

# UK Oil Supply Chain



# 1 UK North Sea Crude Fields

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The North Sea (UK and Norway) contains the majority of Europe's oil reserves and is one of the largest non-OPEC producing regions in the world. Peaking in 1999, production of North Sea oil was nearly 6 million barrels (950,000 m<sup>3</sup>) per day. Production is expected to fall to one-third from its peak by 2020.

Most oil companies have investments in the North Sea, although predominantly fields are now owned by consortia of companies which are not the major oil companies.

## Onshore

- Wytch Farm – operated by BP in Dorset is the largest onshore oil field in Europe (65 million tonnes). Oil is piped from Wytch Farm to BP's Hamble terminal on the South Coast from where it can be exported or supplied to Esso's Fawley refinery.
- Singleton, West Sussex - situated across the valley from Goodwood Racecourse (several other prospects along strike on the South Downs).
- East Midlands oilfield, centred on Eakring, Nottinghamshire, and extending up to Eskdale, North Yorkshire and the Pickering / Kirkby Misperton structure under Ryedale.

## Offshore

Over 300 fields.

There are 100+ offshore oil pipelines in the North Sea.

[http://www.og.dti.gov.uk/information/bb\\_updates/appendices/Appendix14.htm](http://www.og.dti.gov.uk/information/bb_updates/appendices/Appendix14.htm)

Most of the crude oil produced in the North Sea is pumped by pipeline to the major offshore receipts terminals at Sullom Voe (Shetlands), Flotta (Orkney's), Grangemouth (Nr Edinburgh) and Teeside.

Crude ships load the crude oil at these terminals and ship it all over the world. Much of the oil goes to America which favours the North Sea's low sulphur and high potential petrol content over local consumers. UK refineries, which are some of the most sophisticated in the world, are able to run on heavier (and cheaper) high sulphur crudes from Russia and the Middle East.

## 2 UK Oil Refineries

There are nine major refineries, as mapped out below, all of which are located on coastal sites around the country as follows:

Location	Company	Refining capacity (million tonnes pa)
Grangemouth, Scotland	INEOS	>10
North Tees, Teesside	Petroplus	5.5
Killingholme, Lincolnshire	TOTAL	11
Humber, Lincolnshire	Conoco	11.5
Coryton, Thames	BP (sale agreed to Petroplus)	10
Fawley, near Southampton	Esso	16
Pembroke, South Wales	ChevronTexaco	10.5
Milford Haven, South Wales	70% TOTAL & 30% Murco	6
Stanlow, Cheshire	Shell	12



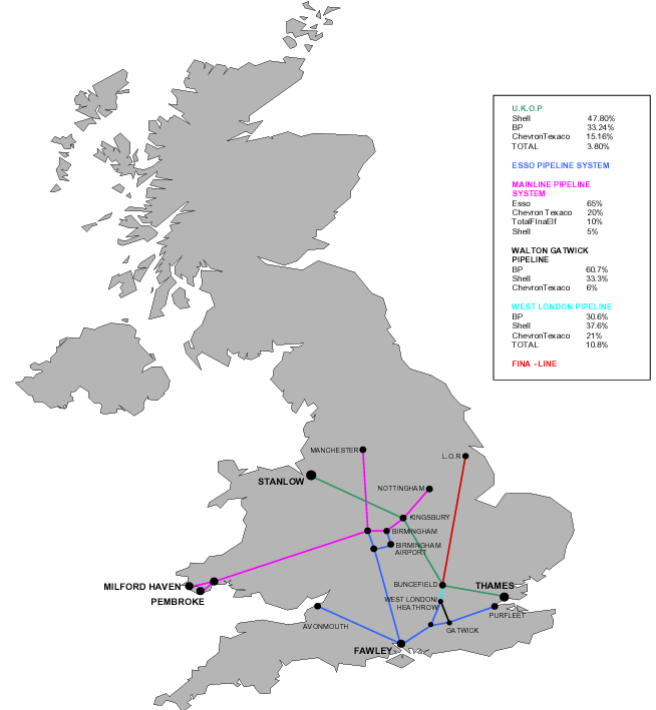
### 3 Distribution of product around the UK by pipelines

Ever wondered why there are not many oil tankers on UK motorways?

This is because the UK has developed a sophisticated network of underground pipelines to transport the petrol and diesel products from the refineries on the coast, to local distribution terminals.

