Petroleum review

AUGUST 1999

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1999 survey of European bulk storage capacity

North America
Healthy gas prices boost Californian exploration
Listing of Gulf of Mexico deepwater projects

Forecasting
Why, when and how?

Covering the international oil and gas industry from field to forecourt – exploration, production, refining and marketing

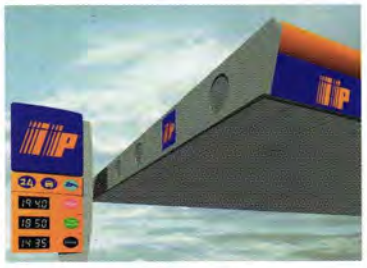
IP THE INSTITUTE OF PETROLEUM

Minale Tattersfield Design Strategy

International Design Consultants for the Energy Sector

OFFICES IN: LONDON, PARIS, MILAN, ZÜRICH, PRAGUE, CASABLANCA, KUWAIT, JEDDAH, U.A.E., KUALA LUMPUR, HONG KONG, OSAKA, TOKYO, BRISBANE, SYDNEY, BUENOS AIRES, RIO DE JANEIRO.

▲ *Petrol station design for IP, Italy*
▼ *Prototype of totem sign for IP*



▼ *Canopy and totem detail for IP, Italy*

Minale Tattersfield has 35 years' experience in petrol station design and has worked internationally for companies including BP, Agip, IP, YPF, Total, Afriquia, Elinoil, Thai Oil, Hydro and Texaco, among others.

In the area of transport design, we have also completed major projects for London Transport, BAA, and Eurostar train.

Speed is essential in the redesign and refurbishment of petrol stations to minimise loss of revenue, however consulting and coordinating specialist design consultancies for each individual area can be time consuming.

Minale Tattersfield offers a one stop service, with the experience and expertise to manage your complete project efficiently, from initial concepts through to final completion.

We have specialist skills needed for each area of the complex process of petrol station design.

- Graphic design for brand identity and signage,
- Architectural / urban design for the building, canopy, and surrounding landscape,
- Industrial design for petrol pump, car wash, lube bay, self-standing structure,
- Packaging design for lube products,
- Retail design for convenience store.

▲ *Corporate identity for Elinoil, Greece*

▲ *YPF Petrol station contract with Minale, Tattersfield, Piaton & Partners*

▲ *Livery for Elinoil, Greece*

▲ *Petrol station design for Elinoil, Greece*
▼ *Mintat petrol station designed for Agip*

▲ *Corporate identity and livery for Eurostar*
▼ *Hammersmith tube station*

▲ *Packaging for BP*
▼ *Interior of Heathrow Express*

▲ *Proposal for Heathrow Express*
▼ *Identity for IP's self-service stations*

mintat *for AGIP*

TRANSPORTABLE PETROL STATION

The Mintat (AGIP) petrol station is ideal for areas where environmental constraints restrict the building of permanent stations. Costing considerably less than a permanent petrol station, it is well suited to sparsely populated rural areas in developing countries. It can be used to reduce loss of revenue during the refurbishment of station networks and accommodate the seasonal flow of traffic in tourist areas and at large sporting events.

A transportable, fully autonomous petrol station, built on a modular, container based system of inter-connectable units which can be installed and fully operational in 48 hours. It complies with the latest environmental legislation including a vapour recovery system during discharging and filling and guarantees maximum operating safety. The tanks have a capacity of between 22,000 and 44,000 litres to distribute two types of petrol and diesel if required.

The standard modules of the transportable service station are composed of:

- *Tank Section*
  Size 2.4z
- *Office Section*
  Size 2.40 x 9.20 x H 3.30 m.
- *Canopy*
  Size 9 x 3.60 x 1.3 m.
- *Service Ramps*
  Size 14 x 3.2 x 0.3 m.
- *Set of External Trimmings*
  Outer fascia, modular cladding panels, tubular protection, outside illumination.
- *Utilities Plants*
  Electrical plant and earthing system, lighting plant, fire fighting system, heating plant, fuel dispenser and control system.

- *Signs*
  Two illuminated signs with trademark and company logo, two signs on the fascia, one pricing panel.
- *Furnishings and Accessories*
  Internal furnishings, shelves, W.C. service.

- *The MINTAT MARK II,* incorporating a four hour fire rated tank assembly meeting SWRI 95-03 & 93-01, UFC Standard A-11-F-1 (79-7) and NFPA 30 & NFPA 30A is in the final stages of development.

Your company livery can be applied as illustrated below.

For further details, contact:

Lucy Hughes
Information Officer
Minale, Tattersfield & Partners
The Courtyard,
37 Sheen Road,
Richmond,
Surrey, TW9 1AJ,
United Kingdom.

Telephone:
+44 (0)181 948 7999

Facsimile:
+44 (0)181 948 2435

ISDN:
+44 (0)181 332 2160

Email:
info@mintat.demon.co.uk

Internet:
http://www.mintat.co.uk

Petroleum review

AUGUST 1999 VOLUME 53 NUMBER 631
£8.75 • SUBSCRIPTIONS (INLAND) £105.00 (OVERSEAS) £115.00

PUBLISHER

IP THE INSTITUTE OF PETROLEUM

A charitable company limited by guarantee
Director General: Ian Ward
61 New Cavendish Street
London W1M 8AR, UK
General Enquiries:
Tel: +44 (0)171 467 7100
Fax: +44 (0)171 255 1472

EDITORIAL

Editor: Chris Skrebowski
Deputy Editor: Kim Jackson
Production Manager: Emma Parsons
The Institute of Petroleum
61 New Cavendish Street, London W1M 8AR, UK
Editorial enquiries only:
Tel: +44 (0)171 467 7118/9
Fax: +44 (0)171 637 0086

e: petrev@petroleum.co.uk

http://www.petroleum.co.uk

ADVERTISING

Advertising Manager: Jolanda Nowicka
Anne Marie Fox
Production: Catherine Meade
Landmark Publishing Services,
8 New Row, London WC2 4LH, UK
Tel: ***+44 (0)171 240 4700***
Fax: ***+44 (0)171 240 4771***

SUBSCRIPTIONS

Subscription Enquiries: Portland Press
Tel: +44 (0)1206 796351 Fax: +44 (0)1206 799331
Printed by The Thanet Press Ltd, Margate

US MAIL: *Petroleum Review* (ISSN 0020-3076 USPS 006997) is published monthly by the Institute of Petroleum and is available Periodical Postage Paid at Middlesex, New Jersey.

Postmaster: send address changes to *Petroleum Review*
c/o PO Box 177, Middlesex, New Jersey 08846, USA.

ABC AUDIT BUREAU OF CIRCULATIONS BUSINESS PRESS

ISSN 0020-3076

MEMBER OF THE AUDIT BUREAU OF CIRCULATIONS

ABBREVIATIONS

The following are used throughout *Petroleum Review*:

mn	= million (10^6)	kW	= kilowatts (10^3)
bn	= billion (10^9)	MW	= megawatts (10^6)
tn	= trillion (10^{12})	GW	= gigawatts (10^9)
cf	= cubic feet	kWh	= kilowatt hour
cm	= cubic metres	km	= kilometre
boe	= barrels of oil equivalent	sq km	= square kilometres
		b/d	= barrels/day
t/y	= tonnes/year	t/d	= tonnes/day

No single letter abbreviations are used. Abbreviations go together eg. 100mn cf/y = 100 million cubic feet per year.

Front cover: Our comprehensive annual survey of western European bulk storage facilities begins on p21

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NEWS

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FEATURES

REGULARS

ROUNDUP From the Editor

Causes for concern?

Each year a key industry event is the publication of the near biblical Petroconsultants' *World Petroleum Trends (WPT)*. This tabulates the successes and failures of the global oil and gas industry in terms of exploration and production (E&P) data – reserves, exploration, licensing, production and hydrocarbon balances – for the last 10 years in 150 countries.

The report is probably the best source from which to make judgements about how the industry is doing, where the 'hot spots' are and the direction of the key underlying trends. The recent industry trend in mergers and acquisitions means that the report is now the IHS Energy Group's *World Petroleum Trends (WPT) 1999*. The data, however, is, if anything, even more comprehensive.

The report helps answer some of the most important questions about the industry. Unfortunately the answers are not as comfortable as many would like or even maintain. The widely held view that improved seismic and seismic interpretation has improved drilling success rates is not borne out by the 1998 numbers, the success rate having fallen quite sharply.

It will hardly come as a surprise that 1998 saw a 10% fall in exploration drilling compared with year earlier levels. However, the overall decline conceals wide variations between areas. The bright spot was Saharan Africa which recorded a 12% increase, predominantly in Algeria and Tunisia, while all other areas recorded declines (see **Figure 1**).

In North America, which continues to account for around 60% of all new field wildcats (NFWs) drilled worldwide, activity declined by 24%. This was an even sharper fall than the 20% reduction in European exploration drilling. The UK appears to have suffered the largest decline of all the major producers with a 25% fall to 55 wells in 1998 – just one-third of the 1990 level.

An early turnaround appears unlikely as IHS Energy reports that NFW starts in the first four months of 1999 were 50% below year earlier levels

The decline in exploration drilling would have been less significant if the success rate had improved. Such an outcome had been predicted, as the general view was that companies would, in the face of low oil prices, restrict exploration activity to their best prospects. However, the latest *WPT* records that the 1998 global success rate for exploration drilling (outside North America) was 29%, well down on the 38% level recorded for 1997.

In terms of discoveries the statistics are no more encouraging. The total of 300 oil and gas discoveries in 1998 is nearly 30% lower than the previous year's levels. Only 21 countries had discoveries of more than 100mn boe, although finds were made in over 50 countries.

The total global addition of 7.6bn barrels in 1998 (excluding North America) was slightly better than in recent years but still represents only 34% of the

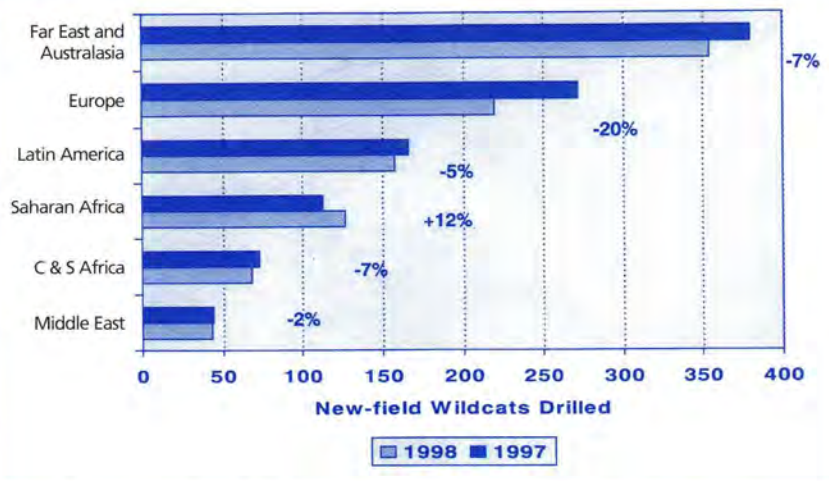


Figure 1: Regional new field wildcats drilled in 1997 vs 1998 (excluding North America and CIS)
Source: Petroleum Economics & Policy Solutions (PEPS) 2Q1999, in WPT 1999

Web World

World at your fingertips

The World Wide Web brings the world closer together in terms of communication, and also aids the dissemination of country information. You no longer need to pore over an atlas to find out where Zanzibar is, just surf the Net. You can also find out its GDP (gross domestic product) and download the national anthem at the click of a mouse.

Accept no imitations, the ultimate source for demographic, economic and political information is the CIA World Factbook 1998 (**www.odci.gov/cia/publications/factbook**) No, you don't need to hack into the Pentagon mainframe to access the data – it's all in the public domain. A whole range of colour maps is also available for viewing.

www.stats.demon.nl is a simple, but effective, site with comparison charts covering population, world's largest companies, etc.

Your Nation (**www.your-nation.com**) holds more stats than you can shake a stick at. It's perfect for both the 'Did You Know...' anorak and the serious researcher alike.

The animated ranking charts make this site compulsive viewing. If you live in Malawi, you might want to move to Andorra, as the life expectancy is 36 years and 86 years respectively.

One disadvantage is that the site is heavy on graphics, so the download time could be slow for those with older PCs.

However, another plus is that you can earn 'Beenz', the new web electronic currency, just for registering your name and e-mail address. For more information on Beenz, point your browser at **www.beenz.com**

The new Members' Area of the IP website, to be launched in September 1999, will have a section dedicated to country information, along with subject data, searchable news stories and the latest issue of *Petroleum Review*.

If you haven't already registered for a username and password, please e-mail Catherine Pope (**cpope@petroleum.co.uk**) with your full name and membership number.

You can now access the latest oil prices and news through the IP website courtesy of Iinoil. Just click on the link from our home page.

If you have any questions or suggestions regarding the IP website, or the Internet in general, please contact Catherine Pope at the IP on **cpope@petroleum.co.uk**

Country	1998	1994–98
Mexico	0%	4%
China	17%	54%
Norway	44%	42%
UK	6%	22%
Brazil	3%	298%
Oman	15%	17%
Argentina	4%	39%
Egypt	41%	36%
Colombia	1%	79%
Malaysia*	22%	22%

** excludes Malaysia/Thailand JDZ*

Source: WPT 1999

Table 1: Production replacement in the top-10 non-Opec oil producers (excluding North America and Russia)

22.3bn barrels produced in the year. Global oil discovery has not fully replaced production in any year since 1986.

Over the last five years only 38% of global oil production (excluding North America) has been replaced by new discoveries. According to the IHS Energy Group the cumulative shortfall over the last five years amounts to 50bn barrels. This raises the legitimate question as to how relaxed or concerned the industry should be about the fact that it has been depleting known reserves, of around 1,000bn barrels, at roughly 1%–1.5% per annum?

In terms of the overall depletion of reserves there is probably only limited cause for concern. However, in terms of who owns it there is rather more of a problem. The IHS Energy Group has tabulated the success of the ten largest non-Opec producers (see **Table 1**). This shows that in 1998 none of the top 10 replaced even half of their production. In the last five years seven of the 10 have failed to replace even half of their production. Of the remaining three, Brazil has replaced its production threefold, China has replaced a little over half its production, while Colombia has managed to replace over three-quarters of its production in the period.

One does not need to be very alarmist to deduce that sustaining existing non-Opec production (other than in Brazil) in the longer term is likely to be increasingly difficult. The optimists argue that new deepwater provinces – offshore West Africa, the Gulf of Mexico and Brazil – combined with new areas such as the Caspian and undiscovered resources will maintain or even expand non-Opec production. Our tabulation of future Gulf of Mexico deepwater projects (p15) gives cause for optimism.

It is somewhat more than a mere debating point. In the 1970s, Opec used its perceived control of the bulk of the world's oil reserves to aggressively drive prices higher. Since that date the price of oil has increasingly been controlled by the market. A market whose price perceptions can change rapidly and capriciously.

According to IHS Energy, statistics show that for the non-Opec countries cumulative oil production now amounts to 540bn barrels with 356bn barrels of reserves remaining. This suggests that the resources of the non-Opec producers are 60% depleted. This is in sharp contrast to the Opec producers where cumulative production of 341bn barrels still leaves 648bn barrels of remaining reserves. In other words Opec reserves are only 34.5% depleted.

Over recent years the Opec producers have been keen to expand the market for oil by maintaining prices at reasonable levels. This year has taught all market players just how rapidly prices can rise in the face of supply restrictions. Some Opec members such as Venezuela already appear to be returning to an aggressive nationalism (see p46). Would Opec's commitment to 'reasonable' prices survive sharp falls in non-Opec production?

In terms of 1998 oil resources discovery, Angola was once again the clear winner adding 2.3bn barrels of liquids, or roughly 30% of the global discovery outside North America. Nigeria was the runner up with 1.2bn barrels. All the others in the top ten added 500mn barrels or less (see **Table 2**).

In terms of gas discoveries, the picture was rather brighter with ten countries discovering over 1.5tn cf. The largest additions were in China where 7.6tn cf were discovered, followed by Pakistan (4.2tn cf), Saudi Arabia (3.4tn cf), Trinidad (3.3tn cf) and Peru (3tn cf). The global discovery of gas, outside North America, was an impressive 40.5tn cf. However, this represented only 67% of the gas produced in the period. The report notes that in the 1992–98 period gas discoveries only exceeded production in 1997.

The falling discovery trend seen so clearly for oil may now be appearing for gas. The sheer size of the discovered gas reserve base means there is little cause for immediate concern. However, the concentration of ownership may open the way to an 'Opec for gas'. Opec countries now account for 43% of world gas reserves while Russia accounts for a further 27%. The gas reserves of non-Opec countries are 41.3% depleted while those of the Opec countries are only 11.7% depleted.

A limited number of conclusions can be deduced from the data in *WPT 1999*. Oil and gas continues to be found – but not as fast or in as large accumulations as in the past. Oil is rather more affected than gas. Known oil and gas reserves are sufficiently large that any discovery shortfall poses no immediate problem. But, potential shortfalls in non-Opec production may limit the ability to apply competitive pressure to the Opec producers. Political decisions rather than the market could then start to set prices and supply.

The report also shows that the cause of the recent oil price weakness was straightforward. Oil production in 1998 rose by almost 1.7% to 26.15bn barrels (71.64mn b/d) while demand rose by less than 0.6%. Despite this Opec expanded its 1998 production by 3.15% to 29.84mn b/d and increased its market share to 41.7% of global production.

