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UK fuel market review

Storage

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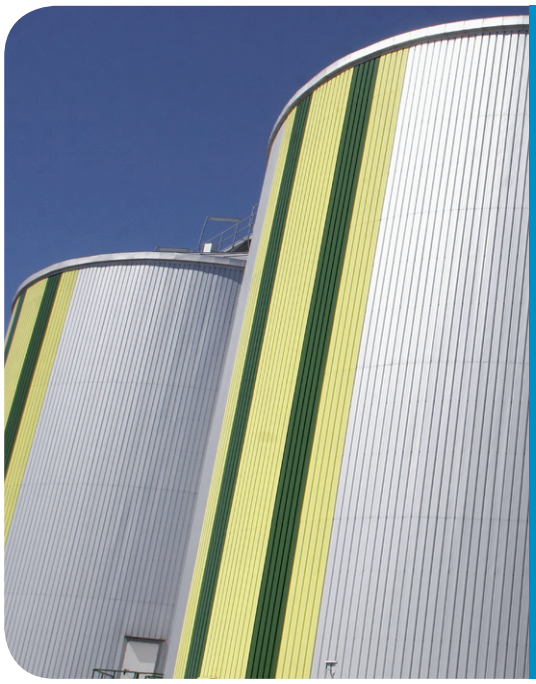


- Storing crude oil and refined products adds to the basic cost of refined products.
- Refineries and independently owned storage companies in coastal locations and inland store the vast majority of crude oil and refined products.
- Inland, a number of product distribution facilities, owned individually or as partnerships by oil companies, ensure adequate supplies and facilitate the distribution of oil product supply across the country. In addition, the government also owns a network of pipelines and storage facilities.
- The UK is required to hold the equivalent of 67.5 days worth of daily consumption under the European Union's (UK) Compulsory Stocking Obligation (CSO).
- Recent environmental standards under the Renewable Transport Fuel Obligation (RTFO) will require additional biofuel storage capacity and blending facilities that could increase the future storage costs.

1. UK storage facilities

Figure 1: UK refinery and independently owned storage facilities

Independent oil terminals	Owner	Capacity
1. Peterhead	Asco Fuels & Lubricants	35,000 m^3
2. Aberdeen	Asco Fuels & Lubricants	27,000 m^3
3. Grangemouth	NuStar	86,000 m^3
4. Teeside	Vopak	246,000 m^3
5. Seal Sands	Simon Storage	220,000 m^3
6. & 7. Immingham East & West	Simon Storage	249,000 m^3 & 325,000 m^3
8. Ipswich	Vopak	65,000 m^3
9. Canvey Island	Oikos Srorage	300,000 m^3
10. Coryton	Vopak, Green Energy and Shell	N/a
11. Grays	NuStar	310,000 m^3
11. West Thurrock	Vopak	395,000 m^3
13. Falmouth	Falmouth Oil Services	70,000 m^3
14. Milford Haven	SEM Logistics	1,430,000 m^3
15. Eastham	NuStar	346,000 m^3
16. Clydebank	NuStar	55,000 m^3
17. Belfast	NuStar	65,000 m^3
● Distribution terminals		

Source: Deloitte research based on *UK Downstream Oil Infrastructure report* by Wood Mackenzie

The UK's crude oil and refined products supplies are held in storage facilities near refineries, in coastal terminals and inland distribution centres. In addition to this, oil is also stored in pipelines, in tanker lorries and other means of transport.

Thousand tonnes	Crude oil and refinery process oil				Petroleum products					Total stocks		
	Refineries	Terminals	Offshore	**Total**	Light distillates	Kerosene & gas/diesel	Fuel oils	Other products	**Total products**	Net bilaterals	Stocks in the UK	**Total stocks**
2011	3,889	694	540	**5,274**	849	5,230	645	845	**7,569**	2,100	10,743	**12,843**

Note: Crude oil and refinery process oil include crude oil, natural gas liquids (NGL) and process oil at refineries; crude oil and NGLs at UK Continental Shelf (UKCS) pipeline terminals; stocks of crude oil in tanks, partially loaded tankers at offshore UKCS field. Stocks in the wholesale distribution system and under bilateral agreement are also included.

Source: Department of Energy and Climate Change (DECC), *Oil Statistics, Quarterly tables: Energy trends, Stock of petroleum at end of period*

Coastal terminals owned and run by independent companies provide storage capacity. Almost all of them hold imported refined product stocks. The importance of these terminals is expected to grow as the volume of imported products increases in the future. Imported products stored by independent companies have enabled the development of independent wholesale suppliers in the UK. Supermarkets mostly rely on such terminals rather than refineries for the fuel they sell on their forecourts.

Coastal and inland oil terminals are located in strategically important locations and are well connected by rail, road and port facilities. Clydebank, Aberdeen and Grangemouth in Scotland, Teesside, Seal Sands, and Immingham East and West in East Anglia provide refined products to large areas of the country. The Thames estuary has more and larger storage facilities than other parts of the UK reflecting a concentration of demand in London and the south-east. The Fawley refinery close to Southampton is well connected by pipelines towards Avonmouth, Birmingham and the London area. The West is supplied by refineries and independent storage facilities at Pembroke and Milford Haven, while the Stanlow refinery and Eastham storage terminal play a key role in supplying the Midlands.

Inland, a number of distribution terminals owned by oil company partnerships lie at the heart of the refined product distribution and supply system. Terminals located close to airports (such as Birmingham, Heathrow and Gatwick), major cities (Manchester, Birmingham and Nottingham) or at geographically key locations play an important role in ensuring that the supply of oil products runs smoothly and efficiently.

