work in the area) was a little higher at £454.1, but still significantly below the UK and North West averages.

3.121 The economy is now dominated by the service sector, as elsewhere. The biggest employers are in the public sector, both local and central government. The Alliance and Leicester Girobank employ about 3,500 people in Bootle and other large local businesses are Mersey Docks at Seaforth, Cargill (edible oils), Kellogg (cereals) and Leaf in Southport (chocolate).

3.122 The area is designated as Objective 1 and has received a high level of UK and European regional assistance over the last decade. There has been a large increase in employment and a corresponding drop in unemployment over the last few years.

3.123 Sefton has no involvement with the offshore oil and gas industry. However, much of the Port of Liverpool is located in Sefton, notably the Seaforth container terminal and the Liverpool Freeport. Liverpool is one of the biggest commercial ports in the UK, handling nearly 32 million tonnes of cargo in 2003. It is the UK's main gateway for container trade with the USA and Canada.

3.124 There are also passenger and freight ferry services between Liverpool and Belfast, Dublin and Douglas in the Isle of Man.

3.125 Tourism in Sefton is dominated by Southport, which is one of the best known seaside resorts in the North West. It is more upmarket than Blackpool and on a much smaller scale. There has been substantial investment in Southport recently as part of the "Classic Resort" programme.

3.126 Sefton has about 25 miles of coast, much of which has high environmental designations, such as Ramsar. The Sefton Council are keen to open up as much as possible, subject to environmental considerations.

Wirral

3.127 The Wirral is a peninsula between Liverpool and the River Mersey to the east and North Wales and the River Dee to the west. The main population centres are Birkenhead, Ellesmere Port and Wallasey. The Wirral is linked to Liverpool by the Mersey Tunnels and there are also passenger ferries across the Mersey.

3.128 The population of the Wirral is about 310,000. It fell by –8.3% between 1981 and 2001. That compares with a +5.0% increase in England as a whole but a –10.5% decline in Merseyside. The populations of all the five local authority areas in the Merseyside region fell.

3.129 Unemployment in April 2005 totalled 6,041, which was 3.3% of the population. That compares with 2.5% in the North West and 2.4% in the UK as a whole.

3.130 Income levels are well below the UK and North West averages. The Annual Survey of Hours and Earnings (ASHE) shows that the average gross weekly pay of full-time workers in the Wirral in 2004 was £416.0. That was –17.6% below the UK average of £504.9 and –11.4% below the North West average of £469.5.

3.131 The average gross weekly pay of Wirral residents (as distinct from people who work in the area) was much higher at £476.1. That presumably reflects the fact that many local residents commute to work in Liverpool.

3.132 The economy is now dominated by the service sector, as elsewhere. The largest employer is Wirral Borough Council and the largest private sector business is Unilever.

3.133 As mentioned above, part of the Port of Liverpool is located at Birkenhead in the Wirral. Ellesmere Port is located at the end of the Manchester Ship Canal.

Wales

3.134 Wales has a population of approximately 2.9 million, which is about 5% of the UK total. The population increased by +3.2% between 1981 and 2001, which was a little below the +4.4% growth in the UK as a whole. A large proportion live in south Wales, including the cities of Cardiff and Swansea.

3.135 There are 22 unitary authorities in Wales. Our interest is in the seven authorities with coasts on the SEA 6 area, namely

- **Flintshire**
- **Denbighshire**
- **Conwy**
- **Isle of Anglesey**
- **Gwynedd**
- **Ceredigion**
- **Pembrokeshire**

3.136 Wales currently has a small involvement in the offshore oil and gas industry. The landfall terminal for the gas from the Liverpool Bay fields is located at the Point of Ayr on the Flintshire coast. Further details are given in the Flintshire notes below.

3.137 There has been occasional exploration drilling in what might be described as “Welsh waters” but no commercial discoveries to date.

3.138 Wales has a significantly greater involvement in the offshore wind industry at the present time. One of the Round 1 wind farm sites – North Hoyle – is located off the north coast and is clearly visible from the coast. It began producing electricity in November 2003 from 30 turbines.

3.139 Another Round 1 site Rhyl Flats is close to North Hoyle. It has all the necessary consents but has yet to be developed. The Gwynt Y Mor Round 2 site is also in this area. Further details are given in Section 3 of the baseline report. Another Round 1 site at Scarweather Sands is located off the south coast of Wales but outwith the SEA 6 area.

3.140 Wales has a lengthy coastline along the SEA 6 area but there are only a few commercial ports. The main ones are Milford Haven, Holyhead, Fishguard and Mostyn.

3.141 There are a few small harbours along the north coast of Wales but they are now only used by leisure craft. There are also many small harbours on the west coast of Wales which are mainly used by leisure craft and a few fishing vessels.

3.142 Fishing is an important economic activity in the SEA 6 area. The DEFRA statistics show the following fish landings in Wales in 2003:

	Weight (tonnes)	Value (£)
Conwy	8	7,870
Cemaes Bay	184	98,825
Holyhead	3,353	1,986,754
Aberystwyth area	531	802,806
Fishguard and St Davids area	457	799,405
Milford Haven	2,238	4,052,920
totals	6,771	7,755,351

3.143 There are also famous mussel fisheries in the Menai Strait and the Conwy estuary, which are not included in the above landings because they are defined as fish farms rather than wild fisheries. We understand that their annual value is between £15 and £20 million, which is more than double the above total.

3.144 Turning to tourism, the north coast of Wales has a series of seaside resorts popular with residents of Merseyside and elsewhere. They include Rhyl, Prestatyn and the more upmarket Llandudno. The west coast is much more rural and remote but also has a significant tourism industry. Further details are given in Section 6 of the baseline report.

3.145 Sailing is very popular in the SEA 6 area. There are many marinas on the north and west coasts. Details are also given in Section 6 of the baseline report.

Flintshire

3.146 Flintshire is the first county in North Wales adjacent to the border with England and very close to the Merseyside conurbation. The coastline extends along the estuary of the River Dee from Shotton to Connah's Quay, Mostyn Dock and the Point of Ayr gas terminal.

3.147 The population of Flintshire is approximately 150,000. It increased by +7.2% between 1981 and 2001, which was well above the +3.2% growth in Wales and the +4.4% in the UK as a whole.

3.148 The Flintshire economy is booming. There is a large manufacturing sector, including the Airbus factory at Broughton which makes wings for the Airbus and currently employs about 7,000 people directly and 12,000 indirectly.

3.149 Unemployment in April 2005 totalled 1,565, which was just 1.7% of the population. That compares with 2.3% in Wales and 2.4% in the UK as a whole.

3.150 Income levels in Flintshire are well above the Welsh average. According to the 2004 Annual Survey of Hours and Earnings (ASHE), the gross weekly pay of full-time workers in the county averaged £469.7. That was +6.3% higher than the Welsh average of £441.7 and the second highest in the country (after the Vale of Glamorgan). The average weekly pay for Flintshire residents (as distinct from people working in the county) was a little lower at £443.9.

3.151 Flintshire is involved in the offshore oil and gas industry in the SEA 6 area through the Point of Ayr terminal which handles gas from the Liverpool Bay fields, via a 34 kilometre (20 mile) pipeline. The fields' operators BHP Billiton Petroleum informed us that 60-70 people work at the Point of Ayr terminal, plus 70 in the company's offices near Mold. Further details are given in Section 4.

3.152 Flintshire has also had a small involvement with the offshore wind farms in the SEA 6 area, specifically the North Hoyle wind farm mentioned above, which began generating electricity in November 2003. The 30 turbines are located a few miles off the coast between Rhyl and Prestatyn in neighbouring Denbighshire, and are clearly visible from the coastline.

3.153 The only notable port in Flintshire is at Mostyn on the Dee Estuary. P&O Ferries operated a freight service between Mostyn and Dublin but that stopped in April 2004. We were informed that decision was taken partly because of overcapacity on the Irish Sea routes and partly because of dredging problems. We were also told that P&O had reached an agreement with Stena to withdraw from the Irish route.

3.154 Marine-related tourism in Flintshire is also on a very small scale. There used to be a visitor centre at the Point of Ayr gas terminal, although it closed in 2004. The Royal Society for the Protection of Birds (RSPB) have a bird sanctuary nearby and there are coastal walks signposted. There is also a small caravan park/holiday complex at nearby Talacre.

Denbighshire

3.155 Denbighshire has a small part of the North Wales coastline which includes the well-known seaside resorts of Rhyl and Prestatyn.

3.156 The population of Denbighshire is about 95,000. It increased by +7.4% between 1981 and 2001, which was well above the +3.2% growth in Wales and the +4.4% in the UK and a whole.

3.157 The County Council's website gives a brief profile of the local economy. It states that "the economy of Denbighshire has a diverse range of key sectors. The county has blue chip employers such as Thales in St. Asoph and Smurfit in Llangollen. In the north of the county are the traditional seaside resorts of Prestatyn and Rhyl … Further south, Denbighshire is predominantly rural in character and agriculture is a key sector".

3.158 Unemployment in April 2005 totalled 1,041, which was 1.9% of the population. That was well below the 2.3% in Wales and the 2.4% in the UK as a whole.

3.159 Income levels, however, are well below the Welsh average. According to the 2004 Annual Survey of Hours and Earnings (ASHE), the gross weekly pay of full-time workers in the county averaged £400.3. That was –9.4% below the Welsh average of £441.7 and one of the lowest levels in the country.

3.160 The average weekly pay of Denbighshire residents (as distinct from people working in the county) was significantly higher at £427.9. The Council's Head of Development Services told us that many residents commute to work in areas to the east such as Flintshire, Chester, Liverpool and Manchester, whose economies are doing very well at the present time.

3.161 Denbighshire has had no involvement in the offshore oil and gas industry in the SEA 6 area.

3.162 It is involved in the offshore wind farm industry, however. The North Hoyle wind farm is located just a few miles off the coast and is clearly visible from it. The 30 turbines began generating electricity in November 2003 and the cable comes onshore at Rhyl.

3.163 Another Round 1 site Rhyl Flats is close to North Hoyle. It has all the necessary consents but has yet to be developed. The Gwynt Y Mor Round 2 site is also in this area. Further details are given in Section 3 of the baseline report.

3.164 There are no ports nor shipping services in Denbighshire. However, the Reeds Nautical Almanac 2005 states that "Rhyl is a tidal harbour, not accessible in strong onshore winds, but gives shelter for yachts able to take the ground".

3.165 Tourism is very important, of course, because of Rhyl and Prestatyn. It is notably downmarket, however.

Conwy

3.166 Conwy is the next local authority area on the north coast of Wales. It includes the well-known seaside resorts of Llandudno and Colwyn Bay, plus Conwy itself.

3.167 The population of Conwy is about 110,000. It increased by +10.9% between 1981 and 2001, which was well above the +3.2% growth in Wales and +4.4% in the UK as a whole.

3.168 A notable feature of the population structure is the high proportion of people of pensionable age or over (60 for women; 65 for men). This group accounted for 26.3% of the total population in 2001, compared with 20.1% in Wales and 18.4% in the UK as a whole. That is the highest percentage of the 22 local authorities in Wales. The reason is the large number of people who have retired to live in Conwy, notably in Llandudno.

3.169 The economy is dominated by the service sector, including tourism. The manufacturing base has declined considerably and now accounts for only about 5% of employment. Agriculture continues to be important in the inland part of the county.

3.170 Unemployment in April 2005 totalled 1,264, which was 2.1% of the population. That was a little below the 2.3% in Wales and the 2.4% in the UK as a whole.

3.171 Income levels, however, are below the Welsh average. According to the 2004 Annual Survey of Hours and Earnings (ASHE), the gross weekly pay of full-time workers in Conwy averaged £430.7. That was –2.5% below the Welsh average of £441.5.

3.172 In contrast, the average weekly pay of Conwy residents (as distinct from people working in the county) was significantly higher at £462.3. That was +4.6% above the Welsh average.

3.173 Conwy has had no direct involvement in the offshore oil and gas industry in the SEA 6 area. That is also the case with the offshore wind farm industry, although the North Hoyle wind farm off Rhyl is close. There are existing onshore wind farms in the county and plans for more.

3.174 There are no ports in Conwy but the Conwy estuary has many boat moorings. There is a 500 berth marina in Conwy and just across the river a 200 berth marina in Deganwy.

3.175 There is a famous mussel fishery in Conwy but it is not included in the DEFRA statistics on fish landings in Wales because it is defined as a fish farm rather than a wild fishery. We were told that it involves about 30 fishermen and produces about 300 tonnes of mussels per year, with an annual value of about £500,000.

3.176 Llandudno is a very attractive and upmarket resort, which is particularly popular with retired people. The town's setting is spectacular and many of the original Victorian buildings remain on the promenade, including a fine pier. Just to the west of Llandudno is Conwy, which is a very attractive walled town with an outstanding medieval castle, and attracts many visitors. It is a very popular base for sailing.

Isle of Anglesey

3.177 The Isle of Anglesey is separated from the mainland by the Menai Strait. There is the well-known Menai Bridge and another combined rail/road bridge. Holyhead is the main town on the island.

3.178 The population of Anglesey is approximately 67,000. It fell by –2.0% between 1981 and 2001. That was in marked contrast with the +3.2% growth in Wales and +4.4% in the UK as a whole.

3.179 Unemployment in April 2005 totalled 1,324, which was 3.3% of the population. That was well above the 2.3% in Wales and the 2.4% in the UK as a whole.

3.180 Income levels are also significantly below the Welsh average. According to the 2004 Annual Survey of Hours and Earnings (ASHE), the gross weekly pay of full-time workers in the county averaged £454.9. That was +3.0% above the Welsh average of £441.7.

3.181 The average weekly pay of Anglesey residents (as distinct from people working in the county) was significantly lower at £423.5, which was –4.2% below the national average. The inference is that many people commute from the mainland to work in relatively high paid jobs on Anglesey.

3.182 Anglesey has a mixed economy. Most employment is in the service sector – as elsewhere in the UK – but the manufacturing and primary sectors are relatively large. Major employers include Anglesey Aluminium, the Wylfa nuclear power station and RAF Valley. Agriculture and fishing continue to be important parts of the local economy.

3.183 Anglesey has no current involvement in the offshore oil and gas industry in the SEA 6 area. We understand that Holyhead has occasionally been used as a supply base for exploration rigs in the past and the port's website includes photos of rigs and supply boats.

3.184 Anglesey also has no direct involvement in the offshore wind farm industry. However, Cambrian Engineering of Holyhead produced components for wind farms, both onshore and offshore. They went into liquidation in 2004 but a new company Cambrian Caledonian Ltd has taken over the factory in Holyhead and a similar facility in Stornoway in the Western Isles.

3.185 Holyhead is one of the main ports in the SEA 6 area. Stena Line and Irish Ferries operate ferry services to/from Dublin and to/from Dun Laoghaire. These services carried over 2.3 million passengers in 2003, which was 61% of the total on the GB-Irish ferries. The port also handled over 3.3 million tonnes of freight in 2003.

3.186 Holyhead is also one of the most important fishing ports in Wales. DEFRA statistics show fish landings of 3,353 tonnes in 2003, valued at just under £2 million. Shellfish – primarily whelks, queens and scallops – accounted for 73% of the value and demersal species – including dogfish and sole – the other 27%.

3.187 Tourism is also an important industry on Anglesey. According to the Lonely Planet Guide to Wales "joined to the mainland by two monumental bridges, Anglesey is very different physically from the biblical splendour of neighbouring Snowdonia. The island offers a scenic surprise of gentle green slopes, ringed by dramatic sea cliffs and bays, and small windswept settlements. It has a greater concentration of prehistoric sites than anywhere else in Wales".

3.188 The main town of Holyhead is not one of the island's tourist attractions but it has the terminal for the ferry services to/from Ireland. The harbour also has a large marina for leisure vessels.

Gwynedd

3.189 Gwynedd has a lengthy section of the coastline of Wales, extending from Llanfairfechan on the north coast along the Menai Strait, opposite the Isle of Anglesey, to the Llyn Peninsula, Cardigan Bay and Aberdovey. Caernarfon is the county town and the largest settlement is Bangor, which has an university.

3.190 The population of Gwynedd is just under 120,000. It increased by +4.4% between 1981 and 2001, which was above the +3.2% growth in Wales as a whole and the same as the +4.4% growth in the UK.

3.191 Unemployment in April 2005 totalled 1,686, which was 2.5% of the population. That was above the 2.3% in Wales and the 2.4% in the UK as a whole.

