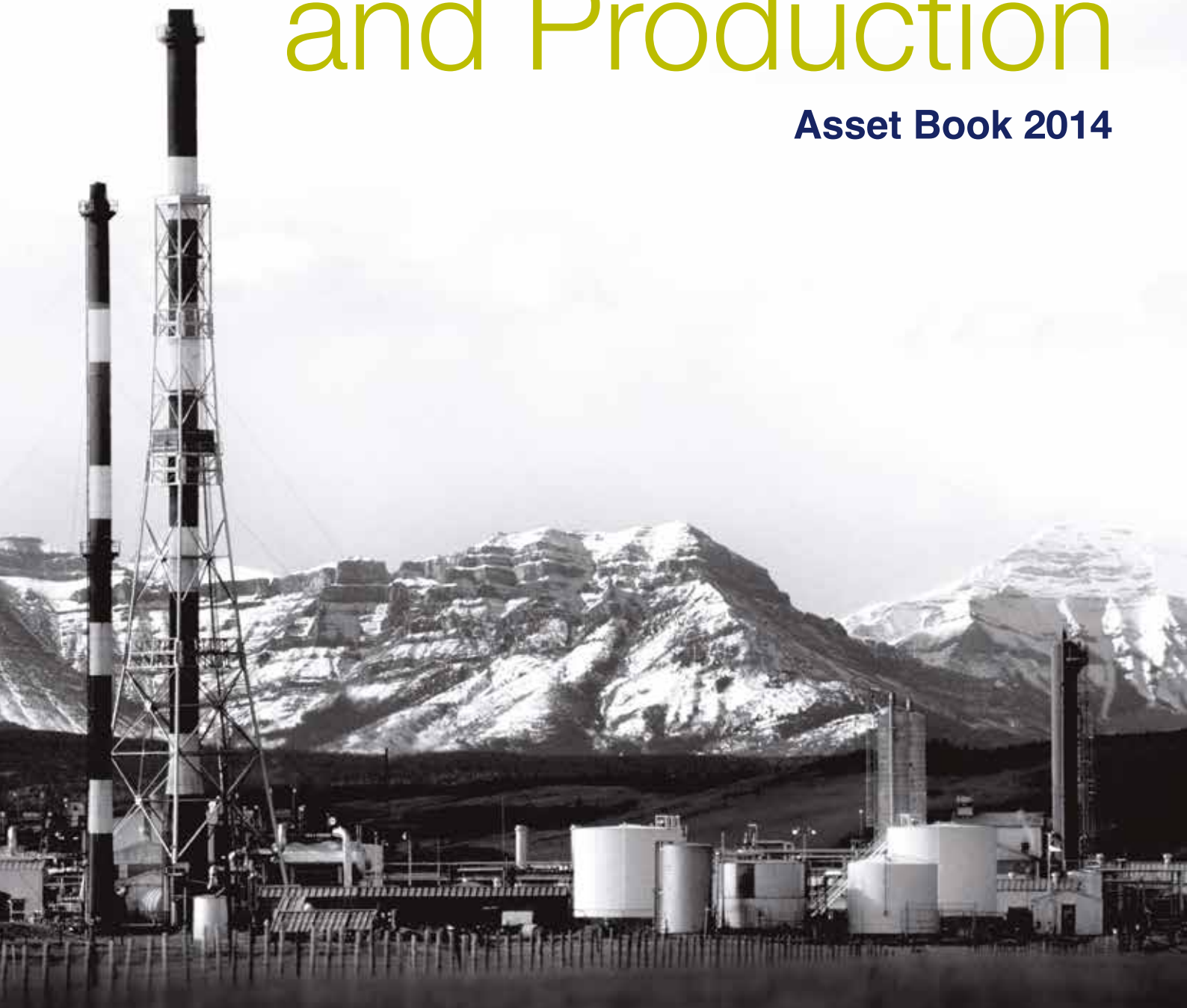


# Exploration and Production

**Asset Book 2014**



**centrica**  
energy





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## 3



## Safety



## High performance



## Pioneering spirit

## 4

Our E&P story started in the East Irish Sea with the discovery of the Morecambe Bay gas field in 1974 by John Bains. As Centrica Energy's sole asset at the time of the company's birth in 1997, the Morecambe operation was the springboard for our growth into what is now an E&P business producing 230mboe/d across five countries on both sides of the Atlantic.

Over 1,700 of my colleagues work every day with the united purpose to make our business aspirations a reality, delivering energy not just for today but well into the future. We are united by a common desire to create a culture across Centrica Energy (CE) which can be summed up in five words; safety, high performance and pioneering spirit. We call this the CE Way and it guides everything we do, ensuring that we do our jobs safely, or not at all, we demand the best from one another and we look for better ways to achieve our goals.

The E&P world is one where you can ill afford to stand still if you want to maintain production, never mind grow it. We are working in a challenging environment where, across the globe, industry players see increasing costs from the supply chain, lower productivity in maturing basins and less than adequate capital project performance. Our strategy is focused on three regional businesses, which positions us well to compete against this backdrop.

In Norway, we are building on proven exploration performance; in the UK and Netherlands we are focused on operational excellence and efficiency to maximise recovery from existing hubs; and in Canada, with our partner Qatar Petroleum International, we are exploiting the full potential of the acreage we have acquired. We recognise that choices have to be made to prioritise where we spend our capital, which over the next three years will be in the region of £2.7 billion. Continued financial discipline will ensure investment continues to be targeted to the best opportunities.

Our Asset Book provides key data on our operations. As well as serving as a useful reference document, we hope it conveys the strength and diversity of the portfolio that Centrica Energy has built.

**Sarwjit Sambhi**  
 Managing Director,  
 Centrica Energy Exploration & Production





# Our story so far



In the last three years, Centrica Energy has delivered on an ambitious growth agenda, increasing oil and gas production by 50%. Our total production in 2013 was 77.3million barrels of oil equivalent.

At the same time we've secured our position as a top gas producer on the UK Continental Shelf. Across the UK and the Netherlands we operate 42 fields, of which 23 are producing. We have a non-operated position in a further 33 fields, of which 22 are in production.

We have an established business with operated assets on the Norwegian Continental Shelf, where we have had an excellent exploration success rate. One of our six operated fields is already in production, and we have a non-operated position in 13 fields.

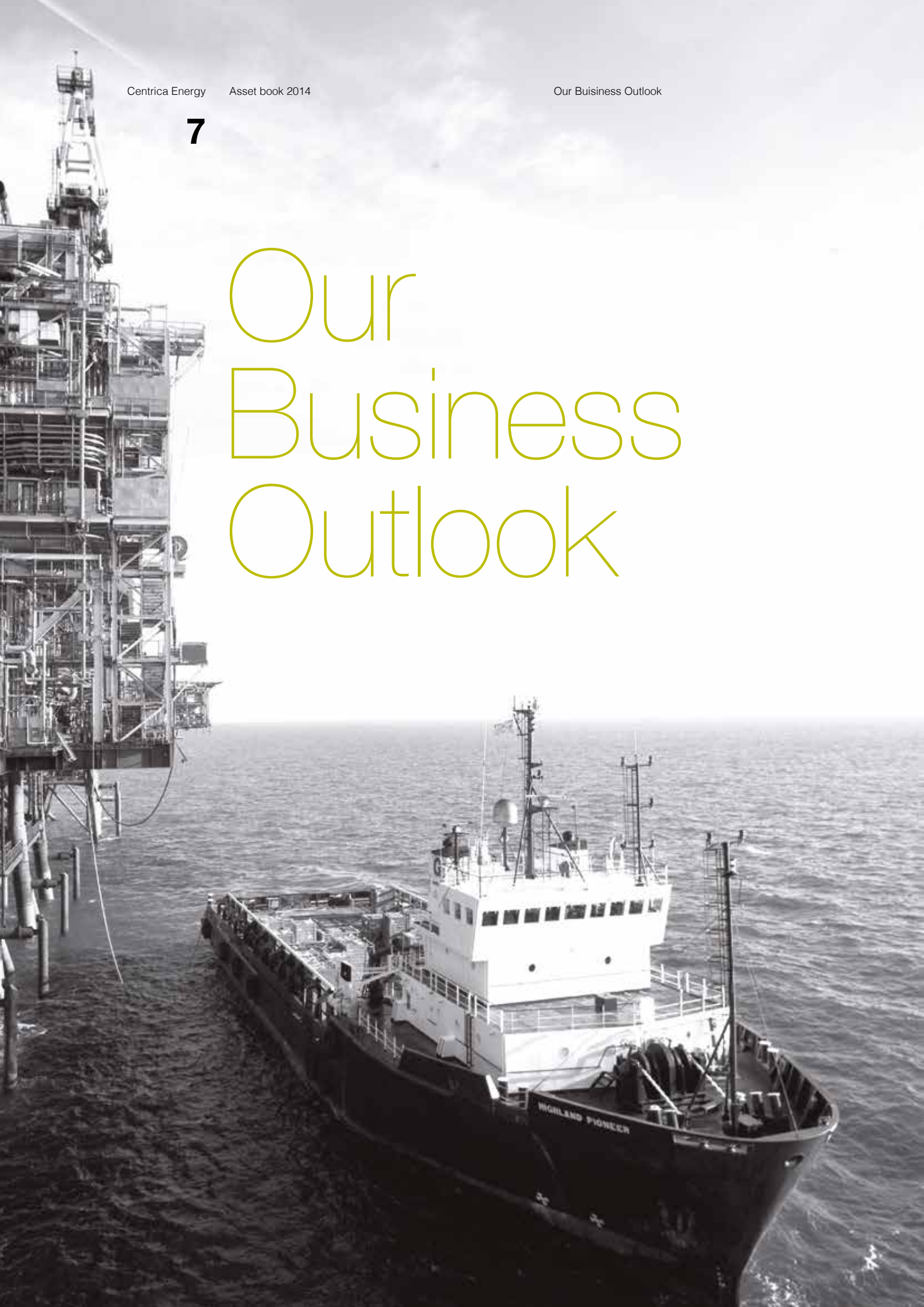
In Canada, we completed the C\$1billion acquisition of Suncor's conventional natural gas assets in 2013 alongside our partners Qatar Petroleum International. The deal means we are now a top ten gas producer in the Western Canadian Sedimentary Basin, operating around 7,000 wells.

