

OFFSHORE TECHNOLOGY

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Independent Scotland's bounty – the biggest oil fields in the UK North Sea

More than 90% of the UK's oil production occurs offshore within the central and northern sections of the North Sea, regions which could soon fall under Scottish control if the country votes yes to Independence. Offshore-technology.com profiles the ten biggest oil producing fields in the UK sector of the North Sea based on production during the year ending in October 2013.



 Buzzard oil field north sea

Buzzard



The Buzzard field located in the central North Sea, approximately 100km north-east of Aberdeen, was the highest producing field in the entire North Sea in 2013. The oil field, which came on stream in early 2007, produced over 176,000 barrels of oil per day during the year ending in October 2013.

The Buzzard central production facility comprises four bridge-linked platforms, which include a wellhead platform, a production platform, a UQ platform, and a sour gas processing platform. Oil from the Buzzard production platform is exported through an 18-inch pipeline to the Forties Pipeline System located 28km away. It is further transported to Cruden Bay and then to BP's Kinneil terminal for further processing.

The Buzzard field is operated by Nexen Petroleum UK, which holds 43.21% interest in it, while the remaining shares are held by Suncor UK (29.89%), BG Group (21.73%), and Edinburgh Oil and Gas (5.16%). The gross estimated ultimate recoverable oil resources of the offshore field are 700 million barrels of oil equivalent (mboe).

Forties Oil Field

Forties, the oldest oil field in the UK North Sea, was the second highest oil producing field in 2013. The oil field, which is located in the UK Sector of the Central North sea around 110 miles east of Aberdeen, produced over 42,000 barrels of oil per day in 2013.

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The Forties field was discovered in 1970 and brought into production in 1975. It was wholly owned and operated by BP until Apache acquired 97% working interest in the field in 2003. The oil field is made up of five platforms; Forties Alpha (FA), Forties Bravo (FB), Forties Charlie (FC), Forties Delta (FD) and Forties Echo (FE). The field is considered to be the biggest North Sea oil field based on cumulative production and remaining recoverable oil reserves.

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Forties produced approximately two billion barrels of oil as of 2003 and Apache produced around 161mboe from the field as of September 2011. The new operator drilled over 100 development wells including Charlie 4-3, the biggest well in the field in last 20 years, which commenced production in June 2011 at 12,567 barrels of oil per day. Apache also added 171mboe of new recoverable reserves at the field identifying new wells based on 4-D seismic survey. The commissioning of a new satellite platform called Forties Alpha Satellite Platform, (FASP) which would add 18 drilling slots to the field, was 99% complete by the end of 2013.

Captain

The Captain field, located about 90 miles offshore north-east of Aberdeen, produced close to 29,000 barrels of oil per day in 2013 making it the third biggest oil producing field in the UK North Sea. The Captain oil field was discovered in 1977 and developed in three phases between 1995 and 2006.

The first phase of development comprising a wellhead protector platform connected to an floating production, storage and offloading facility (FPSO) was brought online in 1997. The second phase development, which involved the installation of a subsea manifold, commenced production towards the end of 2000. The third phase development, also known as Captain C project, involved tying back two additional subsea wells to the Captain platform and came online in 2006.

Captain was one of the first North Sea field developments employing horizontal drilling. The field was initially estimated to contain over 350 million barrels of recoverable oil reserves. It is operated by Chevron which holds 85% working interest in the field, while the remaining 15% interest is owned by Korea Captain [Company and Hanwha Energy](#).

Foinaven

The Foinaven field located in deep waters around 190km west of the Shetland Islands in blocks 204/19 and 204/24a in the UK Continental Shelf recorded a daily average output of over 25,900 barrels in 2013 making it the fourth biggest oil producing field in the UK North Sea.

The Foinaven field was discovered in 1990 and brought on-stream in 1997. The field was developed in phases by linking a network of subsea wells to the FSPO Petrojarl Foinaven from 2000 onwards. The offshore project received significant investment towards the replacement and renewal of some of its subsea pipeline system in 2012, which would extend the field's production potential beyond 2020.

BP holds a 70% working interest and operates the Foinaven field, while Marathon holds the remaining interest. The recoverable reserves at Foinaven were initially estimated at 200mboe and increased to 415mboe as of mid

The North Sea's biggest decommissioning programmes

The North Sea will witness a hike in decommissioning programmes during the next two decades as oil and gas infrastructure mature.

Alba

The Alba field, located 130 miles north-east of Aberdeen in block 16 / 26 of the UK Continental Shelf, produced over 16,900 barrels of oil per day in 2013 becoming the fifth highest producing field in the UK North Sea.

The Alba field commenced production in January 1994 ten years after its discovery by Chevron. The offshore oil field was developed in two phases with the first phase development involving the installation of the fixed Alba Northern Platform and a floating storage unit in the northern part of the field. The Alba Southern Platform was installed in the southern portion of the field as part of the second phase of development.

Chevron, holding 23.37% interest, is the operator of Alba field, while the remaining interest is held by Endeavour (25.68%), Statoil (17%), Mitsui (13.3%), Total (12.65%), and EnQuest (8%). The estimated recoverable oil reserves of the Alba field were 400 million barrels as of 2010. Chevron identified three development wells using a 4-D seismic survey in 2012, the drilling of which is expected to continue beyond 2015.