Chris Skrebowski

Oil reserves added by NFW drilling (mn barrels)			Gas reserves added by NFW drilling (tn cf)			Total reserves added by NFW drilling (mn boe)		
1	Angola	2.264	1	China	7.580	1	Angola	2.326
2	Nigeria	1.165	2	Pakistan	4.240	2	China	1.469
3	Algeria	0.500	3	Saudi Arabia	3.400	3	Nigeria	1.193
4	Norway	0.493	4	Trinidad	3.300	4	Algeria	0.975
5	Indonesia	0.443	5	Peru	3,000	5	Saudi Arabia	0.920
6	Neutral Zone	0.400	6	Algeria	2.850	6	Indonesia	0.773
7	Saudi Arabia	0.353	7	Egypt	2.429	7	Norway	0.722
8	Venezuela	0.280	8	Bolivia	2.000	8	Pakistan	0.714
9	Libya	0.246	9	Indonesia	1.981	9	Peru	0.704
10	China	0.206	10	Malaysia	1.475	10	Trinidad	0.581
	World total	**7.604**		**World total**	**40.504**		**World total**	**14.355**

Note: Comparable data unavailable for North America

Source: WPT 1999

Table 2: Exploration performance in 1998

NEWS Upstream

Watching waves and weather

The UK Met. Office has expanded its network of Marine Automatic Weather Station (MAWS) buoys into the coastal area offshore the Shetland Islands. The new, £90,000 K7 buoy will help the Met. Office to provide even more accurate real-time meteorological data to oil exploration companies operating in the area.

The deployment brings the network of buoys operated by the Met. Office around the British Isles to 13, plus two buoys which are operated in partnership with Meteo France. The MAWS monitor a comprehensive range of hourly synoptic data including wind speed, wind gust, wind direction, wave height and period, humidity, air pressure and temperature, and sea surface temperature. In addition, the K7 buoy is providing a platform for ocean current measurements to be taken.

The data are used for weather forecasting, numerical modelling and climatological archives. The Met. Office then uses the observations and results from numerical models to warn of approaching swells that may require disconnection of drilling equipment, rerouting of tankers, or of wind speeds that could be dangerous for workers on platforms.

Decommissioning Cooper

EEX Corporation has awarded Cal Dive International a deepwater contract to decommission and remove the production facilities at the Cooper field located in 2,000 to 2,350 metres of water on Garden Banks block 388/387 in the Gulf of Mexico.

Decommissioning work involves plugging and abandoning seven subsea wells, recovery of subsea trees and templates, and flushing and removing pipelines, flowline jumpers and what is said to be the world's tallest free-standing production riser (measuring 1,400 ft).

Cal Dive will also disconnect and tow the floating production facility to shore and recover 12 deepwater mooring legs using three deepwater vessels, including its newly acquired *Cal Dive Aker Dover*, and the services of alliance partners Schlumberger, Aker Marine, Canyon Offshore and Fugro McClelland, as well as Cooper Cameron, Dril-Quip and FMC Corporation.

Cameroon licensing

Cameroon's third licensing round is to offer the currently unlicensed deepwater acreage of the Douala/Kribi-Campo Basin and onshore Logone Birni Basin in the north of the country. The bidding round is to open from 30 September 1999, with a proposed closing date of 31 March 2000.

Both basins are considered to have 'significant potential for new hydrocarbon discoveries'. They are covered by extensive new and historical seismic surveys, but neither has been explored by drilling. A planned pipeline from the Doba oil fields in Chad, through northeastern Cameroon to Kribi, would provide export infrastructure for any discoveries made in the Logone Birni Basin. The Douala/Kribi-Campo basin constitutes the most northerly part of the West African basin system, one of the world's most prolific petroleum provinces.

The Cameroon government has formulated a new legal and fiscal framework in order to encourage petroleum exploration. The new Bill is expected to be enacted in time for the licensing round.

In Brief

United Kingdom

***Marathon is to drill a wildcat well in** block 153/5, offshore the western Outer Hebrides in the deepwater Atlantic Margin.*

***Shell Expro's Gannet G subsea field in** North Sea block 22/21 has come onstream. The field is tied back to the nearby Gannet A platform. Reserves are put at 13mn boe.*

***The UK government has reinstated** capital gains tax rollover relief in a bid to help revive investment by operators in the North Sea. The move could reduce North Sea operating costs by more than £20mnly.*

Europe

***A new licensing round is planned off-**shore West Greenland in 2001. Contractors are reported to have been invited to acquire new seismic data this year and in 2000.*

***Repsol of Spain has announced a new** oil discovery in the Mediterranean Sea, 30 km offshore from Tarragona. The Chipiron-1 well, which tested at 7,000 b/d, is to be brought onstream via a subsea wellhead connected to the Casablanca rig located 10 km away.*

***Kerr-McGee Oil is to swap its 14.38%** stake in the North Sea Dunlin field, plus cash, in exchange for an additional 15% in Statoil's Gryphon field (bringing its total stake in the field to 61.5%).*

***Coflexip Stena Offshore recently com-**pleted what it claims is its largest subsea lift ever – 262 tonnes – on behalf of ETPM (UK), the EPIC contractor on the gas and liquid export pipeline systems for Elf Exploration UK's Elgin/Franklin development and Shell Expro's Shearwater development in the North Sea.*

***The Norwegian government has given** Statoil the green light to develop the Sygna oil field in the North Sea. Field reserves are put at 63mn barrels. Production is forecast at 40,000 b/d. Statfjord C will receive the oil produced from two Sygna wells.*

***Kvaerner has secured a NKr250mn** contract for the supply of subsea equipment for four wells on Norsk Hydro's North Sea Tune field.*

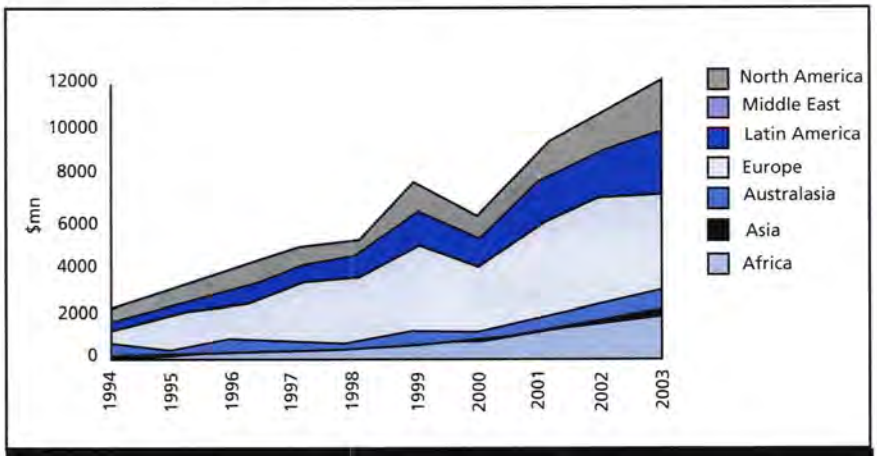
NEWS Upstream

World subsea production set to double

The global subsea oil and gas production market is expected to double from its 1998 levels over the next five years, according to a new report from energy industry analyst Douglas-Westwood and offshore industry data company Infield Systems. The *World Subsea Report* forecasts that in 1999, 287 subsea developments valued at $7bn will come onstream. After a decline in 2000, expenditure is predicted to again increase to a value of nearly $12bn by 2003.

Over the period 1999–2003, the report indicates that there is potential for 1,604 subsea well completions to come onstream worldwide: 700 (42%) in north-west Europe, 380 (22%) in Latin America (mainly Brazil), and 213 (17%) in North America (mainly the Gulf of Mexico). Five factors will drive this growth: increasing oil and gas prices, reducing costs of subsea field developments, the greater numbers of small reservoirs within reach of host platforms, the increasing numbers of deepwater developments, and technological advances.

The commercial prospects for the subsea sector are forecast to grow, with the greatest benefits to accrue to those companies able to offer a one-stop-shop for complete subsea field developments. The many small fields that will be developed by tie-backs to existing infrastructure will also allow contractors to more readily participate in the project financing and in some instances take a return by way of a share of the value of production.



The world subsea market by region ($mn)

Namibian licensing round

The National Petroleum Corporation of Namibia reports that, although numerous enquiries were received, no formal bids have been made for new licenses offered in Namibia's third petroleum licensing round which closed on 31 March 1999. 'This can be ascribed to the downturn in the world economy and the dramatic fall in the oil price from September 1998 to February 1999,' comments the company. 'However, the fact that against this international downturn Shell Exploration and Production Namibia and partners are still actively pursuing development of the large Kudu gas field is a good indicator of the future of exploration... in Namibia'.

In the light of the result of the licensing round, the Namibian government has decided to adopt an open licensing system for available petroleum acreage with immediate effect. This is regarded as an interim measure and does not preclude the return to a formal licensing system in the future.

One-stop-shop alliance

Amec Engineering has joined three Australian-based companies – Epic Energy, GPR Engineering and Kinhill Engineers – to provide a one-stop-shop for energy companies involved in oil and gas developments in central Australia.

The catalyst for the strategic alliance has been the recent government release of petroleum exploration licences 5 and 6, which lie adjacent to the mature Cooper Basin oil and gas fields currently operated by Santos.

Some 44 applications received by the government during the first of three staged releases are currently being assessed for granting to exploration companies.

The alliance will provide full life-cycle services for both new and existing developments. The one-stop-shop service is expected to allow relatively small prospects to be economically developed through to the marketplace.

In Brief

Stolt Comex Seaway and NKT Holdings *of Copenhagen are to form a new, jointly owned company – NKT Cables – to manufacture flexible flowlines and dynamic flexible risers for the offshore oil and gas industry.*

North America

Schlumberger's offshore contract drilling *business Sedco Forex Offshore is reported to be merging with Transocean Offshore to create what is claimed to be the world's biggest offshore drilling company. Schlumberger will hold 52% of the new company which will operate under the name Transocean Sedco.*

It is reported that tests indicate *Chevron's Fort Liard K-29 well in Canada's Northwest Territories could produce gas at a rate of between 70mn and 100mn cf/d – said to be one of the highest rates of any Canadian well drilled to date. The well is due onstream in May 2000.*

The latest estimate of recoverable *reserves in the Newfoundland Terra Nova field is reported to have risen by 45% on previously released figures to 580mn barrels.*

Aker Gulf Marine is understood to *have won a contract from Anadarko for the construction of the Gulf of Mexico Tanzanite project's steel jacket, platform deck and piling.*

BP Amoco is understood to have *revealed plans to invest $5bn in Alaska in the first five years following its proposed merger with Arco.*

Aker Gulf Marine of Texas and *Mexican group Combisa are reported to have secured a contract to build three offshore oil rig platforms for the Cantarell oil field offshore Mexico. Work is due to complete in spring 2001.*

BP Amoco Canada Petroleum is *reported to be putting C$1bn worth of its conventional and heavy oil sands assets up for sale.*

Russia & Central Asia

The Irkutsk legislative assembly has *approved the inclusion of Rusia Petroleum's Kovykta field in the PSA list while the Russian Duma has included Yukos' Priobskoye oil field to the list.*

BP Amoco has announced what it *claims is a 'significant' gas condensate*

NEWS Upstream

Higher oil prices to boost North Sea investment?

The recent rise in international oil prices, reaching $18/b in early July, could, if sustained, lead to a significant recovery in North Sea oil and gas investment, according to the latest Royal Bank of Scotland *Oil and Gas Index*. However, Stephen Boyle, Head of Business Economics, suggests cautious optimism: 'The risk is that higher prices give Opec and its allies an incentive to cheat on quotas, and prices are again driven down. At present that risk is small.'

Year Month	Oil production (av. b/d)	Gas production (av. mn cf/d)	Av. oil price ($/b)
May	2,433,059	6,381	14.40
Jun	2,406,521	6,069	12.12
Jul	2,432,040	5,733	12.06
Aug	2,379,644	5,640	12.05
Sep	2,573,882	6,394	13.28
Oct	2,600,813	8,832	12.60
Nov	2,612,843	10,738	11.07
Dec	2,715,056	11,123	9.81
Jan 1999	2,664,121	11,532	11.16
Feb	2,678,138	11,532	10.20
Mar	2,679,786	11,107	12.54
Apr	2,717,767	9,863	15.66
May	2,509,334	7,393	15.18

Source: The Royal Bank of Scotland Oil and Gas Index

North Sea oil and gas production

First oil from enviro-friendly Villano field

Arco reports that production from the Villano oil field has begun flowing into the Trans Ecuadorian Pipeline System (SOTE). Arco (60%) and Agip Oil (40%) operate the field under a service contract with national oil company Petroecuador. The field is currently flowing at 6,000 b/d. Output is expected to reach 40,000 b/d later this year as additional wells come onstream and as Arco and Petroecuador complete a 60,000 b/d expansion of the SOTE. Field reserves are put at 200mn barrels of 21° API oil. A total of nine wells are to be drilled.

The field is located some 40 km into the rainforest. In a bid to minimise the project's impact on the tropical environment and to protect the fragile ecosystems, Villano has been developed completely without access roads – rigs, people and supplies were transferred to and from the field by helicopter. The flowline out of the forest was installed using a monorail to string the pipe and move equipment. It 'weaves' between the trees in order to minimise the number that had to be cut and to eliminate extended breaks in the forest canopy.

North Sea asset swap

Talisman Energy has acquired Amerada Hess' 30% stake in the North Sea Blake field, bringing its total interest in blocks 13/24a, 13/24b and 13/29b to over 35% once unitised. The field, which is estimated to contain up to 300mn barrels of oil, is expected to come onstream in 2001.

In exchange, Amerada Hess is to acquire a number of gas opportunities – including interests in Goldeneye (15%), Atlantic (20%) and Cromarty (55%) in the South Halibut Basin – which are said to have greater strategic importance to its portfolio than Blake.

Ultra-deepwater vessel

Cal Dive International is to invest $150mn in the construction of an ultra-deepwater multi-service vessel. The Q4000 semisubmersible – due to be commissioned in mid-2001 – will be capable of well completion and tree setting, template and module installation, intra-field flowline and umbilical lay, well intervention, steel pipelay, life of field support, repair and maintenance, and field decommissioning. The company expects the vessel's capability to provide well completion and tree setting in a wrap-around contract with construction to deliver cost savings of 15% to 20%.

In Brief

discovery in Azerbaijan following the completion of the SDX 1 well on the Shah Deniz field in the Caspian Sea. The well, which encountered gas condensate in three separate horizons, tested at 50mn cf/d of gas and 2,965 b/d of condensate from the lowest horizon.

***Production has begun from the** Sakhalin 2 project in Russia which is operated by Shell, Marathon, Mitsui and Mitsubishi. Initial output stands at 5,000 b/d of oil, but is due to increase to 90,000 b/d next year.*

***Lukoil, Eni, British Gas Exploration and** Production, and Texaco are understood to have signed an agreement to construct a 460-km pipeline linking the Karachaganak oil and gas condensate field in Kazakhstan to Atyrau on the north Caspian coast. The new line is to be connected to the Caspian Pipeline Consortium (CPC) pipeline system in 2001.*

Asia-Pacific

***Mobil's North Sumatra offshore block A** field in the Malacca Strait is reported to have come onstream. It is providing feed gas to the Arun LNG plant.*

***Newfield Exploration Company of** Houston has acquired Gulf Canada Resources' Australian oil assets, all of which are located in the Timor Sea.*

***Premier Oil reports that the Zamzama-2** well in the Sindh province of southern Pakistan has tested at 94.3mn cf/d of gas.*

***South China Sea (West) Oil Corporation** is reported to have begun production from a new oil field located in the Gulf of Tonkin offshore China. The field is to produce 1mn t/y of oil and 500,000 cm/d of gas.*

***Statoil is reported to be selling its 45%** interest in the B10/32 gas field in the Gulf of Thailand to Unocal and Mitsui Oil.*

***Shell Australia and Santos subsidiary** Crusader (Victoria) have acquired Australia Worldwide Exploration's 10% stake in the Kipper field. Shell has also acquired Australia Worldwide's 23.53% interest in the Basker–Manta–Gummy block.*

***Mitsui Oil Exploration is reported to be** planning to spend $35mn on oil exploration in Thailand in 1999 as part of a $100mn investment programme in the country during 1998–2000.*

NEWS Upstream

Triton FPSO nearing completion at Teesside

The Triton FPSO currently under construction at Kvaerner's Teesside yard will be used to export oil and gas from the North Sea Bittern, Guillemot West and Guillemot North West fields. Collectively known as Triton, the fields are due onstream by the end of the year.

Originally built as a standard tanker in Korea, the vessel is having new topsides installed to separate, process and export up to 105,000 b/d of crude, 140mn cf/d of gas at 2,500 psi, and 100,000 b/d of produced water with 30 ppm or less of oil through the use of hydrocyclones. The 105,000 dwt vessel has a storage capacity of six days' production (630,000 barrels) and a design life of 20 years. It has 15 riser slots, but will initially only use nine flexible risers and two umbilicals.

Oil will be offloaded from the stern to shuttle tankers, while gas will be exported via a 12-km, 10-inch diameter spur pipeline to Fulmar.

The vessel is scheduled to leave Teesside in 3Q1999. Amerada Hess is acting as operator for the Triton project, on behalf of partners Veba, Enterprise, Esso, Shell and Paladin.

BP Amoco makes major Gulf of Mexico discoveries

BP Amoco has announced four significant oil discoveries in the deep waters of the Gulf of Mexico, one of which – Crazy Horse – is the largest made to date by any company. The Crazy Horse prospect is located in 6,000 ft water depth in the Boarshead Basin and recoverable oil reserves are put at over 1bn boe. BP Amoco holds 75% interest in the prospect, Mobil holding the remaining 25%.

The other discoveries, also operated by BP Amoco, are located in water depths varying from 4,000 ft to 6,500 ft in the Southern Green Canyon area of the Gulf. The discoveries and partners are: Atlantis (BP Amoco 56%, BHP 44%), Mad Dog (BP Amoco 63.56%, BHP 11.44%, Unocal 25%) and Holstein (BP Amoco 50%, Shell 50%). The three prospects add around 600mn boe net additional reserves in the Southern Green Canyon Area.

BP Amoco plans to establish two new production centres in the Gulf of Mexico following discovery of these four prospects. The company is the largest acreage holder in the region, with more than 750 gross blocks in water depths greater than 1,500 ft. It currently produces 150,000 boe/d from six fields – approximately one-fifth of the industry's total production in the region.