3.192 Income levels are well below both the Welsh and UK averages. According to the 2004 Annual Survey of Hours and Earnings (ASHE), the gross weekly pay of full-time workers in Gwynedd averaged £382.3. That was –13.4% below the Welsh average of £441.7 and –24.3% below the UK average of £504.9. It was also the second lowest in Wales (after Powys).

3.193 The average weekly pay of Gwynedd residents (as distinct from people working in the county) was similar at £389.9. There is not the volume of commuting common in some of the other parts of the SEA 6 area.

3.194 Most of the employment is in the service sector, as elsewhere in the UK. The largest employers in the county are Gwynedd County Council, the health service and the University of Bangor. The manufacturing sector is very small. Agriculture continues to be an important part of the local economy.

3.195 Gwynedd has had no involvement in the offshore oil and gas industry in the SEA 6 area. That is also the case with the offshore wind farms, although there are onshore wind farms in the county.

3.196 There is no significant port in Gwynedd but there are many small harbours, which are mainly used by leisure craft.

3.197 The DEFRA statistics show no fish landings in Gwynedd, although they could be included under "Other ports in Wales".

3.198 Tourism is very important in the area. The west coast of Wales is much more remote and sparsely populated, and undoubtedly attracts a different type of tourist from the north coast. It is also the most heavily Welsh speaking part of the country. There is a lengthy and beautiful coast around Cardigan Bay, which is also known as the Cambrian coast, and a series of attractive small towns such as Porthmadog, Portmeirion, Barmouth and Twyn.

3.199 The Llyn Peninsula is very popular with sailors. There is a 400 berth marina at Pwllheli and a number of very attractive small harbours.

Ceredigion

3.200 Ceredigion also has a lengthy part of the west coast of Wales, extending from the Dovey estuary in the north to Cardigan in the south. Aberaeron is the county town, Aberystwyth the largest and other important settlements on the coast are Cardigan and New Quay.

3.201 The population of Ceredigion is approximately 75,000. It increased by a massive +23.1% between 1981 and 2001. That compares with a +3.2% increase in Wales as a whole and +4.4% in the UK. The rise was by far the biggest in all the 22 local authorities in Wales.

3.202 Unemployment in April 2005 totalled 570, which was just 1.2% of the population. That was the lowest rate in the whole of Wales and well below the +2.3% average in Wales and the 2.4% in the UK as a whole.

3.203 Income levels are well below the Welsh and UK averages. According to the 2004 Annual Survey of Hours and Earnings (ASHE), the gross weekly pay of full-time workers in Ceredigion averaged £394.9. That was –10.6% below the Welsh average of £441.7 and –21.8% below the UK average of £504.9.

3.204 The average weekly pay of Ceredigion residents (as distinct from people working in the county) was a little higher at £408.3.

3.205 Most of the employment is in the service sector, as elsewhere in the UK. The largest employers are the Universities of Aberystwyth and Lampeter, the National Library of Wales (also located in Aberystwyth), the Defence Evaluation and Research Agency (DERA) at Aberporth and the Institute of Grassland and Environmental Research (IGER) at Aberystwyth. The hinterland of the county is largely agricultural.

3.206 We were informed that Aberporth has been designated as an European centre for unmanned aerial vehicles (UAV). The licensed range covers a large part of Cardigan Bay. There is an exclusion zone which could affect proposed activities in the SEA 6 area.

3.207 Ceredigion has had no involvement in the offshore oil and gas industry in the SEA 6. That is also the case with the offshore wind farms.

3.208 There is no significant port in Ceredigion but there are a few small harbours, which are mainly used by leisure craft. Aberystwyth has a 100 berth marina.

3.209 The DEFRA statistics show that 531 tonnes of fish were landed in the Aberystwyth area in 2003, with a value of £802,806. Virtually all these landings were shellfish, with the main species being lobster, scallops and crabs.

3.210 Tourism is important in the area. The Rough Guide states that "the southern section of Ceredigion coastline is enormously popular, combining safe beaches, lively market towns, great coastal walking and a resident pod of bottlenose dolphins. Although some of the larger towns, particularly Aberporth, have lost much of their scenic splendour to relentless waves of holiday homes and caravan parks, many of the coast's other settlements manage to cling on to some of the salty charm that makes them so popular".

Pembrokeshire

3.211 Pembrokeshire is the most southerly county in the SEA 6 area, with a lengthy coastline extending from Fishguard to St David's Head, St Bride's Bay, Milford Haven and Pembroke Dock.

3.212 The population of Pembrokeshire is approximately 115,000. It increased by +5.2% between 1981 and 2001. That was above the +3.2% increase in Wales as a whole and +4.4% in the UK.

3.213 Unemployment in April 2005 totalled 1,439, which was 2.2% of the population. That was a little below the 2.3% in Wales and the 2.4% in the UK as a whole.

3.214 Income levels are well below the Welsh and UK averages. According to the 2004 Annual Survey of Hours and Earnings (ASHE), the gross weekly pay of full-time workers in Pembrokeshire averaged £404.9. That was –8.3% below the Welsh average of £441.7 and –19.2% below the UK average of £504.9.

3.215 Pembrokeshire has a varied economy, with a relatively large manufacturing sector, although most employment is in the service sector, as elsewhere in the UK.

3.216 Pembrokeshire has had no involvement in the offshore oil and gas industry in the SEA 6 area, to the best of our knowledge. However, Milford Haven is one of the main centres of the UK oil refining industry, which was attracted there because of the deep water and sheltered harbour.

3.217 There are two oil refineries, operated by ChevronTexaco and Total/Murco. Petroplus converted a third refinery, previously operated by Gulf Oil into an oil storage terminal. A fourth refinery, operated by Esso, was closed down in the 1980s.

3.218 There are also plans to build two LNG (liquefied natural gas) import terminals in Milford Haven. Dragon LNG – which is a joint venture of Petroplus, BG Group and Petronas of Malaysia – are developing a terminal at the former Gulf Oil site at Waterston, with an initial capacity to import 6 billion cubic metres (4.5 million tonnes) of LNG per year, beginning in late 2007. Petroplus also have plans to build a 1600 MW gas-fired combined cycle gas turbine (CCGT) power plant on an adjacent site.

3.219 A joint venture of ExxonMobil and Qatar Petroleum are developing the South Hook LNG terminal near Pembroke on the site of the former Esso oil refinery. It was announced recently that the capacity would be doubled to 15.6 million tonnes per year (20.8 billion cubic metres). The first imports are expected in 2008.

3.220 There are three important ports in Pembrokeshire at Fishguard, Milford Haven and Pembroke Dock. Milford Haven is the biggest commercial port in Wales. Fishguard has a ferry service with Rosslare in the Republic of Ireland. Pembroke Dock also has a service with Rosslare, operated by Irish Ferries. Further details are given in Section 4 of the baseline report.

3.221 The DEFRA statistics show that Milford Haven is the most important fishing port in Wales, with landings valued at £4.1 million in 2003, which was about 52% of the Welsh total. Demersal landings accounted for 78% of the local total and shellfish 22%. There was a wide range of demersal species, including hake, anglerfish, megrims and sole.

3.222 Tourism is important in Pembrokeshire. St David's Cathedral is known as the holiest place in Wales and the cathedral and nearby Bishop's Palace are very popular tourist attractions. The Lonely Planet Guide states that "St Bride's Bay is a great scoop of coast, facing where the sun sets … The best beaches in Wales line this wide bay and they are big enough to absorb the crowds of holiday-makers and surfers they attract at the height of summer".

Northern Ireland

3.223 Northern Ireland has a population of approximately 1.7 million, which is about 3% of the UK total. It increased by 9.8% between 1982 and 2002, which was well above the +5.2% growth in the UK as a whole.

3.224 There are 26 local government districts in Northern Ireland. Our interest is in the twelve districts with coasts on the SEA 6 area, namely:

- **Derry**
- **Limavady**
- **Coleraine**
- **Moyle**
- **Larne**
- **Carrickfergus**
- **Newtonabbey**
- **Belfast**
- **North Down**
- **Ards**
- **Down**
- **Newry and Mourne**

3.225 Northern Ireland currently has a very small involvement in the offshore oil and gas industry. There are a few active onshore licences, including one adjacent to the coast north of Belfast. There were areas previously under licence off the coast of Northern Ireland.

3.226 Northern Ireland imports North Sea gas via Scotland. The Scottish-Northern Ireland Pipeline (SNIP) runs 40 km from Portnaughton Bay to Castle Robin. It began transporting gas in 1996 and is operated by Premier Transco.

3.227 There are four main ports in Northern Ireland, namely:

- Londonderry
- Larne
- Belfast
- Warrenpoint

These and other ports handled just under 22 million tonnes of freight in 2003, with Belfast responsible for about 60% of the total.

3.228 Just under 2.7 million ferry passengers used ports in Northern Ireland in 2003, with Belfast accounting for 71% and Larne 29%.

3.229 Fish landings in Northern Ireland in 2003 totalled just over 18,000 tonnes, with a value of £15.7 million. The landings were a mixture of shellfish, demersal and pelagive. The most important fishery ports are Kilkeel, Ardglass and Portavogie.

3.230 Tourism has become increasingly important in Northern Ireland since the diminution of the troubles there. Statistics from the Northern Ireland Tourist Board show that visitors made just under 2 million trips in 2003, stayed 8.9 million nights and spent £291 million. Attractions on the coast include the famous Giant's Causeway and the seaside resorts of Portstewart and Portrush.

Derry

3.231 Derry is in the north west of the country, with a border with the Republic and a coastline on Lough Foyle. The main population centre is Derry or Londonderry as it is sometimes known.

3.232 The population of Derry is approximately 105,000. It increased by +16.4% between 1982 and 2002. That compares with a +9.8% rise in Northern Ireland as a whole and +5.2% in the UK.

3.233 Unemployment in April 2005 totalled 3,294, which was 5.0% of the working age population. That was nearly double the Northern Ireland average of 2.7%.

3.234 The ASHE survey of earnings does not give separate statistics for the local authority areas in Northern Ireland but the Northern Ireland average is about –15% below the UK average. Statistics are available from the 2003 New Earnings Survey, which shows that gross weekly earnings in Derry averaged £347.7, which was –16.0% below the Northern Ireland average.

3.235 The port of Londonderry handled just under 1.2 million tonnes of freight in 2003, of which 97% was inward and only 3% outward.

Limavady

3.236 Limavady lies to the east of Derry, with a coastline on Lough Foyle. The main population centres are Ballykelly, Dungiven and Limavady itself.

3.237 The population of Limavady is approximately 33,000. It increased by +21.4% between 1982 and 2002, which was one of the largest rises in the country. The Northern Ireland average was +9.8% and the UK average +5.2%.

3.238 Unemployment in April 2005 totalled 642, which was 3.0% of the working age population. That was close to the Northern Ireland average of 2.7%.

3.239 According to the 2003 New Earnings Survey, gross weekly earnings in Limavady averaged £404.1, which was virtually identical with the Northern Ireland average of £404.5.

3.240 There are no major harbours in Limavady but there is a car and passenger ferry across Lough Foyle between Magilligan Point and Greencastle in County Donegal.

Coleraine

3.241 Coleraine has part of the coastline of Northern Ireland and is one of the main tourist destinations in the country. The town of Coleraine is the main population centre and others include the seaside resorts of Portstewart and Portrush.

3.242 The population of Coleraine is approximately 56,000. It increased by +18.3% between 1982 and 2002, which was nearly double the Northern Ireland average of +9.8%. The increase in the UK as a whole was +5.2%.

3.243 Unemployment in April 2005 totalled 1,233, which was 3.7% of the working age population. That was above the Northern Ireland average of 2.7%.

3.244 According to the 2003 New Earnings Survey, gross weekly earnings in Coleraine averaged £357.5, which was –11.6% below the Northern Ireland average.

3.245 As mentioned above, tourism is an important part of the local economy. Portstewart and Portrush are two of the most popular seaside resorts in the country, with excellent sandy beaches.

Moyle

3.246 Moyle has a lengthy part of the coastline of Northern Ireland which is sometimes known as the Causeway Coast. The main population centre is Ballycastle and there are various small villages on the coast.

3.247 The population of Moyle is just 16,000. It increased by +11.4% between 1982 and 2002, which was a little above the Northern Ireland average of +9.8%.

3.248 Unemployment in April 2005 totalled 305, which was 3.1% of the working age population. That was a little above the Northern Ireland average of 2.7%.

3.249 There are no earnings statistics available for Moyle, because of the small sample size.

3.250 There is a ferry service between Ballycastle and Rathlin Island, which lies five miles off the coast and just twelve miles west of the Mull of Kintrye in Scotland. Rathlin is Northern Ireland's last remaining inhabited offshore island, with a population of approximately 100.

3.251 The main visitor attraction in the area is the famous Giant's Causeway which is an Unesco World Heritage Site and a National Nature Reserve. Others include the Bushmills whiskey distillery.

Larne

3.252 Larne also has a lengthy part of the Northern Ireland coastline, extending to Belfast Lough in the south. Larne is the second largest ferry port in the country.

3.253 The population of Larne is approximately 31,000. It increased by +7.2% between 1982 and 2002, which was a little below the Northern Ireland average of +9.8%.

3.254 Unemployment in April 2005 totalled 448, which was 2.4% of the working age population. That was a little below the Northern Ireland average of 2.7%.

3.255 According to the 2003 New Earnings Survey, gross weekly earnings in Larne averaged £382.6, which was –5.4% below the Northern Ireland average.

3.256 Larne is the second busiest port in Northern Ireland, handling just over 4.3 million tonnes of freight in 2003, of which 53% was inward and 47% outward. It also handled 765,000 passengers. The main ferry service is to/from Cairnryan in South West Scotland, operated by P&O, who also have a service between Larne and Troon. Stena Line operate a Larne-Fleetwood service, which is mainly for freight.

Carrickfergus

3.257 Carrickfergus has a small coastline on Belfast Lough. The main population centre is Carrickfergus itself.

3.258 The population of the area is approximately 38,000. It increased by a massive +32.4% between 1982 and 2002. The average increase in Northern Ireland was +9.8% and in the UK +5.2%.

3.259 Unemployment in April 2005 totalled 570, which was 2.4% of the working age population. That was a little below the Northern Ireland average of 2.7%.

3.260 According to the 2003 New Earnings Survey, gross weekly earnings in Carrickfergus averaged £391.2. That was –3.3% below the Northern Ireland average.

3.261 Belfast Lough is very popular for sailing. There is a large marina, with 280 berths, at Carrickfergus.

Newtonabbey

3.262 Newtonabbey has a small coastline on Belfast Lough. It describes itself as "the tourist gateway to Belfast City and the beautiful Glens of Antrim".

3.263 The population of Newtonabbey is approximately 80,000. It increased by +10.1% between 1982 and 2002, which was just above the Northern Ireland average of +9.8%.

3.264 Unemployment in April 2005 totalled 1,022 which was 2.1% of the working age population. That was significantly below the Northern Ireland average of 2.7%.

3.265 According to the 2003 New Earnings Survey, gross weekly earnings in Newtonabbey averaged £398.4, which was –1.5% below the Northern Ireland average.

Belfast

3.266 Belfast is the capital of Northern Ireland. The city's population is approximately 275,000. It fell by –12.2% between 1982 and 2002, which was the only fall in the whole of Northern Ireland.

3.267 Unemployment in April 2005 totalled 6,937, which was 4.2% of the working age population. That was well above the Northern Ireland average of 2.7%.

3.268 According to the 2003 New Earnings Survey, gross weekly earnings in Belfast averaged £444.6, which was +9.9% above the Northern Ireland average and by far the highest in the country.

3.269 Belfast is the busiest port in Northern Ireland, accounting for about 60% of the freight traffic and 70% of the passenger traffic. The port handled 13.2 million tonnes of freight in 2003, of which 72% was inward and 28% outward. Oil products totalled 2.8 million tonnes, dry bulk traffic 3.7 million tonnes, ro-ro traffic 2.6 million tonnes and other general cargo 0.5 million tonnes.

3.270 The main passenger ferry service is Belfast-Stranraer, operated by Stena Line, which carried just under 1.4 million passengers in 2003. Norse Merchant Ferries operate services between Belfast and both Liverpool and Heysham, the latter of which is primarily for freight. Isle of Man Ferries operate a summer service to/from Douglas.

3.271 Tourism is increasingly important in Belfast but it is not marine-related. However, Belfast Lough is very popular for sailing, as noted above.

North Down

3.272 North Down has a coastline on the southern shore of Belfast Lough, immediately to the east of Belfast. The main population centres are Bangor and Holyhead.