In Trinidad & Tobago we have completed an extensive seismic programme and are reviewing the results of two appraisal wells.



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# Our Business Outlook



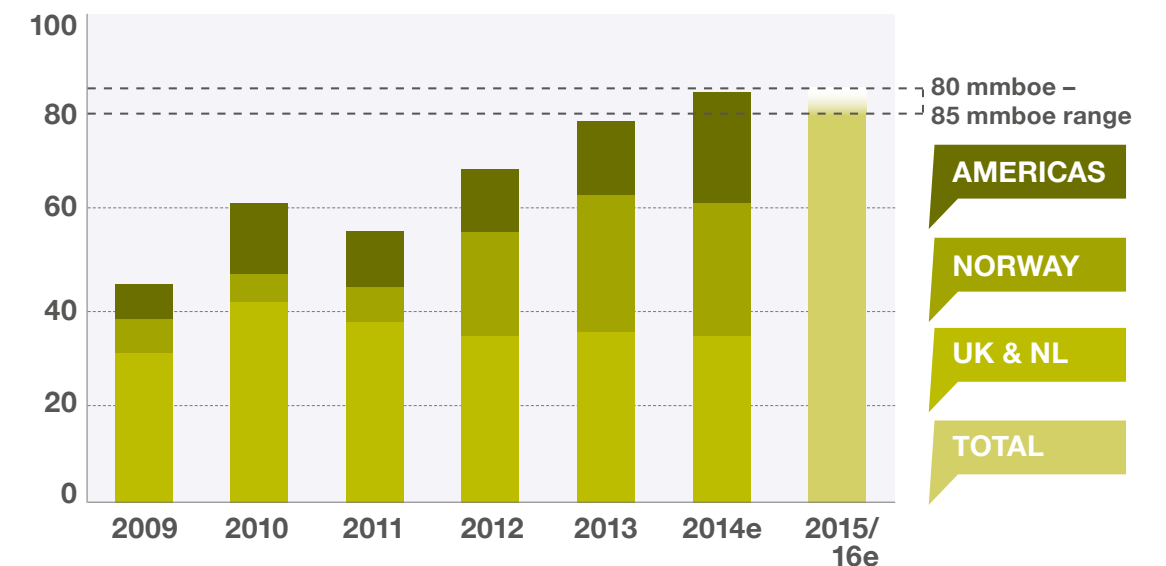
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Through 2013 we added 155mmboe in total to our 2P reserves, organically and through acquisition. We also have a number of attractive investment options, particularly in Norway and Canada, having increased our 2C resource base by 28% to 771mmboe over the year. However, with rising costs, in the UK in particular, we are targeting savings to keep unit lifting and other cash production costs flat over the next three years.

Against this backdrop, we are being increasingly selective in our investment, concentrating on the most attractive opportunities. An increasing proportion is expected to be directed towards North America. Taking account of forward UK gas prices and higher costs, we are targeting organic investment in gas and oil projects of approximately £900million on average over the next three years. We expect near-term production to be in the range of 80-85mmboe per annum (220-233mboe/d). Our current level of committed capital expenditure in the short to medium term gives us flexibility to consider acquisition opportunities, if the economics are attractive and the assets provide a good fit with our existing portfolio, while potentially divesting non-core assets for value.

Our recent exploration performance has been strong, particularly in Norway with five successes in the last nine wells. Going forward we have a strong portfolio of prospects at all stages of the development hopper. In the UK and the Netherlands we operate or have an interest in 190 licences, and in Norway we have over 90. Across Canada and Trinidad and Tobago we have over 500mmboe of contingent resources. In Canada we own over one million acres of undeveloped leasehold, and in Trinidad and Tobago we are currently participating in four offshore licences.

## GLOBAL GAS & OIL PRODUCTION OUTLOOK (MMBOE/A)



\* All information correct as of 12 May, 2014.





# Regional Overview

**Centrica Energy has three core regions in UK & the Netherlands, Norway and Canada, as well as assets in Trinidad & Tobago. Each one has a portfolio of producing assets, developments and exploration potential.**





# UK and the Netherlands

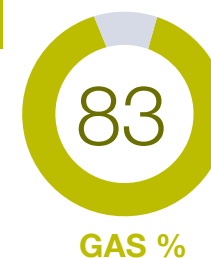


Centrica Energy is one of the top gas producers on the UK Continental Shelf, and the North Sea will continue to be a key part of our portfolio. We want to maximise value from our existing asset hubs, and we will continue to invest in the North Sea to help it reach its potential.

Our assets in the UK/NL range from Chestnut in the Central North Sea to Markham in the Netherlands and the hugely important Morecambe field in the East Irish Sea. We also have a number of significant developments in progress, including Cygnus and the continued expansion of the York area in the Southern North Sea, and we are building on our Markham hub through the Grove development. Our success in recent licensing rounds is also yielding exciting exploration prospects across the whole region, aimed at building on our existing production hubs or core areas to create value.

2013 PRODUCTION:

**99.5**  
(mboe/d)



(£/boe)  
**11.55**  
2013 UNIT LIFTING AND OTHER CASH PRODUCTION COSTS

(£/boe)  
**12.23**  
2013 DD&A RATE

**0.15**  
TOTAL RECORDABLE INCIDENT FREQUENCY

## NORTH CENTRAL NORTH SEA

Centrica Energy has created considerable value from its operated assets in the Central Northern Sea and they continue to be material contributors to our portfolio. Our key hubs in the region are Trees, Chestnut and Armada, while we also have interests in the Alba, Brae and Beryl assets.

### KEY HUBS

#### Trees

The Trees area comprises the Birch, Larch, Sycamore Central and Sycamore South fields, in which Centrica Energy has a 100% operated interest. Birch, Larch and Sycamore Central, 200km north east of Aberdeen, are subsea developments tied back to the Marathon-operated Brae platform. Sycamore South has been developed using an extended reach well from the CNR-operated Tiffany platform. Further development of Sycamore South, Larch and other potential prospects are currently under evaluation.

**Status:** Producing oil.

**Production\*:** 1.3mboe/d

#### Chestnut

Chestnut was discovered in 1986 by Premier Oil. In 2003, Centrica Energy acquired a 70% interest in the field 200km north east of Aberdeen and became operator. It was brought on-stream in 2008 using the Hummingbird Spirit, the innovative Sevan Marine 300 floating production vessel. A further production

well was drilled in 2009, increasing production and reserves for the field. A side-track of the existing water injection well was drilled in late 2011 to increase injectivity and reservoir pressure and has proven to be very successful. The contract for the Hummingbird Spirit has been extended until 2016, and studies are now underway to evaluate options to optimise production from the field.

**Status:** Producing oil.

**Production:** 3.1mboe/d

#### Armada

Armada comprises three producing fields: Drake, Fleming, and Hawkins. These have been developed from a single platform, from which producing satellite fields Seymour and Maria have also been developed. Centrica Energy purchased an additional non-operated interest in these assets from Total in 2012 – this increased the company's interest in Armada from 11% to 23.6%, in Seymour from 18% to 43% and in Maria from 35% to 64%.

**Status:** Producing – Armada: gas/condensate, Seymour: oil and gas/condensate, Maria – oil and gas

**Production:** 3.1mboe/d net

### OTHER ASSETS

#### Alba

The producing facilities consist of the Alba North platform, 210km north east of Aberdeen. There are also two subsea tie-back well manifolds. The field is subject to Petroleum Revenue Tax.

Oil export is by tanker via an associated floating storage unit and Centrica Energy has a non-operated interest of 12.7% in the field, acquired in 2012.

**Status:** Producing oil.

**Production:** 2.6mboe/d net

#### Brae

The Brae complex 200km north east of Aberdeen comprises a number of fields developed using a combination of fixed platform and subsea tie-backs. Gas is exported through the SAGE (Scottish Area Gas Evacuation) system to the SAGE gas plant at St Fergus in Aberdeenshire. Centrica Energy has non-operated interests ranging from 5% to 8% in the fields in the area, and 4% in the SAGE pipeline. The field is subject to Petroleum Revenue Tax.