The comapany's two main deepwater production areas are in the central Gulf – one concentrated around the Shell-operated Ram Powell and BP Amoco's Pompano fields, the other around Shell's Mars and Ursa fields.

In addition, BP Amoco has interests in a further four fields under development – Marlin (BP Amoco operated), Europa (Shell operated), Diana and Hoover (Exxon operated). These will take the company's net Gulf deepwater production to around 250,000 boe/d by the end of 2000. BP Amoco's total Gulf of Mexico reserves, including the shelf, is 3bn boe.

In Brief

Latin America

Colombia is offering 10 new areas for *oil exploration which are estimated to hold 5bn barrels of oil.*

Brazil's National Petroleum Agency is *understood to be planning a second licensing round for oil exploration in 1Q2000.*

Petrobras (40%), Kerr-McGee (40%, *operator) and Exxon (20%) are understood to be planning to jointly invest up to $1bn on exploration and development in block BS-1 in the Santos Basin, offshore Brazil, over the next seven to eight years. Petrobras and Texaco are reported to have signed an exploration and production contract covering the BC-4 block in the Frade field in Brazil's Campos Basin. Petrobras and Esso have signed two exploration and production contracts covering continental shelf blocks BP-1 in the Pelotas Basin and BFZ-1 in the mouth of the Amazon River Basin, Brazil.*

Arco is understood to have sold its *30% interest in the Hamaco heavy oil field in Venezuela to Philips Petroleum (20%) and Texaco (10%).*

British-Borneo has been awarded an *12.5% interest in deepwater block BM-FZA-1 offshore northern Brazil in the country's first open licensing round.*

Africa

BP Amoco and Shell have announced *that their second exploration well, Plutonia, on Angola's deepwater block 18 has tested at up to 5,700 b/d on a restricted choke size. The first block 18 discovery, Platina, tested oil earlier this year at 6,500 b/d.*

Lasmo and Anadarko Petroleum plan *to sell their respective 13.75% and 27.5% stakes in blocks 401a and 402a located onshore in the Berkine Basin of Algeria to Agip for $127mn.*

First oil is reported to have flowed *from Talisman Energy's southern Sudan Unity project. Oil is carried by a 1,500-km pipeline linking the Unity fields to Port Sudan and first sales are expected in 3Q1999. A total of six fields are to be developed during phase one of the project, which is forecast to produce 150,000 b/d of oil.*

Elf and Exxon report that the Tulipa-1 *well in block 17 offshore Angola has tested at 7,000 b/d of oil.*

NEWS Industry

Company greenhouse gas reporting guidelines

Guidelines aimed at making it easier for business to respond to national commitments to reduce greenhouse gas emissions were recently published by UK Environment Minister Michael Meacher. These are the first national company reporting guidelines to be published following UNEP's initial model. UNEP is encouraging all countries to produce their own national reporting guidelines.

'These guidelines will help each business to play its part in reducing greenhouse gas emissions, whether on a voluntary basis or in response to regulatory requirements, emissions trading or taxation. The step-by-step guidance and practical case studies will make it easier for them to measure their emissions, set targets for improvement and report publicly on progress,' commented Meacher.

The guide also emphasises that companies outside traditionally polluting sectors, such as oil, gas and chemicals, may fail to realise how extensive an environmental impact they do in fact have. Industry accounts for just over one-quarter of UK greenhouse gas emissions – energy (including electricity) used in industry accounts for 19% of total UK greenhouse gas emissions, and heavy industry emissions of process-related greenhouse gases accounts for another 7%. The rest of business also has a big direct impact – around 10% of greenhouse gas emissions come from heating, lighting and running offices, shops, hotels and hospitals. Another 7% comes from business road transport (excluding commuting), and 2% from the waste that companies throw away to landfill.

Repsol complys with merger requirements

Repsol has accepted a number of measures that are required to comply with competition regulations following the Spanish company's merger with YPF.

The requirements are as follows:

- A series of contracts supplying natural gas to third parties, representing around 15% of the gas sold jointly on the Argentinian market by YPF and Repsol are not to be renewed.
- A crude oil refining capacity equivalent to 4% of the overall refining market in Argentina at 31 December 1998 is to be divested by transfer to a third party or parties within 18 months.
- A number of Eg3 service stations, together accounting for around 10% of gasoline and gas oil sales in Argentina, are also to be transferred to a third party or parties within an 18-month period.
- Participation in power generation – except projects already undertaken or under evaluation and auto-generation for the Group's own consumption – is not to be increased until the contracts for the supply of natural gas to third parties have expired or been transferred. This commitment will be binding for 18 months.
- A clause forbidding re-importation used by YPF in its LPG export contracts is to be suppressed within a maximum time limit of 18 months. LPG retail sales to the Argentinian market are to be reduced by 4% over a period of three years and the company is to pass on, through selling prices, the benefits of the economies of scale resulting from the market share set for this transition period, on the basis of reasonable profitability.

Export awards for smaller UK businesses

The UK Minister for Trade, Brian Wilson, recently launched the 1999 Export Awards for Smaller Businesses – the only UK government sponsored awards specifically targeted at this sector.

The awards are open to companies with less than 250 employees, who can demonstrate sustained export growth and that have had an export turnover of more than £100,000 over the past year.

A total of 12 regional winners will be selected from the DTI regional network, Scotland, Wales and Northern Ireland, with an overall winner to be announced on the night of the awards presentation.

Each of the winners will receive prize money and services from the sponsors, worth £50,000. There will also be, as for the first time last year, a best newcomer award. The runners-up also receive a Certificate of Merit.

Application forms can be obtained from Michael Kenevane, British Trade International, Joint Export Promotion Directorate, Kingsgate House, 66–74 Victoria Street, London SW1E 6SW, UK; Tel: +44 (0)171 7215 4660; Fax: +44 (0)171 7215 4336. Alternatively, contact the Award Administrator, Kompass British Exports on Tel: +44 (0)1342 326972 or Fax: +44 (0)1342 335860. Applications can also be made on the Internet at **www.export-awards.co.uk**

In Brief

United Kingdom

BP Amoco plans to cut $4bn off its *annual costs worldwide, sell assets of $10bn and boost capital spending to a total of $26mn over the three years to the end of 2001. The actions aim to add up to six percentage points to the company's return on capital by the end of the period. The company also reports that synergies from the merger between BP and Amoco are likely to reach the annual rate of $2bn before the end of 1999, a year ahead of schedule.*

Ranger Oil reports that it has completed *its asset divestiture programme which it began earlier this year. Total proceeds received from the sale of the North Sea Anglia gas field and the Edson gas field in west central Alberta, Canada, amounted to $100mn.*

Malaysian oil company Petronas is *rumoured to be planning to buy a 25% stake in Premier Oil and Gas, a partner on the Yetagun gas field in Myanmar.*

Centrica is to acquire the Automobile *Association (AA) for £1.1bn.*

The International Petroleum Exchange *(IPE) is understood to have won backing from two-thirds of its members for the sale of 70% of the exchange to outside members.*

The UK Offshore Operators Association *(UKOOA) has called for the UK government to reconsider its proposed climate change levy, arguing that the tax 'largely misses the target at which it is nominally aimed – that of reducing emissions of greenhouse gases'.*

BP Amoco is commissioning a *'ground-breaking' independent audit and verification of its greenhouse gas accounting and reporting systems in support of its commitment to reduce greenhouse gas emissions to 10% below 1990 levels by 2010. A team from KPMG, DnV and ICF Consulting will provide an independent audit.*

BG plc has announced a major restructuring *of its business which will more clearly separate its gas pipeline company Transco and its exploration operations. A new holding company – BG Group – will own the two distinct subsidiary operations of Transco and BG Energy Holdings. The move will provide many shareholders with a cash payout when up to £2bn of corporate bonds are issued early next year.*

NEWS Industry

EC reshuffle creates new super-energy post

A reshuffle of jobs among European Commissioners in Brussels has led to the creation of a hybrid energy post, combining the jobs of transport commissioner and European Commission–European Parliament relations with the energy brief, reports *Keith Nuthall*.

The nominee for the new position is Loyola de Palacio del Valle Lersundi, a lawyer and conservative politician from Spain's ruling Popular Party, for whom she is currently Agriculture Minister. Her published CV contains no sign of experience in either the transport or energy industries. Instead, she has a law degree and has served as Technical Secretary General of the Federation of Press Associations (Spain).

The job merger proposals have been made by European Commission President-Elect Romano Prodi in a bid to free two commissioners from outside work so that they can concentrate on the internal reform of the Commission following this year's allegations of fraud and incompetence.

These reforms mean that Neil Kinnock would be the last dedicated European transport commissioner.

The move has worried UK Petroleum Industries Association (UKPIA) Director General Dr Michael Frend, because of the British experience over the merger of the UK government's transport and environment departments. 'This should be taken very slowly and carefully,' he said.

The UK Freight Transport Association (FTA) is also concerned, with a spokesman saying: 'We would find [such a move] unfortunate. The loss of focus and dedication on the transport brief would be something that we would regret.'

UK industry backs emissions trading

Members of the Confederation of British Industry (CBI) and the Advisory Committee on Business and the Environment (ACBE) have agreed to design an industry-wide scheme for emissions trading as a cost-effective way to cut greenhouse gas emissions and contribute to the UK meeting the climate change targets agreed at Kyoto in 1995.

The aim of the project, which is to be developed by business working in partnership with the UK government, is to design a scheme for emissions trading in the UK which could then link into a future international emissions trading system. Completion of the first phase is targeted for the autumn and it is hoped to have a pilot trial with 20 or so companies participating by the end of 1999.

'We believe that emissions trading has significant potential as a cost-effective way to reduce greenhouse gases,' said Peter Agar, Deputy Director General at the CBI. 'It could provide maximum environmental benefits at least cost. It would allow firms which have produced less than their emissions quota of carbon dioxide to sell the surplus quota to other firms on the open market.'

The project is to be overseen by a steering committee of senior business leaders – supported by a full-time secretariat and technical committee – chaired by Rodney Chase, Deputy Chief Executive of BP Amoco. 'BP Amoco can provide practical advice gained from the pilot system on emissions trading we have been running in-house for the better part of the past year,' commented Chase.

It is hoped that the UK pilot emissions trading project will show the UK government that such a scheme can reduce emissions more cost-effectively, and with less damage to industry's competitiveness, than could be achieved by any fiscal measures introduced to meet Kyoto targets. The UK government has proposed the introduction of a Climate Change levy in April 2001, covering industrial and commercial energy, and both primary and secondary fuels.

Elf Acquitaine makes counterbid for TotalFina

Elf Acquitaine has responded to a $43bn hostile takeover bid from TotalFina with a $51bn counterbid for its French rival (see p13). Elf is offering three Elf shares and euro 190 in cash for every five TotalFina shares. If the counterbid proves successful, the company plans to separate the oil and gas operations from the chemicals business to create two separate companies – creating the world's fourth largest oil and gas business, and the fifth largest chemicals operation.

Elf expects the merger to save euro 2.5bn within three years – more than twice the savings outlined by TotalFina. Around 6,000 job losses are anticipated if the Elf deal goes through, compared to around 4,000 if TotalFina's bid proves successful. Both companies expect around 2,000 job losses in France.

In Brief

Europe

Italian state owned group Eni is *reported to be interested in purchasing a 15% stake in Portuguese energy holding company Petroleos e Gas de Portugal (GALP), which is being sold off as part of a privatisation programme.*

Belgian utilities Tractabel and Electrabel *are reported to have sold their combined 3.3% stake in the recently merged company TotalFina for $1.86bn.*

North America

Chevron has created a new subsidiary *– Chevron Technology Ventures – which is to invest in a portfolio of technology start-up companies whose innovations in IT, biotechnology and materials science could significantly benefit the Group's existing businesses and lead to new growth opportunities.*

Chevron has announced plans to cut *2,500 jobs, around 1,500 more than originally predicted last year.*

Russia & Central Asia

BP Amoco is understood to be planning *to invest up to $30mn in the Russian oil company Sidanco as part of a restructuring programme which may give the oil major a blocking minority of up to 25% plus one share of Sidanco voting shares.*

Lukoil and the Komi Republic have *signed a cooperation agreement which facilitates the acquisition of Komitek.*

Russian oil company Sibneft is understood *to have successfully placed 1% of its shares with foreign investors.*

Latin America

Petrobras and PdVSA plan to assess *the potential for the establishment of a binational oil company that will manage joint projects in the exploration and production of petroleum as well as the commercialisation and distribution of crude oil, its products and natural gas in Brazil and Venezuela.*

PdVSA is planning to invest $59bn on *oil and gas projects during the period 2000–2009, some 43% less than the figure predicted for the 1998–2007 period by the previous administration.*

NEWS Downstream

Western fuel retailers target eastern Europe

The fuel retailing market in central and eastern Europe is facing increased penetration by the major western oil companies, spearheaded by Shell which now has 8% of the market by volume, according to a new report from Datamonitor. The report reveals that western oil majors now have a 22% share of the central and eastern European fuel sales market – a figure which is predicted to rise to 30% by 2003, largely at the expense of the region's independent retailers. By 2003, western oil majors are forecast to control 15% of the regional service station network.

According to Datamonitor, Shell is currently the second largest fuel retailer in central and eastern Europe, just behind the Polish company CPM which dominated the region's largest market, Poland. Shell has operations in 10 of the 12 countries of the region, controlling 3.3% of the sites and holding a 8% share of volume sales. The company is the market leader in Estonia, with a 19% share, and is the second-largest retailer in four other regional markets.

In 1998, Shell sold 3bn litres of fuel throughout the region, 28% more than in 1997. Over the same period, the company's central and eastern European network expanded by 53% to reach 522 outlets following the construction of new sites and acquisitions. The company is forecast to have captured 12% of volume sales by 2003 and will have increased its share of sites to 5%, giving it an overall leadership of the market.

The eight largest western fuel retailers, which currently hold 22% of the market, are expected to increase their share to 30% by 2003. They will benefit from greater sales efficiency and better levels of service in comparison with the branded domestic players and independent retailers, says Datamonitor. Their share will also be boosted by forthcoming privatisations in some of the region's key markets – in which they are certain to play a leading role – and by acquiring smaller players in the market.

Over the same period there will be a continued erosion of the share held by the region's independent fuel distributors, which will fall from 48% to 42%. Not only will these smaller competitors be at significant competitive disadvantage, states the report, they will be less able to maintain the high investment required by new, more stringent, environmental standards.

Demand for fuel in central and eastern Europe is predicted to grow at an average rate of 4%/y until 2003 and is expected to drive ambitious network expansion programmes by the western oil majors. Conoco, for example, intends to double its network in Poland and the Czech Republic by this date.

Pay-back time for hauliers in Italy

The Italian government has been told by the European Court of Justice that a tax credit scheme for road hauliers that it operated in the early 1990s was unlawful state aid, writes *Keith Nuthall*. It means that Rome will have to ask hauliers who benefited to pay additional taxes that they had avoided paying under the scheme.

Under the scheme, Italian hauliers were able to deduct sums owed from income tax, municipal tax and VAT, while foreign hauliers were able to claim compensation, depending on the amount of diesel they used in Italy.

The case was brought in Italy, which was trying to overturn a European Commission ruling that the scheme was unlawful and that the money paid out should be recovered.

Financing secured for Mega Latin American project

A total of $472mn worth of long-term notes have been issued to finance the Mega project which comprises a natural gas separation plant, pipeline and fractionation facility in Argentina. Petrobras holds a 34% stake in the project, YPF 38% and Dow Chemical 28%.

Mega is the first large industrial project of its kind in the energy sector in Mercosul, the Southern Cone Free Trade Association of which both Argentina and Brazil are members. The project has three components: a separation facility for natural gas liquids (NGLs) located in Loma La Lata; a 600-km pipeline to transport the NGLs from Loma La Lata to Bahia Blanca; and a fractionating plant to separate the NGLs into ethane, LPG and natural gasoline at Bahia Blanca which will also be equipped with storage, loading and jetty facilities.

The project will process 36mn cm/d of natural gas and produce 540,000 t/y of ethane, 6mn t/y of LPG and 210,000 t/y of natural gasoline. Petrobras' share of the Mega production will be 6mn t/y of LPG and 210,000 t/y of naphtha. Costing some $675mn to build, Mega is due onstream in 4Q2000.

In Brief

United Kingdom

BP Amoco is reported to be planning *to merge its lubricants business with Burmah Castrol and to take a large minority stake (around 20%) in the company. It is understood that BP Amoco will make the move once it has concluded negotiations to buy out Mobil's share of the two companies' European lubricants joint venture.*

Kuwait Petroleum reports that it is *the first company in Europe to nationally roll out a brand new form of loyalty promotion using unique rewritable thermo-chromatic card technology. The technology will allow Q8 to communicate one to one with customers by printing new messages and images on their cards every time that they are used and to tailor promotions site by site.*

The London-based International *Petroleum Exchange (IPE) is reported to be planning to launch fuel oil futures as a new risk management tool in September 1999.*

Card Clear Group subsidiary, HTEC, has *secured a contract to upgrade Total Oil's 'TOPS' loyalty card scheme. The new scheme will offer on-site redemption.*

The central and eastern European *market for auto fuel is poised for a period of robust growth, according to a recent report from UK analyst Datamonitor. A total of 37.5bn litres of auto fuel were sold in the region in 1998. This is expected to reach 45.5bn litres by 2003 – an increase of over 20% – boosting the value of the market by $8bn to $27bn.*

The New York Mercantile Exchange *(Nymex) has offered to acquire a controlling stake of between 55% and 70% in London's International Petroleum Exchange (IPE) under the same for-profit holding company structure offered to IPE in a proposal presented by five European energy groups.*

The UK Office of Gas and Electricity *Markets (OGEM) and Transco have proposed that all existing entry capacity to the UK's national transmission system (NTS) of gas pipelines be allocated by a price auction.*

The Office of Gas & Electricity Markets *(OGEM) has announced that the fossil fuel levy in England and Wales is to reduce to 0.3% from the present level of 0.7% from 1 October 1999.*

NEWS Downstream

Hungary reduces natural gas prices

The wholesale price of natural gas in Hungary was changed on 1 July 1999 and all other gas pricing categories adjusted accordingly. The key new element of the price adjustment is the modification of the tariff system. For all customer segments, a two-component tariff – consisting of capacity and commodity charges – has been introduced in a bid to promote the more efficient use of natural gas.