3.273 The population of North Down is approximately 77,000. It increased by +13.8% between 1982 and 2002, which was above the Northern Ireland average of +9.8%.

3.274 Unemployment in April 2005 totalled 922, which was 1.9% of the working age population. That was well below the Northern Ireland average of 2.7%.

3.275 According to the 2003 New Earnings Survey, gross weekly earnings in North Down averaged £364.5, which was –9.9% below the Northern Ireland average.

3.276 Bangor is a seaside resort, popular with residents of Belfast, and has a large marina, with about 500 berths, which is reported to be the biggest in Ireland.

Ards

3.277 Ards occupies the peninsula between the Irish Sea and Strangford Lough. Newtonards is the main population centre and others include Donaghadee, Portaferry and Portavogie.

3.278 The population of Ards is approximately 74,000. It increased by +3.9% between 1982 and 2002 but that was well below the +9.8% growth in Northern Ireland as a whole.

3.279 Unemployment in April 2005 totalled 1,116, which was 2.4% of the working age population. That was a little below the Northern Ireland average of 2.7%.

3.280 According to the 2003 New Earnings Survey, gross weekly earnings in Ards averaged £341.8, which was –15.5% below the Northern Ireland average, which itself was about –15% below the UK average. It is therefore a very low income area.

3.281 Portavogie is one of the main fishing ports in Northern Ireland. In 2003 4,198 tonnes of fish were landed there, with a value of nearly £5.6 million. Shellfish accounted for 53% of the value and demersal 47%.

3.282 Strangford Lough is a marine nature reserve and famous for its birdlife. It is also popular with sailors. There is a small marina at Portaferry and a ferry service across the lough.

Down

3.283 Down has coastlines on both the Irish Sea and the western side of Strangford Lough. The main centre is Downpatrick and others include Ardglass.

3.284 The population of Down is approximately 65,000. It increased by +19.1% between 1982 and 2002. That was nearly double the +9.8% growth in Northern Ireland as a whole and nearly four times the +5.2% increase in the UK.

3.285 Unemployment in April 2005 totalled 1,037, which was 2.6% of the working age population. That was just below the Northern Ireland average of 2.7%.

3.286 According to the 2003 New Earnings Survey, gross weekly earnings in Down averaged £313.1, which was –22.6% below the Northern Ireland average and the lowest in the country. The Northern Ireland average itself was about –15% below the UK average.

3.287 Ardglass is one of the main fishing ports in Northern Ireland. In 2003 5,045 tonnes of fish were landed there, with a value of just under £2.5 million. Shellfish (mainly nephrops) accounted for 70% of the value, pelagic (herring and mackerel) 21% and demersal 10%.

3.288 Ardglass also has a marina, with about 55 berths.

Newry and Mourne

3.289 Newry and Mourne is the most southerly area in Northern Ireland, bordering on the Republic. Newry is the main centre and others include Newcastle, Kilkeel and Warrenpoint.

3.290 The population of Newry and Mourne is approximately 90,000. It increased by +13.7% between 1982 and 2002, which was above the +9.8% average for Northern Ireland as a whole.

3.291 Unemployment in April 2005 totalled 1,382, which was 2.6% of the working age population. That was just below the Northern Ireland average of 2.7%.

3.292 According to the 2003 New Earnings Survey, gross weekly earnings in Newry and Mourne averaged £390.1, which was –3.6% below the Northern Ireland average.

3.293 Warrenpoint is the most southerly of the ports in Northern Ireland and is located on Carlingford Lough. It handled just under 1.9 million tonnes of freight in 2003, of which 69% was inward and 31% outward.

3.294 Norse Merchant Ferries operate a scheduled freight service between Warrenpoint and Heysham in Lancashire, which also carries a few passengers. There are also scheduled container and other cargo services, including the importation of timber from Scandinavia and Canada.

3.295 Kilkeel is one of the main fishing ports in Northern Ireland. In 2003 5,159 tonnes of fish were landed there, with a value of just over £5.8 million. Shellfish accounted for 52% of the value and demersal species the other 48%.

3.296 Carlingford Lough is also popular for sailing and there is a marina at Carlingford.

3.297 Tourism is important in the area, which has the famous Mourne Mountains. Newcastle is a well-known seaside resort.

South West Scotland

3.298 Scotland has a population of just over 5.0 million, which is about 8.5% of the UK total. The population fell by –2.2% between 1981 and 2001, in marked contrast with the +4.4% growth in the UK as a whole.

3.299 There are 32 local authorities in Scotland. Our interest is primarily in the two authorities with coasts on the SEA 6 area, namely:

- **Argyll and Bute**
- **Dumfries and Galloway**.

Reference also needs to be made to

- **South Ayrshire**

because of relevant activity there.

3.300 Scotland has a substantial involvement in the offshore oil and gas industry on the UK Continental Shelf (UKCS). Virtually all UKCS oil production is from fields in Scottish waters and approximately 45% of UKCS gas production. Most of this activity is off the east coast of Scotland in the North Sea.

3.301 In contrast, there has been very little activity in the Scottish part of the SEA 6 area, which comprises northerly sections of Quadrants 111 and 112. A few blocks have been licensed there in the past and exploration wells drilled but no commercial discoveries made. There are no active licences in this part of the SEA 6 area at the present time.

3.302 However, there are three gas pipelines from Scotland in the SEA 6 area:

(i) The Scottish-Northern Ireland Pipeline (SNIP), which is a 40 km pipeline from Portnaughton Bay to Castle Robin, which began transporting gas in 1996 and is operated by Premier Transco;

(ii) the UK-Irish Gas Interconnector, which is a 250 km pipeline from Brighouse Bay to Gormanston, north of Dublin in the Republic, which began transporting gas in 1993 and is operated by Bord Gas Eirann (BGE);

(iii) the Interconnector (2), a 238 km pipeline from Brighouse Bay to just north of Dublin, with a 11 km spur to the Isle of Man, also operated by BGE.

These pipelines export gas from Scotland to both Northern Ireland and the Republic.

3.303 South West Scotland is also involved in the offshore wind farm industry. Offshore Energy Resources and Solway Offshore are currently developing the Robin Rigg project in the Solway Firth, which will have 60 turbines with a capacity of up to 216 MW. Further details are given in Section 3 of the baseline report.

3.304 The lengthy coastline of South West Scotland includes many ports and harbours. The main commercial ports are at Stranraer, Cairnryan, Ayr/Troon and on the Clyde. Further details are given in Section 4 of the baseline report.

3.305 Stranraer, Cairnryan and Troon all have passenger ferry services with Northern Ireland, which account for over 90% of the passengers on the Northern Ireland routes. These services also handle large volumes of freight.

3.306 There is an important fishing industry in South West Scotland, with landings valued at £14.3 million in 2003. Further details are given below.

3.307 Tourism is also important and is discussed in more detail in Section 6 of the baseline report.

3.308 Mention should also be made of the nuclear submarine base at Faslane. Most of this part of the SEA 6 is designated as a submarine exercise area. Further details are given in Section 7 of the baseline report.

Argyll and Bute

3.309 Argyll and Bute is the most northerly part of the SEA 6 area. However, our interest is only in the southern part around the Mull of Kintyre. Campbeltown is the main settlement on the Kintyre Peninsula, with a population of approximately 6,000.

3.310 The population of Argyll and Bute is just over 90,000. It increased by +0.4% between 1981 and 2001. That compares with a –2.2% fall in Scotland and a +4.4% increase in the UK as a whole.

3.311 Unemployment in April 2005 totalled 1,354, which was 2.5% of the population. That compares with 2.9% in Scotland and 2.4% in the UK as a whole.

3.312 Income levels are well below the Scottish and UK averages. The Annual Survey of Hours and Earnings (ASHE) shows that the average gross weekly pay of full-time workers in Argyll and Bute in 2004 was £422.5. That was –9.1% below the Scottish average of £459.6 and –16.3% below the UK average of £504.9. The average gross weekly pay of Argyll and Bute residents (as distinct from people who work in the area) was a little higher at £431.5, but still well below the Scottish and UK averages.

3.313 The local economy is now dominated by the service sector, particularly public services and tourism. The manufacturing sector is very small but the primary sector is relatively large, because of the continuing importance of agriculture/crofting and fishing.

3.314 Argyll and Bute are part of the Highlands and Islands Enterprise (HIE) area and were an Objective 1 area for European regional assistance. It currently comes under the Special Transitional Programme, which runs from 2002-6.

3.315 The area has no current involvement in the offshore oil and gas industry. Quadrant 126 lies immediately to the south of the Mull of Kintyre but no licences for it have been issued. It is possible that seismic vessels and rig supply boats have occasionally used the harbour at Campbeltown.

3.316 Campbeltown is the main port in Kintyre. Fishing vessels are the main users and there is a pontoon for leisure craft. A ferry service between Campbeltown and Ballycastle in Northern Ireland was introduced in 1997 but stopped in 1999 because of financial losses, although there are hopes locally that it can be restarted.

3.317 There were 4,424 tonnes of fish landed in the Campbeltown fisheries district in 2003, with a value of just under £7.3 million. Campbeltown itself accounted for £1.7 million of these landings, which were virtually all shellfish.

3.318 There were 182 active vessels in the Campbeltown district in 2003, which was a reduction of –14 on the previous year. There were 255 fishermen regularly employed and 73 irregularly, giving a total of 328.

3.319 Tourism is important in the area, particularly during the summer season, despite the remoteness. The Mull of Kintyre is well known because of Paul McCartney's famous song.

Dumfries and Galloway

3.320 Dumfries and Galloway have a lengthy section of the coast of South West Scotland. There are many small towns and villages on the coast, although Dumfries itself is inland.

3.321 The population of Dumfries and Galloway is approximately 150,000. It increased by +2.6% between 1981 and 2001. That compares with a –2.2% fall in Scotland and a +4.4% increase in the UK as a whole.

3.322 Unemployment in April 2005 totalled 2,202, which was 2.6% of the population. That compares with 2.9% in Scotland and 2.4% in the UK as a whole.

3.323 Income levels are well below the Scottish and UK averages. The Annual Survey of Hours and Earnings (ASHE) shows that the average gross weekly pay of full-time workers in Dumfries and Galloway in 2004 was £399.7. That was –13.0% below the Scottish average of £459.6 and –20.8% below the UK average of £504.9. The average gross weekly pay of Dumfries and Galloway residents (as distinct from people who work in the area) was a little higher at £414.1, but still well below the Scottish and UK averages.

3.324 The local economy is very rural, although most employment is in the service sector, as elsewhere. Agriculture and forestry are still important industries.

3.325 The area has a small involvement in the offshore oil and gas industry. As mentioned above, the SNIP gas pipeline goes from Portnaughton Bay to Castle Robin in Northern Ireland and the two UK-Irish Republic gas pipelines also have landfalls in Dumfries and Galloway.

3.326 Various blocks close to the coast of Dumfries and Galloway have previously been licensed but there are no active licences at the present time.

3.327 Dumfries and Galloway is also involved in the offshore wind farm industry. Offshore Energy Resources and Solway Offshore are currently developing the Robin Rigg project in the Solway Firth, which will have 60 turbines with a capacity of up to 216 MW. Further details are given in Section 3 of the baseline report.

3.328 The main ports in the area are at Stranraer and Cairnryan, which are just a few miles apart on Loch Ryan. The two busiest ferry services with Northern Ireland operate from here. Stena Line operate the Stranraer – Belfast service and P&O the Cairnryan – Larne service.

3.329 There are many small harbours along the coast of Dumfries and Galloway, which are now used mainly by leisure craft. Kirkcudbright is the centre of the local fishing industry, with landings valued at £2.0 million in 2003.

3.330 Tourism is also important in the area and is discussed in more detail in Section 6 of the baseline report.

South Ayrshire

3.331 South Ayrshire is outwith the SEA 6 area but the port of Troon, near Ayr, was the Scottish terminal for two of the ferry services with Northern Ireland. P&O operate a service between Troon and Larne. Seacat operated a service to/from Belfast but that stopped in February 2005.

3.332 Mention should also be made of the Clyde, which is also outside the SEA 6 area but is the most important port on the West Coast of Scotland. Clydeport operate the ports of Greenock and Glasgow on the River Clyde, plus Hunterston and Ardrossan, under the Clyde "name". The Clyde handled 9.2 million tonnes of freight in 2003.

Isle of Man

3.333 The Isle of Man is an internally self-governing dependent territory of the British Crown. It is not part of the United Kingdom but is a member of the Commonwealth. The Tynwald, the island's 1000 year old Parliament, makes its own laws and oversees all internal administration, fiscal and social policies. External issues, such as foreign representation and defence, are administered on the island's behalf by the UK government.

3.334 The Isle of Man's population was 78,266 at the April 2001 Census, including 76,315 residents and 1,951 visitors. The total was +9.8% higher than the 1991 total, which in turn was +7.8% higher than the 1981 total. Thus the island has experienced substantial population growth in recent years.

3.335 Statistics from the Economic Affairs Division of the Treasury show gross domestic product (GDP) of £1,427 million in the 2002-03 financial year. The economy has done well over the last few years and GDP per person is currently about 7% above the UK average.

3.336 The two main sectors of the Isle of Man economy are banking (accounting for about 20.6% of GDP) and insurance and finance (17.2%). Tourism is also important.

3.337 Unemployment is currently very low. For example, the April 2005 total of 561 was just 1.4% of the economically active population.

3.338 The Isle of Man's territorial waters extend to 12 miles offshore. They had their only oil and gas licensing round in December 1994 but there were no current licences at the time of writing (May 2005).

3.339 Thirteen blocks or part-blocks were offered in the licensing round. Elf were awarded blocks to the north and west of the island and Marathon blocks to the east. Both companies drilled one well. The results were obviously disappointing because nothing has happened since then. BP were subsequently granted an out-of-round licence but only did seismic work on the block.

3.340 The Isle of Man imports North Sea gas via Scotland. There is a spur pipeline off the Scottish-Irish Interconnector (IC2) pipeline.

3.341 Ports in the Isle of Man, principally Douglas, handled 119,001 tonnes of general freight in 2002-03, plus 133,435 tonnes of oil and 22,790 tonnes of gas. The amount of freight has been relatively stable over the last decade.

3.342 There are ferry services between Douglas and Belfast, Dublin, Fleetwood, Heysham and Liverpool. Isle of Man Ferries are the main operators.

3.343 The Treasury's "Digest of Economic and Social Statistics 2004" shows 659,929 harbour passengers in 2002-03, which was +13.1% higher than in the previous year. By comparison, 748,103 passengers used the island's airport in 2003.

3.344 Fish landings in 2002 were valued at just under £2.7 million. Scallops accounted for 54% of the value and queenies 29%. White fish (demersal) landings were tiny. We were informed that Isle of Man boats landed about £250,000 value of fish in UK ports in 2002.

3.345 Sailing is very popular in waters around the Isle of Man. Douglas is the main port and there are facilities for sailing vessels at Peel, Port St Mary, Ramsey and a few minor harbours.

4.0 EXISTING FACILITIES AND ACTIVITY IN THE AREA

4.1 Offshore oil and gas activity is on a much smaller scale than in the North Sea but it is nevertheless a significant activity in the SEA 6 area. At the time of writing (May 2005) there were twelve oil and gas fields in production, with a few others expected to be developed in the near future.

4.2 The fields are in two main groups:

(b) **Morecambe Bay**, operated by Centrica Energy;

(c) **Liverpool Bay**, operated by BHP Billiton Petroleum.

These fields are shown on the map on the following page.

4.3 The Morecambe Bay fields comprise:

- **South Morecambe**, onstream in 1985
- **North Morecambe**, 1994
- **Dalton**, 1999
- **Millom**, 1999
- **Millom West**, 2000
- **Bains**, 2002
- **Calder**, 2004.