**Status:** Producing oil and gas.

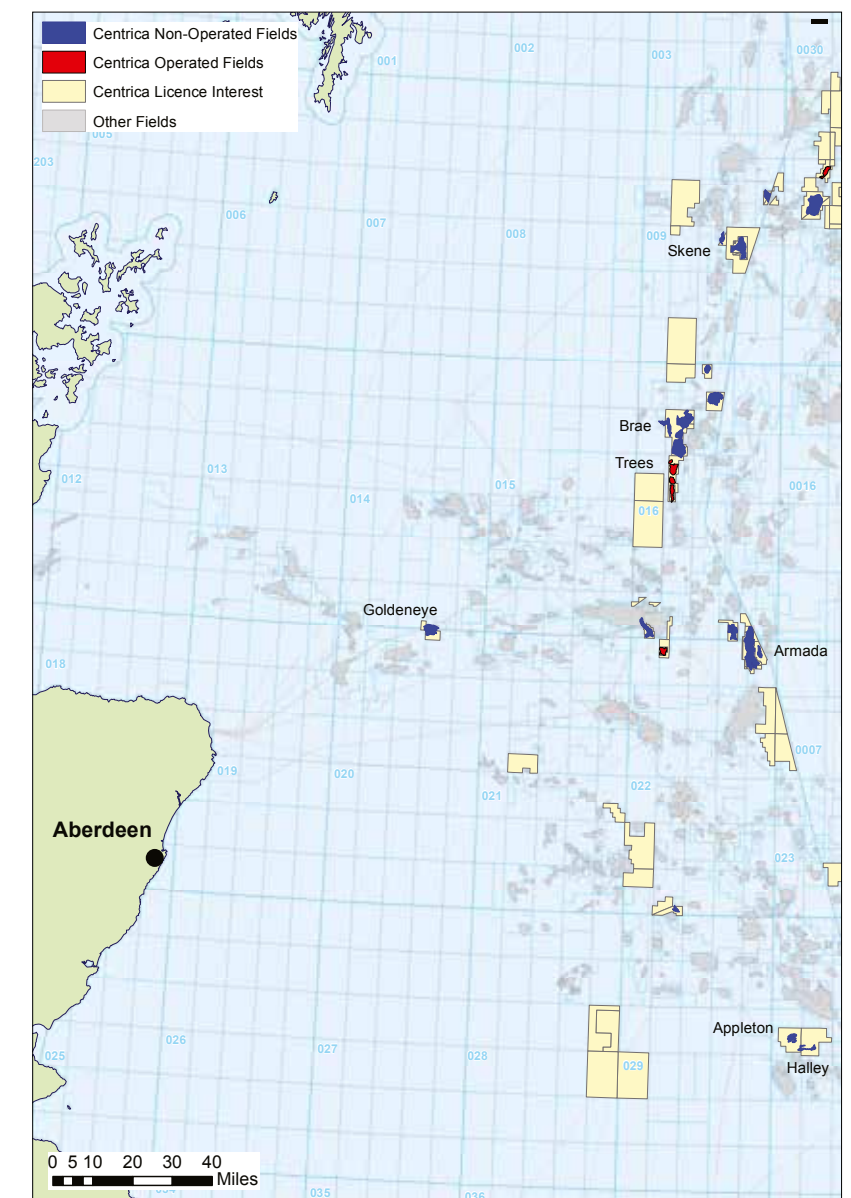
**Production:** 1.9mboe/d net

#### Beryl

The Skene and Buckland fields are subsea developments 230km north east of Aberdeen, tied back to the Apache-operated Beryl complex. Skene is a gas condensate field, while Buckland is an oil producing field. Centrica Energy has a 33.33% non-operated share in both fields and the surrounding acreage.

**Status:** Producing oil and gas.

**Production:** 1.2mboe/d net



North Central North Sea



## SOUTHERN NORTH SEA

The Southern North Sea plays a key role in Centrica Energy's portfolio. Three significant developments have achieved first gas in the past three years: Ensign (2012), Seven Seas (2012) and York (2013), while first gas at Cygnus – the largest gas discovery in the Southern North Sea in 25 years – is targeted for the end of 2015.

Our key hubs in the Southern North Sea are Greater York, the A Fields and Cygnus, while our other assets in the region include the Western Area, Amethyst, Galleon and Ravenspurn North.

### KEY HUBS

#### Greater York

The York gas field (York East, South and South East) is operated and 100% owned by Centrica Energy and utilises existing Centrica Storage Limited (CSL) infrastructure at the Easington Terminal. First gas was achieved in March 2013, and the hub, which is north of the Rough gas storage field, is an important part of our growing footprint in the region. The project involved building and installing a 2,750-tonne unmanned platform, fabricating and laying a 20-mile pipeline, and installing more than 50 pieces of major equipment at the Easington terminal.

There is additional upside potential in the surrounding exploration acreage that was applied for and awarded in the 26th UK Licensing Round. York West has been added to the prospects inventory. The York platform has been constructed so it can receive gas from adjacent fields, creating a regional Centrica Energy-controlled hub and increasing throughput with further infill, exploration and third party projects to maximise value.

**Status:** Producing gas

**Production:** 12.5mboe/d

#### A Fields

The area comprises five operated fields for Centrica Energy – Ensign, Ann, Audrey, Alison and Annabel – and lies approximately 100km north east of the Norfolk coast. Audrey is the main gas processing and export hub for the operated fields, with gas exported via the LOGGS (Lincolnshire Offshore Gas Gathering System) pipeline. Ensign, a tight gas reservoir which had remained undeveloped due to its complex nature, was brought on stream in 2012. Potential infill opportunities around Audrey and Annabel are currently being worked on, and further opportunities around Ensign, Ann and Alison have also been identified.

The area also comprises four non-operated producing gas fields - Victor, Saturn, Mimas and Galleon - in which Centrica Energy has an interest of 30%, 22%, 15% and 8.4% respectively. The Victor and Galleon fields are subject to Petroleum Revenue Tax.

**Status:** Producing gas fields

**Production:** 6.5mboe/d net

#### Cygnus

The Cygnus field development, 160km north east of the North Norfolk coast, is a non-operated project (Centrica Energy equity 48.75%), which was sanctioned in August 2012. It is a core asset for Centrica Energy and we are actively engaged with operator GDF Suez on the project.

The Cygnus hub is made up of two drilling centres, Cygnus Alpha and Cygnus Bravo, for which 10-12 development wells are planned with drilling due to start in 2014. Gas will be exported to the Bacton Terminal for further processing via a new pipeline tied into the existing Eagles Transmission System.

There is significant upside potential in Cygnus and the surrounding acreage, and the development will serve as a hub for the wider area.

Centrica Energy and its partners plan to drill two wells yearly to explore and appraise the area, starting in 2014.

**Status:** Development project – production targeted late 2015

## OTHER ASSETS

### Western Area

This area comprises three operated producing fields developed as subsea tie backs; Seven Seas, Eris and Ceres.

The Seven Seas gas field came online in October 2012. Gas from the field, 60km off the East Yorkshire coast, flows via Perenco's West Sole Alpha platform before being processed onshore at the company's Dimlington Terminal at Easington. Planning has started on a second well at the field.

Eris and Ceres, located north west of Dimlington, both came on stream in 2010.

**Status:** Producing gas

**Production:** 6.2mboe/d net

### Amethyst

Centrica Energy has a 9% non-operated interest in Amethyst, located north west of the Dimlington Terminal. Future well intervention and brownfield opportunities are currently being reviewed. The field is subject to Petroleum Revenue Tax.

**Status:** Producing gas

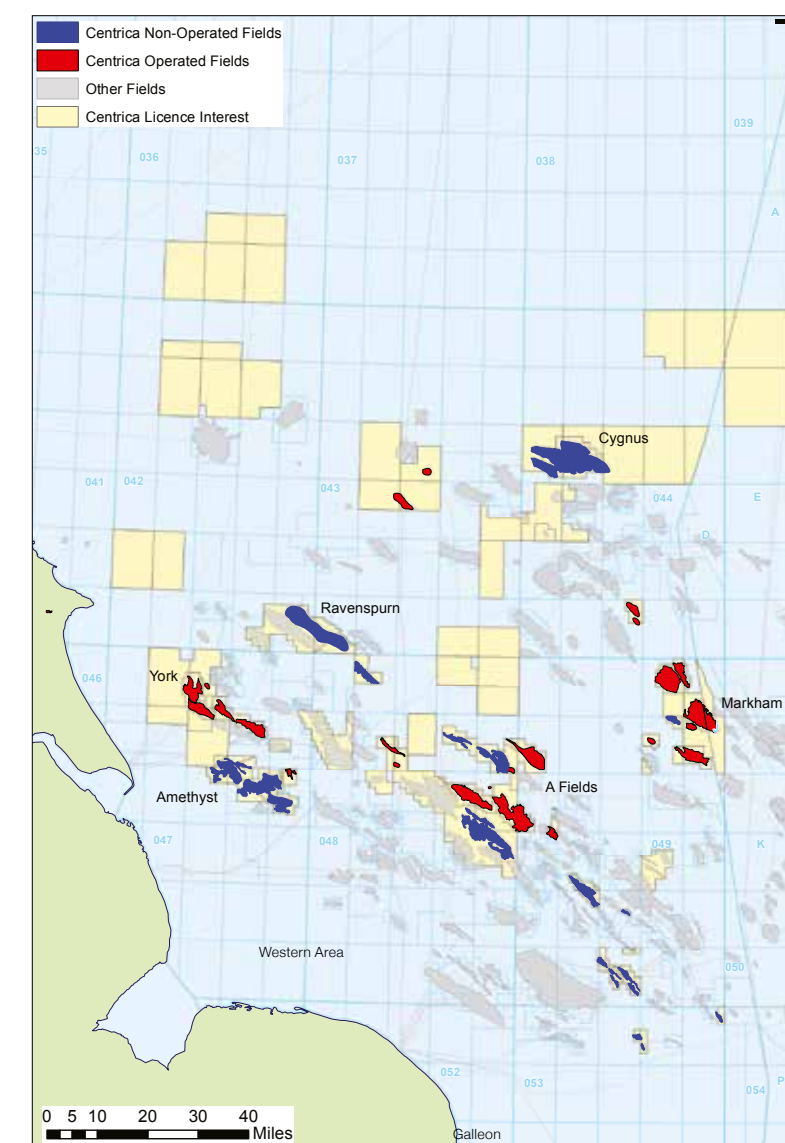
**Production:** 0.3mboe/d net

### Ravenspurn North

Ravenspurn North, where Centrica Energy has a 17.8% interest, is located north west of the Dimlington Terminal. The field is subject to Petroleum Revenue Tax.

**Status:** Producing gas

**Production:** 1.6mboe/d



Southern North Sea



## MORECAMBE BAY

The combined fields of Morecambe Bay remain a cornerstone asset for Centrica Energy, offering unique flexibility, and the area continues to provide a significant portion of the UK's gas supply. Since 2009, Centrica Energy has embarked on an exploration and appraisal programme in Morecambe Bay to establish the remaining potential of the area. Five exploration and appraisal wells have been drilled and the first 3D seismic survey over the South Morecambe field in over 30 years has been completed. In March 2013, the Rhyl field was brought into production, further maximising the use of the existing infrastructure, while we have development options at Knox and Lowry. We also operate the Bains field, named after the late John Bains in recognition of his work to discover the huge gas reserves in Morecambe Bay. The hub is now focused on delivering three one-well subsea tie-back developments by 2016, and exploring the remaining exploration potential underneath the South Morecambe field.

### South Morecambe

The field was originally discovered in 1974, with first production in 1985. South Morecambe, 39km west of Barrow-in-Furness, is entirely owned and operated by Centrica Energy.

The field has been developed using seven fixed jacket platforms and over 35 development wells. Gas is exported via a 36" dedicated pipeline to the Barrow Gas Terminals, which are also operated by Centrica Energy.

South Morecambe was the company's first producing field, and ongoing processing and interpretation of seismic surveys will support decisions on

extending its life further with potential infill drilling. Work on a well intervention programme is also underway to maximise near-term production. The field is subject to Petroleum Revenue Tax.