As a result of adjustments, Hungarian oil and gas company Mol estimates that the wholesale price of gas will be reduced by approximately 3% from the July level of HUF19.1/cm.

The system also aims to reflect more accurately the cost of supplying gas. A new price category – the 'direct customer price' – will be applied to large industrial customers who purchase gas directly from the high pressure transmission system. These customers will see a greater price reduction of 6%, reflecting the lower cost of supplying gas to this consumer group.

As a result of these two modifications, Mol's average sales price for natural gas will decline by an estimated 4% from July 1999.

VAT ruling to impact fuel retailer sales promotions

HM Customs and Excise is reviewing its guidance over the payment of VAT on gifts for petrol loyalty schemes, following a ruling by the European Court of Justice on Kuwait Petroleum's Q8 Sails promotion (see *Petroleum Review*, June 1999), writes *Keith Nuthall*.

In an advisory judgement for a UK VAT tribunal, the Court ruled that service stations should be considered the final consumer for VAT purposes for gifts worth more than £10. Its decision could have important consequences. If the VAT tribunal and Customs & Excise follow its advice, this would mean that petrol retailers would be unable to claim back VAT paid out when they bought the gifts in the first place.

At the moment, Customs' advice to the industry is that the motorist should be considered the final consumer of a gift, implicitly buying access to a loyalty scheme when he or she fills up a tank with fuel.

But this is now likely to change. A Customs & Excise spokeswoman told *Petroleum Review*: 'We have had a series of meetings with the trade. We will be issuing further guidance on this fairly shortly.'

UK Petrol Industries Association (UKPIA) Director General Dr Michael Frend said: 'I think this would make petrol companies think very carefully about future gift schemes.' Kuwait Petroleum is equally gloomy. It said: 'The judgement of the court is likely to be met with dismay throughout the sales promotion industry.' The company's promotion scheme ran at 300 UK sites from 1991–1996, with customers entitled to one stamp for every 12 litres of petrol bought, which could be redeemed for items from cutlery to televisions.

Proposed changes to UK gas licence fees

Changes to the way in which the UK Office of Gas and Electricity Markets (OGEM) calculates and collects licence fees from gas suppliers, shippers and transporters, have been proposed in a new consultation paper. The fees paid by 174 licensees help towards the cost of running the regulatory office.

Among the proposals are changes to the proportion of regulatory costs charged to each licence type supplying more than 10,000 premises.

The document says that suppliers, which up to now have provided 50% of the fees, should in future pay 40%. It is proposed that fees for transporters should rise from 45% to 50%, and for shippers from 5% to 10%.

There will be no change for the 131 licensees who supply less than 10,000 premises and who pay a minimum flat fee.

Other proposals include:

- Quarterly dates for determining the number of premises used to calculate annual fees – at present this is done on 1 April every year. This change will more accurately reflect the movement of customers in the fully competitive market, says OGEM.
- Requiring 75% of the fee to be paid in April each year, with the balance in December.
- Raising the licence fee cap from the present limit of £15.2mn to £20mn at April 1999 prices.

Licence fee recovery in 1999/2000 is expected to be £17.7mn, compared with £15.9mn the previous year.

In Brief

Europe

***Shell Hydrogen and Energy Conversion** Devices have signed a memorandum of understanding to explore the establishment of a joint venture to further develop and commercialise ECD's proprietary solid hydride storage technology for the evolving hydrogen-fuelled transportation system.*

***Slovenian fuel retailer Petrol is understood** to be forming a gas marketing joint venture with Croatia's state owned oil and gas company INA Industrija Nafte.*

***Amsterdam-based Shell Hydrogen and** Siemens Westinghouse have signed an agreement to develop and market what is said to be a 'unique power generation technology fuelled by natural gas that would essentially eliminate the release of greenhouse gases to the atmosphere'.*

***A total of 14 European gas companies** have joined forces to create a new gas association – Baltic Gas – with the aim of expanding gas consumption in the Baltic region.*

North America

***US gas distributor KN Energy has made** a $506mn offer for Houston-based gas pipeline operator and storage company Kinder Morgan.*

Middle East

***Mobil Oil Qatar has signed a** Memorandum of Understanding with UAE Offshore Group (UOG) under which Mobil will supply between 300mn and 500mn cfld of gas to the Dolphin project.*

***Enron and Palestine Electric Company** are understood to have signed a deal under which they will supply the Palestine Energy Authority with electricity from a new $140mn, 136 MW combined-cycle power plant project currently under development.*

***TOTAL is understood to have agreed a** deal under which it will purchase over 130,000 tonnes of natural gas liquids from Oman LNG over an 18-month period beginning in April/May 2000.*

***Irish E&P company Bula Resources is** reported to have signed a deal with Iraq covering the purchase 2mn barrels of oil.*

NEWS Downstream

LNG storage regs in UK

A consultation document looking at options for the future of BG plc's LNG storage facilities in the UK has been published by the Office of Gas and Electricity Markets (OGEM).

At present the prices of LNG storage are regulated along with BG's Transco pipeline system. The document asks for views on whether this regulation should continue in modified form, or whether LNG storage could be regulated by competition law alone. Any new arrangements would operate from 1 May 2000, the beginning of the next storage year.

BG plc operates five LNG storage sites, and revenues from them are currently regulated under a storage specific price control, first put in place on 1 April 1997. Together, the five facilities can account for more than 15% of the UK's peak demand for gas. In a given year, BG plc can raise revenues of around £50mn from LNG storage services.

Promoting Powershift

Energy Efficient Powershift, the UK government-backed initiative to kick-start the market for clean fuel vehicles, has been boosted by a further £3.3mn funding from the Department of the Environment, Transport and the Regions (DETR) for 1999/2000. The scheme, which is run by the Energy Saving Trust, is funded by the DETR and supported by vehicle manufacturers and fuel suppliers.

Powershift offers grants to offset the cost of converting new fleet vehicles to cleaner fuels such as LPG, natural gas and electricity. The initiative has stimulated orders worth £60mn for such vehicles in its first three years. According to Powershift Manager Jonathan Murray, those vehicles funded to date have 'contributed to a reduction of 39,000 tonnes in carbon dioxide emissions – the equivalent of taking 18,000 cars off the road for one year'.

Major order for Millennium tankers

General Trailers of Dereham, Norfolk, has secured an order to supply more than 100 Fruehauf-designed Millennium series petroleum tankers to Shell UK.

The order, worth in excess of £6.75mn, was placed by P&O European who will operate the tankers throughout the UK as part of newly won distribution contract with the oil company.

In Brief

Russia & Central Asia

The Russian government has approved *a new 5% export duty on oil products, reports the United Financial Group's Russia Morning Comment. The tax could raise $300–$350mn/y.*

Asia-Pacific

Vietnam's first LPG plant in Dinh Co in *Bas Ria-Vung Tau Province is reported to have come onstream. The plant is designed to process 1.5bn cm of associated gas from the Bach Ho and Rong oil fields.*

Syntroleum Corporation is reported to *have proposed the construction of a A$450mn gas-to-liquids plant on Western Australia's Burrup Peninsula.*

Foster Wheeler has secured an engineering, *procurement and construction contract by Shell Philippines Exploration to design and build the deepwater Malampaya field's gas-to-power project's onshore gas plant.*

Latin America

Commercial operations are reported *to have begun at the $750mn GasAtacama pipeline which carries natural gas 585 miles from Argentina to Chile for power generation in northern Chile's electricity grid.*

The first 1,970-km section of the $2bn *Brazil–Bolivia natural gas pipeline, linking Santa Cruz to Campinas, has begun commercial operations. The second section (1,180 km) is due onstream by the end of October 1999.*

UK Deliveries into Consumption (tonnes)

Products	†May 1998	*May 1999	†Jan–May 1998	*Jan–May 1999	% Change
Naphtha/LDF	239,674	232,847	1,229,126	1,357,753	10
ATF – Kerosene	774,932	833,432	3,398,603	3,614,521	6
Petrol	1,815,519	1,794,524	8,845,434	8,744,676	–1
of which unleaded	1,424,877	1,536,818	6,785,399	7,350,029	8
of which Super unleaded	35,350	29,589	173,976	142,720	–18
Premium unleaded	1,389,527	1,507,229	6,611,423	7,207,309	9
Burning Oil	196,117	198,437	1,613,538	1,776,029	10
Automotive Diesel	1,175,348	1,210,523	6,130,541	6,175,422	1
Gas/Diesel Oil	505,149	499,713	3,035,718	2,930,844	–3
Fuel Oil	193,773	158,551	1,268,323	981,247	–23
Lubricating Oil	64,534	65,163	351,014	322,117	–8
Other Products	695,508	687,416	3,419,126	3,593,442	5
Total above	5,660,554	5,680,606	29,291,423	29,496,051	1
Refinery Consumption	559,887	516,435	2,683,041	2,667,275	–1
Total all products	6,220,441	6,197,041	31,974,464	32,163,326	1

† Revised with adjustments *preliminary

A TOTAL solution

Chris Chew looks at the latest oil company merger in the offing – that between the newly created TotalFina and Elf.

Such is the fit between TotalFina and Elf that it is perhaps surprising that a merger was not more strongly promoted earlier. The main reason, of course, is the strong rivalry – even antagonism – between the two French companies which runs counter to the enthusiasm of the French government for a 'French solution'. The government's support – through its 'golden share', a legacy of Elf's privatisation in February 1994 – plus its ability to frustrate, and possibly even forbid, a bid of which it does not approve, gives TotalFina a very strong position in the battle for the hearts (and share certificates) of Elf's owners.

Nevertheless, in the world of takeovers, nothing is certain until the contract is finally signed. The market's initial response – to push Elf to a 3.5% premium above TotalFina's offer – reflected anticipation of either a higher bid from TotalFina or a bid from another company. As TotalFina's offer will remain open for 35 business days after the prospectus is filed with the Security and Exchange Commission (SEC) in the US, Elf has a relatively large amount of time in which to marshal its forces.

Elf Chairman, Philippe Jaffré, has been vocal in his rejection of the hostile approach. At a meeting of some 300 senior executives in Paris, he claimed that the bid was the equivalent of 'going shopping by breaking and entering' and that the terms of the offer were 'oversimplified and aimed at the financial community'. However, the meeting did not produce any real clues as to how Elf was proposing to fight the bid, apart from a commitment to accelerate Elf's own strategic reorganisation plans.

In such an atmosphere rumours are bound to flourish, and the current speculation includes: Elf bidding for another energy company (BG shares had a good run immediately after the announcement), Elf finding a 'white knight' (ie, an alternative to TotalFina that would be more sympathetic to preserving Elf as a separate entity), or even a counter-bid by Elf for TotalFina (see p9).

Upstream overlap

Elf's main problem in selling the idea of its continued independence to investors is that, unlike some of the other recent merger attempts – notably Texaco and Chevron, the logic of a tie-up between TotalFina and Elf is strong. Upstream, the overlap between TotalFina and Elf's African and North Sea activities would allow a substantial reduction in operating costs while Elf's North Sea assets would greatly strengthen the enlarged group's ability to supply the European gas market.

According to TotalFina, the combined group would have 'a balanced reserve portfolio' of nearly 10bn boe, equivalent to 13 years' production. Both companies are fortunate in owning projects in large, low-cost basins, and TotalFina believes that combined hydrocarbon production could expand by 40% over the next five years, double the expected rate of TotalFina's peer group. Finally, despite the fraternal antagonism, there can be little doubt about the cultural fit between the two.

Downstream consolidation

Although the merger would result in the new company dominating the African retail market, the most important downstream implications will be in Europe. TotalFina's plan is to consolidate its downstream operations around six hubs, and increase the integration between chemicals and refining. The takeover could result in costs savings of euro 500mn by 2002 and a market share in Europe of 12%. Rationalisation in the chemical activities will produce further savings: Elf's 35% stake in Sanofi could raise euro 4bn, and a further euro 2bn is possible from the divestiture of other

continued on p19...

Last month in the market

Nothing succeeds like success, and the activity of investors attracted to the sector by the strong oil price has itself attracted more investors and speculators. At one end of the size scale, the institutions have been forced to increase their weightings in BP Amoco and Shell T&T, simply in order to keep their portfolio weightings in line with the index. As these two companies account for 12% or so of the FTSE 100, the resultant strength in share prices as a result of this rebalancing inevitably attracts non-oil investors simply looking for a good story and an active share price.

At the other end of the scale, takeover speculation has provided the main incentive. Early in the month Eni was rumoured to be interested in Enterprise and/or Lasmo, but some of the smaller stocks such as British-Borneo and Premier also attracted attention. But, finally, the market was rewarded with a real deal, TotalFina and Elf. The market response – after first marking up Elf's shares to slightly more than the value of the TotalFina bid – was to speculate that Elf would be forced to look either for a company to buy, such as BG or Enterprise; or else for a white knight such as Eni, Chevron or Shell to out-bid TotalFina.

	Price% (at 9 July)	Change One month	Comment
BP Amoco	1220p	4.7	
Shell T&T	536.75p	9.6	
Royal Dutch	£40.60	9.0	
TOTAL	FFr130.00	4.2	
Elf	FFr172.40	24.7	Hostile bid from TotalFina
Enterprise	462.75p	11.2	Bid rumours
Lasmo	162.25p	26.8	Bid rumours
British-Borneo	240p	41.2	Acquisition of Brazilian acreage
Monument	70.25p	29.5	Lasmo bid now unconditional
Norsk Hydro	NKr312.00	–1.7	
BG	405.25p	5.1	Bid rumours
Dated Brent ($/b)	18.90	16.9	
FTSE100	6262.6	–3.4	
FTSE Actuaries:			
UK Oil & Gas	6733.0	6.7	
Europe Oil	1207.0	7.1	

Source: Financial Times, *press reports*

European oil stocks in July 1999

The North American oil industry shows little change

The resurgence of oil prices that began in March had not made a significant change in the fortunes of the US oil industry by early summer. This is partly due to the time lag time necessary for recovery to pass down the line but it also reflects the generally depressed condition of the industry except in the deepwaters of the Gulf of Mexico, writes *Judith Gurney*.

High prices will not bring much relief to depressed onshore and shallow-water oil operations. With a few exceptions, output has been declining for more than a decade, reflecting a dwindling resource base. Environmental regulations have made the production of some fields uneconomic. They have increased the costs and risks of refinery operations and, as in the case of the use of MBTE as an additive for fuel, have resulted in unpopular products.

Immunity of deepwater operations

In contrast to the depressed outlook onshore most development projects for deepwater fields in the Gulf of Mexico have continued on schedule during the long months of low oil prices. The previously voracious appetite of traditional major deepwater Gulf players for acquiring new exploration blocks, however, was visibly diminished, with most of these showing very little interest in the Minerals and Mining Services' (MMS) March 1999 auction for offshore blocks. Exploration and production companies were responsible for close to 90% of the bids made at this sale, including the majority of bids for deepwater blocks. This was clear proof, if such was needed, that technological developments which have greatly reduced finding and development costs enable these companies to expand their horizons beyond the shallow offshore continental shelf (OCS) waters.

Several Gulf deepwater fields came onstream in the first six months of 1999. The 160mn-boe Genesis field, at 2,600 ft in Green Canyon, began production from a spar in January. Chevron, with a 57% share is the Genesis operator, while Exxon has 38% and Petrofina 5%. Gemini, a subsalt field at 3,400 ft in Mississippi Canyon had a March startup involving a spar with subsea connections. Gemini is believed to contain between 3mn and 4mn barrels of condensate and 250bn to 500bn cf of gas. Texaco, with a 60% share, is the operator with Chevron as its partner. The 400mn-boe Ursa field, at 3,800 ft in Mississippi Canyon, also began production in March with a TLP (tension leg platform). Shell, the operator has 45% equity, BP Amoco 23%, Conoco 16% and Exxon 16%.

Development is well underway in several other projects. Exxon's Hoover and Diana fields in Alaminos Canyon and East Breaks, in which BP Amoco has a 33.3% equity, have pipeline systems for delivery of oil and gas to shore under contract and their spar-like DDCV (deep draught caisson vessel) production structure is under construction. Output is scheduled for mid-2000. The relatively small 50mn-boe King field in Mississippi Canyon – in which Vastar has 50% equity, Shell 33% and BP Amoco 17% – is expected to begin production later this year using a subsea system connected to Shell's Mars TLP. British-Borneo's 120mn-boe Allegheny field in Green Canyon is also due to come onstream by year-end using a mini spar. The startup of Texaco and Marathon's Petronius field, in Viosca Knoll, however, has been put off until at least 2000, the result of the loss of part of the compliant tower production structure during installation.

Other fields for which development plans have been announced include Shell's Angus, Macaroni and Europa fields, to be produced with subsea systems, and its Brutus field to be produced with a TLP. The Marlin field in Viosca Knoll will also be produced with a TLP. BP Amoco is the operator of Marlin with 75% equity and Shell has a 25% holding.

Discoveries of deepwater reserves this year have included the largest to date – Crazy Horse – in the Boarshead Basin, whose preliminary estimates of reserves are in excess of 1bn boe. BP Amoco is operator of Crazy Horse with 75%, Mobil holding the remaining 25%.

Smaller finds include the Typhoon field, also in Green Canyon, by a BHP and Chevron 50/50 partnership; the Magnolia field in Garden Banks by Conoco (75%) and Ocean Energy (25%); and the Aconcaqua field in Mississippi Canyon by Elf (50%), Mariner (25%) and Pioneer (25%). Shell has reported discoveries of the Oregano and Habanero fields in Garden Banks and the Morgus field in Mississippi Canyon. A number of deepwater drillships are active, including the new Conoco and R&B Falcon *Deepwater Pathfinder*, and several other newbuilds and refurbishments by TransOcean and Global Marine are expected to become available later this year or soon after.