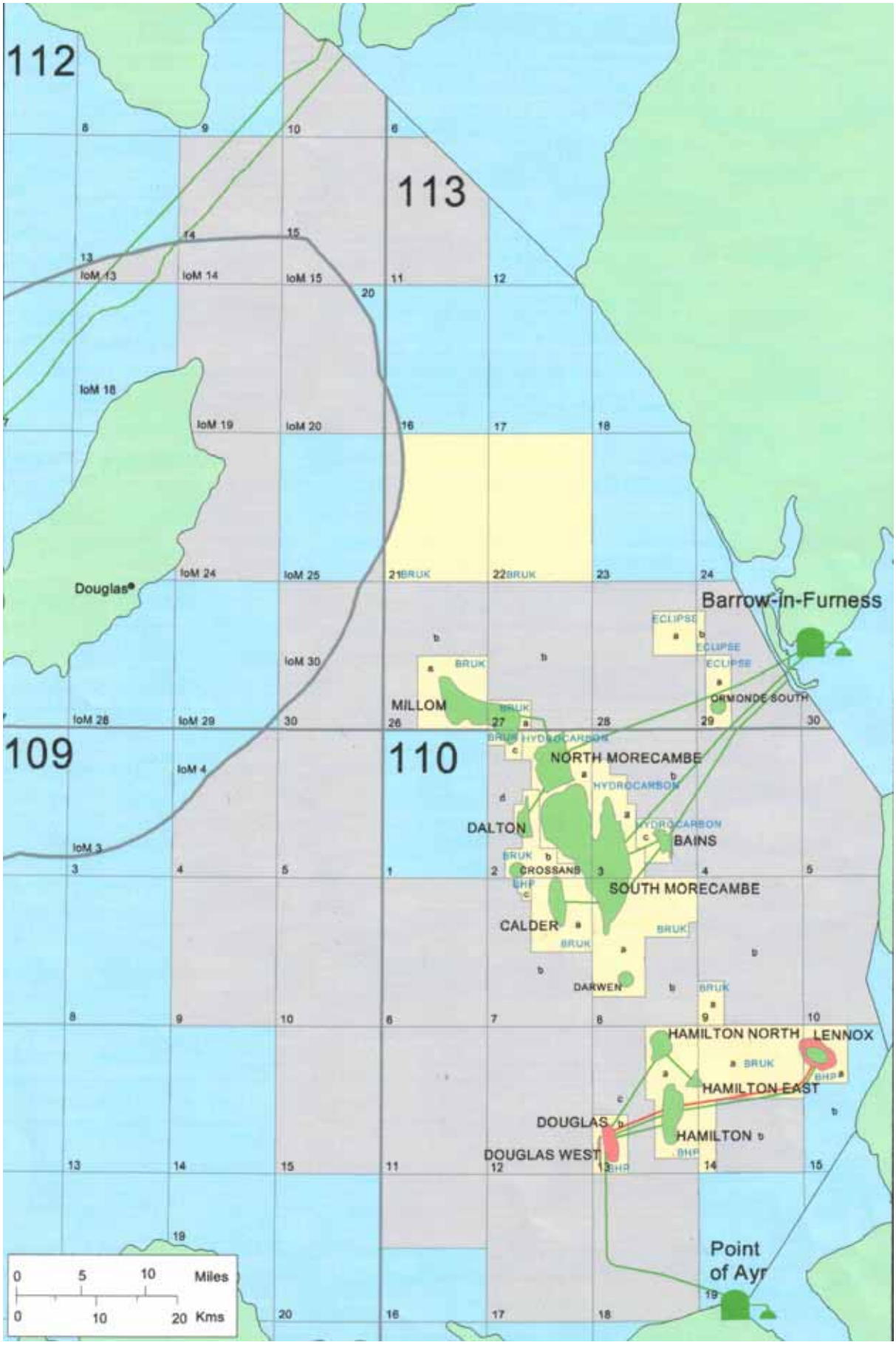
These are all gas fields, with some condensate production.

4.4 South Morecambe, North Morecambe and Bains are operated by Hydrocarbon Resources Ltd (HRL), which is a subsidiary of Centrica Energy. Centrica was formed after the demerger of British Gas in 1997 and some of its activities operate under the British Gas name. The Dalton, Millom and Millom West fields are operated by HRL/Centrica on behalf of Burlington Resources (Irish Sea) Ltd. That is also the case with the Calder field, which came onstream in October 2004 as part of the Rivers fields development, which is outlined below.

4.5 The Liverpool Bay fields comprise:

- **Hamilton North**, onstream in 1995
- **Douglas**, 1996
- **Lennox**, 1996
- **Hamilton**, 1997
- **Hamilton East**, 2001
- **Douglas West**, 2003.

These fields produce both oil and gas. All are operated by BHP Billiton Petroleum Ltd.


112
113
109
110
IoM 13
IoM 14
IoM 15
IoM 18
IoM 19
IoM 20
IoM 24
IoM 25
IoM 28
IoM 29
IoM 30
IoM 4
IoM 3
Douglas
Barrow-in-Furness
MILLOM
ECLIPSE
ORMONDE SOUTH
NORTH MORECAMBE
HYDROCARBON
DALTON
BAINS
CROSSANS
SOUTH MORECAMBE
CALDER
DARWEN
HAMILTON NORTH
LENNOX
HAMILTON EAST
DOUGLAS
HAMILTON
DOUGLAS WEST
Point of Ayr
BRUK
BHP
0 5 10 Miles
0 10 20 Kms

Morecambe Bay fields

4.6 **South Morecambe** was the first field to be developed in what is known as the Irish Sea or the SEA 6 area. It was discovered in September 1974 on block 110/20a, in 31 metres of water, about 20 miles south-west of Barrow-in-Furness, as shown on the map. Production start-up was in January 1985.

4.7 The field's original recoverable reserves were estimated at 144.4 billion cubic metres (bcm) of gas. The remaining reserves are estimated at about 27 bcm, approximately 20% of the original total.

4.8 South Morecambe was developed with six steel platforms – a central production platform and five "remote" platforms, which are not normally manned (NNM). The gas from the five NNM platforms goes to the central platform and from there via a 24 mile, 36 inch pipeline to the South Morecambe terminal at Barrow-in-Furness. Liquids are separated at the terminal and the dry gas then goes into the National Transmission System (NTS).

4.9 Production from South Morecambe in 2003 was just over 7.5 billion cubic metres (bcm), equivalent to about 725 million cubic feet per day (mcfd). That was about 7.0% of total UK gas production in 2003. The Morecambe Bay gas fields combined accounted for about 10.8% of the UK total.

4.10 The historical production statistics for the Morecambe Bay fields are shown in Table 4.1 and Figure 4.1 on the following page. Peak production from South Morecambe was 9.971 bcm in 1999, equivalent to 965 mcfd.

4.11 Output changes seasonally, as with most UK gas fields, with higher production in the winter than in the summer. For example, DTI statistics show output of 1,090 mcfd in January 2004. The average production for the twelve months to October 2004 was 798 mcfd.

4.12 It is expected that gas production from South Morecambe will decline over the next few years as the reservoir is depleted. As mentioned above, the remaining recoverable reserves are approximately 20% of the original total. The field has been in production for over 20 years.

4.13 **North Morecambe** was the second field to be discovered in the SEA 6 area. It was discovered in March 1976 but production did not begin until October 1994. The field is located on block 110/2a, the same as South Morecambe.

4.14 The original recoverable reserves were estimated at 27.9 bcm. The remaining reserves are estimated at about 2 bcm, approximately 8% of the original total.

4.15 The North Morecambe field was developed with a single NNM platform, which can be operated remotely from either South Morecambe or the central room at the Barrow terminal. The gas is piped via a 29 mile, 36 inch pipeline to the North Morecambe terminal at Barrow. This pipeline and terminal also handle the gas from the Dalton and Millom fields.

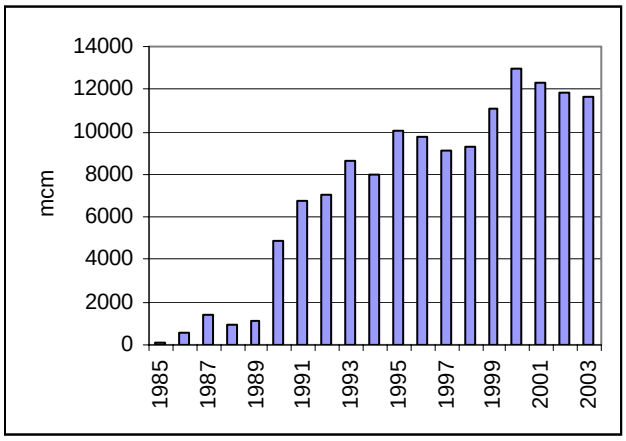
4.16 The Centrica Energy website (www.centrica.co.uk) states that "all gas processing for the North Morecambe field takes place onshore, avoiding the need for complex equipment and allowing substantial cost reductions. Gas from the North Morecambe field is different to that from the South Morecambe field, necessitating different onshore terminals".

Table 4.1: Gas production from Morecambe Bay fields
(million cubic metres, mcm)

	South Morecambe	North Morecambe	Dalton	Millom	Bains	Total Morecambe Bay
1985	90	-	-	-	-	90
1986	604	-	-	-	-	604
1987	1,441	-	-	-	-	1,441
1988	975	-	-	-	-	975
1989	1,138	-	-	-	-	1,138
1990	4,839	-	-	-	-	4,839
1991	6,730	-	-	-	-	6,730
1992	7,058	-	-	-	-	7,058
1993	8,691	-	-	-	-	8,691
1994	7,444	555	-	-	-	7,999
1995	7,675	2,399	-	-	-	10,074
1996	7,099	2,626	-	-	-	9,725
1997	6,170	2,930	-	-	-	9,100
1998	7,993	1,294	-	-	-	9,287
1999	9,971	848	267	29	-	11,115
2000	8,436	3,872	471	144	-	12,923
2001	8,328	3,017	32	1,023	-	12,310
2002	7,513	3,128	2	1,048	109	11,800
2003	7,526	2,594	110	927	505	11,662
Cumulative to end 2003	109,721	23,263	882	3,171	614	137,651

Source: DTI

Figure 4.1: Gas production from Morecambe Bay fields



4.17 There are two separate gas terminals at Barrow due to the differing gas compositions and tax regimes which apply between South and North Morecambe. Their role is to remove impurities in the gas to ensure the gas exported into the transmission system is of high quality. Gas from the Calder (Rivers) fields is high in hydrogen sulphide and requires pre-treatment before entering the North terminal commingled flow of the North Morecambe, Millom and Dalton fields.

4.18 Production from North Morecambe in 2003 was just under 2.6 billion cubic metres (bcm), equivalent to 250 million cubic feet per day (mcfd). According to DTI statistics output in October 2004 was 208 mcfd and the average for the previous twelve months 215 mcfd.

4.19 Thus production in 2004 as a whole could have been approximately 2.0 bcm. That compares with the above estimate of 2.0 bcm remaining reserves. It may be that the field's recoverable reserves have been increased but there seems little doubt that North Morecambe is coming to the end of its productive life.

4.20 The **Dalton** and Millom fields were the next to be developed, coming onstream in August 1999. Dalton was discovered in 1990 on block 110/2b by British Gas E & P. Burlington Resources bought this and other stranded assets from British Gas in 1998.

4.21 Dalton is a tiny field with estimated recoverable reserves of just 2.9 bcm. It was developed as a subsea satellite of North Morecambe, with a 4.4 mile tieback. Production in 2003 was just 110 million cubic metres, equivalent to 10 mcfd, although it reached 471 mcm in 2000. The DTI statistics show no production since April 2004 but 21 mcfd during that month. The DTI statistics show cumulative production of 882 mcm to end 2003, compared with the estimated original recoverable reserves of 2,900 mcm, so the field should be able to produce at the 2003 level for a few more years.

4.22 **Millom** also came onstream in August 1999. It was discovered by British Gas in 1982 on block 113/26a, to the north of the North Morecambe field. Like Dalton, it is operated by Centrica/HRL on behalf of Burlington Resources.

4.23 The field's original recoverable reserves were estimated at 6.1 bcm. The remaining reserves are estimated at 2 bcm, approximately 33% of the original total.

4.24 The Millom field was developed in two phases and is sometimes referred to as two separate fields, Millom (East) and Millom West. The eastern section produces from a single subsea well (a recompleted appraisal well), tied back via a 5.4 mile, 12 inch pipeline to the North Morecambe platform. The western section produces from a NNM minimal facilities platform with four wells which were drilled in 2000 and 2001.

4.25 The platform was originally intended to be a concrete gravity base structure but Burlington decided during the construction phase to replace that with a steel structure. The GBS was built at Pembroke Dock in Wales. Press reports suggested that it could be re-used for one of the Rivers fields (see below) but that has not (yet) happened.

4.26 The DTI statistics show Millom production of 927 mcm in 2003, equivalent to about 90 mcfd. The daily average for the twelve months to October 2004 was 81 mcfd.

4.27 The Burlington Resources website (www.br-inc.com) states that the company "produces sweet natural gas from the Millom and Dalton fields through a combination of platform wells and subsea completions. The two fields are located about 25 miles west of Walney Island, Barrow, and are together estimated to contain recoverable reserves of more than 300 bcfe (8.6 bcm). Production began in 1999, with an expected lifespan of 20 years, and averaged 96 mcfd during 2003".

4.28 "During the year Burlington completed a new subsea well, increasing the number of producing wells in the two fields to nine in total. Several of these wells are "trilaterals", meaning that each incorporates three horizontally drilled lateral extensions that more thoroughly exploit the Ormskirk reservoir."

4.29 There appear to be inconsistencies between some of the above estimates. The combined recoverable reserves of Millom and Dalton are about 9 bcm and production in 2003 was about 1 bcm. At the latter level, the fields are unlikely to produce for 20 years, although lower output in the future would undoubtedly extend their lifetimes.

4.30 The **Bains** field was developed by Centrica/HRL and began production in November 2002. The field was named after John Bains, the geologist who is credited as discovering the Morecambe fields. It is a very small field, with estimated recoverable reserves of approximately 50 bcf or 1.4 bcm.

4.31 Bains was a "fast-track" development, with a single subsea well tied back five miles to the east of the CPC South Morecambe platform. The development cost was reported as £30 million.

4.32 The DTI statistics show production of 505 mcm in 2003, which is about one third of the estimated recoverable reserves. That is equivalent to about 50 million cubic feet per day. Production in the twelve months to August 2004 averaged 36 mcfd. It appears therefore that the Bains field will only have a very short lifetime and could cease production in the next two to three years.

4.33 The main offshore development currently underway in the SEA 6 area is the **Rivers** project, by Burlington Resources which will be operated on their behalf by Centrica/HRL. The Rivers development will involve up to five small gas fields, namely

- **Calder**
- **Darwen**
- **Crossans**
- **Hodder**
- **Asland**

These fields are named after rivers.

4.34 The Burlington Resources website states that "a project to develop sour natural gas production from the multiple-field Rivers complex was completed during the fourth quarter of 2004. The five separate fields are estimated to contain more than 250 bcfe of resources (7.1 bcm), and following a full ramp-up of the facilities, the project is expected to average gas sales in excess of 90 million cfd".

4.35 "Burlington is initially producing gas from the **Calder** field, from three wells that tested at a combined rate of more than 180 mcfd. The gas flows to a producing platform, then through a 30-mile pipeline to an onshore gas terminal and processing plant at Barrow-in-Furness, adjacent to the Morecambe terminal complex. The facility includes a compressor station and sour gas treatment plant, and is operated under contract by Centrica Energy."

4.36 "Burlington holds 100% working interest in the Rivers fields facilities. The **Darwen** and **Crossan** fields are expected to be tied in by subsea completions in 2007."

4.37 First gas from the Calder field was on 16 October 2004, about six months later than planned. A platform was installed in 2002 and there are three producing wells. The development cost was given as £185 million ($340 million).

4.38 No development plans have yet been revealed for the **Hodder** and **Asland** discoveries. It is likely that they will be developed when spare capacity becomes available in the Calder facilities.

4.39 Table 4.1 and Figure 4.1 show combined output from the Morecambe Bay fields rising to a peak of 12.9 bcm (125 million cfd) in 2000. It has fallen a little since then and the 2003 total was just under 11.7 bcm. The Calder field will add about 0.2 bcm to the overall total.

4.40 We had meetings with staff of Centrica Energy at Barrow and Heysham in the course of the fieldwork for this study. The fields are supplied from a base at Heysham (see map), where Centrica also have their asset administration centre.

4.41 Centrica informed us that current employment is 325 staff plus about 150 contractors, a total of about 475. About 200 work at the Barrow terminals, 100 in Heysham and 200 offshore (2x100 crews on a 2 weeks on/2 weeks off rota). The employment has fallen by about 50% from its peak.

4.42 At Heysham they have a 21 acre site with a 55,000 sq ft warehouse, plus mud tanks and other facilities. Heysham was chosen as the supply base because the port has 24 hour non-constrained access. Barrow and Liverpool are both dependent on tidal access.

4.43 HRL/Centrica share one supply boat with BHP Billiton (see below). The vessel takes about two hours to travel to the Morecambe Bay facilities, which are 25 nautical miles away, and usually makes two or three trips there each week.