**Status:** Producing gas.

**Production:** 23.5mboe/d

### North Morecambe

North Morecambe was discovered in 1976, with first gas in 1994. It is entirely owned and operated by Centrica Energy.

The field, which is adjacent to the South Morecambe field, also acts as the main transportation hub for the area. The Rivers, Millom and Dalton fields, operated by ConocoPhillips, are tied back to the normally-unmanned North Morecambe platform.

There is potential for further satellite developments to produce through this complex and a well intervention programme is ongoing to maximise near-term production from the field.

**Status:** Producing gas field and transportation/processing hub.

**Production:** 3.4mboe/d

### Rhyl

Rhyl was discovered in 2009 by Centrica Energy and brought into production in March 2013. Rhyl, which is north of the North Morecambe field, has been developed as a two-well subsea tie-back to the North Morecambe platform.

In 2013 Centrica Energy successfully drilled the Whitehaven appraisal well, discovering further gas reserves 3km to the south of the Rhyl field. The Whitehaven well is currently awaiting a final investment decision for development.

**Status:** Producing gas.

**Production:** 2.8mboe/d

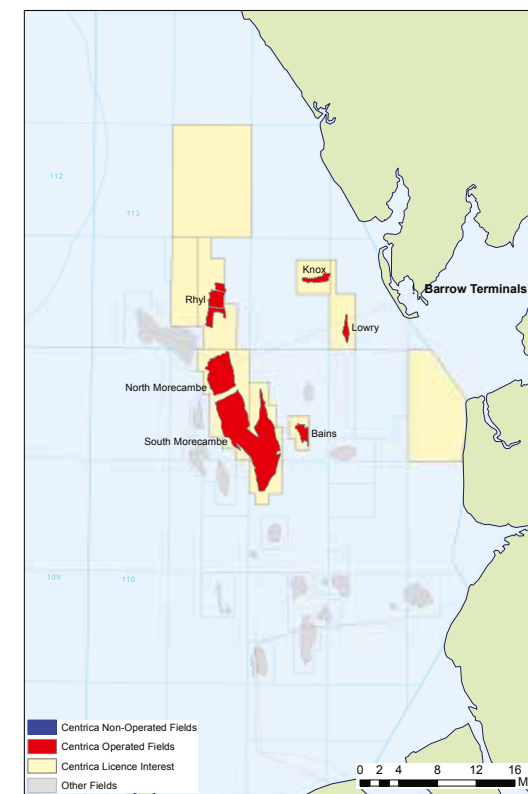
## OTHER ASSETS

### Bowland Shale

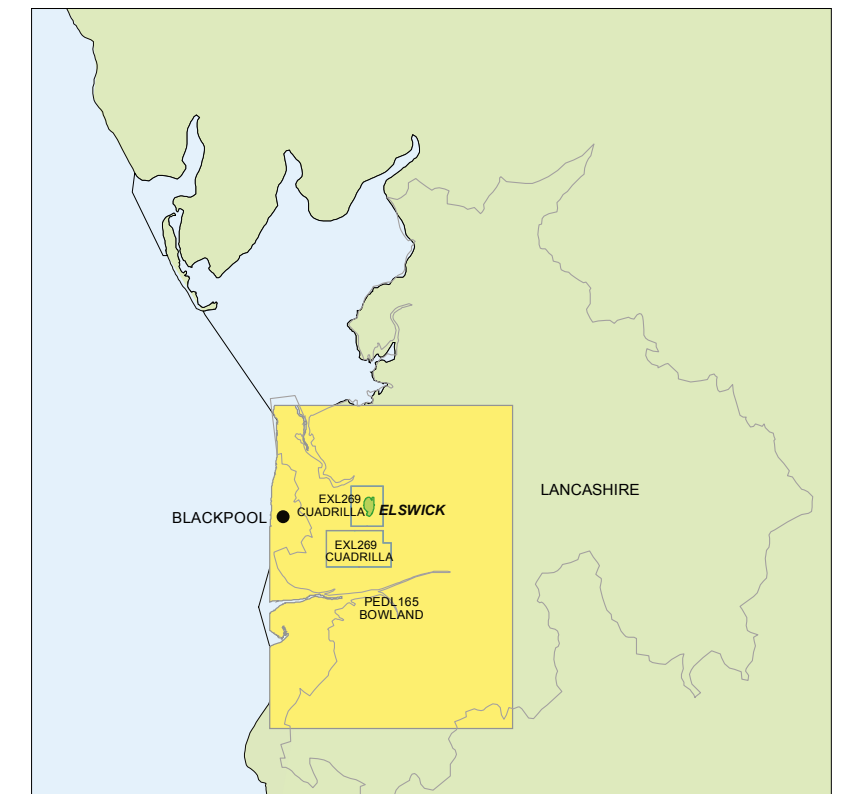
In June 2013, Centrica Energy signed an agreement with Cuadrilla Resources to acquire 25% of its PEDL 165 exploration licence and 22.75% of its EXL 269 licence for the Bowland shale area in Lancashire, North West England. The licence itself covers an area in the region of 1,200km<sup>2</sup> near Blackpool on the Fylde coast. EXL 269 is contained with PEDL 165 and covers the Elswick gas field, a conventional gas field which came on stream in 1997 and is currently not producing.

Further drilling will be required to better understand the commercial viability of the discovery, but initial data suggests that there could be up to 200 trillion cubic feet of gas within the licence area.

**Status:** Exploration project.



Morecambe Bay



Bowland Shale



# NETHERLANDS

Centrica Energy operates two key hubs in the Dutch North Sea, the Greater Markham Area (GMA) and F3-FA, from its Hoofddorp office in the Netherlands.

## Greater Markham Area (GMA)

The GMA hub comprises of the Markham, Chiswick, Grove and Kew fields. Centrica Energy also has non-operated interests in the Windermere and J3C fields within the GMA. The Markham J6-A platform serves as the processing hub for the GMA fields.

Markham was discovered in 1987 by Ultramar and production began in 1992. Centrica Energy acquired 37.5% equity in the unitised field through the Venture transaction in 2009. All production is transported via the Westgastransport (WGT) pipeline system to the Den Helder gas processing plant.

Chiswick was discovered in 1984, with Centrica Energy acquiring 100% equity in the field through the Venture transaction. The field was developed using hydraulic fracturing of long horizontal wells and came on stream in 2007. There are now four operational wells.

Grove was discovered in 1971, with Centrica Energy becoming the operator when it acquired an 85% stake through the acquisition of Newfield Petroleum in 2007. The company acquired a further 7.5% from Sojitz in 2008. The field was brought on stream in 2007.

Kew was discovered in 1988 by Ultramar and Centrica Energy acquired 100% equity in the field in 2006. An appraisal well was drilled in 2009, with a further development well drilled in 2013. The subsea well is tied back to the Chiswick platform and production commenced in January 2014.

**Status:** Producing gas

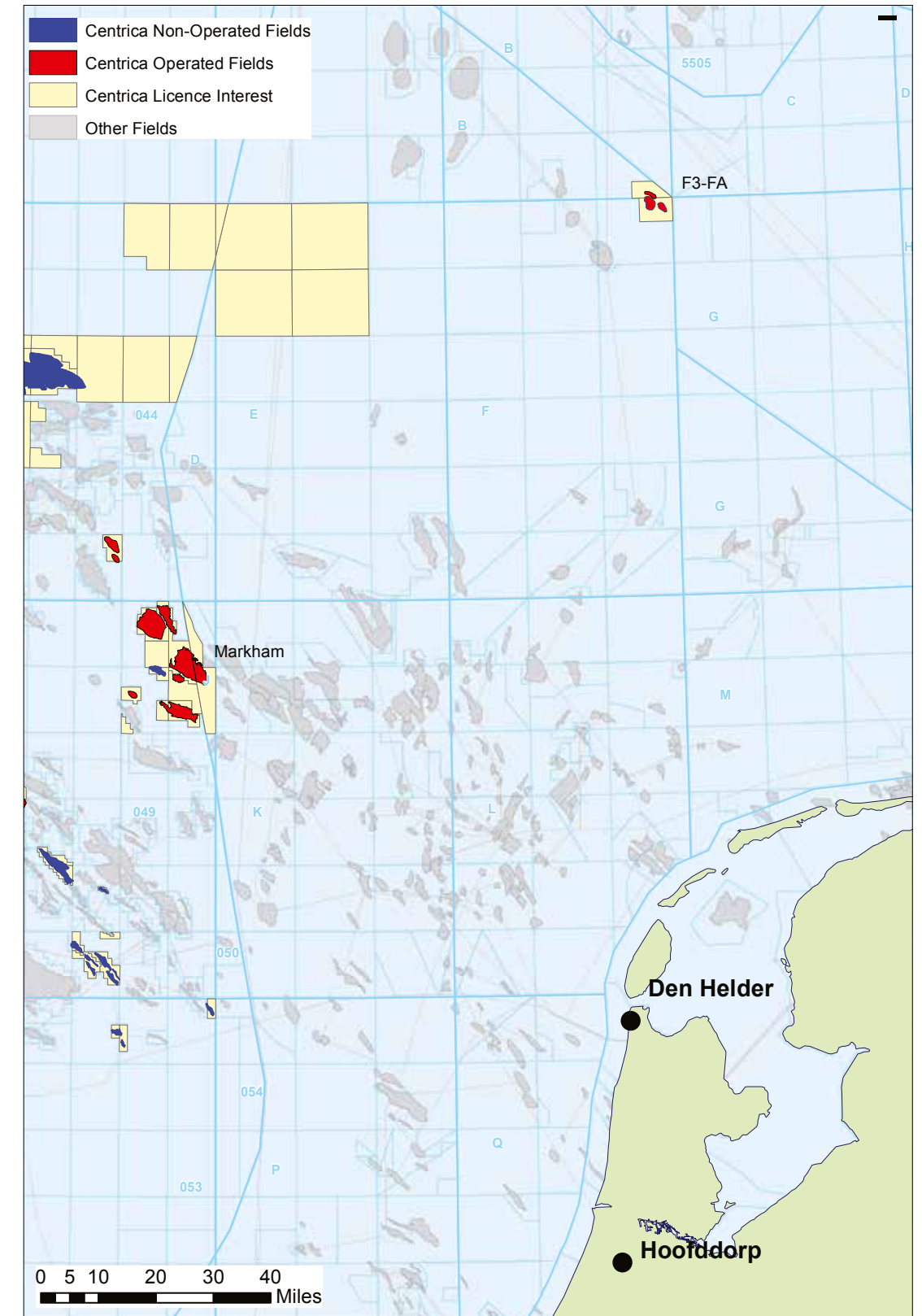
**Production:** 22.3mboe/d net

## F3-FA

The F3-FA field was originally discovered in 1971 by NAM, but not developed due to its geological complexity and challenging economics. Centrica Energy acquired operatorship through the Venture transaction and the company now holds a 58% working interest in the field. The F3-FA field came on stream in January 2011 via the largest self-installing platform in the North Sea, and current production from the field comes via a single development well. Gas from the field is transported via the Northern Offshore Gas Transport (NOGAT) pipeline to the Den Helder gas processing plant. F3-FA has been named the richest well in the Dutch offshore sector for two consecutive years.