Onshore activities

The relatively high volume of selling and trading of onshore and shallow-water holdings during the price slump was not unusual. A lot of onshore and shallow-water offshore properties are held by small exploration and production companies which are prone to starting up, shutting down and selling projects suddenly – major oil companies are apt to move more slowly. Recent sales, done and proposed, have involved deals by British-Borneo, CNG, Mariner, Coastal, Titan, Shell, Apache and others.

Alaska continues to hold promise for new onshore oil fields; it is currently providing one-fifth of US oil production, almost entirely from the North Slope on the Arctic coast. There are

Field name	Depth (ft)	Operator	Disc'd	Startup	Oil and gas reserves	Prod. system	Peak prod.(yr)	Investment
Viosca Knoll								
Marlin	3,263	BP Amoco	1995	mid-99	50mn b	TLP	40,000 b/d, 250mn cf/d	$500mn
Nile	3,535	BP Amoco						
Petronius	1,750	Texaco	1995	after 2000		Compliant tower		$500mn
Thor	1,720	Oryx				Subsea		
Virgo	1,132	Elf	1997	1999		Steel platform		
VK 862	1,040	Walter Oil		Planning		Subsea		
Miss'ppi Canyon								
Coulomb	7,520	Shell		2003				
Crosby	4,452	BP Amoco						
Europa	3,900	Shell	1994	early 2000	160mn boe	4 subsea wells via Mars	60,000b/d, 45mn cf/d (2001)	$500mn
Fourier*	6,950	Shell		2001				
Gemini**	3,393	Texaco	1995	3Q99	3-4mn b cond 250-300bn	Spar and subsea		$185mn
Gomez	2,985	Union Pacific	1997	2000	100-140mn bn			
King	3,285	Vastar	1997/8	1999	50-100mn boe (80% oil)	Subsea to Mars		
King/King's Peak	5,149-6,800	BP Amoco		2001	250mn b	Composite spar		
Leo	2,500	British-Borneo	evaluation	100mn bn		TLP		
MC 26	1,272	BP Amoco						
MC 443	2,095	Walter Oil						
MC 533	1,000	Walter Oil						
MC 837	3,900	Walter Oil						
Metallica	7,000	BP Amoco						
Mickey	4,350	Exxon/Shell?	1991	2000	100-200mn b			
Morgus	3,957	Shell	1999					
Narcissus	4,250	Texaco						
Nirvana	3,414	BP Amoco		2000				
Pluto***	2,828	Mariner Energy		4Q99	10mn boe	30-km tie-back S Pass 89	10,000 b/d, 60mn cf/d	$70mn
Nakika*	6,739	Shell		Planning	150mn b	Floater		
Ursa	3,950	Shell	1991	Apr-99	400mn boe	TLP	150 kb/d, 400mn cf/d (2001)	$1.45bn
Zeus	3,905	Exxon						
Zia	1,780	Shell	1998		50-100mn boe			
Green Canyon								
Allegheny	3,225	British-Borneo	1990	Sep-99	120mn b	FPS and subsea		
Angus Jnt Prt	2,000	Shell	various	Sep-99	64mn boe	4 Subsea via Bullwinkle	640,000b/d, 60mn cf/d (1998)	
Angus	2,000	Shell	1999		see above	as above	see above	$200mn
Manatee	2,000	Shell			see above	as above	see above	
Stellaria	2,045	Marathon/Shell	1997	1999	see above	as above	see above	
Bison	2,500	Exxon						
Brutus	1,750-3,300	Shell	1988, 1994	late-2001	200mn boe (70% oil)	TLP	100,000b/d,150mn cf/d	£900mn
Fuji	4,269	Texaco	1995	2001	50mn b	Floater/FPSO		
GC 228	1,638	Texaco						
GC 37	2,024	British-Borneo						
GC 82	2,400	Kerr-McGee	1995					
Genesis	2,597	Chevron	Jan-99		160mn boe	Spar	55,000 b/d, 72mn cf/d	$750mn
Glider	3,300	Shell	2000		100-150mn b	TLP		
Grand Canyon	1,715	Conoco	2000			TLP		
King Kong	3,817	Shell	2000		250mn b	FPS and subsea		
Poseidon	4,489	BP Amoco						
Toro	1,465	Shell						
Typhoon	2,000	Chevron	1998	mid-2001	1-310,2-130ft of net pay			
Alaminos Canyon								
Baha	7,620-8,255	Shell	1996	Planning	50-150mn b			
Hoover	4,705	Exxon	1997	2000	350mn b	DDCV		
South Diana	4,852	Exxon	1997	Planning	included above			
Desoto Canyon								
King's Peak	6,530	BP Amoco		1999	250mn b	Tie-back to Desoto177		
Atwater Valley								
Neptune	6,220	BP Amoco		Planning	100mn b	FPS and subsea		
Ewing Bank								
Arnold	1,752	Marathon	1996	2000		Subsea to Lobster		
Black Widow	1,850	British-Borneo						
Ewing Bank 910		Kerr McGee		Jan-99	23mn boe		16,000 b/d, 23mn cf/d	
Ewing Bank 921	1,700	British-Borneo				Mini TLP		
Oyster	1,200	Marathon		2000		Semi and subsea		
Sunday Silence	1,450	Tatham Offshore	1999	50mn b		Spar/floater and subsea		
Garden Banks								
Garden Banks 5		Kerr McGee		mid-2000	60mn cf/d			
254	1,920	Chevron						
386	2,300	Enserch						
Baldpate	1,650	Amerada	1991	Jan-99	100-200mn boe	Compliant tower		$320mn
Conger	1,450	Amerada		2000	50-100mn b	Subsea via Salsa platform		
Habanero	2,000	Shell	1999					
Knight	1,740	Santa Fe						
Ladybug	1,355	Texaco						
Llano	1,526-2,970	EEX	1997	1999	220-400mn b			
Macaroni	3,700	Shell	1995	mid-99	78mn boe	3 subsea via Auger	35,000 b/d, 65mn cf/d	$270mn
Oregano	3,393	Shell	1999					
Penn State	1,450	Amerada	1996			Subsea via Baldpate		
Salsa	1,076	Amerada				Platform via Enchilada		
Serrano	3,150	Shell	1996					
East Breaks								
Diana/Hoover	4,763	Exxon	1990	2000	350mn b	DDCV		$1.2bn
East Boomvang	3,800	R & B Falcon	1996	2002	110mn b	FPS and subsea		
North Boomvang		3,688 R & B Falcon					included above	
**(Part of NAKIKA project which includes Ariel, Herschel and Keppler); ** subsalt field; ***formerly Blood Sweat & Tears operated by BP*								
SUBSALT								
Hickory		Anadarko	1998		New find			
Tanzanite	314	Anadarko	1998	3Q2000	140mn boe			
1999 KEY FINDS								
Aconcagua	7,000	Elf	Apr-99		250bn cf gas equiv			
Atlantis	6,000	BP Amoco	Jul-99		1bn boe			
Crazy Horse	4,000-6,500	BP Amoco	Jul-99					
Holstein	4,000-6,500	BP Amoco	Jul-99					
Mad Dog	6,734	BP Amoco	Apr-99		400-800mn boe	Apprais drilling late 1999/2000		
Magnolia	4,700	Conoco	Jan-99		150/200 ft of net pay	25 miles from Auger field		
Mirage	3,927	Vastar	Mar-99		300ft net pay 100mn b?			
Oregano	3,393	Shell	May-99		Commercial find	8 miles south of Auger		

Deepwater field developments and significant discoveries in Gulf of Mexico 1999 onwards

signs, albeit not very large, of increased activity. In March, Arco and Exxon reported the discovery of another Prudhoe Bay satellite field – Aurora. In early May, the first auction of leases in the National Petroleum Reserve was held, with Arco and Anadarko dominating the sale. Six companies put in bids, offering apparent high bids of $104mn for 134 North Slope blocks, all but a few in the northeastern corner of the reserve, in the general area of the 1994 Alpine field discovery.

It was the discovery of Alpine, due to come onstream in mid-2000 with peak output of 70,000 b/d, that led Alaskan Governor Tony Knowles and the oil industry to lobby the federal government for the opening of the reserve for exploration. The many environmental stipulations regarding work in the area, as well as the climatic conditions, mean that it will be a number of years before any discoveries that are made can be developed. The continued decline in Alaskan oil output, however, adds urgency to the search for more output in order to keep the TAPS pipeline operating.

The slowdown by BP Amoco of the development of its Alaskan Northstar field offshore in the Arctic Ocean, said to be the result of low oil prices, appears to have been partly designed to put pressure on the Alaskan authorities to issue a permit for a subsea pipeline. When this was secured, development began again, with production startup scheduled for late 2001.

The Canadian scene

Conventional Canadian oil production has so far shown few signs of recovery from the effects of sustained low oil prices, and its attraction for many major players has fallen to new lows. BP Amoco recently announced that, like Shell Canada and Petro-Canada, it intends to sell most of its western Canada conventional crude oil production assets; buyers of these holdings are expected to be exploration and production companies. Surprisingly, considering how heavy crude oil and oil sands projects have suffered under a low price regime, both Shell and Petro-Canada intend to maintain their involvement in these. Petro-Canada is also keeping its eastern Canada offshore oil assets, and BP Amoco its natural gas assets.

The Canadian natural gas scene, by contrast to oil, is very upbeat. US gas demand is expected to increase by leaps and bounds in the next few years, some analysts say by 50% in 20 years, with most, if not all, future US electric utility capacity additions likely to be fuelled by gas. Canada, whose gas exports in 1998, mostly to West Coast markets, accounted for 14% of total US consumption, expects to capture a good share of the growing market. Ultimate remaining potential Canadian gas reserves have been estimated at 617tn cf, mostly located in the Western Canadian Sedimentary Basin (WCSB), and pipeline extensions, along with the Alliance pipeline now under construction, will mean that exports will no longer hindered by pipeline capacity constraints. Many major oil companies are active in WCSB gas production and some, like Chevron, have recently announced new discoveries. The Sable Island gas field offshore Eastern Canada is due to come onstream later this year.

US natural gas

US gas prices suffered from the impact of a mild winter and competition from oil in dual-fuel markets, and they hadn't recovered very much by early summer. But supply shortage is expected to raise prices in the long term, mitigating the effect of mild climate conditions on demand. Gas production from the shallow waters of the Gulf of Mexico accounted for about 30% of total US production last year. However, output is generally expected to decline. The one major exception is the Norphlet trend off the coast of Alabama where a number of gas finds have recently been made.

The proposed auction of virgin blocks in the Eastern Region of the Gulf in 2001 should open up more reserve potential. Production of the very considerable Alaskan gas reserves requires either the construction of an 800-mile gas pipeline or an economic gas-to-liquid conversion process, neither option being on the cards now.

The US government is confident about the discovery of ample gas reserves in Gulf of Mexico deepwaters. However, unless the reserves discovered are very large only finds close to existing pipeline networks can be produced economically. There is currently no way that gas found in ultradeep waters far from shore can be brought to market.

Mergers

Merger and takeover fever appears to be continuing in full force in the US, bringing many changes to the industry. Aside from the big deals awaiting regulatory approval involving Exxon, Mobil, BP Amoco and Arco, other combinations, which take less time to finalise, are happening all the time on a lower level. Recent mergers of this sort have involved Union Pacific and Norcen, Kerr-McGee and Oryx, Ocean Energy and Seagull, Sante Fe and Snyder, and Devon Energy and Penn Energy. There is also a lot of consolidation occurring among service companies and even more involving gas and electric producers and marketers.

Exploration and production companies are experiencing a lot of change, not only as a result of combinations but also by picking up properties and businesses which merged major companies are selling off in response to government mandates designed to increase competition and also to slim their portfolios. In response to shareholder interest in the bottom line, many large oil companies focus on projects with high returns and shed those with lower profits. Exploration and production companies – Apache is a good example – are eager buyers in this 'second-hand' market, and their access to advanced finding and producing technologies allows them to make these acquisitions profitable. Downstream, there is a large amount of buying and selling of petrol stations, storage terminals, marketing systems and, sometimes, refineries.

Government issues

The battle in Washington over royalties, which has been going on for two years, shows little sign of resolution, with oil industry representatives continuing to oppose the MMS initiative to change the basis on which royalties are assessed from posted prices to Nymex futures indexes. Congress has prevented the MMS from taking action until 1 October. The MMS refuses to consider the industry's alternative proposal of royalties in kind, and there are no signs that either party is willing to compromise, despite the replacement of Cynthia Quarterman by Walt Rosenbusch as MMS head.

What is of far greater concern in the nation's capital at the moment is the suit filed with the Commerce Department and the International Trade Commission by a group of exploration and production companies on 29 June. These companies, calling themselves the Save Domestic Oil Inc, claim that Mexico, Venezuela, Saudi Arabia and Iraq have been 'dumping' oil into the US market at artificially low prices. They are requesting the government to impose 'dumping duties' on oil coming from these malefactors ranging from 33.37% (Mexico) to 177.52% (Venezuela). Many larger oil companies, and the government, strongly oppose this move, but it would appear that the terms of the existing antidumping laws are such that there is a chance that this claim might succeed.

Maintaining the dialogue

Following the success of last year's Society of Petroleum Engineers (SPE) seminar – which introduced Grampian careers officers to the petroleum industry – the SPE held a similar event at Shell Expro's offices in Aberdeen on 7 May. Participants came from all over Scotland. IP Education and Training Manager, *Gill Haben*, reports.

Peter Corbett, Associate Reservoir Engineering Advisor at Mobil North Sea Limited, is one of the SPE's Aberdeen Section Committee who organised the two events. He is also a Member of the Institute of Petroleum. Both he and I agree that, where there is synergy, the IP and SPE will continue to work together (with other interested parties) in supporting educational initiatives.

Some 35 careers officers attended the May meeting, together with representatives from the Institute of Petroleum, the Offshore Petroleum Training Organisation (OPITO), the UK Offshore Operators Association (UKOOA) and Grampian Education Business Partnership. Invitations had been sent to all careers officers in Scotland, accompanied by information packs supplied by the SPE. The Institute of Petroleum provided support on both occasions and supplied a large range of educational and careers literature for the information packs.

Speakers presented a good combination of styles and experience, offering a varied view of careers in the oil and gas industry. The day concluded with a tour of the Aberdeen Offshore Control Centre and a feedback session.

Reinforcing the relationship

To reinforce the relationship with the careers officers, and schools in Scotland in general, the IP took the lead at yet another careers information day at the Marcliffe Hotel, Aberdeen, on 3 June 1999.

The main speaker on this occasion was the chair of the IP Aberdeen Branch, Alan Higgins. Alan painted a comprehensive portrait of the functions and jobs in the oil and gas industry, and made it clear that opportunities are diverse. He used anecdotes from his own experience of the industry to great effect.

I was asked to act as facilitator to one of the groups of teachers. The discussions were both interesting and useful, and provided me with an even clearer understanding of careers advisors' opinions and perceptions of the Scottish oil and gas industry.

The Aberdeen Branch is keen to build on its relationship with careers advisors and their schools. There are plans to go into a number of schools later in the year, after the Offshore Europe 99 Conference and Exhibition which will include an educational programme on the Friday, 10 September 1999.

Stay in touch

I talk with teachers at every opportunity, about their views and requirements for educational materials and careers information. If you have an interest in this area, or know someone with an informed opinion, please join the debate. Contact me at the Institute of Petroleum, 61 New Cavendish Street, London W1M 8AR Tel: +44 (0)171 467 7135

Improving safety on the airport apron

The IP's Aviation Committee, which comprises senior representatives from the major international oil companies, is custodian of a wide range of codes of practice designed to provide airport operations with minimum standards in procedures and equipment to ensure safe practices are in place. As part of the drive to further improve safety on the apron, a new safety awareness bulletin and video have been published.

Les Milne reports.**

On a global scale the volume of fuel that is required by the aviation industry is staggering. An estimated 70mn US gallons of jet fuel is delivered to commercial aircraft every day, during some 155,000 fuellings. This means that an aircraft is fuelled somewhere in the world every 1.8 seconds! It is testament to all those involved that the industry's safety record is impeccable.

However, a number of incidents have occurred on the apron in recent times. These have included damage to hydrant pit valve equipment which could have resulted in serious damage to aircraft, buildings and possibly loss of life. It is important to note that all incidents reported were caused by other apron users providing services to the airlines.

With this in mind the IP Aviation Committee, and the major oil companies providing services at the airports, have invested considerable resources and money to increase awareness of the safety issues associated with aircraft refuelling operations.

Following a succession of presentations at industry conferences organised throughout the world, the oil industry combined its resources to develop further procedures and equipment to improve safety on the apron. This included the production of a safety awareness bulletin and video. The safety bulletin, which has been circulated by the Joint Inspection Group, addresses hydrant pit identification. Four areas of improvement were identified which are being applied at all airports as a minimum requirement for jointly operated hydrant refuelling systems (see illustrations to right):

Fuel hydrant emergency stop buttons (ESBs) must be clearly identified

Externally mounted vehicle engine stop buttons or handles must be clearly identified with a label explaining their purpose

A 'four-winged' flag is a minimum requirement to identify a hydrant pit in use

During the hours of darkness the area of the hydrant pit valve and inlet hose must be illuminated

Other recommended enhancements can be selected based on a risk assessment of the specific location, and include (those illustrated below):

Hydrant pit barriers

Expandable fencing

Plastic cones

Increased hydrant dispenser inlet visibility

The latest issue of the internationally accepted Joint Guidelines incorporates these proposals for increased visibility of the hydrant pit area. Copies of the Safety Bulletin 'Hydrant Pit Identification' can be obtained from the Secretary of JIG.*

Although the Safety Bulletin requires the cooperation of the airport authorities in introducing a number of proposals it is primarily directed at, and requires action from, the hydrant and into-plane operators at airports.

The safety awareness video 'Refuelling Alert' is directed at all users on the apron and, in particular, services and staff operating in the close vicinity of aviation fuelling equipment during delivery of fuel to aircraft.