4.44 The offshore crews are flown by helicopter from/to Blackpool airport.

4.45 The fields produce a small amount of condensate which is transferred to a tank farm (six tanks) at Barrow Docks. They currently export from there 55-60,000 cubic metres of condensate per year, equivalent to about 12 tanker loads.

4.46 Centrica also bought the Roosecote gas-fired power station adjacent to the Barrow complex in May 2003. It is not supplied directly from the Barrow terminal but they are considering doing that to save on the transport charges from the National Transmission System (NTS). About 30 people work at the power station.

Liverpool Bay fields

4.47 Moving south, BHP Billiton Petroleum operate a group of fields in Liverpool Bay, namely

- **Hamilton North**, onstream in 1995
- **Douglas**, 1996
- **Lennox,** 1996
- **Hamilton**, 1997
- **Hamilton East**, 2001
- **Douglas West**, 2003

These fields are sometimes referred to as Liverpool Bay rather than by their individual names.

4.48 Douglas, Douglas West and Lennox are oil fields, with associated gas production from the last of those. The three Hamilton fields produce gas.

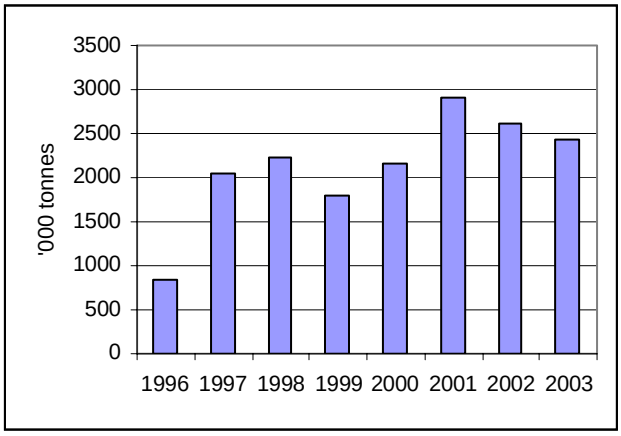
4.49 Table 4.2 and Figure 4.2 show the annual oil production from the Liverpool Bay fields since it began in 1996. It reached a peak of 2.9 million tonnes, equivalent to about 60,000 bpd, in 2001. The combined total in 2003 was just over 2.4 million tonnes, equivalent to about 50,000 bpd.

Table 4.2: Oil production from the Liverpool Bay fields
(thousands of tonnes)

	Hamilton North	Douglas	Lennox	Hamilton	Hamilton East	Douglas West	Total Liverpool Bay
1996	-	747	105	-	-	-	852
1997	-	1,587	453	-	-	-	2,040
1998	-	1,339	886	-	-	-	2,225
1999	-	937	857	-	-	-	1,794
2000	-	779	1,376	-	-	-	2,155
2001	-	1,118	1,798	-	-	-	2,916
2002	-	918	1,697	-	-	-	2,615
2003	-	645	1,573	-	-	205	2,423
Cumulative To end 2003	-	8,094	8,755	-	-	205	17,054

Source: DTI

Figure 4.2: Oil production from the Liverpool Bay fields



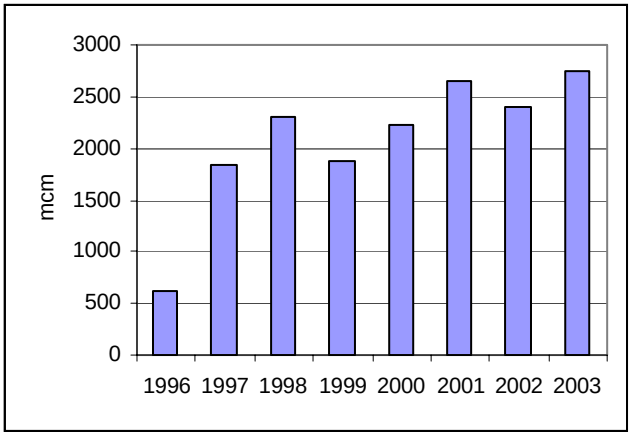
4.50 Table 4.3 and Figure 4.3 show the annual gas production from the fields since that also began in 1996. It has risen to a peak of just over 2.7 billion cubic metres in 2003, equivalent to about 250 million cfd.

Table 4.3: Gas production from the Liverpool Bay fields
(million cubic metres, mcm)

	Hamilton North	Hamilton	Hamilton East	Lennox	Total Liverpool Bay
1996	625	-	-	?	625
1997	667	1,176	-	?	1,843
1998	546	1,754	-	?	2,298
1999	454	1,416	-	?	1,870
2000	543	1,685	-	?	2,228
2001	553	1,933	167	?	2,653
2002	368	1,536	503	?	2,407
2003	566	1,833	354	?	2,753
Cumulative to end 2003	4,322	11,331	1,024		16,677

Source: DTI

Figure 4.3: Gas production from the Liverpool Bay fields



4.51 **Douglas** is the main field and acts as a production hub for the others. There is an offshore storage facility and oil production is via offshore tanker loading. The gas goes from Douglas via a 32 km pipeline to the Point of Ayr terminal in North Wales, as shown on the map.

4.52 The BHP Billiton website (www.bhpbilliton.com) states that "offshore operations are centred on the Douglas complex – a three-platform facility that monitors and controls the development's three unmanned satellite platforms at Lennox, Hamilton and Hamilton North. Oil and gas from all four fields are received at Douglas. The oil is then processed, blended and sent through a 20 km pipeline to the offshore storage installation, before being loaded into tankers, for export worldwide. Gas is part-processed on Douglas before it travels via a 34 km pipeline to BHP's state-of-the-art terminal, at Point of Ayr on the North Wales coast".

4.53 "The total recoverable reserves in Liverpool Bay are currently estimated to be in excess of 150 million barrels of oil (20 million tonnes) and 1.2 trillion cubic feet of gas (35 billion cubic metres). With peak oil production expected to average some 70,000 barrels per day, and a peak gas capacity of 300 million cubic feet per day, the life of the development is projected to be at least 20 years."

4.54 Douglas' original recoverable reserves were estimated at 13.3 mt (100 mb). Cumulative production to end 2004 is estimated at about 8.7 mt, implying remaining reserves of approximately 4.6 mt or 35 % of the original total.

4.55 The DTI statistics show 2003 production of 645,000 tonnes, equivalent to 13,250 bpd. Production in the twelve months to October 2004 averaged 11,515 bpd, although the DTI statistics show no production since July 2004.

4.56 **Douglas West** was developed with a single highly-deviated well tieback. It came onstream in 2003, when production totalled 205,000 tonnes, equivalent to 4,200 bpd. Production in the twelve months to October 2004 averaged 2,923 bpd.

4.57 **Lennox**' original recoverable reserves were estimated at 10.1 million tonnes (75 mb) of oil, plus 10.3 bcm gas. Cumulative oil production to end 2004 is estimated at about 10.0 million tonnes. That implies that there is very little oil left, but presumably the reserves have been upgraded.

4.58 The DTI statistics show 2003 oil production of 1,573,000 tonnes, equivalent to 32,320 bpd. Production in the twelve months to October 2004 averaged 26,710 bpd.

4.59 Gas production from Lennox averaged 72 mcfd in the twelve months to October 2004. The October average was 87 mcfd.

4.60 **Hamilton North**'s original recoverable reserves were estimated at 5.3 billion cubic metres (bcm). Cumulative production to end 2004 is estimated at about 5.0 bcm, implying that there is very little gas left. However, these reserves may also have been upgraded.

4.61 The DTI statistics show 2003 production of 566 million cubic metres (mcm), equivalent to about 55 million cubic feet per day (mcfd). Production in the twelve months to October 2004 averaged 42 mcfd.

4.62 **Hamilton**'s original recoverable reserves were estimated at 14.3 bcm. Cumulative production to end 2004 is estimated at about 13.0 bcm, implying that there is very little gas left. However, these reserves may also have been upgraded.

4.63 The DTI statistics show 2003 production of 1,833 mcm, equivalent to about 180 mcfd. Production in the twelve months to October 2004 averaged 137 mcfd.

4.64 **Hamilton East** is a small satellite field, which came onstream in 2001 as an one well subsea tieback. Cumulative production to end 2004 is estimated at about 1.5 bcm.

4.65 The DTI statistics show 2003 production of 354 mcm, equivalent to about 35 mcfd. Production in the twelve months to October 2004 averaged 23 mcfd.

4.66 The fields are supplied from the Heysham base, in a cooperative arrangement with Centrica/HRL, as mentioned above. The offshore crews are flown by helicopter from/to Blackpool airport.

4.67 We met a representative of BHP Billiton Petroleum in the course of the fieldwork for this study. She informed us that there are about 300 people employed on the Liverpool Bay project, about half onshore and half offshore.

4.68 About 60 people work on the manned Douglas platform and 15 on the oil storage installation at any one time, with two crews bringing the total to 150. There are 60-70 at the Point of Ayr terminal and 70 in their offices near Mold in Flintshire.

4.69 A drilling team is based in London. There is likely to be one more drilling programme in 2005 but that will probably be the last.

4.70 The Liverpool Bay project could end by about 2014, unless there are new discoveries which would use the facilities.

Possible developments

4.71 There are a few existing development possibilities in the SEA 6 area. Mention was made above of Burlington's Rivers prospects, including **Darwen** and **Crossan**, which are expected to be subsea developments in 2007. No plans have been announced yet for **Hodder** and **Asland**.

4.72 A part of the DTI website lists

- **significant offshore discoveries in date order.**

In addition to the fields referred to above the list includes the following:

- **Ormonde South**, block 113/29-2, operator: Eclipse
- No name, **block 110/08a-5**, Open.

4.73 In February 2001 the DTI invited applications for licences for two blocks containing gas discoveries in the eastern Irish Sea, 113/28 and 113/29. The blocks were previously held by Kerr McGee but were relinquished in 1999. The then Minister for Energy Peter Hain stated that "these blocks contain gas discoveries that have been identified by PILOT's Undeveloped Discoveries Workgroup, as having potential for development. I am pleased that the efforts of the Workgroup have led to this invitation being made".

4.74 Eclipse Energy, together with Rolls-Royce Power Ventures, successfully applied for the licences which were awarded to them in August 2001. The companies plan an unique offshore co-generation scheme, involving both gas production and an offshore wind farm.

4.75 The plan shows the Ormonde North and Ormonde South gas fields, a proposed gas pipeline to Heysham and a proposed subsea electricity cable to the same location. A detailed application is expected to be submitted to the DTI during 2005. The development cost is estimated at £220 million.

4.76 We are not aware of any plans for block 110/08a mentioned above. This is located to the south of the South Morecambe field and is currently unlicensed.

4.77 A media report in January 2004 stated that "it is believed Centrica is currently in discussions with the Department of Trade and Industry over the possibility of acquiring the **Castleton** prospect, located in a relinquished block to the north of North Morecambe". We have no information on this.

4.78 Another media report in January 2004 also stated that "to the south-east of Morecambe, Burlington is also working on the development of its West Lennox find". We also have no information on this.

Exploration activity

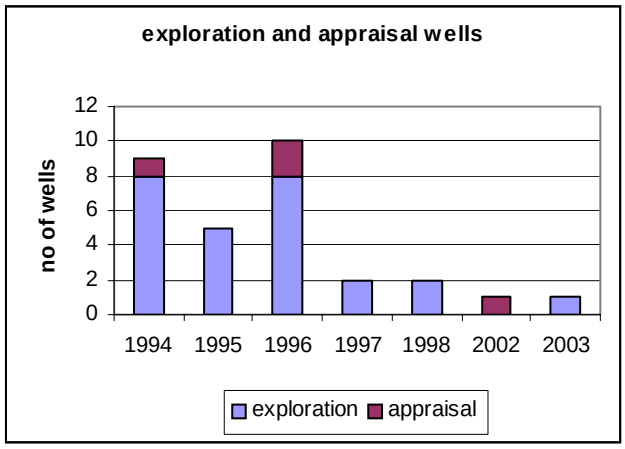
4.79 Table 4.4 and Figure 4.4 give statistics on drilling activity in the "West of England/Wales" area for the period since 1994. Twenty four exploration and appraisal wells were drilled in the three years 1994-6 but there has been very little activity since then. No e and a wells were drilled in the three years 1999-2001; there was one such well in 2002 and another in 2003.

Table 4.4: Historical drilling activity in the SEA 6 area

	exploration	appraisal	development	total
1994	8	1	7	16
1995	5	0	13	18
1996	8	2	14	24
1997	2	0	1	3
1998	2	0	3	5
1999	0	0	8	8
2000	0	0	8	8
2001	0	0	16	16
2002	0	1	10	11
2003	1	0	9	10
2004*	0	0	1	1

* provisional
Source: DTI

Figure 4.4: Historical drilling activity



4.80 However, the table shows a much higher level of development drilling, which is related to the field developments referred to earlier.

4.81 In 2003 the DTI invited applications for licences for blocks 113/21 and 113/22, which are located to the north of the Millom field. The licences were awarded to Burlington Resources in September 2003.

4.82 The area involved is largely covered by the Ministry of Defence's Eskmeals firing range. A DTI press release stated that "as a result any licensee must expect unusual restrictions on activity. In particular, exploration drilling will not be permitted before 2004 and when permitted is likely to be subject to strict timescales …. Permanent structures will not be permitted within the firing range within the lifetime of the licences".

5.0 IMPLICATIONS FOR OIL AND GAS PRODUCTION AND RESERVES

5.1 The scenarios provided by the DTI are set out in Section 2 of this report. As mentioned earlier, we have converted the DTI scenarios into a "pessimistic" scenario and an "optimistic" one for the purposes of the impact assessment. It would obviously be possible to have a scenario in which there were no new developments but our pessimistic scenario is based on two small developments. The optimistic scenario includes two relatively large fields in addition to the small ones.

Oil production

5.2 Table 5.1 sets out our forecasts of oil production for the two scenarios. Part (a) is in barrels per day and part (b) is in thousands of tonnes per year. The forecasts are also illustrated in Figure 5.1.

5.3 Under the pessimistic scenario there are two small fields – one oil and the other gas – with the former producing up to 5,000 barrels per day (bpd) from recoverable reserves of 1 million tonnes (7.5 million barrels). We have assumed a five year production life, with three years at peak output and two years at 50% of that level, beginning in 2011 as shown in the table.

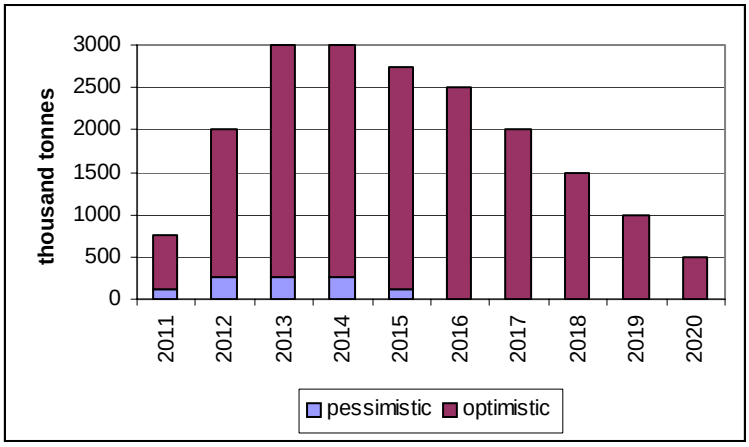
5.4 Under the optimistic scenario there are two additional large fields – one oil and the other gas – with the former producing up to 50,000 bpd from recoverable reserves of 17 million tonnes (127.5 million barrels), with a ten year lifetime, beginning in 2011. Peak production under this scenario is 55,000 bpd in 2013 and 2014, falling steadily to 10,000 bpd in 2020.

Table 5.1: Oil production scenarios from SEA 6 fields

	barrels per day		000 tonnes per year	
	pessimistic	optimistic	pessimistic	optimistic
2011	2,500	12,500	125	625
2012	5,000	35,000	250	1,750
2013	5,000	55,000	250	2,750
2014	5,000	55,000	250	2,750
2015	2,500	52,500	125	2,625
2016	-	50,000	-	2,500
2017	-	40,000	-	2,000
2018	-	30,000	-	1,500
2019	-	20,000	-	1,000
2020	-	10,000	-	500

Source: Mackay Consultants

Figure 5.1: Oil production scenarios from SEA 6 fields
(thousands of tonnes)



Source: Mackay Consultants

5.5 UKCS oil production in 2003 was 96.8 million tonnes (averaging just over 2 million barrels per day), according to the DTI. Statistics for 2004 were not available at the time of writing but we understand that output was about –10% lower than in the previous year.