Don Southwest

Daily average oil production of over 12,600 barrels in 2013 made the Don Southwest oil field, located about 150km northeast of the Shetland Islands in the Northern North Sea, the sixth biggest oil producing field in the UK North Sea.

The Don Southwest oil field was discovered in 1976 and achieved first production in 1993 as part of BP's Don development project that ceased production in 2001. The Don Southwest field subsequently redeveloped by PEDL, a subsidiary of Petrofac, commenced production in June 2009. The oil field currently comprises four injectors and six producing wells tied back to a floating production facility.

The Don Southwest field is currently being operated by EnQuest which holds 60% interest in the field, while the remaining 40% interest is held by Ithaca Energy. EnQuest also operates the nearby West Don and Conrie oil fields.

Scottish Independence: what it means for the O&G industry

The chance to control O&G revenues is one of the main reasons why, many suggest, Scotland would be better off on its own.

Ninian

The Ninian oil field situated around 144km east-northeast of Shetland Island in the Northern North Sea in the blocks 3/3 and 3/8 of the UK Continental Shelf produced slightly over 11,000 barrels of oil per day in 2013.

Discovered in January 1974 and brought on-stream in December 1978, Ninian is one of the oldest fields in the North Sea. The Ninian field is operated using three fixed platforms including the Ninian South and Ninian Central production platforms that also support the operation of nearby Lyell and Columba fields. Oil from the Ninian platforms is transported to the Sullom Voe Terminal on the Shetland Islands via the Ninian Pipeline System.



The Ninian field is operated by Canadian Natural Resources (CNR) which holds 87.06% equity stake in the field, while the remaining stake is held by Eni UK. Ninian was estimated to contain over one billion barrel of recoverable oil reserves as of 2010. CNR announced an investment of £300m (\$500m) for the Ninian field in mid 2013 after it received brownfield allowance approval for the field from the UK government.

Harding

With an average daily oil output of 11,000 barrels in 2013, the Harding oil field located in the Central North Sea about 200 miles north east of Aberdeen was the eighth biggest oil producing field in the UK North Sea.

Harding was discovered in February 1987 and brought into production in April 1996. The offshore oil field is operated by a single platform, 15 production wells and four water injection wells. The Harding platform has a storage capacity of 580,000 barrels and exports oil via a 24-inch diameter pipeline connected to a tanker loading system. The field's production peaked at 100,000 barrels per day in 1998.

The Harding field is estimated to contain 250 million barrels of recoverable oil reserves and have a minimum field life of 20 years. Abu Dhabi National Energy Company (TAQA) took over the operation of Harding in June 2013 by acquiring 70% interest in the field from the previous operator BP. The remaining stake in the field is held by Maersk Oil North Sea UK.

Sea change: offshore safety and the legacy of Piper Alpha

The Piper Alpha disaster in 1988 shocked the world, and changed offshore safety management and legislation in the North Sea beyond recognition.

Machar

The Machar oilfield located 240km east of Aberdeen in block 23/26a in Central North Sea was the ninth biggest oil producing field, with over 10,900 barrels of oil per day produced in 2013.

Machar was discovered in 1976 and was subject to flow tests in 1994 following a prolonged appraisal. It has been developed as a multi-well subsea development in phases since 1998 as part of the [Eastern Trough Area Project](#) (ETAP), an integrated offshore development comprising nine fields, six of which including Machar are operated by BP and three operated by Shell.

The Machar field is tied back to the ETAP central processing facility (CPF) through a 36km long and 12in diameter pipeline. The Machar area is also provided with two water injectors from the ETAP CPF via a 12in diameter pipeline.

Schiehallion/Quad204

Average daily output of 10,800 barrels of oil made the Schiehallion oil field situated 175km west of Shetland the tenth highest producing oil field in the UK North Sea.

Schiehallion, located 15km away from the Foinaven oil field, was discovered in 1993 and brought into production in July 1998. The oil field was developed with 22 producing wells, 24 water injectors, and an FPSO with oil storage capacity of 950,000 barrels. Oil from the Schiehallion FPSO is exported via shuttle tankers.

Production from Schiehallion was suspended in the beginning of 2013 as part of the implementation of the £3bn (\$5bn) Quad204 project to redevelop the greater Schiehallion field area. The redevelopment, scheduled for completion in 2016, will involve installation of a new FPSO and new subsea infrastructure aiming to extend the field life beyond 2035. BP, with 33.35% ownership, is the operator of Schiehallion, while Shell holds 54.9% and OMV owns the remaining interest in the field.

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What are the primary drivers for adopting Cybersecurity in your organization? *Select all that apply*

- Rising threat of cyberattacks
- Growing severity of cyberattacks
- Increasing value of data
- Regulatory compliance or data privacy/security
- Rise in remote working/devices
- Strong cybersecurity provides competitive edge
- Cybersecurity assures investors/clients

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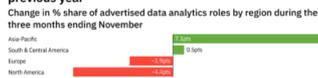
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Source: GlobalData

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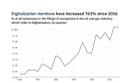
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