The multi-lingual video was produced by Agip, BP, Caltex, Esso, Q8, Mobil, Shell, Texaco and Statoil, and has been supported by IATA (International Air Transport Association). The video was recorded on location at an international airport using refuelling operators, airline services staff and operational refuelling and apron equipment. It centres around the refuelling operation and associated equipment, but, as previously stated, is directed at the other apron users for the purpose of increasing the awareness of the prevalent hazards surrounding and during fuelling operations.

The video presentation takes every opportunity to demonstrate good operating procedures and refuelling safety equipment, and points out the hazardous area. It also highlights what can happen when safe practices are disregarded, and includes an exploding aircraft created by special effects.

The response from the airlines and airport authorities requesting copies of the video is very encouraging and a number of them have already incorporated it into induction courses for new airport employees. The video is essential to any safety awareness programme and it is recommended that it should be presented to all apron users, airlines, airport authorities and fuelling operators. If you are interested in obtaining a copy, please contact Martin Hunnybun at the Institute of Petroleum on Tel: +44 (0)171 467 7133 or e: **mh@instpet.co.uk**

**Copies of the Safety Bulletin 'Hydrant Pit Identification' can be obtained from T Rowe, Secretary of JIG, Garden Flat, 35 Abercorn Place, London NW8 9DR, UK. Tel: +44 (0)171 372 0491 Fax: +44 (0)171 372 0484.*

***Operations Sub-Committee Chairman, and Technical Manager, Kuwait Petroleum International aviation Company Ltd (KPIAC)*

The IP Aviation Committee is also involved in the revision of the specification for hydrant system components and arrangements, in an attempt to reduce the effects of collision with hydrant pit valve equipment. The outcome of this work will be reported on separately.

...continued from p13

marginal activities. This would leave the enlarged company with a stronger and more focused position in monomers as well as polymers such as polyethylene, polypropylene and polystyrene.

Job losses

The crucial question remains the impact on jobs. TotalFina hopes that the bid will eventually be accepted by Elf as a 'friendly merger', rather than a hostile takeover, and the employment sensitivities of the government also have to be taken into account. Because of this, TotalFina, is stressing the minor role that job losses are likely to play in achieving its forecast cost savings. The official estimate is that some 4,000 jobs – approximately 3% of the workforce – will be lost worldwide, with France accounting for half the total.

To soften the blow, the job losses will be phased over three years, and will be through a combination of natural wastage, early retirement and 'other appropriate plans'. TotalFina's caution is understandable: Elf incurred a strike earlier this year when it tried to cut 1,000 jobs and French social policy is heavily biased towards job preservation.

Although TotalFina is talking about achieving cost savings through optimising its operational activities, adopting best practices, and reducing overheads, the biggest – and easiest – savings invariably come from job losses. It is therefore possible that it is the unions rather than the market that will be the decisive factor in shaping the final deal.

Elf on the defensive

So, where does this leave Elf? Although Elf is putting up a robust defence, its determination to avoid a takeover by TotalFina is not likely to sway investors when set against the undoubted industrial logic of the proposal; the strong support of the French government; the dubious attractions of pairing up with a non-French white knight, or the higher price that TotalFina is likely to be ultimately willing to pay.

Shareholders have 35 working days from the filing date of the prospectus with the SEC in which to accept, so the outcome should be known by the end of August. Given the strength of feeling within Elf, and the inventiveness of some of the stories regarding possible escape routes, the story will almost certainly include many more twists and turns before its conclusion. But the market consensus is currently in favour of a TotalFina victory. Perhaps the only real question now remaining is how much extra Jaffré can squeeze out of TotalFina before bowing out gracefully.

Gas price strength boosts exploration

For the first time in 10 years California's 1998 natural gas prices stayed above $2.00/mn cf as the Nymex (New York Mercantile Exchange) price slipped below $1.80/mn cf (15% below the previous year) in September and October. This healthy gas price floor in California is encouraging exploration activity in the sunshine state. *Priscilla Ross* talked to Royale Energy Inc, a San Diego-based company that is regarded as the fastest growing Californian natural gas producer.

Donald Hosmer, President of Royale Energy told *Petroleum Review*: 'The price was around $2.30/mn cf in June 1999 and because this is early in the injection season I think prices should stay firm'. He explained that Royale does not hedge on the derivatives market to lock in a price for its production in the summer. Prices tend to strengthen in the winter from November to March and at that stage the company tends to hedge about 20% of its production.

Royale is the leading Californian state producer of natural gas at over 5.5bn cf/y. He added that Royale's exploration activities are continuing and the company is drilling three wells over the next 30 days.

The company's latest discovery – No1A Bloomfield, a new pool opener in the Bixler field, Contra Costa County, California – began producing at a rate of 10mn cf/d of gas. Producing from a Paleocene sand at over 8,000 ft the well recorded a shut-in pressure of 2,963 psi, which the company noted indicated a virgin reservoir.

Royale plans to drill up to 20 natural gas wells in 1999 with more than half of these prospects to be generated from analysis of 3D seismic surveys acquired in 1998.

The company currently operates 51 natural gas wells throughout the Sacramento and San Joaquin Basins of California. Five new natural gas wells in the San Joaquin Basin were placed on production during 1998 and early 1999. The wells are in the company's Bowerbank field, a shallow natural gas play with multiple gas bearing formations located 20 miles west of Bakersfield, California.

In early 1998 Royale built a new 5.5-mile pipeline to handle increased production from new wells. The last two wells drilled, Bowerbank 13 and Bowerbank 5C, were drilled below the 5,000ft total depth of the previously drilled wells and found new productive formations that had not been encountered before. This will provide new exploration targets in addition to the shallower Bowerbank sands. Royale is on track to double the reserves in the Bowerbank gas field, a field that was left behind by a major oil and gas company as fully developed.

The company will be completing the evaluation of 3D seismic in several producing fields in the Sacramento Basin that it believes have significant additional gas reserve potential. In addition to 3D seismically generated prospects in producing fields, individual prospects similar to Bloomfield and Blossom will also be pursued. The Blossom No1 was drilled in early 1999 and completed with a flow rate of 3mn cf /d.

Record gas consumption

Natural gas consumption in the US continues to climb to record levels, helping to drive prices back above $2.00/mn cf in 1999. The reason Californian gas prices remained above $2/mn cf is the lower storage levels in the west and record temperatures during the so-called shoulder months of September and October 1998 between summer cooling and winter heating demand.

In 1998 total US natural gas consumption reached an all-time-high at 22.7tn cf (up 0.70tn cf). The previous

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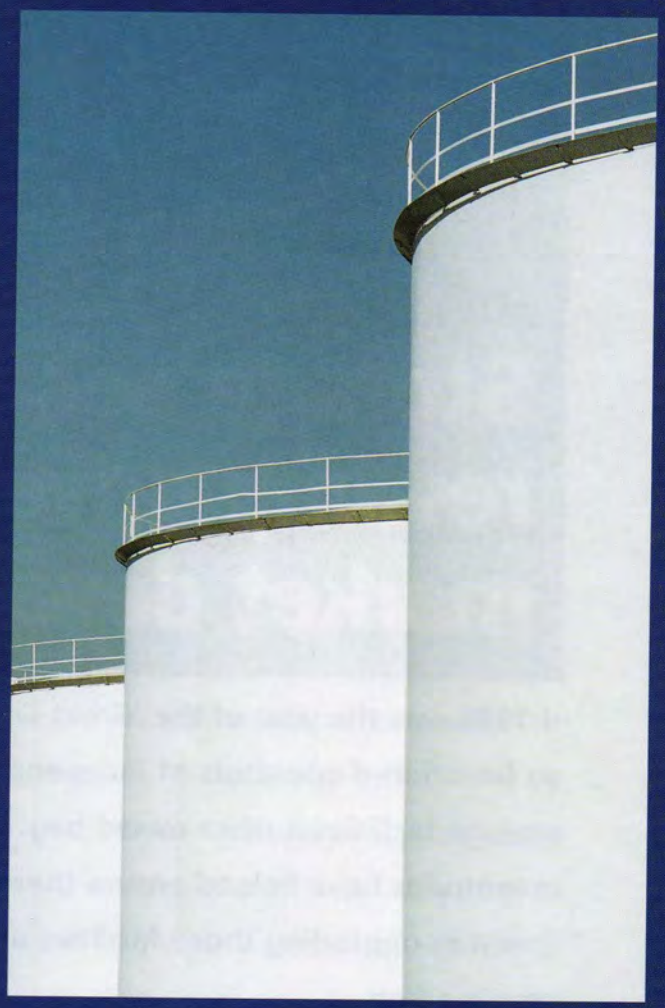
Top-ten companies	Return on assets (%)
Frontier Natural Gas Corp	108.3
Apache Offshore Investment Partnership	78.3
Dorchester Hugoton	50.2
Daleco Resources Corp	23.8
Alex Industries	19.4
BP (USA)	18.4
Prima Energy Corp	14.0
South Texas Drilling & Exploration	11.2
Royale Energy Inc	11.0
St Mary Land & Exploration Co	11.0

Top-ten companies	Return on shareholders' equity (%)
Frontier Natural Gas Corp	274.5
Apache Offshore Investment Partnership	95.3
Dorcester Hugoton	60.8
Daleco Corp	40.3
Arch Petroleum Inc	27.9
South Texas Drilling & Exploration	27.4
Royale Energy Inc	25.6
Pogo Producing Co	25.4
Unocal Corp	25.1
Mountains West Exploration Inc	24.8

Table 1: Top-ten US companies ranked by return on assets and equity

Bulk Storage Survey 1999



	1998 % total ,000 cm	1998 rounded ,000 cm		1999 % total ,000 cm	1999 rounded ,000 cm
Belgium	6.33	2,142		4.57	1,604
Denmark	1.05	355		1.18	415
Eire	1.50	507		0.08	28
Estonia	0.58	196		0.09	32
France	20.87	7,058		23.42	8,222
Germany	23.63	9,654		14.51	5,092
Italy	9.375	210		0.00	0
Malta	1.06	359		1.02	359
The Netherlands	26.83	7,527		25.03	8,785
Portugal	0.27	90		0.26	90
Spain	1.79	604		2.05	721
Sweden	3.02	1,022		11.57	4,062
Switzerland	1.03	347		0.99	347
UK	11.43	3,865		14.73	5,170
Total	**100.00**	**33,964**	Kaliningrad	0.09	32
			Greece	0.04	15
			Turkey	0.09	33
			Finland	0.27	93
			Total	**100.00**	**35,100**

Total European storage capacity by country

Storage sector revamp drives new market development

If 1998 was the year of the 'Great Contango', 1999 has so far offered operators of independent bulk liquids storage facilities a more mixed bag. However, high inventories have helped ensure there is the income to invest in upgrading those facilities and in developing new markets.

Low product prices throughout 1998 and a persistent contango in the forward market ensured that storage tanks around Europe started 1999 full to the brim, especially in the petroleum sector. Despite the comparative normalisation of the oil market since the start of this year, stocks remain high and are likely to stay that way until after the anticipated winter stockdraw.

Although lease rates have not responded significantly to this heavy and consistent demand for tankage, the fact that storage capacity has enjoyed such a high level of utilisation has given operators the freedom to invest in preparing the ground to meet the demand of the oil and chemical industries into the next century.

Investment in the European independent storage sector over the past year has concentrated on three areas: upgrading existing sites to meet regulatory requirements and customer demand; accelerating the process of structural realignment and concentration among the major players; and a move into the developing markets in eastern Europe.

Mooted merger

The process of restructuring really kicked off early in 1998 when Pakhoed and Van Ommeren, the two largest providers of independent storage capacity in Europe, announced plans for a merger. Although the initial merger proposal eventually foundered – ostensibly due to the requirements of the European Commission's Competition Directorate – it has since been revived (see p24). However, the initial plan encouraged other operators to take a strategic look at their own assets and see if there were ways in which their investments could be better employed.

Ultimately, perhaps, it was not that the mooted merged company would have been required to shed some capacity that derailed the proposal, but that the tankage to be sold would have to be in Rotterdam, the most important location in Europe as far as oil and chemical storage is concerned. From a commercial point of view, it is understandable that the two companies would be reluctant to provide one of their competitors with such an easy entry into the Rotterdam market.

One company that has managed to break into Rotterdam this year is French operator LBC (Fimalac Group), which bought the C&P terminal in Botlek from Dow Chemical. The deal involves a lease arrangement whereby Dow will continue to use capacity at the facility and represents one way in which the independent operators are taking over from oil and chemical producers the management of this part of the supply chain.

An alternative example is provided by Simon Management, which won a contract to run the bulk liquids terminal in Cardiff, Wales, acquired by Texaco from Shell in November 1998. In this case ownership of the site remains with the oil company, with Simon merely taking over the terminal's management, reflecting a broader move on the part of producers to outsource specialist activities.

Elsewhere, Rotterdam-based Petroplus has built itself a sizeable chain of termi-

nals across Germany and the low countries in recent years, primarily through the acquisition of former oil company sites. Its latest move was to buy the former Gulf refinery at Milford Haven, which has provided it with 1.5mn cm of storage capacity for crude oil and refined products.

Eastern European expansion

The most significant move in the restructuring of the European terminal sector over the past year has been the acquisition by US operator ST Services of the bulk of the UK terminals network of leading US operator GATX. This move marked ST's first foray outside of the US but was described at the time as being the company's first step into the European market – the six terminals (the Avonmouth site being omitted from the deal) providing a sufficiently large foothold on which to build. GATX, whose terminals division had been underperforming in recent years, has retained its other European terminals, all of which are joint ventures.

The first significant move into eastern Europe by an independent terminal operator came in 1993 when Pakhoed took a half share in a joint-venture company, Pakterminal, to set up a bulk liquids storage facility at Tallinn in Estonia. It has taken some time for the terminal to become profitable, but recent returns have been very favourable and Pakhoed and its partner are continuing to expand the site's capacity. It has also taken some time for Pakhoed's competitors to follow suit but this year has seen the announcement of three new projects, each of which mark a significant move into the region on the part of European or US independents.

Earlier this year Van Ommeren announced it was taking a 25% interest in the BNK terminal at Baltiysk in the Kaliningrad. region of the Russian Federation. Its partners in the project are oil trader Vitol and local distributor Petrocon, which has a 50% holding. The 32,000-cm terminal is the most westerly export facility for Russian crude oil and petroleum products and has a jetty capable of handling 10,000 dwt tankers which the partners plan to dredge to take tankers up to 40,000 dwt. Importantly, it is ice-free throughout the year and it is expected that throughput will reach 700,000 tonnes this year. Further expansion of the tankage is planned. Van Ommeren has also recently completed a major expansion of its Gothenburg site across the Baltic in Sweden, adding new tankage for fuel oil and gasoil.

Oiltanking, part of the German trading house Marquard & Bahls, is planning to build an 18,000 cm bulk liquids terminal at Varna, Bulgaria, primarily to handle sulfuric acid for its partner in the project, Union Miniére Pirdop Copper. Oiltanking will build and manage the site and plans to use it as a base from which to develop Bulgaria's first independent terminal with a projected capacity in the medium term of 165,000 cm.

Poland's first for-hire liquids terminal is currently being built by US independent Westway Terminal at Gdynia. The first phase of the project involves the construction of 45,000 cm of tankage for petroleum products, chemicals and other bulk liquids and the company expects to have the first stages open for business this year.

Elsewhere in Europe additions to existing capacity this year have been fairly modest. The main exception has been in the south of Spain where the rapid development of the local chemical industry, particularly in Tarragona, has led to demand for extra tankage. Terquimsa is adding a number of specialised tanks at its Tarragona facility, largely in response to the requirements of Repsol Quimica, and is also installing some new capacity at its smaller Barcelona terminal. Tepsa has also put in new tankage at Tarragona, and Capesa is building 11 new tanks at its Barcelona and Huelva sites.

In northern Europe especially, investment by terminal operators over the past year has tended to focus more on upgrading and revamping existing facilities to more closely meet the needs of oil and chemical company customers. In many cases this has involved the addition of selected new tankage, often of a specialised nature. For instance, Van Ommeren has invested more than £500,000 in butane tanks and jetty facilities at its West Thurrock site near London and put in five 100-cm stainless steel tanks at its Ipswich terminal for an existing client. Den Hartogh is adding 12 stainless steel tanks, all with electric heating, at its Moerdijk terminal in the Netherlands and Propetrol has installed a number of tanks, many in stainless steel, at its Salaise-sur-Sanne and Strasbourg sites in France.

Similar moves have been made in the eastern Mediterranean, where Interchem in Greece and Altintel and Solventas in Turkey have all added dedicated tankage over the past year, Solventas building a complete handling system to cope with toluene di-isocyanate.

Such expansion apart, a great deal of effort has been made in bringing terminals up to the standards required of them not only by customers but also by regulators. From the latter point of view this means the installation of bottom loading racks and vapour control equipment to comply with the EC Directive on controlling emissions of volatile organic compounds (VOCs), a measure which has impacted particularly on those sites handling gasolines. While many terminals have already installed the necessary equipment, others are still doing so. Capesa has recently put in vapour recovery units at both its terminals in southern Spain; Propetrol has recently put in bottom loading equipment at Strasbourg and Village-Neuf, both of which handle large volumes of gasoline; PIR (La Petrolifera Italo Rumena) is considering

Simon Distribution has the contract to transport aviation fuel from Simon's storage terminal at North Shields to Newcastle Airport on behalf of BP.

Van Ommeren Tank Terminal, Gavle, Sweden

options for a vapour treatment unit for its Porto Corsini terminal at Ravenna, Italy; CPA (Compagnie Parisienne des Asphaltes) is putting in bottom loading racks and vapour control systems at its Saint-Priest and Strasbourg sites; and Simon Storage has put in a Cool Sorption vapour control unit at its Immingham facility.

Terminal customers are looking to make their operations more efficient. In order to attract custom, terminal operators are having to offer more sophisticated management systems and faster truck turnaround times. There have been many instances over the past year of terminal operators installing additional or upgraded road tanker or rail tank car loading racks, additional jetty lines, drumming and IBC (intermediate bulk container) filling stations, automated weighbridges and tank farm management systems. This process is likely to continue, especially as competition can only get more intense and operators seek to differentiate themselves from their competitors.