The explosion at the Buncefield terminal in 2005 highlighted that the closure of any of these terminals can cause a major interruption to the distribution system. The terminal was the fifth largest depot in the UK and provided a substantial portion of aviation fuel to Heathrow and Gatwick airports. The explosion led to greater volumes of oil products being transported by road from terminals in the north towards the south. The closure of the terminal put more pressure on storage facilities in south-east England, especially those in the Thames estuary. The explosion also resulted in tightened regulations for storage sites that are covered under the Control of Major Accident Hazards (COMAH) regulations.

The UK Ministry of Defence owns the Government Pipeline and Storage System (GPSS). This is a network of salt caverns in Cheshire and pipelines and storage tanks located throughout the country. They were originally built for defence purposes during World War II, but their use is declining and the regulations are expected to be amended so that the GPSS can be sold or used commercially from 2014. Given that the UK's future storage needs are expected to grow due to the increase in CSO requirements, using facilities such as salt caverns could potentially help meet additional future storage needs.

2. The UK's Compulsory Stocking Obligation

The UK is required to hold emergency oil stocks under its EU and International Energy Agency (IEA) memberships. If a major international supply disruption occurs, the IEA will coordinate a response using stocks held by its member countries.

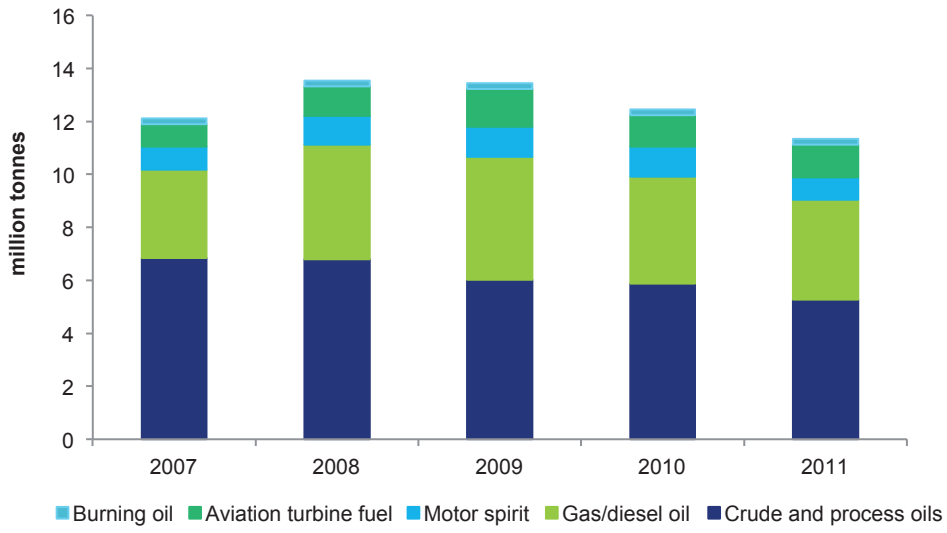
According to the EU rules, the UK is required to store the equivalent of 90 days of its previous year's average daily domestic consumption, while the IEA's obligation is for 90 days of net oil imports. As an oil producer, the UK is required to comply with the EU obligations. Under EU rules, it is currently allowed to reduce its obligations by 25% to 67.5 days of consumption.

The UK meets the CSO rules by placing compulsory stocking requirements on companies that supplied the UK market with refined products in the previous four calendar quarters. These include international oil companies that run refineries and importers.

Under the EU rules, countries are required to keep their stocks in three categories:

- motor spirit and gasoline-based aviation fuels;
- gas oil, diesel oil, kerosene and kerosene-based aviation fuels; and
- fuel oils.

Figure 2: UK stocks of crude and selected oil products (million tonnes)



Source: DECC, *Oil Statistics, Annual tables: Digest of UK energy statistics, Stocks of crude oil and petroleum products at end of year*

Currently, the UK holds stocks of 10.4 million tonnes of crude oil and refined products.

The actual volumes to be held under the CSO requirements vary from company to company. Refiners are obliged to hold 67.5 days of stocks, while importers and non-refiners are required to hold 58 days of stocks.

A company can use its own crude oil and/or oil products to meet the government's stocking requirements. These stocks are included in the company's regular operating stock and it has to submit regular returns to the government demonstrating that it has met the requirements. A company can also purchase tickets representing stocks held on its behalf in the UK or in other EU countries under bilateral agreements between the UK and the relevant country. The company bears the stocking costs and recovers the expense through retail prices charged to customers.

However, the UK's CSO requirements are expected to increase by nearly 50% over the next 10 to 20 years. The increase is due to the UK's declining oil production from the UK Continental Shelf and changes to the EU directive on crude oil stocks. The rate and timing of the increase is not yet certain. The UK CSO could increase from the current 10.4 million tonnes to more than 14 million tonnes by 2025.

It is anticipated that UK storage capacity will need to be expanded to comply with the higher requirements. The cost of meeting the additional storage requirements will be borne by the companies who, in part or in full, will pass it on to the final consumer.

3. Future issues

Under the government's RTFO, fossil fuel providers are obliged to include a specified percentage of biofuel in the fuel they supply. The percentage of biofuel that must be supplied has been increasing annually and will reach 5% by April 2013. Under the RTFO, fossil fuel providers not only incur higher administrative costs, they also have to demonstrate that the biofuels used come from sustainable sources. Environmental regulations mean additional investment costs such as storing and blending biofuels requires special equipment.

This factsheet was last updated January 2013.

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