5.6 UKCS oil production seems to have peaked in 1999 at 124.9 million tonnes, equivalent to 2.6 million bpd. There seems general agreement that the future is one of slow decline.

5.7 It is very difficult to forecast the rate of decline, however. The decline in 2003 was –8.2% and in 2004 an estimated –10.0%. In Table 5.2 and Figure 5.2 on the following page we have made the simple assumption that there will be an annual average decline of –5.0% from 2005 onwards. In reality there will be fluctuations from year to year but for the purposes of this study we believe it is a reasonable assumption.

5.8 The Rest of UKCS column of Table 5.2 shows oil production declining slowly but steadily from 105.4 million tonnes (2.1 million bpd) in 2002 to 36.4 million tonnes (730,000 bpd) by 2021.

5.9 SEA 6 production is assumed to start in 2011 by which time the Rest of UKCS production would have fallen to 60.8 mt, down –42% on the 2002 level. Under the pessimistic scenario total production will continue to decline and SEA 6 production have a negligible impact. For example, 2014 production of 52.4 mt would be only +0.6% higher than the Rest of UKCS total.

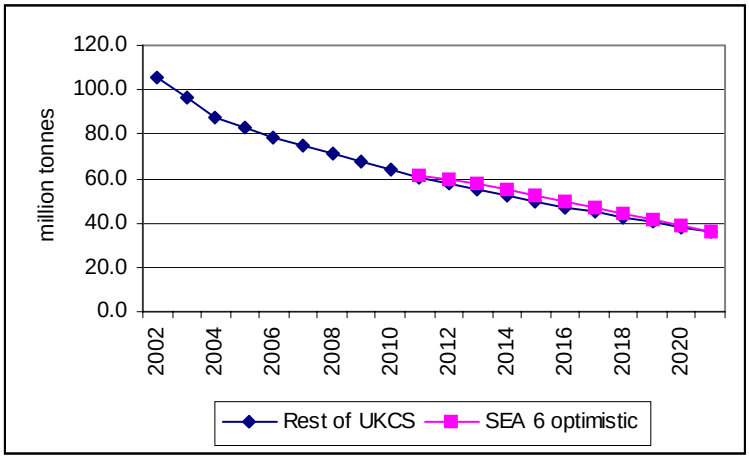
5.10 The optimistic SEA 6 scenario gives a slightly different picture, as illustrated in Figure 5.2. The rate of decline would slow down. For example, the 2014 production is +5.4% higher than it would be without SEA 6 output.

Table 5.2: Forecasts of UKCS oil production
(million tonnes)

	Rest of UKCS	SEA 6 pessimistic	Sub-total	SEA 6 optimistic	Totals
2002	105.4	-	105.4	-	105.4
2003	96.8	-	96.8	-	96.8
2004	87.1	-	87.1	-	87.1
2005	82.7	-	82.7	-	82.7
2006	78.6	-	78.6	-	78.6
2006	74.7	-	74.7	-	74.7
2008	70.9	-	70.9	-	70.9
2009	67.4	-	67.4	-	67.4
2010	64.0	-	64.0	-	64.0
2011	60.8	0.125	60.9	0.625	61.4
2012	57.8	0.250	58.1	1.750	59.6
2013	54.9	0.250	55.2	2.750	57.7
2014	52.1	0.250	52.4	2.750	54.9
2015	49.5	0.125	49.6	2.625	52.1
2016	47.1	-	47.1	2.5	49.6
2017	44.7	-	44.7	2.0	46.7
2018	42.5	-	42.5	1.5	44.0
2019	40.4	-	40.4	1.0	41.4
2020	38.3	-	38.3	0.5	38.8
2021	36.4	-	36.4	-	36.4

Source: Mackay Consultants

Figure 5.2: Forecasts of UKCS oil production



Gas production

5.11 Gas production is much more important than oil in the SEA 6 area at the present time. The Morecambe Bay fields currently account for about 12% of UKCS gas production and the Liverpool Bay fields about 3%, giving a combined total of about 15%. That compares with a 2.5% share of UKCS oil production.

5.12 Our pessimistic scenario assumes that one new small gas field will be developed in the SEA 6 area. It would produce up to 25 million cfd from recoverable reserves of 35 bcf (1 bcm), with a production life of just five years. The specific forecasts are set out in Table 5.3.

5.13 Our optimistic scenario assumes that in addition one large gas field will be developed. It would produce up to 250 million cfd from recoverable reserves of 1.05 trillion cubic feet (30 bcm). Gas fields usually produce for longer than oil fields so we have assumed production for 15 years, beginning in 2011 and ending in 2025, as set out in Table 5.3.

5.14 UKCS gas production was approximately 107.9 bcm in 2003, according to the DTI statistics. Production increased rapidly in the 1990s, reaching a peak of 114.7 bcm in 2000. It fell by –2.1% in 2001, by –2.9% in 2002 and by –1.4% in 2003. The official statistics for 2004 were not available at the time of writing but provisional estimates indicate a decline of about –7.3% to about 100.0 bcm. The general expectation is that offshore gas output will also decline slowly in the future, as with offshore oil production.

5.15 In Table 5.3 we have assumed that the Rest of the UKCS gas output will decline at an annual average of –3.0% to 2010 and by –5.0% after that year. The annual figures are shown in the table and in Figure 5.3.

5.16 SEA 6 gas production would begin in 2011. Under the pessimistic scenario there would be a very small increase in output, which would have a negligible impact on UKCS production. For example, the difference in 2014 would be just +0.4% higher.

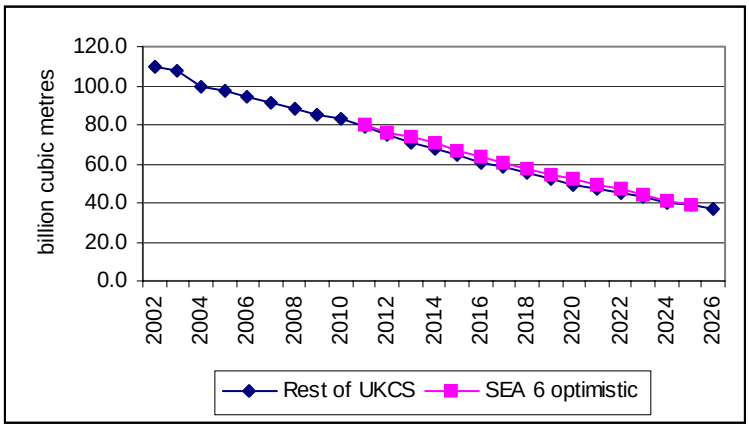
5.17 Under the optimistic scenario SEA 6 output is substantially higher and will help to slow down the rate of decline, as shown in the figure. For example, total output in 2022 would be +5.6% higher.

Table 5.3: Forecasts of UKCS gas production
(billion cubic metres)

	Rest of UKCS	SEA 6 pessimistic	Sub-total	SEA 6 optimistic	Totals
2002	109.7	-	109.7	-	109.7
2003	107.9	-	107.9	-	107.9
2004	100.0	-	100.0	-	100.0
2005	97.0	-	97.0	-	97.0
2006	94.1	-	94.1	-	94.1
2006	91.3	-	91.3	-	91.3
2008	88.5	-	88.5	-	88.5
2009	85.6	-	85.6	-	85.6
2010	83.0	-	83.0	-	83.0
2011	78.9	0.13	79.0	0.6	79.5
2012	74.9	0.25	75.2	1.3	76.2
2013	71.2	0.25	71.5	2.8	74.0
2014	67.6	0.25	67.9	2.8	70.4
2015	64.2	0.12	64.3	2.6	66.8
2016	61.0	-	61.0	2.5	63.5
2017	58.0	-	58.0	2.5	60.5
2018	55.1	-	55.1	2.5	57.6
2019	52.3	-	52.3	2.5	54.8
2020	49.7	-	49.7	2.5	52.2
2021	47.2	-	47.2	2.5	49.7
2022	44.8	-	44.8	2.5	47.3
2023	42.6	-	42.6	2.0	44.6
2024	40.5	-	40.5	1.0	41.5
2025	38.5	-	38.5	0.5	39.0
2026	36.5	-	36.5	-	36.5

Source: Mackay Consultants

Figure 5.3: Forecasts of UKCS gas production



Oil and gas reserves

5.18 Our reserve assumptions for the two scenarios are:

	oil (mt)	gas (bcm)
pessimistic	1.0	1.0
optimistic	17.0	30.0

5.19 The DTI's Oil and Gas website gives various statistics on UKCS recoverable reserves. Ranges are given, with lower, central and upper estimates.

5.20 Those for oil are (in million tonnes):

	lower	central	upper
discovered	571	857	1267
potential additional	95	247	496
undiscovered	323	782	1826
totals	**989**	**1886**	**3589**

5.21 The central estimate of 1886 million tonnes compares with cumulative oil production to end 2003 of 2910 million tonnes. The "discovered" central estimate of 857 mt is about 30% of the latter figure.

5.22 In the context of this study the "undiscovered" reserves are the most relevant. The central estimate of those is 782 million tonnes. Our pessimistic estimate of recoverable oil reserves in the SEA 6 area is just 1.0 million tonnes. Our optimistic estimate of 17.0 mt is 2.2% of the DTI estimate.

5.23 The DTI website also gives a geographical breakdown of where the undiscovered resources on the UKCS might be located. The oil estimates for the "Southern North Sea, Irish Sea and Celtic Basin" (which are grouped together) are (in million tonnes):

lower	central	upper
0	0	11

5.24 Our optimistic estimate of 17.0 million tonnes in the SEA 6 area exceeds the DTI upper estimate but that is not significant in the context of this socio-economic impact study.

5.25 The DTI's estimates of gas reserves (in billion cubic metres) are:

	lower	central	upper
discovered	590	905	1241
potential additional	74	153	276
undiscovered	279	492	1259
totals	**943**	**1550**	**2776**

5.26 The central estimate of 1550 bcm compares with cumulative gas production to end 2003 of 1828 bcm. The "discovered" central estimate of 905 bcm is 49.5% of the latter figure.

5.27 In the context of this study the "undiscovered" gas reserves are the most relevant. The central estimate of those is 492 bcm. Our pessimistic estimate of recoverable gas reserves in the SEA 6 area is just 1.0 bcm, which is just 0.2% of that figure. Our optimistic estimate of 30.0 bcm is 6.8% of the figure.

5.28 Existing fields in the SEA 6 area currently account for about 15% of UKCS gas production, so we believe that our optimistic estimate is a reasonable one.

5.29 The DTI's geographical breakdown for the "Southern North Sea, Irish Sea and Celtic Sea" area (in bcm) are:

lower	central	upper
117	178	360

5.30 A significant proportion of these reserves should be in the Southern North Sea but we believe that our estimates for the SEA 6 are not inconsistent with the above.

6.0 IMPLICATIONS FOR CAPITAL, OPERATING AND DECOMMISSIONING EXPENDITURE

Capital expenditure

6.1 Table 6.1 sets out our estimates of the capital expenditure which would be required to develop the fields in the SEA 6 area, for both the optimistic and pessimistic scenarios. The pessimistic scenario comprises two small subsea developments, each of which is estimated to cost £50 million. The optimistic scenario comprises those two developments plus two larger field developments – one oil and one gas – which would require new production facilities. The estimated cost of the latter fields is £250 million each, giving an overall capital expenditure total for the optimistic scenario of £600 million.

Table 6.1: SEA 6 capital expenditure scenarios
(£ million)

	pessimistic	optimistic
2009	-	125
2010	50	300
2011	50	175
totals	**100**	**600**

6.2 It is difficult to predict future levels of capital expenditure on the UKCS. The DTI's Oil and Gas website gives the following historical estimates:

	£ million	% change
2000	2,783	-
2001	3,543	+27.3
2002	3,637	+2.7
2003	3,449	-5.2
2004p	3,273	-5.1

6.3 Capital expenditure was unusually low in 2000 because of the impact of the massive fall in oil prices during the previous year. It increased by +27.3% in 2001 and by +2.7% in 2002 but has fallen since then. The estimate for 2004 is provisional (p).

6.4 The general trend in the future will almost certainly be downwards. The forecasts in Section 5 show both UKCS oil and gas production declining. Although new fields continue to be discovered and developed, they are generally much smaller than mature fields such as Brent, Forties and Ninian, and usually much cheaper to develop.

6.5 An important factor in that is the extensive existing infrastructure on the UKCS. New fields can often make use of that, eg as subsea completions to existing platforms and pipelines. That can substantially reduce capital expenditure although it may increase operating expenditure through the payment of tariffs.

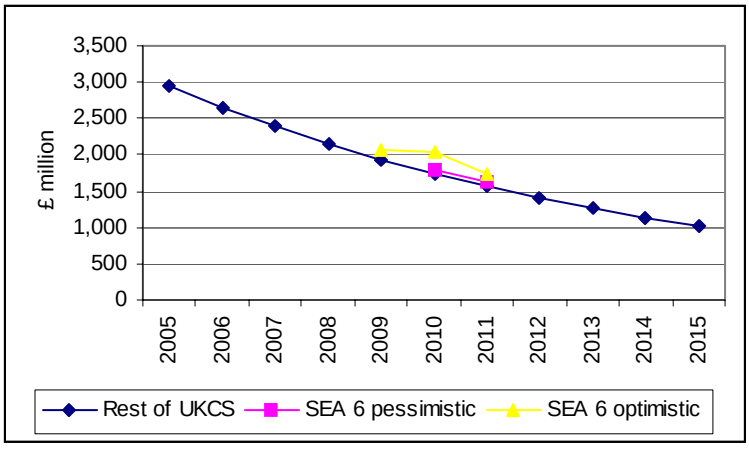
6.6 We believe that a reasonable assumption is that capital expenditure on the Rest of the UKCS will fall at an annual average of –10% in the future. Table 6.2 and Figure 6.1 set out forecasts on that basis.

Table 6.2: Capital expenditure forecasts
(£ million, constant 2004 values)

	Rest of UKCS	SEA 6 pessimistic	% of UKCS	SEA 6 Optimistic	% of UKCS
2005	2,946	-	-	-	-
2006	2,651	-	-	-	-
2007	2,386	-	-	-	-
2008	2,147	-	-	-	-
2009	1,933	-	-	125	6.5
2010	1,739	50	2.9	300	17.3
2011	1,565	50	3.2	175	11.2
2012	1,409	-	-	-	-
2013	1,268	-	-	-	-
2014	1,141	-	-	-	-
2015	1,027	-	-	-	-

Source: Mackay Consultants

Figure 6.1: Capital expenditure forecasts



6.7 Expenditure under the pessimistic scenario is very small. It accounts for only 2.9% of the Rest of the UKCS forecast in 2010 and 3.2% in 2011.

6.8 Expenditure under the optimistic scenario would be more significant, accounting for up to 17.3% of the Rest of the UKCS expenditure in 2010, with 6.5% in 2009 and 11.2% in 2011.

6.9 UK-based suppliers of platforms, modules, subsea equipment, installation contractors, supply boat and helicopter operators etc would all be very keen to win work for the SEA 6 fields, particularly if their other markets were declining and they had spare capacity.

Operating expenditure

6.10 Table 6.3 on the next page and Figure 6.2 give estimates of annual operating expenditure for the pessimistic and optimistic scenarios.

6.11 The DTI Oil and Gas website has a chart showing unit operating costs from 1976 to 2003 (in 2003 values). They rose fairly steadily from approximately £13 per tonne (£1.73 per barrel) in 1976 to a peak of £30 per tonne (£4.00 per barrel) in 1991. Since then there has been a fall and the average for the last few years has been approximately £22 per tonne (£2.93 per barrel).

6.12 For the pessimistic scenario we have assumed an average of £25 per tonne of oil or thousand cubic metres of gas and for the optimistic scenario £20 per tonne. We have added the oil and gas production together for each year and then multiplied the totals by either £20 or £25. This is a simple approach but it should give sufficiently accurate estimates for the purposes of this report.

6.13 Table 6.3 also gives operating expenditure forecasts for the whole of the UKCS. Those are also difficult to make. The DTI's estimates for the last five years are:

	£ million	% change
2000	4,360	-
2001	4,347	-0.3
2002	4,595	+5.7
2003	4,496	-2.2
2004	4,664	+3.7

6.14 As mentioned earlier, UKCS oil production peaked in 1999 and has declined in each year since then. UKCS gas production peaked in 2000 and has also declined in each year since then.