**Status:** Producing gas

**Production:** 4.7mboe/d net





## UK/NL OPERATED ASSETS

## PRODUCING ASSETS

ASSET	CE E&P %	OPERATOR	STATUS	PRODUCTION (actual 2013, mboe net)	RESERVES (end 2013, net mboe)
<b>NORTH CENTRAL NORTH SEA</b>					
<b>Greater Kittiwake Area</b>				<b>899</b>	<b>3,759 2P</b>
- Kittiwake	0.00	CE E&P	Sold 28/02/14	61	
- Goosander	0.00	CE E&P	Sold 28/02/14	341	
- Grouse	0.00	CE E&P	Sold 28/02/14	313	
- Mallard	0.00	CE E&P	Sold 28/02/14	183	
<b>Trees Area</b>				<b>325</b>	<b>1,750 2P</b>
- Birch	100.00	CE E&P	Producing	161	
- Larch	100.00	CE E&P	Producing	14	
- Sycamore	100.00	CE E&P	Producing	150	
<b>Chestnut Area</b>				<b>1,661</b>	<b>3,330 2P</b>
- Chestnut	69.88	CE E&P	Producing	1,661	
<b>MORECAMBE BAY</b>					
<b>South Morecambe Area</b>				<b>10,979</b>	<b>50,963 2P</b>
- South Morecambe	100.00	CE E&P	Producing	10,979	
- Bains	86.80	CE E&P	Currently shut in	0	
<b>North Morecambe Area</b>				<b>1,814</b>	<b>24,501 2P</b>
- North Morecambe	100.00	CE E&P	Producing	1,233	
- Rhyl	100.00	CE E&P	Producing	581	
<b>SOUTHERN NORTH SEA</b>					
<b>A Fields Area</b>				<b>1,523</b>	<b>10,008 2P</b>
- Annabel	100.00	CE E&P	Producing	637	
- Audrey	100.00	CE E&P	Producing	33	
- Ann/Alison	100.00	CE E&P	Currently shut in	0	
- Ensign	100.00	CE E&P	Producing	854	

## PRODUCING ASSETS

ASSET	CE E&P %	OPERATOR	STATUS	PRODUCTION (actual 2013, mboe net)	RESERVES (end 2013, net mboe)
<b>Western Area</b>				<b>4,198</b>	<b>22,230 2P</b>
- Eris	54.00	CE E&P	Producing	282	
- Ceres	90.00	CE E&P	Producing	754	
- Seven Seas	90.00	CE E&P	Producing	808	
- York	100.00	CE E&P	Producing	2,355	
<b>NETHERLANDS</b>					
<b>Greater Markham Area</b>				<b>7,010</b>	<b>48,311 2P</b>
- Markham	37.53	CE E&P	Producing	159	
- Chiswick	100.00	CE E&P	Producing	5,170	
- Grove	92.50	CE E&P	Producing	1,681	
- Kew	100.00	CE E&P	Producing (Jan 2014)	0	
<b>Nothern Fields</b>				<b>2,011</b>	<b>4,850 2P</b>
- F3-FA	58.00	CE E&P	Producing	2,011	





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## UK/NL NON-OPERATED ASSETS

## PRODUCING ASSETS

ASSET	CE E&P %	OPERATOR	STATUS	PRODUCTION (actual 2013, mboe net)	RESERVES (end 2013, net mboe)
<b>NORTH CENTRAL NORTH SEA</b>					
<b>Armada Area</b>				<b>2,037</b>	<b>1,871 2P</b>
- Armada	23.58	BG	Producing	890	
- Maria	64.00	BG	Producing	605	
- Seymour	43.00	BG	Producing	542	
<b>Beryl Area</b>				<b>594</b>	<b>1,927 2P</b>
- Skene	33.33	ExxonMobil	Producing	452	
- Buckland	33.33	ExxonMobil	Producing	142	
<b>Brae Area</b>				<b>754</b>	<b>3,607 2P</b>
- Brae West	8.00	Marathon	Producing	219	
- Brae NSC	8.00	Marathon	Producing	189	
- Brae East	7.32	Marathon	Producing	280	
- Brae Beinn	8.00	Marathon	Producing	19	
- Braemar	5.00	Marathon	Producing	47	
- SAGE	4.00	Mobil	Pipeline & Terminal	NA	
<b>Other Areas</b>				<b>784</b>	<b>5,703 2P</b>
- Alba	12.65	Chevron	Producing	751	
- Halley	40.00	Talisman	Producing	33	
<b>SOUTHERN NORTH SEA</b>					
<b>A Fields Area</b>				<b>1,023</b>	<b>4,567 2P</b>
- Saturn	22.00	ConocoPhillips	Producing	532	
- Victor	30.00	ConocoPhillips	Producing	280	
- Galleon	8.40	Shell	Producing	174	
- Mimas	15.00	ConocoPhillips	Producing	37	
<b>Western Area</b>				<b>654</b>	<b>1,905 2P</b>
- Ravenspurn North	17.75	BP	Producing	363	
- Babbage	0.00	Eon-Rhurgas	Sold 09/09/13	158	
- Amethyst E&W	8.95	BP	Producing	133	

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## PRODUCING ASSETS

ASSET	CE E&P %	OPERATOR	STATUS	PRODUCTION (actual 2013, mboe net)	RESERVES (end 2013, net mboe)
<b>Southern Area</b>				<b>23</b>	<b>41 2P</b>
- Davy East	40.00	Perenco	Producing	14	
- Thames	10.00	Perenco	Shut in	9	
<b>NETHERLANDS</b>					
<b>Greater Markham Area</b>				<b>41</b>	<b>181 2P</b>
- Windermere	20.00	RWE Dea	Producing	16	
- J3aC	4.03	Total	Producing	24	

## DEVELOPMENT ASSETS

ASSET	CE E&P %	OPERATOR	STATUS	KEY MILESTONES (anticipated year)	2C RESOURCES (net mboe)
<b>SOUTHERN NORTH SEA</b>					
- Cygnus	48.75	GDF	Current Project	First Prod 2015	61,862 (inc. 52,662 2P)
- Olympus	100.00	CE E&P	Development Option		5,321 2P
- Annabel Infill	100.00	CE E&P	Development Option	First Prod 2015	9,000
- York	100.00	CE E&P	Appraisal		12,600
- Ravenspurn North	17.75	BP	Development		4,700
- Pegasus	55.00	CE E&P	Discovery		5,900
- Humphrey	40.00	GDF			1,200
<b>CENTRAL AND NORTHERN NORTH SEA</b>					
- Chestnut Infill	69.88	CE E&P	Development Option		10 800
<b>MORECAMBE BAY</b>					
- Lowry	100.00	CE E&P			2,900
- Knox	100.00	CE E&P			4,600
<b>NETHERLANDS</b>					
- Grove infill	92.50	CE E&P	Development Option		8,988
- Grove NE	92.50	CE E&P	Development Option		9,512

# Norway



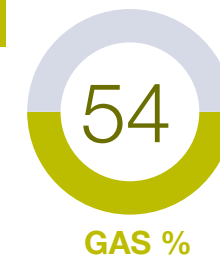
Photo: Oyvind Hagen, Statoil

Since entering Norway in 2006, Centrica Energy has built an established business on the Norwegian Continental Shelf. We have had several years of successful growth through acquisitions, discoveries and a high number of licence awards and now have a portfolio of operated and non-operated assets.

Centrica Energy has non-operated interests in major Norwegian fields such as Statfjord and Kviteseid, and also operates the Vale field with 50% equity. We have an interest in more than 60 licences, and we are currently participating in a seven-well drilling programme, of which three are operated by Centrica Energy.

## 2013 PRODUCTION:

**65.5**  
(mboe/d)



(£/boe)  
**14.30**  
2013 UNIT LIFTING  
AND OTHER CASH  
PRODUCTION COSTS

(£/boe)  
**13.95**  
2013 DD&A RATE

**1.11**  
TOTAL RECORDABLE  
INCIDENT FREQUENCY





Norway

## PRODUCING ASSETS

### Vale

The Vale field is the first producing field operated by Centrica Energy on the Norwegian Continental Shelf. The operatorship was transferred to Centrica Energy in 2012.

Vale, around 80km west of Stavanger, is a gas/condensate field developed via a single subsea well tied back by a 16km pipeline to the Heimdal Gas Centre. Production of Vale commenced in 2002, and the initial life of the field was anticipated to be 10 years. The authorities have recently given consent for a lifetime extension for Vale to June 2021.

In 2013 Centrica Energy divested 25.80% of its interest to LOTOS, and now holds 50% equity in the Vale field.

**Status:** Producing gas/condensate

**Production:** 5.5mboe/d net

### Heimdal

Heimdal was discovered in 1972 and production started in 1986. The Heimdal field and facilities, around 80km west of Stavanger, are currently operated by Statoil. In 2000, the facilities were converted to enable processing of third party gas and now all production comes from third party fields. The Heimdal facilities consist of two platforms, a riser platform and the Heimdal Gas Centre. The Heimdal Gas Centre is an integral part of the Gassled gas export system and is connected to landing points both in the UK (St. Fergus) and Europe. Condensate is exported to Brae and on to Cruden Bay in the UK via the Forties Pipeline System.