Safety and quality audit

One final interesting development over the past year has been the introduction of the CDI-T terminal audit scheme. Initiated by the European Chemical Industry Council (CEFIC) and administered by the Chemical Distribution Institute, this scheme follows similar measures in other sections of the chemical supply chain and aims to facilitate a consistent and comparable safety and quality audit of Europe's bulk liquids storage terminals.

While it is designed primarily for terminals handling bulk liquid chemicals, many independent terminals have capacity for both chemicals and petroleum products, as well as the use of bulk storage facilities by chemical companies to handle refined product feedstocks, and so the system is also being applied to petroleum terminals. Its intention is to allow terminal customers to make comparisons of the quality and services provided by terminals while at the same time lowering the inspection burden that the terminals themselves face. Terminal operators which apply high levels of quality and safety at their sites should have no reason to fear the CDI-T inspector and the hope is that those which fail to meet the standards expected will be encouraged to improve themselves.

The future

Many of the trends witnessed over the past 12 months can be expected to continue in the coming year. Further expansion into eastern Europe in particular is high on the agenda and more investment in automated systems is inevitable. More structural realignment is also highly likely, and in this respect it is worth noting that a number of smaller shareholders in Pakhoed and Van Ommeren are pressing for the merger plans to be revitalised (see box).

Vopak returns

As this issue of *Petroleum Review* was being finalised, the boards of Royal Pakhoed and Royal Van Ommeren announced that they had reached agreement on the terms of a merger of the two companies and the creation of Vopak. A similar plan last year had come to grief, ostensibly due to Pakhoed's unwillingness to dispose of its flagship Botlek terminal in Rotterdam as required by the European Commission's Merger Task Force.

After pressure from smaller shareholders, the irreducible logic of the benefits of the merger now appear to have won the day and Pakhoed says it will sell the 1.55mn cm Botlek site, as well as the smaller edible oil terminal at nearby Pernis. Van Ommeren will also dispose of its 50% holding in the Gamatex terminal in Antwerp. Indeed, shortly after the merger announcement, Pakhoed revealed that it had arranged to sell the 350,000 cm Pernis facility and two smaller edible oil terminals in Nijmegen – acquired last year when it bought Transol – to C Koole Beheer, a family-owned Dutch company specialising in the transport and storage of edible oils and oleochemicals.

Assuming that the merger now goes ahead as planned – the partners expect to finalise the deal in October – next year's annual review of the European bulk liquids storage business will likely present a very different picture.

ADPO NV (Antwerp Distribution & Product Operations)

Haven 1111, Steenlandlaan 3, B9130 Kallo, Belgium
Contact: Peter Vanderbeek
Tel: +32 3 570 6300 Fax: +32 3 570 6301
e: info@adpo.com
Facility address: as above

- No. of Tanks: 130; Heated: 70
- Total storage capacity: 84,490 cm
- Minimum capacity: 150 cm
- Maximum capacity: 2,500 cm
- Range of products: Oil products, chemicals
- Access: Road, Rail, Sea
- Largest vessel: 40,000 tonnes
- Draft: 43 ft

Warehouse, drumming, container storage and handling, customs clearance, transport.

Altintel Melamin Sanayii AS

Halkali Caddesi No 132 Sefaköv 34620, Istanbul, Turkey
Contact: Mehmet E Aktar
Tel: +90 212 592 36 77 (9 lines) Fax: +90 212 592 39 77/592 39 78
e: altintel@altintel.com.tr
Facility address: Dilovasi, Cumhuriyet Mah. Bülent Atasavar Cad. Gebze, 41400 Kocaeli, Turkey
Tel: +90 262 754 52 16/51 68 Fax: +90 262 641 64 38

- No. of Tanks: 35
- Total storage capacity: 33,000 cm
- Minimum capacity: 288 cm
- Maximum capacity: 1,500 cm
- Range of products: Chemicals
- Access: Road, Sea
- Largest vessel: 35,000 tonnes
- Draft: 12.3 metres

Two vessels can be accommodated on jetty of 240 metres. Type of storage: Methanol, toluene, other undemanding (in a storage sense) chemicals. Drumming, blending, bonded storage for bulk chemicals.

Compagnie Industrielle Maritime (CIM)

128 Boulevard Haussman, 75008 Paris, France.
Contact: B Salaün, Sales Manager
Tel: +33 1 43 87 43 14 (direct) +33 1 43 87 33 49 (main) Fax: +33 1 42 94 02 81 (direct) +33 1 43 87 43 08 (main)
Facility address: Le Havre/Antifer – POB 542, 76058 Le Havre, Cedex, France
Tel: +33 2 35 24 74 00 Fax: +33 2 35 24 74 01

- No. of Tanks: 128
- Total storage capacity: 5,140,000 cm
- Minimum capacity: 2,000cm
- Maximum capacity: 150,000 cm
- Range of products: Crude, oil products, gasoil, gasoline, naphtha, kerosene and jet oil.
- Access: Sea, Pipeline
- Largest vessel: (Le Havre) 250,000 tonnes; (Antifer) 560,000 tonnes
- Draft: (Le Havre) 65 ft; (Antifer) 98 ft

CIM operates two modern and highly sophisticated storage terminals with transshipment and break-bulk facilities situated in northern France and directly linked to the open sea. The terminals are capable of handling non-heated crude oils as well as all clean petroleum products in any size. Blending, upgrading, bonded warehouse.

Compagnie Parisienne des Asphaltes (CPA)

33 Avenue de Wagram, 75854 Paris, Cedex 17, France
Contact François Terrassin
Tel: +33 1 53 81 86 20 Fax: +33 1 45 72 45 46
www.CPA-STOCKAGE.FR

CPA, Dunkirk

Tel: +33 3 28 65 92 10 Fax: +33 3 28 65 92 29

- No. of Tanks: 127; Heated: 76
- Total storage capacity: 511,240 cm
- Minimum capacity: 60 cm
- Maximum capacity: 23,275 cm
- Range of products: Oil products, chemicals, vegetable oils
- Access: Road, Rail, Sea, Pipeline
- Largest vessel: 50,000 tonnes
- Draft: 12.5 metres

Rouen

Tel: +33 2 31 11 43 40 Fax: +33 2 32 11 43 41

- No. of Tanks: 132; Heated: 61
- Total storage capacity: 563,150 cm
- Minimum capacity: 50 cm
- Maximum capacity: 22,800 cm
- Range of products: Oil products, chemicals, vegetable oils
- Access: Road, Rail, Sea, Pipeline
- Largest vessel: 40,000 tonnes; Draft: 10 metres

SDSP (CPA Group), St Priest (Lyon)

Tel: +33 4 72 50 21 48 Fax: +33 4 72 50 36 41

- No. of Tanks: 8
- Total storage capacity: 94,000 cm
- Minimum capacity: 2,900 cm
- Maximum capacity: 26,300 cm
- Range of products: Oil products
- Access: Road, Rail, Pipeline

SES (CPA Group), Strasbourg

Tel: +33 3 88 61 8578 Fax: +33 3 88 61 4880

- No. of Tanks: 15; Heated: 2
- Total storage capacity: 125,000 cm
- Minimum capacity: 5,000 cm
- Maximum capacity: 20,000 cm
- Range of products: Oil products
- Access: Road, Rail, River (Rhine), Pipeline
- Largest vessel: 6,000 tonnes
- Draft: 3.5 metres

Stockbrest (CPA Group), Brest

Tel: +33 2 98 80 16 11 Fax: +33 2 98 80 67 06

- No. of Tanks: 15
- Total storage capacity: 97,400 cm
- Minimum capacity: 500cm
- Maximum capacity: 12,000 cm
- Range of products: Oil products
- Access: Road, Sea
- Largest vessel: 40,000 tonnes
- Draft: 10.6 metres

Felixstowe Tank Developments Ltd

FTD House, The Dock, Felixstowe, Suffolk, IP11 8SE, UK
Contact: B D Salmon
Tel: +44 (0)1394 676112 Fax: +44 (0)1394 673590 *Facility address: as above*

- No. of tanks: 92; Heated: 19
- Total storage capacity: 64,000 cm
- Minimum capacity: 30 cm
- Maximum capacity: 2,800 cm
- Range of products: Oil products, chemicals, vegetable oils
- Access: Road, Sea
- Largest vessel: 180 metres long
- Draft: 9.1 metres

Alcohol, hydrocarbon and IDA bonds available. Additional services include: drumming, methylation, dilution, blending and 50,000kg capacity public weighbridge.

FETSA

Federation of European Tank Storage Associations, Avenue E Van Nieuwenhuyse 6, B-1160 Brussels, Belgium
Tel: +32 2 676 74 94 Fax: +32 2 676 74 95 e: FETSA@FECC.org

The Federation of European Tank Storage Associations (FETSA) represents the seven national associations of Belgium, France, Germany, Italy, Spain, The Netherlands and the UK. In aggregate this is equivalent to 130 enterprises with a combined storage capacity of about 44mn cm in Europe (1997 data). Tank storage companies that are represented in FETSA through their National Associations combine over 50% of the world storage capacity in bulk liquids. FETSA was established under the Law of the Kingdom of Belgium in 1992 and is headquartered in Brussels. Board Members: **President:** P R M Govaart, The Netherlands; **Vice-President:** G Bonetti, Italy; **Treasurer:** J F Adriaens, Belgium; **Member:** Dr H Abendroth, Germany; **Member:** R E Hartless, UK; **Member:** F López de Pablo, Spain; **Member:** O Mistral, France; **Secretary General:** H J P Standaar.

Great Marsh Ltd

Eling Terminal, Totton, Southampton, UK
Contact: Henry Leoni
Tel: +44 (0)23 8066 3444 Fax: +44 (0)23 8087 3429 e: sales@greatmarsh.co.uk
Facility address: as above

- No. of tanks: 125; Heated: 50
- Total storage capacity: 36,000 cm
- Minimum capacity: 20 cm
- Maximum capacity: 7,000 cm
- Range of products: Crude, oil products, chemicals
- Access: Road, Sea,
- Largest vessel: 2,000 tonnes;
- Draft: 4.2 metres

Great Marsh is southern England's premier chemical and oil storage and handling facility. Bulk liquid storage capability is complemented by extensive drum filling, blending, solids repacking and warehousing services. A broad range of products are routinely handled including low flash, hazardous, viscous and other materials demanding specialist handling techniques.

Haltermann GmbH

Ferdinandstrasse 55/57, 20095 Hamburg, Germany
Tel: +49 40 33318 411 Fax: +49 40 333 18-214
Facility: Tel: +49 40 75104 0 Fax: +49 40 75104 158

- No. of tanks: 17; Heated: 11
- Total storage capacity: 60,000 cm
- Minimum capacity: 50 cm
- Maximum capacity: 5,000 cm

- Range of products: Products, chemicals, vegetable oils
- Access: Road, Rail, Sea,
- Largest vessel: 25,000 tonnes
- Draft: 28 ft

The company also operates terminals in Belgium, Denmark and Sweden. However, their capacity is primarily for 'captive' use.

IBL Bulk Liquids

Lime Street, Hull HU8 7AS, UK
Contact: Mr P King
Tel: +44 (0)1482 320736 Fax: +44 (0)1482 226162 e: iblbl@intbl.co.uk
Facility address: Alexandra Dock, Hull, UK **Tel: +44 (0)1482 321734**

- No. of tanks: 11; Heated: 8
- Total storage capacity: 11,729 cm
- Minimum capacity: 600 cm
- Maximum capacity: 1,760 cm
- Range of products: Oil products, chemicals, vegetable oils
- Access: Road, Sea,
- Largest vessel: 7,500 tonnes
- Draft: 7.4 metres

Blending, drying, drumming and undercover loading facilities on site.

IBL Bulk Liquids

Facility address: 2 berths on the Hull River
Tel: +44 (0)1482 320736 Fax: +44 (0)1482 226162

- No. of tanks: 132; Heated: 90
- Total storage capacity: 25,000 cm
- Minimum capacity: 50 cm
- Maximum capacity: 830 cm
- Range of products: Oil products, chemicals, vegetable oils
- Access: Road, Sea,
- Largest vessel: 1,200 tonnes; Draft: 4.25 metres

Blending, drying, packaging and vehicle steam cleaning facilties on site.

Interchem Hellas SA

Office: Syngrou Av 232, Athens, Greece
Contact: Anthony Argiropoulos
Tel: +30 1 221 34101/9599813 Fax: +30 1 221 31647/9597530
Vathi Avlidos, Evia, Greece
Tel: +30 1 221 34101 Fax: +30 1 221 31647

- No. of tanks: 39; Heated: 2
- Total storage capacity: 15,263 cm
- Minimum capacity: 200 cm
- Maximum capacity: 1,000 cm
- Range of products: Chemicals
- Access: Road, Rail, Sea,
- Largest vessel: 110 metres long
- Draft: 6.5 metres

Irish National Petroleum Corporation Ltd

(Bantry Terminals Ltd)

Warrington House, Mount Street Crescent, Dublin 2, Ireland
Contact: Seamus Fahy
Tel: +353 1 660 7966 Fax: +353 1 660 7952
e: s.fahy@inpc.ie
Facility address: Reenour, Bantry, Co. Cork, Ireland
Tel: +353 27 50346 Fax: +353 27 51065
e: s.oconnor@btl.ie

- No. of tanks: 17
- Total storage capacity: 1,342,000 cm
- Minimum capacity: 7,880 cm
- Maximum capacity: 95,283 cm
- Range of products: Crude, oil products
- Access: Sea,
- Largest vessel: 325,000 tonnes; Draft: 25 metres

Bantry Terminals Ltd, a subsidiary of Irish National Petroleum Corporation (INPC), owns and operates a crude oil and products storage terminal on Whiddy Island in Bantry Bay, southwest Ireland. A single point mooring (SPM) discharge and loading facility has recently been commissioned. The SPM is designed to handle vessels up to 320,000 tonnes and is situated in water depths in excess of 30 metres. Coastal tankers up to 3,500 tonnes can be facilitated at the small craft harbour. Onshore there are 14 floating roof storage tanks, each with a capacity of approximately 80,000 tonnes. While not all these tanks are currently in service, there is a working oil storage capacity of 750,000 tonnes. The facility is suitable for both storage and transshipment of crude oil and products.

The Independent Tank Storage Association (ITSA)

Executive Secretary: Dr K H M Bray, Black Dog Farm, Waverton, Cheshire, CH3 7PB, UK
Tel/Fax: +44 (0)1244 335627

The Association provides information and advice to government and other regulatory bodies in connection with the practical, safety and environmental health aspects of the bulk liquid storage industry. Membership is open to all companies operating in the UK whose main business is the storage of bulk liquids for third parties. A minimum capacity: of 50,000 cm is usually required for membership, but companies with lesser capacity may be invited to join. ITSA is a founder member of the European Tank Storage Associations (FETSA) which represents the industry and its particular characteristics in discussions with the European Commission (EC) on developing legislation.

Kaukomarkkinat Oy Hamina Terminal

Facility address: Oljysatamantie 7, 49460 Hamina, Finland
Contact: Kimmo Lankinen
Tel: +358 5 230 3300 Fax: +358 5 230 3360
e: kimmo.lankinen@kaukomarkkinat.fi
web: www.KAUKOMARKKINAT.FI/HAMINA/

- No. of tanks: 26; Heated: 11
- Total storage capacity: 93,360 cm
- Minimum capacity: 60 cm
- Maximum capacity: 10,000 cm
- Range of products: Crude, oil products, chemicals
- Access: Road, Rail, Sea, Pipeline
- Largest vessel: 35,000 tonnes; Draft: 10 metres

Terminal located 40 km from Russian border.

King's Lynn Storage Ltd

PO Box No 2, Melton Constable, Norfolk NR24 2QR, UK
Contact: N P Jenney
Tel: +44 (0)1263 860812 Fax: +44 (0)1263 861491
Facility address: Estuary Road, King's Lynn, Norfolk PE30 2HH, UK
Tel: +44 (0)1553 764382 Fax: +44 (0)1553 767942

- No. of tanks: 10
- Total storage capacity: 4,000 cm
- Minimum capacity: 55 cm
- Maximum capacity: 2,200 cm
- Access: Road, Sea, Pipeline
- Largest vessel: 3,000 tonnes

LBC (group Fimalac)

Storage of liquid products: LBC disposes of more than 1,800,000 cm of liquid storage spread over five European countries; Belgium, France, Portugal, Spain, the Netherlands and USA.
Warehousing: in France for hazardous, in Belgium for non-hazardous goods. All terminals are ISO 9002 qualified.

Belgium

LBC Antwerpen

Haven 275, Leon Bonnetweg 28, B-2030, Antwerpen, Belgium
Contact: Raymond Moré/Paul Flameng
Tel: +32 3 543 0505 Fax: +32 3 543 0501

- Total storage capacity: 192,708 cm
- Minimum capacity: 120 cm
- Maximum capacity: 3,300 cm
- Range of products: Crude, oil products, chemicals, mineral and vegetable oils
- Access: Road, Rail, Sea
- Draft: 10.96 metres
- Tankage: mild steel, stainless steel and coated.
- Handlings: heating, blanketing, filtering, blending, drumming and drying.