6.15 The figures above show UKCS operating expenditure fluctuating between £4.3 and £4.7 billion since 2000. Despite the declining production, the 2004 estimate of £4,664 million is the highest level recorded. That presumably reflects higher operating costs of fields recently developed.

6.16 More fields are still being brought onstream on the UKCS than being decommissioned, so the total number of fields in production has increased since 2000. Many of the new fields are relatively small and will have higher-than-average operating costs. Nevertheless, we believe that operating expenditure must fall over time and in Table 6.3 we have assumed an annual fall of –3.0% from 2002 onwards.

6.17 The table shows that operating expenditure under the pessimistic scenario would reach a peak of just £13 million in 2012 and 2013. That would be just 0.4% of total UKCS operating expenditure.

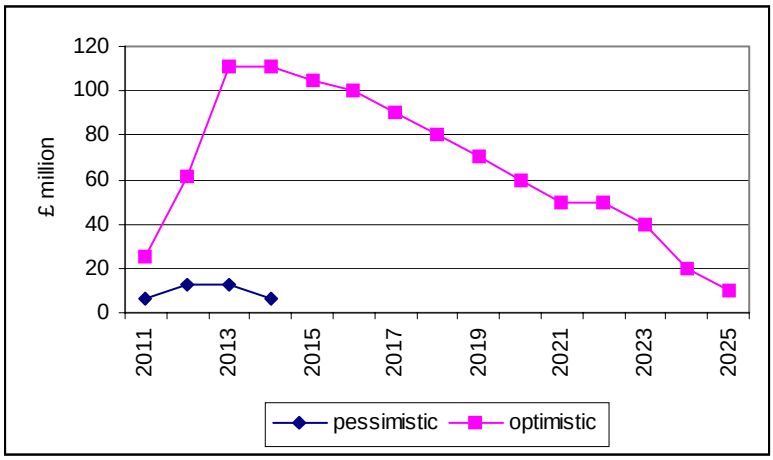
6.18 Under the optimistic scenario operating expenditure would peak at £111 million in both 2013 and 2014. In the latter year it would account for 3.2% of the UKCS total.

Table 6.3: Operating expenditure forecasts
(£ million, constant 2004 values)

	UKCS	SEA 6 pessimistic	% of UKCS	SEA 6 optimistic	% of UKCS
2010	3,885	-	-	-	-
2011	3,768	6	0.2	25	0.7
2012	3,655	13	0.4	61	1.7
2013	3,546	13	0.4	111	3.1
2014	3,439	6	0.2	111	3.2
2015	3,336	-	-	105	3.1
2016	3,236	-	-	100	3.1
2017	3,319	-	-	90	2.9
2018	3,045	-	-	80	2.6
2019	2,953	-	-	70	2.4
2020	2,865	-	-	60	2.1
2021	2,779	-	-	50	1.8
2022	2,696	-	-	50	1.9
2023	2,615	-	-	40	1.6
2024	2,536	-	-	20	0.8
2025	2,460	-	-	10	0.4
2026	2,386	-	-	-	-

Source: Mackay Consultants

6.19 Figure 6.2 illustrates the operating expenditure for the two scenarios.



Exploration expenditure

6.20 There will also be the initial exploration expenditure. Our pessimistic scenario assumes two exploration wells and the optimistic scenario ten exploration and appraisal wells. At an average cost of £10 million per well, the former would involve expenditure of £20 million and the latter £100 million. There would also be expenditure on seismic and other surveys.

Decommissioning expenditure

6.21 Finally, there will be decommissioning expenditure at the ends of the productive lives of the various fields. An approximate "rule of thumb" is that this expenditure will be 10% of the original capital costs.

7.0 IMPLICATIONS FOR EXISTING FACILITIES

7.1 The existing facilities in the SEA 6 area include

- the Morecambe Bay gas fields, production facilities and pipelines
- the gas terminals at Barrow-in-Furness
- the Liverpool Bay oil and gas fields, production facilities and pipelines
- the gas terminal at Point of Ayr
- the oil supply base at Heysham.

7.2 The facilities and the general level of activity in the SEA 6 area are on a much smaller scale than those in the North Sea, eg in the SEA 5 area. So too is the possible level of new SEA 6 activity, as discussed in Section 2 of this report.

7.3 The pessimistic scenario comprises two small fields which would be developed as subsea tiebacks to existing facilities. The optimistic scenario comprises two medium-sized fields, one oil and one gas. The gas field could use one of the existing offshore loading facilities for the Liverpool Bay fields or new dedicated facilities.

7.4 Gas production from the Morecambe Bay fields peaked in 2000 and has declined slowly since then. The Rivers group of fields in the Morecambe Bay area are currently being developed as subsea tiebacks to the existing facilities. They will help to slow down the production from the existing fields but are unlikely to reverse that trend.

7.5 Thus there will be increasing spare capacity in the Morecambe Bay facilities, including the pipelines and terminal complex. The latter comprises three separate terminals because of the differing natures of the gas produced so they should be capable of handling any gas from new SEA 6 fields.

7.6 Gas production from the Liverpool Bay fields is on a much smaller scale. It has increased over the last few years, except for 2002, and there was a +20.9% rise in 2003. However, it is expected to begin to decline soon and thus there will also be spare capacity in the production facilities, pipeline and Point of Ayr processing terminal.

7.7 The Liverpool Bay fields produce both oil as well as gas, via a tanker loading system. Oil production reached a peak of 2.9 million tonnes, equivalent to about 60,000 barrels per day, in 2001 and has fallen in each year since then.

7.8 We were informed that the Liverpool Bay project could end by about 2014, unless there are new discoveries which would use the facilities. Thus any new SEA 6 fields would be very welcome.

7.9 The same conclusion also applies to the supply base at Heysham.

7.10 It is possible that any new SEA 6 discoveries could be some distance from the existing facilities and require new pipelines and terminals. That seems unlikely on present evidence, however, unless a commercial field was discovered in the south of the area off the west coast of Wales.

Possible adverse impacts

7.11 It is possible that the development and operation of any SEA 6 fields could have adverse impacts on other industries, with fishing and tourism being the obvious examples. Information on those and other relevant industries was given in Section 3 of this report and in more detail in the Baseline Economic and Social Study.

7.12 The fishing industry has been covered in detail in other SEA 6 reports so we shall only make a few brief comments here. The SEA 6 area has extensive coastlines so there are various ports and harbours involved in fishing and fish processing, including Whitehaven in Cumbria, Fleetwood in Lancashire, Holyhead and Milford Haven in Wales, Kilkeel in Northern Ireland and Kirkcudbright in Scotland. Mention should also be made of the Morecambe Bay cockle fishery and the Menai Strait mussel fishery in North Wales.

7.13 Most of the fishing in the SEA 6 area is for shellfish, although there are white fish (demersal) landings in some ports.

7.14 The main concern of local fishermen is the threat of oil spills, particularly close to the shore. In our SEA 5 report in 2004 we highlighted the disastrous impact of the Braer oil spill in the Shetland Islands. Other concerns include the "loss of access" to fishing grounds during seismic surveys, exploration drilling and production.

7.15 These are legitimate fears of the fishing industry but it should be pointed out that the industry has co-existed with the offshore oil and gas industry in the SEA 6 area for up to 20 years and there have been very few problems. The South Morecambe gas field began production in 1985 and the Douglas oil field (Liverpool Bay) in 1996.

7.16 Future activity in the SEA 6 area is likely to be on a much smaller scale than at the present time, so we do not expect that there will be significantly different problems for the fishing industry. There could be offshore activity in or near particularly sensitive fishing areas which could require special policies.

7.17 The tourism industry is very important in the SEA 6 area. It includes some of the best known seaside resorts in the UK, such as Blackpool, Morecambe, Southport and Rhyl. It is on a much smaller scale elsewhere in the area but is nevertheless a vital part of many local economies and communities. Much of the scenery is very high quality.

7.18 The adverse impacts on the tourism industry could include oil spills and visual impacts. The latter are of increasing concern in relation to wind farms, both offshore and onshore, in the SEA 6 area.

7.19 As with fishing, however, the tourism and offshore oil and gas industries have co-existed in the SEA 6 area for many years with very few problems. Future offshore activity in the area is expected to be on a much smaller scale than at present.

7.20 Sailing is very popular in many parts of the SEA 6 area, both for local residents and visitors. There are many marinas, as mentioned in Section 3 and in more detail in the Baseline Economic and Social Study.

7.21 Any future oil and gas activity will also have to take into account the many ferry and shipping services in the SEA 6 area. Liverpool is one of the busiest ports in the UK and there is a lot of marine traffic in the area, as mentioned briefly in Section 3 and in more detail in the Baseline Study.

7.22 Finally, mention should be made of defence-related activity in the SEA 6 area which could restrict oil and gas activity. That includes the Aberporth firing range and the Clyde Submarine Base, as mentioned in Section 3.

8.0 IMPLICATIONS FOR EMPLOYMENT

8.1 The SEA 6 area will generate employment during the

- exploration
- development
- operational/production and
- decommissioning

phases. It is sensible to assess these impacts separately in the first instance and then aggregate them.

8.2 In economic impact studies it is common to distinguish between the

- direct
- indirect and
- induced

impacts. We shall concentrate initially on the direct employment impacts and take account of the others later through the application of multipliers.

Exploration

8.3 The licensees will employ people for the duration of their licences, primarily through the operators. Initially their main task will be to assess the geology, decide on the seismic and other surveys and ultimately decide where to drill. The level of employment will obviously depend on the number of licences taken up and the number of firms involved.

8.4 We believe that a reasonable assumption is that there would be an average of about 25 employed in the first few years on SEA 6 work, before declining, as shown in Table 8.1. All the figures are in what could be called "job years".

8.5 There would then be employment created by the seismic surveys and the exploration drilling. The pessimistic scenario involves two wells and the optimistic scenario ten wells. In Table 8.1 we have assumed that the ten wells will be drilled with two in each of the five years 2008-12. In the pessimistic scenario (Table 8.2) we have assumed one well in each of the years 2008 and 2009.

8.6 On the assumption that the average exploration well will take two months and employ about 100 people, the optimistic scenario would generate an annual average of 30 jobs, and the pessimistic scenario 15 jobs. The jobs would only occur during the actual drilling periods, however. In Tables 8.1 and 8.2 we have added 10 and 5 respectively to take account of the seismic and other survey work.

Development

8.7 The development phase will involve the construction of the production facilities, pipelines and other equipment required. In Section 6 we estimated the capital expenditure of the pessimistic scenario as £100 million and that of the optimistic scenario as £600 million.

8.8 On the assumption that each £500,000 of capital or development expenditure creates one job (full-time equivalent) for one year, Tables 8.1 and 8.2 set out the development employment estimates. With the optimistic scenario there would be a total of 1,200 job years, with a peak of 600 in 2010. With the pessimistic scenario there would be 200 job years, divided between 2010 and 2011.

Production

8.9 Our production/operating employment estimates are based on the actual experience of comparable existing fields. For the optimistic scenario the peak employment is 120 and for the pessimistic scenario 40.

Decommissioning

8.10 Finally, there is the employment which will be generated by the decommissioning work at the end of the lives of the various fields. This will be on a relatively small scale.

Employment estimates

8.11 The total employment, year by year, is shown in the tables and also in Figure 8.1. For the optimistic scenario the overall total is 2,905 person years, with a peak of 650 in 2010. For the pessimistic scenario the overall total is 405 person years, with a peak of 120 in 2011.

Figure 8.1: SEA 6 employment scenarios
(job years)

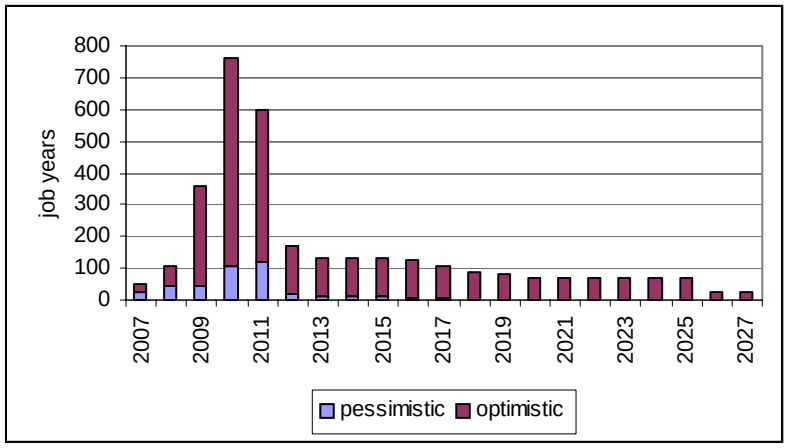


Table 8.1: SEA 6 employment: optimistic scenario

	Licence operations	Exploration	Development	Production	Decommissioning	Total
2007	25	-	-	-	-	25
2008	25	40	-	-	-	65
2009	25	40	250	-	-	315
2010	10	40	600	-	-	650
2011	10	40	350	80	-	480
2012	10	40	-	100	-	150
2013	-	-	-	120	-	120
2014	-	-	-	120	-	120
2015	-	-	-	120	-	120
2016	-	-	-	120	-	120
2017	-	-	-	100	-	100
2018	-	-	-	90	-	90
2019	-	-	-	80	-	80
2020	-	-	-	70	-	70
2021	-	-	-	70	-	70
2022	-	-	-	70	-	70
2023	-	-	-	70	-	70
2024	-	-	-	70	-	70
2025	-	-	-	70	-	70
2026	-	-	-	-	25	25
2027	-	-	-	-	25	25
2028	-	-	-	-	-	-

Source: Mackay Consultants

Table 8.2: SEA 6 employment : pessimistic scenario

	Licence operations	Exploration	Development	Production	Decommissioning	Total
2007	25	-	-	-	-	25
2008	25	20	-	-	-	45
2009	25	20	-	-	-	45
2010	10	-	100	-	-	110
2011	10	-	100	10	-	120
2012	10	-	-	10	-	20
2013	-	-	-	10	-	10
2014	-	-	-	10	-	10
2015	-	-	-	10	-	10
2016	-	-	-	-	5	5
2017	-	-	-	-	5	5
2018	-	-	-	-	-	-

Source: Mackay Consultants

8.12 Regarding overall UKCS employment, the DTI Oil and Gas website states that "the Office for National Statistics (ONS) give figures for employment classified to the oil and gas extraction sector, which includes not only those engaged in extraction offshore and onshore but also certain classes of services peculiar to the industry. Many oil-related jobs such as construction workers are classified to other industries and are not included in ONS figures".

8.13 "ONS figures show employment rising from 29,300 in 1978 to peak at just over 40,000 in 1991, before falling sharply to below 28,000 in 1994 and 1995, and recovering to remain broadly above 30,000 from 1996 until the end of 2001. Since then oil employment has declined fairly steadily at a rate of some 400 jobs each quarter."

8.14 The DTI website also states that "figures published in the UKOOA Economic Report 2004 show that some 260,000 jobs were supported by the offshore oil and gas industry. This total included some 30,000 directly employed by the operators and 155,000 jobs by contractors and the supply chain, and a further 75,000 jobs dependent on the spending of employment income by those in the directly and indirectly supported jobs".

8.15 Given the earlier forecasts of declining production and expenditure on the UKCS, it would be reasonable to expect employment also to decline in the future. In that context the employment created by SEA 6 activity will help to slow down the rate of decline. Any new fields and production in the SEA 6 area should help to extend the lives of existing facilities such as the gas terminals at Barrow and Point of Ayr, and therefore help to maintain employment there.

Multiplier employment

8.16 As mentioned above, it is common in economic impact studies to distinguish between the

- direct
- indirect and
- induced

impacts.

8.17 Indirect impacts arise from the oil and gas industry's purchases of goods and services from other industries. Such expenditure creates employment in other industries.

8.18 Induced impacts arise from the expenditure of those people directly employed in the oil and gas industry. They spend their incomes in local shops and on local services, for example, and that creates additional employment.

8.19 A common way of estimating the indirect and induced employment is to apply a multiplier to the direct employment. From other impact studies we have done, we would expect the multiplier for the oil and gas industry to be in the range 1.75 to 2.0.

8.20 Thus if we take the peak production employment of 120 in the optimistic scenario, the indirect and induced employment is likely to be in the range 90-120, giving an overall total of 210-240.

8.21 The multipliers could also be applied to the licence operations and exploration employment, but not to the development phase employment. The latter employment is created by the purchase of goods and services by the oil and gas industry, so it is part of the multiplier impacts.