Centrica Energy acquired Marathon's equity in Heimdal, Skirne and Peik in 2008 and further increased its equity in 2012 through its acquisition from Statoil. After the divestment to LOTOS in 2013,

Centrica Energy's Heimdal share was reduced from 33.8% to 28.8%. From late 2014, the Heimdal facilities will also process rich gas from the Valemon field.

**Status:** All Heimdal production wells were shut in November 2011. The satellite fields are all producing.

### Statfjord

Statfjord, 180km west of Sognefjord in Norway, was discovered by Mobil in 1974 and has been producing since 1979. By the end of 2013, the field had produced in excess of 5billion barrels of oil equivalent.

The field is operated by Statoil and Centrica Energy currently owns a 34.3% interest in the field as well as interests in the Statfjord Nord, Statfjord Øst and Sygna satellite fields. The lifetime of Statfjord A has been extended to 2020 from 2017. The field straddles the UK and Norwegian sectors of the North Sea, and the UK area of the field is subject to Petroleum Revenue Tax.

**Status:** Producing oil & gas

**Production:** 24.2mboe/d net

### Kvitebjørn

The Kvitebjørn field is a high pressure, high temperature field that was discovered by Statoil in 1994, with production commencing in 2004. It is located in the Viking Graben, east of the Gullfaks fields, and Centrica Energy acquired a 19% non-operated interest from Statoil in 2012.

Kvitebjørn has been developed with a combined processing, drilling and living quarters platform. Condensate is exported via a dedicated 16" pipeline to the Troll oil pipeline and then on to the Mongstad Terminal. Rich gas is exported via a dedicated 26" pipeline to Kollsnes for gas and NGL processing and is exported from Kollsnes to the UK and Europe. Additional infill drilling is ongoing and will include one well at the Kvitebjørn East reservoir segment. The outcome of the well may trigger further development of the Kvitebjørn East structure.

**Status:** Producing gas and condensate.

**Production:** 26.8mboe/d net

## DEVELOPMENTS

### Valemon

Valemon is a high pressure, high temperature development operated by Statoil. Centrica Energy acquired a 13% non-operated interest from Statoil in 2012. The development concept is a fixed steel production platform with a simplified separation process, with the platform remotely controlled from the nearby Kvitebjørn field or from shore.

Condensate will be exported to Kvitebjørn, while rich gas will be exported via the Huldra/Heimdal system and processed at Heimdal.

The Valemon North exploration well was spudded in September 2013, with results expected in 2014.

**Status:** Development project - first production planned for early 2015.

### Maria

The Maria field was discovered by Wintershall in 2010. The exploration well in Maria South encountered light oil, and the Maria North structure was subsequently successfully appraised in 2012. Maria, southeast of the Åsgard field in the Norwegian Sea, is operated by Wintershall (50%), while Centrica Energy is a partner with 20%.

The field development plan and final investment decision are both scheduled for late 2014.

**Status:** Development project – first production expected in 2018 subject to final investment decision.

### Butch

Centrica Energy is the operator of the Butch licence with a 40% interest. An exploration well at Butch, located 220km off the Norwegian coast, was drilled in the second half of 2011.

Further drilling is currently ongoing to prove up additional volumes on the Butch structure, and concept select is planned for late 2014.

**Status:** Development project - first production expected in 2018 subject to final investment decision.

### Frigg Gamma Delta (FGD)

Centrica Energy acquired 40% of PL442 from Statoil in 2012 and the block contains two undeveloped discoveries, Gamma and Delta, collectively called Frigg Gamma Delta (FGD). The FGD field is predominantly an oil discovery that is located north east of Heimdal.

Further studies of the FGD development in 2013 increased the expected recoverable volumes and reduced the projected capital expenditure, making a standalone development of the FGD field a potentially attractive option.

Located in an area with several smaller oil and gas discoveries, Centrica Energy is also exploring the potential upsides of a coordinated development of one or more of the additional discoveries alongside FGD. Concept selection is planned for 2015, followed by a field development plan and final investment decision in 2016.

In 2013 Centrica Energy divested 10% of its interest in FGD to LOTOS, but remains operator of the field.

**Status:** Development project

### Fogelberg

Fogelberg was Centrica Energy's first operated exploration well in Norway. It was drilled in 2010 and discovered high pressure, high temperature gas condensate. Centrica Energy has a 40% interest in Fogelberg, located 18km north of Åsgard and 30 km south of Heidrun. A concept select decision is expected mid-2014.

**Status:** Development project - first production expected in 2019 subject to final investment decision.





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## NORWAY ASSETS

## PRODUCING ASSETS

ASSET	CE E&P %	OPERATOR	STATUS	PRODUCTION (actual 2013, mboe net)	RESERVES (end 2013, net mboe)
<b>STATFJORD AREA</b>				<b>10,014</b>	<b>79,141 2P</b>
- Statfjord UK	100.00	CE E&P	Producing	3,991	
- Statfjord Norway	23.12	Statoil	Producing	5,396	
- Statfjord Øst	11.56	Statoil	Producing	311	
- Statfjord Nord	23.12	Statoil	Producing	266	
- Sygna	12.71	Statoil	Producing	49	
<b>HEIMDAL AREA</b>				<b>2,858</b>	<b>6,476 2P</b>
- Heimdal	28.80	Statoil	Sold 30/12/13	0	
- Vale	50.00	CE E&P+ (Statoil)	Producing	1,599	
- Skirne	0.00	Total	Sold 30/12/13	1,049	
- Atla	0.00	Total	Sold 30/12/13	211	
<b>KVITEBJØRN</b>				<b>11,039</b>	<b>75,468 2P</b>
- Kvitebjørn	19.00	Statoil	Producing	11,039	

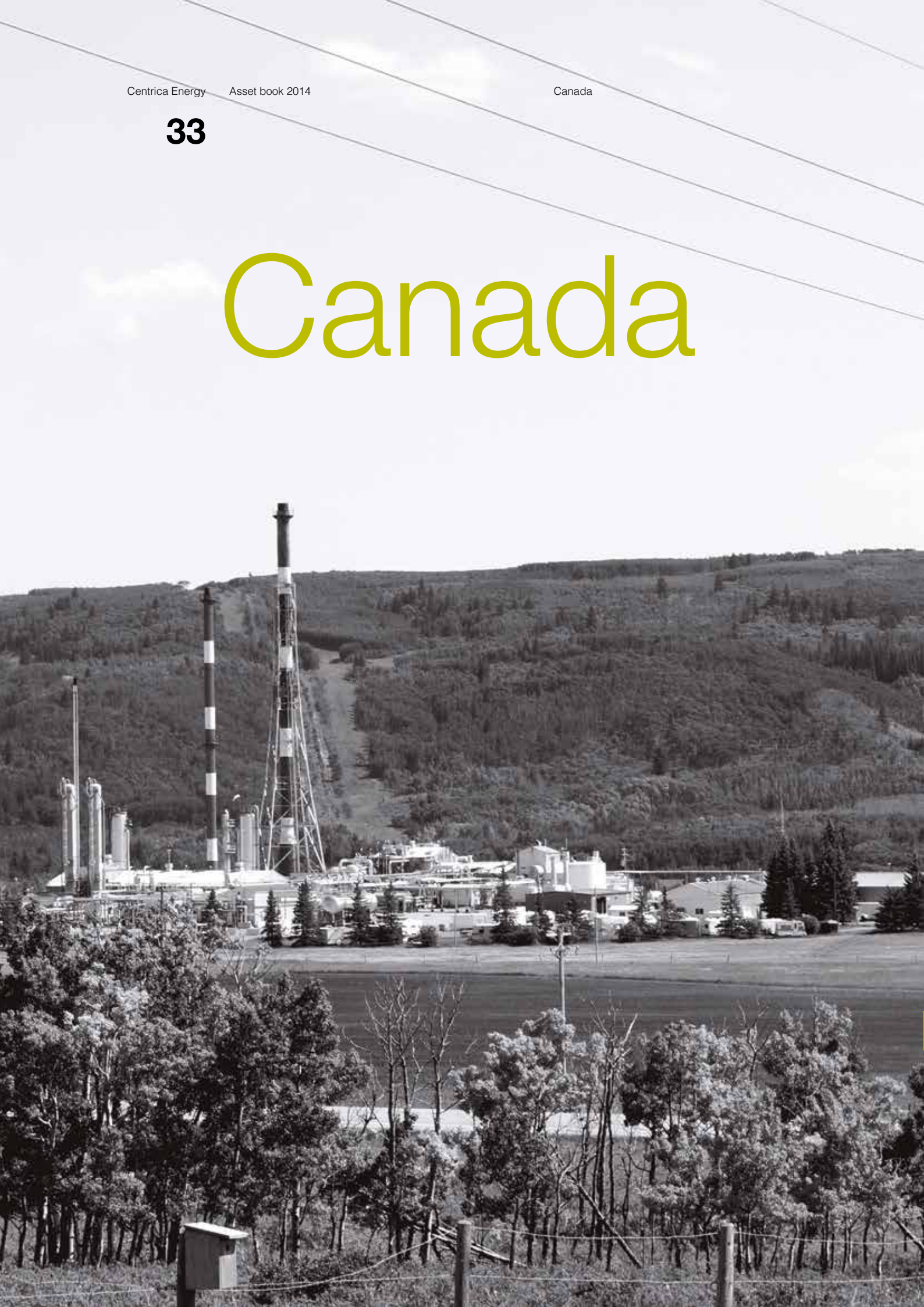
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## DEVELOPMENTS

ASSET	CE E&P %	OPERATOR	STATUS	KEY MILESTONES (anticipated year)	2C RESOURCES (net mboe)
<b>KVITEBJØRN AREA</b>					<b>49,709 (inc. 21,408 2P)</b>
- Valemon	13.00	Statoil	Current Project	First prod 2015	21,408 2P
- Kvitebjørn Øst	19.00	Statoil	Current Project	First prod 2015	14,300
- Kvitebjørn second stage compression	19.00	Statoil	Development Option		6,800
- Nokken	19.00	Statoil	Discovery		7,200
<b>OTHER AREAS</b>					<b>111,320 (inc. 49,220 2P)</b>
- Maria	20.00	Wintershall	Development Option	FID 2014	28,680 2P
- Butch	40.00	CE E&P	Recent Discovery	Discovered 2011	20,538 2P
- Frigg Gamma Delta	30.00	CE E&P	Development Option		29,800
- Fogelberg	28.00	CE E&P	Development Option	FID 2017	23,800
- Rind	30.00	Total	Development Option		8,500



# Canada



Canada is Centrica Energy's newest region and is experiencing significant growth after the transformational acquisition of Suncor Energy's Canadian onshore conventional assets. Centrica Energy entered into a partnership with Qatar Petroleum International (QPI) to acquire the assets with Centrica Energy holding a 60% interest, making us a top ten gas producer in the Western Canadian Sedimentary Basin.