- The United Kingdom Oil Pipeline (UKOP) is an oil products pipeline which distributes to major oil terminals at Buncefield and Kingsbury with spurs to Northampton and Nottingham. UKOP draws its products from Shell Stanlow in the north and Petroplus Coryton in the south.
- The Esso Pipeline System takes product from its Fawley refinery on the south coast to its terminals at Avonmouth, Birmingham, West London and Purfleet and also Heathrow and Gatwick airports.
- The Mainline Pipeline System runs from the Texaco and Pembroke refineries to terminals at Birmingham, Kingsbury, Manchester and Nottingham. The Esso pipeline system connects into the Mainline system at Seisdon before the Mainline pipeline branches north to Manchester.
- The TOTAL pipeline, Fina-Line, pumps products from the TOTAL Lindsey Oil Refinery (LOR, Lincolnshire) to the Hertfordshire Oil Storage Terminal (HOSL) at Buncefield on the outskirts of Hemel Hempstead.
- The West London Pipeline system services Heathrow and Gatwick with aviation fuel from Buncefield.
- The Walton - Gatwick pipeline supplies aviation fuel to Gatwick.
- The Government Pipelines and Storage System (GPSS) is a UK pipeline system run by Oil and Pipelines Agency for the MOD. The network consists of some 2500 kilometers of pipeline and 46 other facilities. The network is interconnected with several private networks.

#### PIPELINE SYSTEMS - PRIVATELY OWNED



#### PIPELINE SYSTEM - M.O.D

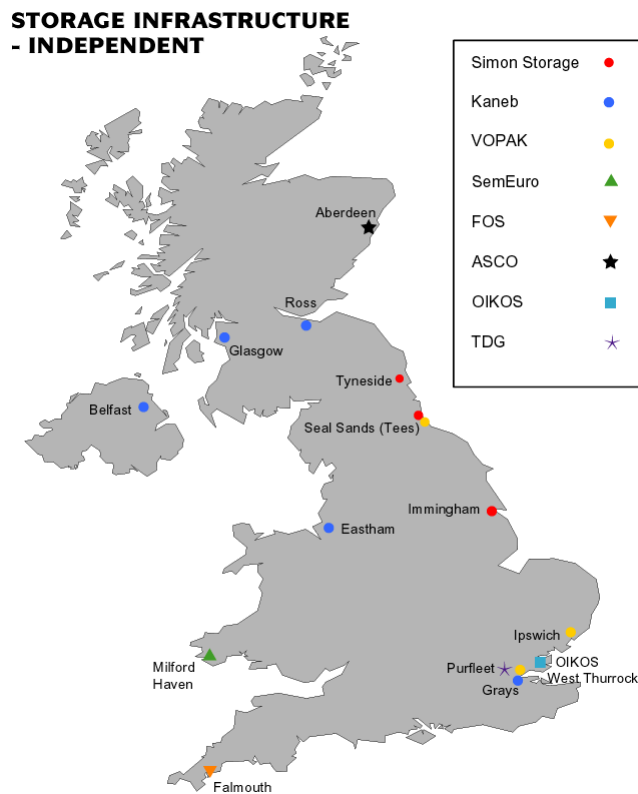


## 4 Independent storage infrastructure

In addition to the UK oil refineries and related pipelines there is a UK network of independent sea fed terminals through which petroleum products made in the UK and overseas can be distributed. These terminals tend to be owned by specialist storage companies that rent their tank capacity to companies like Greenergy.

These terminals are critical to national supply security and to price competition. The major independently owned terminal locations are mapped out in below. There are further independent terminals at Kings Lynn, Barry, Barrow, Teesside and Liverpool (United Storage).

Greenergy has UK storage at Vopak (Thames), Kaneb (Thames), TDG (Thames), Kaneb (Eastham), Kaneb (Clydebank), Kaneb (Grangemouth) and Simon Storage (Immingham).



## 5 Road Tankers

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Wherever the oil comes from (refinery, terminal or Independent terminal) the final leg of its journey to the petrol station is by truck.

Greenergy runs 36 trucks in its own name, our branded customers that collect from our depots run an additional 200 trucks to deliver Greenergy product.

A typical Greenergy truck comprises of a multi-grade facility with eight separate “pots” within each tanker that can be used in any combination (petrol or diesel or super petrol or gasoil etc.).

The key specification of the trucks is as follows:

Weight unladed	13,500 kg
Weight fully laded	44,000 kg
Maximum load (petrol)	45,000 litres
Maximum load (diesel)	36,500 litres
Horsepower	410 – 450 hp
Axles	6