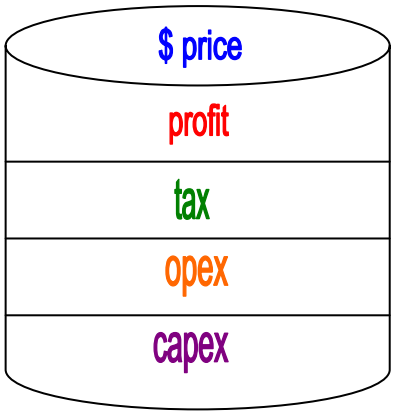
9.0 IMPLICATIONS FOR TAX REVENUES

9.1 The implications for tax revenues are difficult to estimate because they will depend very much on the level of prices during the lifetimes of the various fields. They have fluctuated considerably in recent years and are likely to do so in the future.

9.2 For ease of analysis we shall assume that oil and gas prices are identical, in terms of their energy equivalence. The following comments refer specifically to oil prices but they can be applied to the SEA 6 gas production as well.

9.3 The diagram below breaks down the price of a barrel of oil into its four key components, namely:

- capital expenditure
- operating expenditure
- tax payments
- profits.



9.4 It would be possible to model each of the SEA 6 fields separately but that would be complicated and we do not believe it is necessary. We believe that the following approach is acceptable for this part of the study.

9.5 Let us assume that the capital and operating costs do not vary with the price of oil – in other words, they are constants. We estimate that the capital cost of the SEA 6 fields over their lifetimes will average $3.60 per barrel (in 2004 values) and the operating cost $3.40, giving a total of $7.00 (approximately £4) per barrel of oil produced.

9.6 The UK corporate income tax rate is currently 40%, so the division of the "economic surplus" will be 40% for the Exchequer and 60% for the SEA 6 licensees.

9.7 If the oil price averages $20 per barrel there is then a $13 "surplus" remaining to be divided between the companies and the government. At $20 per barrel the division will be $7.80 and $5.20 respectively.

9.8 If the average oil price rises to $25 per barrel, the surplus actually rises by $5 because the costs remain the same; and similarly at $30, $35 and so on. We have assumed that the tax take will be $5.20 at $20, $9.20 at $30, $13.20 at $40 and $17.20 at $50 per barrel.

9.9 As set out in Section 5, the pessimistic scenario assumes oil production of just 1.0 million tonnes and gas production of 1.0 billion cubic metres. The latter is equivalent to 0.9 mt oil, using a conversion factor of 0.9. That gives an overall total of 1.9 mt oil equivalent or 13.3 million barrels.

9.10 The optimistic scenario assumes oil production of 18 mt and gas production of 30 bcm, giving a combined total of 45 mt oil equivalent or 337.5 mb.

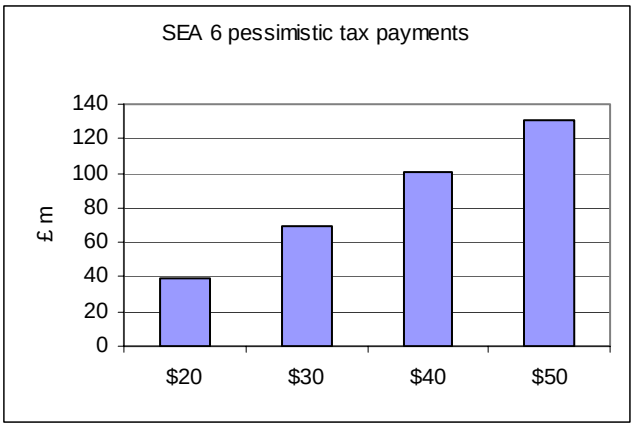
9.11 Oil is usually priced in US dollars so we need to convert the revenue into £. In the SEA 4 report in 2003 we used an exchange rate of £1 = £1.50 and in the SEA 5 report £1 = $1.60. Since then the US authorities have encouraged the fall of the dollar against most other currencies, including sterling. At the end of April 2005 the exchange rate was $1.91.

9.12 We do not believe, however, that a rate of $1.91 is the appropriate one to use for long term projections. We suggest that $1.75 is more appropriate.

9.13 It is also necessary to make assumptions about oil prices. Over the last seven years North Sea prices have fluctuated between $9 and $55 per barrel. They have been relatively high for the last few years and at the time of writing (May 2005) Brent crude was selling at about $50. Given the volatility, we have used a range of four prices from $20 to $50 per barrel in the following analysis.

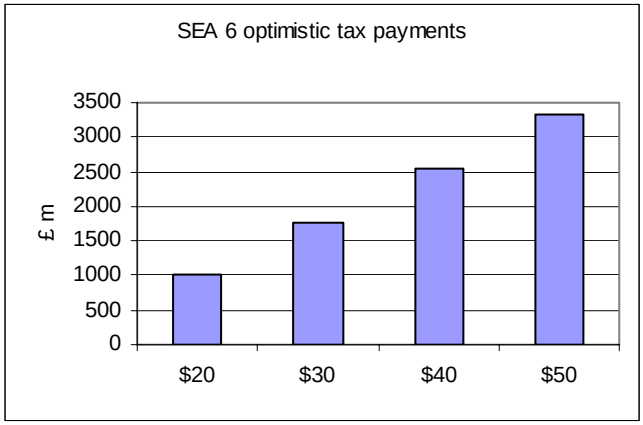
9.14 Using the above assumptions, the pessimistic scenario would generate tax revenues of

- at $20 price $69.2 million = £39.5 million
- at $30 price $122.4 million = £69.9 million
- at $40 price $175.6 million = £100.3 million
- at $50 price $228.8 million = £130.7 million.



9.15 The optimistic scenario would generate tax payments of:

- at $20 price $1,755 million = £1,003 million
- at $30 price $3,105 million = £1,775 million
- at $40 price $4,455 million = £2,546 million
- at $50 price $5,805 million = £3,318 million.



9.16 These estimates are the undiscounted totals over the lifetimes of the SEA 6 fields. A more sophisticated analysis could be made but we believe that the above estimates are acceptable in the context of this report.

9.17 They demonstrate the importance of the oil price. The key point to stress is that the tax take increases at a much higher rate than the rise in prices.

9.18 Under the pessimistic scenario the tax revenues range from £39.5 million at $20 per barrel to £130.7 million at $50 per barrel. These are very small sums but not negligible.

9.19 Under the optimistic scenario the range is from £1,003 million to £3,318 million.

9.20 According to the DTI website, UK oil and gas production contributed £4,353 million in taxes and royalties in the 2003-4 financial year. The tax revenues will almost certainly decline over the next few years, as a consequence of falling oil and gas production, although oil prices and the £:$ exchange rate will be very important factors. Thus the tax revenues from SEA 6 fields in the optimistic scenario could be very significant.

10.0 SOCIAL IMPLICATIONS

10.1 As with the economic impacts, the social impacts are likely to be incremental or marginal, rather than absolute. Some of the SEA 6 area has been involved with the oil and gas industry for up to 20 years, through the Morecambe Bay and Liverpool Bay developments. Thus people living in towns such as Barrow and Heysham are accustomed to the industry, so for them there are unlikely to be any significant new social impacts, either positive or negative.

10.2 That would not be the case if there were oil/gas-related developments in other parts of the SEA 6 area, such as West Wales or Northern Ireland, where there has been no such activity. Much of the area is rural so new industrial developments could have significant social impacts there. They could be comparable with those in areas such as Shetland and Orkney, which were covered in our SEA 5 report.

10.3 However, the prospects for new developments away from the existing Morecambe Bay and Liverpool Bay complexes appear to be very small. As discussed in Section 7, it is more likely that any new SEA 6 fields would use the existing facilities in the area.

10.4 Oil and gas production from the existing fields is forecast to decline significantly over the next few years. Any new SEA 6 developments could therefore help to retain employment, skills and population in areas like Barrow and Heysham. Economic prospects there do not appear good, so new SEA 6 activity would generally be welcomed.

10.5 The SEA 6 area is very extensive – covering parts of Cumbria, Lancashire, Merseyside, Wales, Northern Ireland and South West Scotland, plus the Isle of Man – and it is very difficult to generalise about its social characteristics. It includes urban areas with high population density and rural areas with small and dispersed populations.

10.6 There has been population decline in some parts of the area, however, in marked contrast with the growth in the UK as a whole. The coastal part of Cumbria is probably the best example of that. These declines have obvious implications for health, education and other social services.

10.7 The average age of the population of the SEA 6 area is above the UK average. Some areas, such as Llandudno, have relatively large proportions of retired people.

10.8 Income levels in the SEA 6 area are generally well below the UK average, although there are a few notable exceptions. This factor and the population decline indicate a need for more economic development, so in that context new oil and gas activity in the SEA 6 area could be both socially and economically beneficial.

11.0 CONCLUSIONS

11.1 The purpose of this report has been to assess the potential socio-economic impacts of licensing the SEA 6 area. That has been done in relation to:

- oil and gas production, and reserves
- capital, operating and decommissioning expenditure
- employment
- tax revenue.

We have also assessed the implications for existing facilities.

11.2 The Department of Trade and Industry provided scenarios of possible activity in the area. We converted those into "pessimistic" and "optimistic" scenarios, which have been used in each of the sections.

11.3 The SEA 6 area is a very large area. It is the UK part of what is widely known as the Irish Sea, extending from the Mull of Kintyre in Scotland in the north to St David's Head in Wales in the south. It includes the area off the east coast of Northern Ireland but excludes the territorial waters of the Isle of Man.

11.4 The size of the area makes it very difficult to generalise about the impacts. They would be very different if they occurred in the rural parts, rather than in the urban parts.

11.5 Another important factor is that the offshore oil and gas industry is now well established in some parts of the SEA 6 area. The Morecambe Bay fields have produced gas since 1985 - twenty years ago – and the Liverpool Bay fields oil since 1996. There are gas terminals onshore at Barrow-in-Furness and the Point of Ayr, and a supply base at Heysham.

11.6 A key point to stress therefore is that, to a very large extent, the socio-economic impacts of new activity in the SEA 6 area will be

- **incremental**

or **marginal** (in the economics jargon) rather than absolute. In other words, the impacts will be very different from those which would have occurred if there had been no existing or previous oil and gas-related activity in the area.

11.7 Another key point is that existing oil and gas activity in the UK is declining, as a consequence of falling oil and gas production, and also falling expenditure on the UKCS. Thus the main impacts of SEA 6 activity will be to slow down the declines in the various variables.

11.8 The pessimistic scenario assumes the development of two small fields – one oil, one gas – as subsea tiebacks to the existing facilities in the SEA 6 area. The optimistic scenario assumes that in addition to those there will be two larger field developments – one oil, one gas – which will require new production facilities.

11.9 The pessimistic scenario assumes two small fields of similar size. The oil field will produce up to 5,000 barrels per day (bpd) from recoverable reserves of 1 million tonnes (or 7.5 million barrels). The gas field will produce up to 25 million cubic feet per day (mcfd) from recoverable reserves of 10 billion cubic metres (350 billion cubic feet). In each case we have assumed a five year production life, with three years at peak output and two years at 50% of that level.

11.10 The estimated development cost of each of these two fields is £50 million. Both would be single well subsea tiebacks to existing production facilities.

11.11 The two "optimistic" fields are assumed to be about ten times larger than the pessimistic fields. Thus the oil field will produce up to 50,000 barrels per day from recoverable reserves of 127.5 million barrels (17.0 million tonnes), with a ten year lifetime. The gas field will produce up to 250 million cubic feet per day from recoverable reserves of 3500 billion cubic feet (100 billion cubic metres), also with a ten year lifetime.

11.12 The estimated development cost of each of these two fields is £250 million. Both would require new production platforms, although the gas field may be able to use one of the existing gas pipelines to an onshore terminal.

11.13 In addition, there will be seismic surveys and exploration drilling. For the pessimistic scenario we have assumed two exploration wells and for the optimistic scenario ten exploration and appraisal wells.

11.14 In Section 5 we gave forecasts of UKCS oil production, with the main assumption being an average annual decline of –5%. The pessimistic scenario has a negligible impact. Under the optimistic scenario production would continue to decline but would be slowed down. For example, in 2014 it would be +5.4% higher with SEA 6 production than it would otherwise have been.

11.15 UKCS gas production is also now declining. The forecasts in Section 5 show that continuing at an annual average of –3.0% to 2010 and by –5.0% after that year.

11.16 SEA 6 gas production would begin in 2011. The pessimistic scenario again has a negligible impact. Under the optimistic scenario SEA 6 output would help to slow down the rate of decline. For example, total output in 2022 would be +5.6% higher.

11.17 The impacts on oil and gas reserves are also discussed in Section 5. The optimistic scenario assumes that the SEA 6 fields will have recoverable reserves of 30 billion cubic metres (bcm) gas and 17.0 million tonnes (mt) of oil. The former figure is 6.8% of the DTI's estimate of undiscovered gas reserves on the UKCS and the latter is 2.2% of the DTI's estimate of undiscovered oil reserves. Existing fields in the SEA 6 area currently account for about 15% of UKCS gas production, so we believe that our optimistic scenario is a reasonable one.

11.18 In Section 6 we considered the implications for capital, operating and decommissioning expenditure. The pessimistic scenario involves capital expenditure of just £100 million and the optimistic scenario £600 million.

11.19 Total UKCS expenditure is now declining. The forecasts in Section 6 assume an average annual decline of –10%.

11.20 With the pessimistic scenario, the SEA 6 expenditure accounts for just 2.9% of the Rest of the UKCS forecast in 2010 and 3.2% in 2011. Expenditure under the optimistic scenario would be more significant, accounting for up to 17.3% of the Rest of UKCS expenditure in 2010, with 6.5% in 2009 and 11.2% in 2011.

11.21 These estimates suggest that SEA 6 capital expenditure could be important during a period when development activity on the rest of the UKCS was declining. UK-based suppliers of FPSO and subsea equipment, installation contractors, supply boat and helicopter operators etc would all be very keen to win work for the SEA 6 fields, particularly if their other markets were declining and they had spare capacity.

11.22 Similar calculations of operating expenditure are given in Section 6. Under the optimistic pessimistic scenario SEA 6 expenditure would reach a peak of 3.2% of the UKCS total in 2014.

11.23 In Section 7 we discussed the implications for existing facilities. The main impacts would come from the development and operation of new fields in the SEA 6 area. The development or construction impacts would last for just a few years but the operational impacts could last for many years.

11.24 The existing facilities include the Morecambe Bay production platforms, pipelines and gas terminals at Barrow-in-Furness, and the Liverpool Bay production platforms, pipelines and gas terminal at the Point of Ayr. Oil production from the Liverpool Bay fields uses offshore loading. Both field complexes use the supply base at Heysham.

11.25 Gas production from the Morecambe Bay fields is now declining so there is increasing spare capacity. The operators would welcome new business from any SEA 6 fields. That is also the case with the Liverpool Bay project which could end about 2014.

11.26 In Section 7 there was a brief discussion of possible adverse impacts on other industries, with fishing and tourism being the obvious examples. The main concern of local fishermen is the threat of oil spills. There can also be disruption during pipelaying and "loss of access" attributable to platforms and other facilities.

11.27 The implications for employment were considered in Section 8. The pessimistic scenario is expected to create 405 person years of employment, with a peak of 120 in 2011. For the optimistic scenario the overall total is 2,905 person years, with a peak of 650 in 2010.

11.28 Section 9 considered the implications for tax revenues. They will depend to a large extent on the future levels of oil prices, which are extremely difficult to predict, and the sterling:dollar (£:$) exchange rate.

11.29 Different prices were used in the analysis. Under the pessimistic scenario the tax revenues range from £39.5 million at $20 per barrel to £130.7 million at $50 per barrel. These are small sums but not negligible. Under the optimistic scenario, the range is from £1,003 million to £3,318 million.

11.30 Finally, we made a few comments on social implications in Section 10. As with the economic impacts, these are likely to be incremental or marginal, rather than absolute. Some of the SEA 6 area has been involved with the oil and gas industry for up to 20 years, through the Morecambe Bay and Liverpool Bay developments. Thus people living in towns such as Barrow and Heysham are accustomed to the industry, so for them there are unlikely to be any significant new social impacts, either positive or negative.

11.31 That would not be the case if there were oil/gas-related developments in other parts of the SEA 6 area, such as West Wales or Northern Ireland, where there has been no such activity. Much of the area is rural so new industrial developments could have significant social impacts there. However, the prospects for new SEA 6 activity away from the existing Morecambe Bay and Liverpool Bay complexes appear to be very small.