Over the last three years, our Canadian business has grown from a predominantly shallow gas producer to having a broad portfolio of assets which reside within five large, mainly operated regions; South, North, Hanlan-Robb, Foothills and Peace River Arch.

In May 2014, Centrica agreed to sell 40% of its wholly owned Canadian natural gas business to QPI, fully aligning the partners' interests in the region.

2013 PRODUCTION:

**35.7**  
(mboe/d)



(£/boe)  
**11.29**  
2013 UNIT LIFTING  
AND OTHER CASH  
PRODUCTION COSTS

(£/boe)  
**6.20**  
2013 DD&A RATE

**0.14**  
TOTAL RECORDABLE  
INCIDENT FREQUENCY



## South Region

The South region consists primarily of mature, shallow gas producing assets in south east Alberta and south west Saskatchewan. Centrica Energy operates all of these assets, located 250km south east of Calgary and consisting of over 5,000 producing shallow gas wells. The main fields include Alderson, Medicine Hat and SW Saskatchewan.

The gas is produced at sales quality and requires only compression, with no further processing. The region has been developed over several decades through densely drilled vertical wells.

Centrica Energy's initial focus is on the Alderson field, which realises higher initial production rates for new wells compared with other fields in the area. Further development through infill drilling in the other fields will take place in the future.

**Status:** Producing gas

**Production:** 13mboe/d

## North Region

The North region consists of a wide variety of fields, including the gas-dominated areas of Carrot Creek, Gilby and Shallow Gas/Coal Bed Methane (CBM), and the oil-dominated areas of Ferrier and Cym Pem.

The majority of this region in Central Alberta - covering a 160,000km<sup>2</sup> area - is operated by Centrica Energy. The infrastructure in the area includes gas processing facilities at Ferrier, Gilby, Carrot Creek, Watelet and Wood River, as well as oil facilities at Ferrier.

The North region is expected to be the most active for near- and medium-term development, including projects in the Gilby and Carrot Creek areas.

**Status:** Producing oil, gas and gas liquids

**Production:** 14.5mboe/d

## Hanlan-Robb Region

The Hanlan-Robb region 180km south west of Edmonton consists exclusively of newly-acquired Suncor assets, mostly operated by Centrica Energy. Production is primarily sour gas from the deep carboniferous Turner Valley formation, with additional gas production from multiple Jurassic and Cretaceous aged formations.

Centrica Energy also operates large gas processing facilities in the Hanlan area, and has both sour and sweet gas processing capability.

Plans are underway to expand the sweet gas processing capability at the Hanlan-Robb plant due to the significant industrial activity in the region, and Centrica Energy is currently assessing its level of participation in the expansion.

**Status:** Producing oil and gas.

**Production:** 12.2mboe/d

## Foothills Region

The Foothills region in south west Alberta includes four major areas – Wildcat Hills, Burnt Timber, Panther and Crossfield. All production is operated, with the exception of some minor assets in the Panther field. The majority of the gas production is from the deep carboniferous Turner Valley formation, with additional liquids-rich gas from shallower Cretaceous zones. Centrica Energy wholly owns and operates the Wildcat Hills gas plant (125 mmcf/d capacity).

Centrica Energy's near-term focus will be on developing significant upside potential in the Turner Valley formation in both the Wildcat Hills and Panther fields.

**Status:** Producing gas.

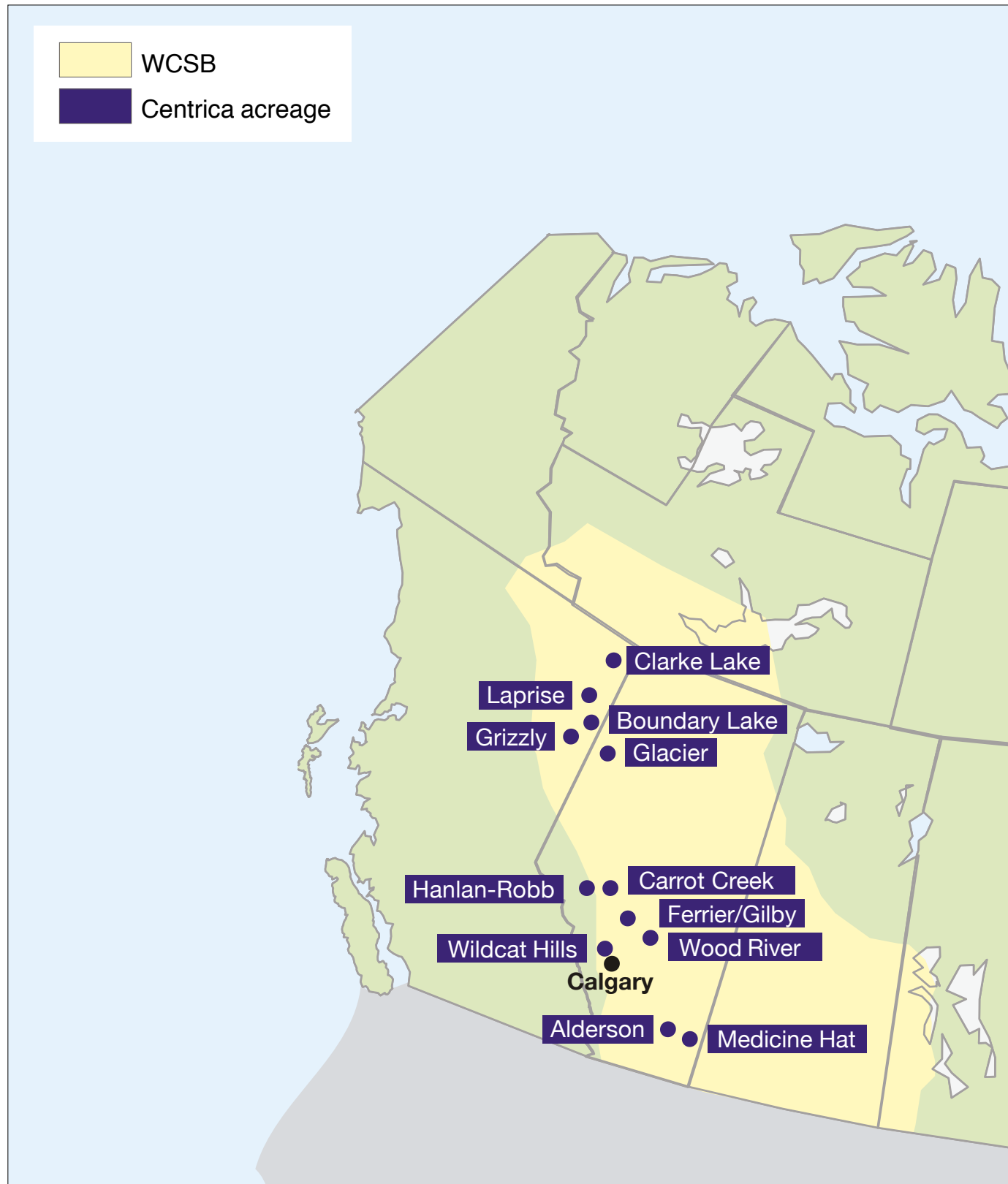
**Production:** 15.3mboe/d

## Peace River Arch Region

Other than a few minor assets, this vast, 480km region parallel to the Alberta-British Columbia provincial boundary consists of newly-acquired assets from Suncor. There are eight major producing areas in the region, predominantly operated by Centrica Energy, with one residing in Alberta (Glacier) and the remainder in British Columbia – Grizzly, Boundary Lake, Parkland, Laprise, Bougie, Clarke Lake and Yoyo. Following the Suncor transaction, Centrica Energy now owns and operates four gas plants in the Progress, Parkland and Boundary Lake areas. The Glacier, Boundary and Parkland fields have significant development opportunities in the Doig and Montney formations, which are being successfully developed through horizontal well, multi-stage fracturing techniques. This area has the potential for development over several years.

**Status:** Producing gas

**Production:** 11mboe/d





CANADA ASSETS

PRODUCING ASSETS

ASSET	CE E&P %	OPERATOR	STATUS	PRODUCTION (Anticipated 2014, gross mboe)	2P RESERVES (End 2013 net mboe)
<b>SOUTH REGION</b>	<b>72.6</b>			<b>4,751</b>	<b>55,241</b>
Medicine Hat	76.9	CE	Producing	3,278	
Alderson	71.6	CE	Producing	1,274	
SW Saskatchewan	36.8	CE	Producing	195	
Other South Areas	9.8	CE	Producing	4	
<b>NORTH REGION</b>	<b>64.1</b>			<b>5,356</b>	<b>55,986</b>
Ferrier	94.0	CE	Producing	1,296	
Shallow Gas/CBM	56.2	CE	Producing	1,286	
Carrot Creek	69.8	CE	Producing	991	
Gilby	49.7	CE	Producing	734	
Craigmyle	79.6	CE	Producing	316	
Cyn Pem	58.3	CE/Vermillion	Producing	228	
Other North Areas	37.4	CE/Others	Producing	505	
<b>HANLAN-ROBB REGION</b>	<b>48.5</b>			<b>4,475</b>	<b>55,986</b>
Stolberg	54.0	CE	Producing	2,555	
Hanlan	51.7	CE	Producing	1,901	
Other Hanlan Areas	16.7	CE/Others	Producing	19	
<b>FOOTHILLS REGION</b>	<b>63.2</b>			<b>5,689</b>	<b>55,986</b>
Wildcat Hills	94.3	CE	Producing	3,479	
Panther	51.3	CE/Shell	Producing	1,042	
Burnt Timber	62.9	CE	Producing	794	
Crossfield	58.5	CE	Producing	243	
Other Foothills Areas	42.1	CE/Others	Producing	131	

PRODUCING ASSETS

ASSET	CE E&P %	OPERATOR	STATUS	PRODUCTION (Anticipated 2014, gross mboe)	2P RESERVES (End 2013 net mboe)
<b>PEACE RIVER ARCH REGION</b>	<b>69.2</b>			<b>4,085</b>	<b>39,838</b>
Glacier	77.5	CE	Producing	741	
Grizzly	46.2	CE/Others	Producing	710	
Boundary	71.9	CE/Others	Producing	583	
Parkland	35.5	CE/Others	Producing	163	
Laprise	100.0	CE	Producing	1,126	
Bougie	100.0	CE	Shut-in	0	
Clarke Lake	71.7	CE/Others	Producing	684	
Yoyo	78.2	CE/Others	Shut-in	0	
Other PRA Areas	52.8	CE/Others	Producing	78	
<b>TOTAL REGION (Including QPI share)</b>					<b>263,035</b>
<b>TOTAL REGION (Excluding QPI share) *</b>					<b>210,153</b>

\* In May 2014, CE agreed to sell 40% of its wholly owned Canadian natural gas business to QPI.



# Trinidad and Tobago



Centrica Energy has built a sizeable business in Trinidad & Tobago (T&T) since 2009, when its first production sharing contract (PSC) was signed. The T&T portfolio includes non-operated production at NCMA-1 (North Coast Marine Block), as well as operated exploration and development positions in Block 22, NCMA-4 and Blocks 1a and 1b. In 2013, Centrica Energy carried out a two-well appraisal drilling programme in Block 22 and NCMA-4, and the results from these wells are currently being evaluated.

## 2013 PRODUCTION:

**10.9**  
(mboe/d)

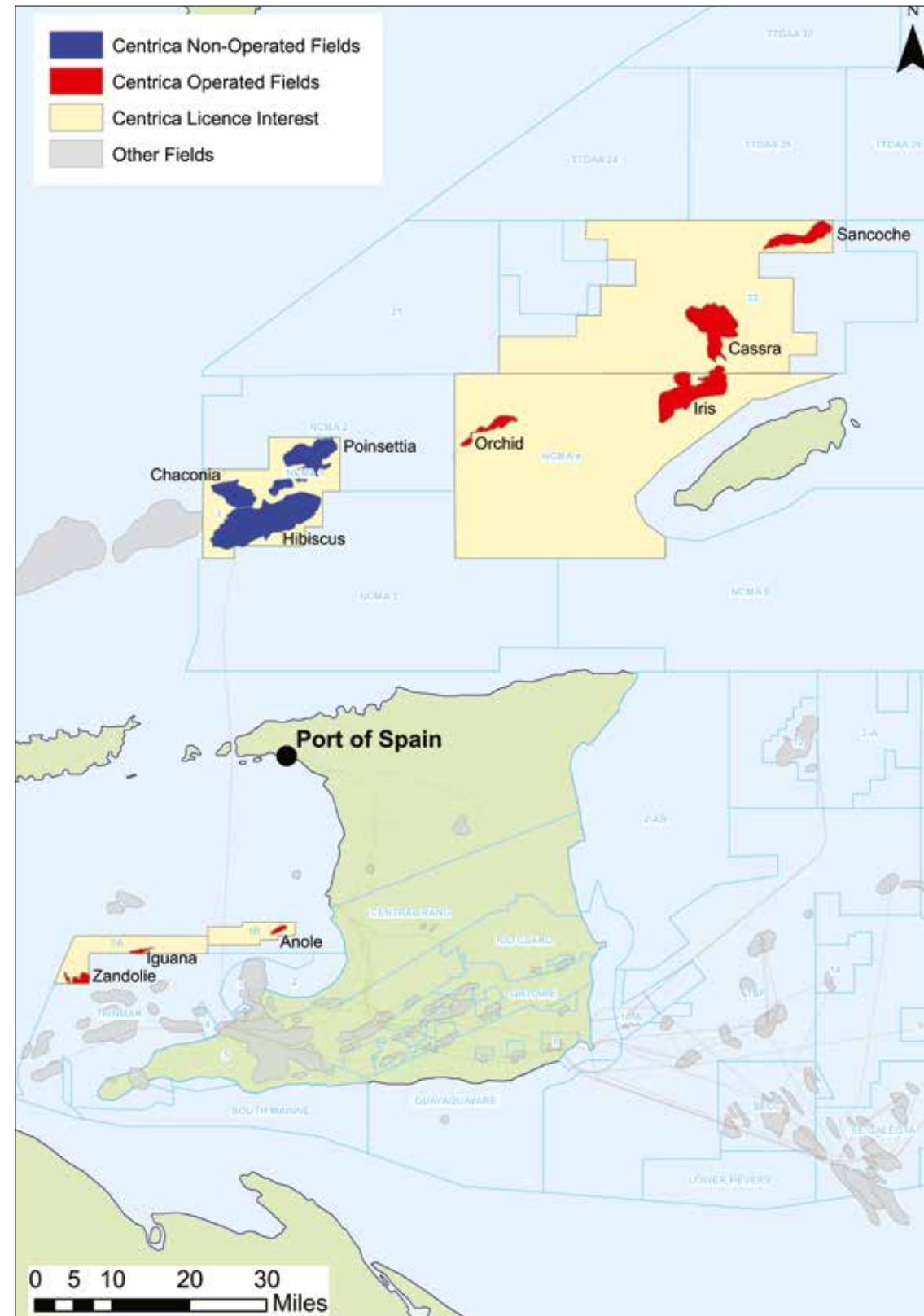
**100**  
GAS %

(£/boe)  
**4.37**  
2013 UNIT LIFTING AND OTHER CASH PRODUCTION COSTS

(£/boe)  
**5.86**  
2013 DD&A RATE

**0**  
TOTAL RECORDABLE INCIDENT FREQUENCY





Trinidad & Tobago

## PRODUCING ASSETS

### NCMA-1

NCMA-1 is located 60km north of Trinidad and contains six gas fields. They were discovered in the late 1970s and early 1980s, and were brought on stream in 2002. Centrica Energy has a 17.3% interest in NCMA-1. The NCMA fields have been developed through two platforms, and a 107km pipeline runs from the fields to Atlantic LNG at Point Fortin.

**Status:** Producing gas

**Production:** 11.2mboe/d net

## DEVELOPMENTS

### Block 22

Centrica Energy holds a 90% interest in Block 22, located 25km north of Tobago. The block holds two gas discoveries, Cassra and Sancoche, as well as significant further exploration potential. Resource estimates are currently being finalised following appraisal drilling in 2013.

**Status:** Development project

### NCMA-4

NCMA-4, 80% owned by Centrica Energy, lies 50km west of Tobago and holds two gas discoveries, Orchid and Iris. The development also has significant exploration potential in the Jasmine prospect. The Iris field was appraised in 2013 and new discoveries were made in Iris deep sands. Fields and prospects in NCMA-4 will be developed jointly with Block 22, with a sharing of export infrastructure to the destination market.

**Status:** Development project

### Blocks 1a and 1b

Blocks 1a and 1b are located 20km west of Trinidad in the Gulf of Paria. Block 1a contains three gas discoveries, while Block 1b holds an exploration prospect. The fields are close to existing onshore infrastructure and negotiations are ongoing with local gas buyers to commercialise the resources on these PSC blocks.

**Status:** Development project

## TRINIDAD &amp; TOBAGO ASSETS

## PRODUCING ASSETS

ASSET	CE E&P %	OPERATOR	STATUS	PRODUCTION (Actual 2013, mboe net)	RESERVES (end 2013, net mboe)
<b>NORTH COAST MARINE AREA</b>					
- NCMA 1	17.31	BG	Producing	3,982	21,355 2P

## DEVELOPMENT ASSETS

ASSET	CE E&P %	OPERATOR	STATUS	KEY MILESTONES (anticipated year)	2C RESOURCES (net mboe)
- Block 22 (Cassra, Sancoche & Iris)	90.00	CE E&P	Development Option		139,600
- Block 1a & 1b (Anole, Iguana, E&W Zandolie)	80.00	CE E&P	Development Option		30,000
- NCMA 4 (Orchid & Iris)	80.00	CE E&P	Development Option		24,400

## GLOSSARY

**2C Resources:** Already discovered P50 contingent resource

**2P Reserves:** Proven and probable reserves

**boe:** Barrel of oil equivalent

**CE E&P:** Centrica Energy Exploration & Production

**DD&A:** Depreciation, depletion & amortisation

**FEED:** Front End Engineering & Design

**FID:** Final Investment Decision

**GMA:** Greater Markham Area

**Lifting cost:** Field operating costs, including tariff

**LNG:** Liquefied Natural Gas

**mboe:** Thousands of barrels of oil equivalent

**mmboe:** Millions of barrels of oil equivalent

**mmscf/d:** millions of standard cubic feet of gas per day

**Net:** Centrica equity share

**NCMA:** North Coast Marine Area licence blocks in Trinidad and Tobago

**NOGAT:** Northern Offshore Gas Transport

**NUI:** Normally Unmanned Installation

**P50 Resources:** Best estimated remaining life of field production from a development/opportunity.

**PRT:** Petroleum Revenue Tax

**Prospective resources:** Estimated undiscovered resources from exploration

**PSC:** Production Sharing Contract

**Remaining recoverable resources:** The total estimated volumes to be produced

**T&T:** Trinidad and Tobago

**Total Recordable Incident Frequency (TRIF):** Total recordable injury cases per 100,000 hours worked.

**WGT:** West Gas Transport system in the Netherlands

**WCSB:** Western Canadian Sedimentary Basin



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