France

LBC Marseille – FOS

Route de Port Pétrolier, 13117 Lavera, France
Contact: Alain Siozac
Tel: +33 4 42 44 42 44 Fax: +33 4 42 44 42 20

- Total storage capacity: 183,000 cm
- Minimum capacity: 120 cm
- Maximum capacity: 10,000 cm
- Range of products: Chemicals, mineral oils, oil additives, vegetable oils
- Access: Road, Rail, Sea
- Draft: 11.88 metres
- Tankage: mild steel, stainless steel and coated
- Handlings: heating, blanketing, filtering, drumming, blending and drying

LBC Nantes

103, quai Emile Cormerais BP 53, 44801 Saint Herblain, Cédex France
Contact: Yves Galindo
Tel: +33 2 40 46 26 48 Fax: +33 2 40 46 52 52

- Total storage capacity: 32,000 cm
- Minimum capacity: 50 cm
- Maximum capacity: 1,750 cm
- Range of products: Chemicals, vegetable oils, animal fats, molasses, bitumen, mineral oils
- Access: Road, Rail, Sea
- Draft: 9.5 metres
- Tankage: mild steel, stainless steel and coated
- Handlings: heating, blending, filtering, drumming and blanketing

Sogestrol

Route de la Chimie, BP 1194, 76064 Le Havre, Cédex, France
Contact: Christian Vermillon/François Bertrand
Tel: +33 2 35 25 86 20 Fax: +33 2 35 25 86 21

- Total storage capacity: 360,000 cm
- Minimum capacity: 50 cm
- Maximum capacity: 15,000 cm
- Range of products: Chemicals, mineral and vegetable oils, oil additives
- Access: Road, Rail, Sea
- Largest vessel: 40,000 tonnes
- Tankage: mild steel, stainless steel and coated
- Handlings: heating, blanketing, binding, filtering, drumming, blending and drying

LBC Le Havre

Chaussée Roger Meunier, 76600 Le Havre, France
Contact: Pierre Jeanne
Tel: +33 2 35 42 22 62 Fax: +33 2 35 42 47 49

- Total storage capacity: 105,000 cm
- Minimum capacity: 135 cm
- Maximum capacity: 5,080 cm
- Range of products: Crude, oil products, chemicals, vegetable oils, animal fats, mineral oils, molasses. With flashpoint above 100°C
- Access: Road, Rail, Sea
- Draft: 14 metres
- Tankage: mild steel, stainless steel and coated
- Handlings: heating, blanketing, blending, filtering and drumming, dehydrating and drying

LBC Bayonne

Zone Industrielle, Route de la Barre, 40220 Tarnos, France
Contact: Philippe Ivandekics
Tel: +33 5 59 64 48 00 Fax: +33 5 59 64 48 01

- Total storage capacity: 103,000 cm
- Minimum capacity: 600 cm
- Maximum capacity: 15,000 cm
- Range of products: Crude, chemicals, gasoil, mineral and vegetable oils, oil additives
- Access: Road, Rail, Sea
- Draft: 8.7 metres
- Tankage: mild steel, stainless steel and coated
- Handlings: heating, blanketing, blending, filtering, drumming and drying

Portugal

Tanquipor Lisbon

Parque Industrial do Barreiro, Caixa Postal 5158, 2830 Barreiro (Lisboa), Portugal
Contact: Marius França Pereira
Tel: +351 1 206 03 48 Fax: +351 1 207 85 77

- Total storage capacity: 90,000 cm
- Minimum capacity: 800 cm
- Maximum capacity: 30,000 cm
- Range of products: Chemicals, mineral oils, gasoil, gasoline, vegetable oils, fats, oil additives.
- Access: Road, Sea
- Draft: 9.7 metres
- Tankage: mild steel and coated
- Handlings: heating, blanketing, blending, filtering and drumming

Spain

LBC Terquisa

Poligono Central de Raos, E-39011 Santander, Spain
Contact: Fernando Lopez de Pablo
Tel: +34 42 34 36 34 Fax: +34 42 33 38 04
Head Office: Sta Cruz de Marcenado 31, E-28015, Madrid
Tel: +34 1 547 39 68 Fax: +34 1 542 13 91

- Total storage capacity: 65,000 cm
- Minimum capacity: 50 cm
- Maximum capacity: 2,500 cm
- Range of products: Chemicals, petroleum, mineral and vegetable oils, oil additives, petroleum products
- Access: Road, Rail, Sea
- Draft: 12.2 metres
- Tankage: mild steel and coated.
- Products: petroleum. chemicals
- Handlings: heating, blanketing, drumming, filtering and blending

LBC Terliq

Poligono el Fangal, Valle de Escombreras, 30201 Cartegena (Murcia) Spain
Contact: Fernando Lopez de Pablo
Tel: +34 9 1 547 39 68 Fax: +34 9 1 542 13 91

- Total storage capacity: 20,000 cm
- Minimum capacity: 1,500 cm
- Maximum capacity: 3,500 cm
- Range of products: Chemicals, petroleum products, mineral and vegetable oils, oil additives
- Access: Road, Sea
- Draft: 38 ft
- Tankage: stainless steel, mild steel and coated
- Handlings: heating, blanketing, filtering and blending

The Netherlands

LBC Rotterdam

Oude Maasweg 4, PO Box 5000, NL-3197 XA Botlek, Rotterdam, The Netherlands
Contact: A Van Kampen
Tel: +31 10 295 85 00 Fax: +31 10 295 85 20

- Total storage capacity: 100,000 cm
- Range of products: Chemicals, mineral and vegetable oils, oil additives, high heat products
- Access: Road, Rail, Sea
- Draft: 33 feet
- Tankage: mild steel, stainless steel and coated
- Handlings: heating, blanketing, filtering, blending, drumming and drying

Liquefied Petroleum National Gas

Canvey Terminal, Thames Road, Canvey Island, Essex, SS8 0HR, UK
Contact: Graeme Lockwood
Tel: +44 (0)1268 511511 Fax: +44 (0)1268 694011

- No. of tanks: 8
- Total storage capacity: 60,500 cm
- Maximum capacity: 8,620 cm
- Range of products: LPG
- Access: Road, Sea
- Largest vessel: 800,000 cm
- Draft: 10.5 metres

Noord Natie Terminals NV

Stadswaag 7/8, 2000 Antwerpen, Belgium
Contact: Teeuwens Martine
Tel: +32 3 232 99 40 Fax: +32 3 233 39 36 e:info@noordnatie.be
Facility address: Haven 237, Blauwe Weg 44, 2030 Antwerpen, Belgium
Tel: +32 3 232 99 40 Fax: +32 3 233 39 36

- No. of tanks: 189; Heated: 9
- Total storage capacity: 225,000 cm
- Minimum capacity: 30 cm
- Maximum capacity: 8,300 cm
- Range of products: Oil products, chemicals, vegetable oils
- Access: Road, Rail, Sea
- Draft: 38 ft. Weighbridges: up to 100 tonnes
- Tankage: mild steel – coated, stainless steel equipment – insulated
- Heating: Heating coils – steam and hot water
- Handlings: filtering, blending, drumming, nitrogen installation, tailor-made solutions on customer requests

Oikos Storage Ltd

Hole Haven Wharf, Haven Road, Canvey Island, Essex SS8 0NR, UK
Contact: Geoffrey W Booker
Tel: +44 (0)1268 682206 Fax: +44 (0)1268 510095
e: Oikos@netcomuk.co.uk
Facility address: as above

- No. of tanks: 100; Heated: 62
- Total storage capacity: 300,000 cm
- Minimum capacity: 55 cm
- Maximum capacity: 20,350 cm
- Range of products: Oil products, chemicals,
- Access: Road, Sea, Pipeline
- Largest vessel: 220 metres LOA
- Draft: 10 metres

The terminal is connected to the UK Oil Pipeline Networks (UKOP and GPSS) and is capable of delivering product throughout the UK including the three major airports – Heathrow, Gatwick and Stansted. The site is fully licensed by the Environment Agency to receive, store, transfer and treat waste products.

Oiltanking GmbH

Admiralstätrasse 55, D-20459, Hamburg, Germany
Contact: Mr Onno Handels
Tel: +49 40 37099 0 Fax: +49 40 37099 499
e: onno.handels@oiltanking.com **www.**oiltanking.com
Largest independent terminal operator in Germany

Germany

Oiltanking Deutschland GmbH

Admiralstätrasse 55, D-20459, Hamburg, Germany
Contact: Aat van Spronsen
Tel: +49 40 37099 0 Fax: +49 40 37099 499

Tanklager Bendorf

Werfystr 41, 56170 BendorfiRH, Germany
Tel: +49 26 22 94 300 Fax: +49 26 22 94 3016
- No. of tanks: 22; Heated: 11
- Total storage capacity: 145,000 cm
- Minimum capacity: 2,000 cm
- Maximum capacity: 20,000 cm
- Range of products: Oil products
- Access: Road, Rail, River
- Largest vessel: Rhinebarge

Tanklager Berlin

Kaiser-Wilhelm-Str 1, 12247, Berlin, Germany
Tel: +49 30 774 2042 45 Fax: +49 30 774 1083
- No. of tanks: 30
- Total storage capacity: 349,000 cm
- Minimum capacity: 1,600 cm
- Maximum capacity: 25,000 cm
- Range of products: Oil products
- Access: Road, Rail, River
- Largest vessel: 1,000 cm
- Draft: 1.6 metres

Tanklager Breisach

Schwanen Str 2, 7814 Breisach, Germany
Tel: +49 7667 7074 Fax: +49 7667 80 207
- No. of tanks: 19
- Total storage capacity: 23,500 cm
- Minimum capacity: 100 cm
- Maximum capacity: 5,000 cm
- Range of products: Oil products
- Access: Road
- Largest vessel: Rhine barge

Tanklager Chemnitz

Dammweg, 09114 Chemnitz, Germany
Tel: +49 365 41 1102 Fax: +49 365 420 4458
- No. of tanks: 1
- Total storage capacity: 20,000 cm
- Range of products: Oil products
- Access: Road, Rail

Tanklager Duisberg

Am Parallel Hafen, 47059, Duisberg, Germany
Tel: +49 203 31 5512 Fax: +49 203 31 5196
- No. of tanks: 6
- Total storage capacity: 35,000 cm
- Minimum capacity: 5,000 cm
- Maximum capacity: 10,000 cm
- Range of products: Oil products
- Access: Road
- Largest vessel: Rhinebarge

Tanklager Frankfurt

Dieselstr 2-1, 60314, Frankfurt, Germany
Tel: +49 69 410 361 Fax: +49 69 42 40 79
- No. of tanks: 25
- Total storage capacity: 50,000 cm
- Minimum capacity: 95 cm
- Maximum capacity: 5,000 cm
- Range of products: Oil products
- Access: Road
- Largest vessel: Rhinebarge
- Draft: 2.8 metres

Tanklager Gera

Siemenstr 49 a, 07546 Gera, Germany
Tel: +49 365 41 1102 Fax: +49 365 420 4458
- No. of tanks: 9
- Total storage capacity: 158,600 cm
- Minimum capacity: 8,600 cm
- Maximum capacity: 25,000 cm
- Range of products: Oil products
- Access: Rail

Tanklager Hamburg

Blumensand 38, 21107 Hamburg, Germany
Tel: +49 40 756 0340 Fax: +49 40 756 034 89
- No. of tanks: 87
- Total storage capacity: 1,026,000 cm
- Minimum capacity: 2,000 cm
- Maximum capacity: 50,000 cm
- Range of products: Crude, oil products
- Access: Road, Rail, Sea, Pipeline
- Largest vessel: 100,000 tonnes
- Draft: 13.4 metres

Tanklager Hamm

Hafenstr 120, 59067 Hamm, Germany
Tel: +49 23 81 41531/32 Fax: +49 2381 410928
- No. of tanks: 8
- Total storage capacity: 76,100 cm
- Minimum capacity: 3,000 cm
- Maximum capacity: 15,000 cm
- Range of products: Oil products
- Access: Road
- Largest vessel: Rhinebarge

Tanklager Hanau

Saarstr 14, 6450 Hanau, Germany
Tel: +49 61 81 32524 Fax: +49 6181 37112
- No. of tanks: 23
- Total storage capacity: 48,000 cm
- Minimum capacity: 360 cm
- Maximum capacity: 3,800 cm
- Range of products: Oil products
- Access: Road, Rail
- Largest vessel: Rhinebarge

Tanklager Honau

77866 Rheinau, Honau, Germany
Tel: +49 7844 91340 Fax: +49 7844 913434
- No. of tanks: 11
- Total storage capacity: 115,000 cm
- Minimum capacity: 5,000 cm
- Maximum capacity: 20,000 cm
- Range of products: Oil products
- Access: Road, Pipeline
- Largest vessel: Rhinebarge

Tanklager Karlsruhe

Fettweistr 22-3, 76189 Karlsruhe, Germany
Tel: +49 721 95 001 0 Fax: +49 721 57 9035
- No. of tanks: 62
- Total storage capacity: 212,000cm
- Minimum capacity: 93 cm
- Maximum capacity: 20,000 cm
- Range of products: Oil products
- Access: Road, Rail
- Largest vessel: Rhinebarge

Weser-Tanking GmbH & Co. KG

Bremen-Industriehafen, Huttenstrasse 100, 28237 Bremen, Germany
Tel: +49 421 39 69 946 Fax: +49 421 39 69 999
- No. of tanks: 2
- Total storage capacity: 60,000 cm
- Minimum capacity: 20,000 cm
- Maximum capacity: 40,000 cm
- Range of products: Oil products
- Access: Sea
- Largest vessel: 60,000 tonnes
- Draft: 13 metres

Weser-Tanking is a joint venture between OilTanking Deutschland GmbH, Hamburg and Weser-Petrol Seehafentanklager GmbH & Co KG, Bremen.

Belgium

Oiltanking Ghent NV

Moervaartkaai 12, 9042 Gent, Belgium
Contact: Gust Spaepen
Tel: +32 9 342 27 27 Fax: +32 9 342 27 37
e: gust.spaepen@oiltanking.com
Facility address: as above
- No. of tanks: 34; Heated: 12
- Total storage capacity: 700,000 cm
- Minimum capacity: 800 cm
- Maximum capacity: 45,000 cm
- Range of products: Oil products, chemicals, vegetable oils
- Access: Road, Rail, Sea, Pipeline
- Largest vessel: 65,000 tonnes
- Draft: 12.25 metres

Denmark

Oiltanking Copenhagen A/S

Prøvenstenen, 2300 Copenhagen S, Denmark
Contact: Jan Vogel, Sales Manager
Tel: +45 32 95 95 95 Fax: +45 32 95 82 28
e: jan.vogel@oiltanking.com
www.oiltanking.com
Facility address: as above
- No. of tanks: 48; Heated: 12
- Total storage capacity: 388,500 cm
- Minimum capacity: 1,000 cm
- Maximum capacity: 16,500 cm
- Range of products: Oil products
- Access: Road, Sea, Pipeline
- Largest vessel: 80,000 tonnes
- Draft: 37 ft

Jet fuel pipeline to Copenhagen Airport (also see website)

France

Oiltanking France SA

RN 17 – Le Bois Des Mottes – BP5 – F62880 Annay, France
Contact: Guy Roelandt
Tel: +33 3 21 78 31 45 Fax: +33 3 21 43 87 07
e: oiltankingfrance@norduet.fr *Facility address: as above*
- No. of tanks: 12
- Total storage capacity: 57,000 cm
- Minimum capacity: 923 cm
- Maximum capacity: 14,754 cm
- Range of products: Oil products, chemicals, vegetable oils
- Access: Road, Channel
- Largest vessel: 3,000 tonnes
- Draft: 3.5 metres

Malta

Oiltanking Malta Ltd

Port of Marsaxlokk, Kalafrana, B'bugia BBG 07, Malta
Contact: Klaus P Trinks
Tel: +356 650230 Fax: + 356 650237
e: log.malta@oiltanking.com
Facility address: as above
- No. of tanks: 18; Heated: 6
- Total storage capacity: 359,000 cm
- Minimum capacity: 5,000 cm
- Maximum capacity: 35,000 cm
- Range of products: Crude, oil products
- Access: Sea
- Largest vessel: 120,000 tonnes
- Draft: 16 metres

The Netherlands

Oiltanking Amsterdam BV

Heining 100 (Amerikahaven), Amsterdam, The Netherlands
Contact: Coen Hübner
Tel: +31 20 40 70 100 Fax: +31 20 49 79 009
e: coen.huebner@oiltanking.com
- No. of tanks: 48; Heated: 2
- Total storage capacity: 800,000 cm
- Minimum capacity: 4,000 cm
- Maximum capacity: 40,000 cm
- Range of products: Crude, oil products, bulk chemicals,
- Access: Sea, Pipeline
- Largest vessel: 85,000 tonnes
- Draft: 45 feet

Omni-Tank GmbH

Marienstrasse 20, 40212 Düsseldorf, Germany
Contact: Peter Hueck, Managing Director; Wolfgang Lupke, Sales Manager
Tel: +49 211 93699 0 Fax: +49 211 93699 30
e: Omnitank@t-online.de

Essen

- No. of tanks: 39
- Total storage capacity: 112,000 cm
- Minimum capacity: 600 cm
- Maximum capacity: 12,000 cm
- Range of products: Petroleum, chemical, petrochemical liquids and solvents
- Access: Road, Rail, Barge

Insulated, coiled and coated tanks with dedicated pipelines. Heating and blending facilities.

Speyer

- No. of tanks: 57
- Total storage capacity: 796,000 cm
- Minimum capacity: 2,000 cm
- Maximum capacity: 6,000 cm
- Range of products: Petroleum, chemicals, petrochemical liquids, liquefied gases, solvents
- Access: Road, Rail (liner trains), Barge, Pipeline (CEPS)
- Blending facilities

Pakhoed Logistics Europe BV

Blaak 333, 3011 GB Rotterdam, The Netherlands. PO Box 863, 3000 AW Rotterdam, The Netherlands.
Tel: +31 10 400 2911 Fax: +31 10 213 0532
e: info@pakhoed.com

Pakterminal Ltd

Maardu Tee 57, 74115 Tallinn, Republic of Estonia
Contact: Raivo Vare
Tel: +372 631 9082 Fax: +372 631 9801
e: PAKTERMINAL@PAKTERMINAL.EE
Facility address: Lasti Tee 20
Tel: +372 631 8820 Fax: +372 631 9801
- No. of tanks: 27; Heated: 14
- Total storage capacity: 206,576 cm
- Minimum capacity: 1,000 cm
- Maximum capacity: 10,000 cm
- Range of products: Crude, oil products
- Access: Road, Rail, Sea
- Largest vessel: 70,000 tonnes
- Draft: 44.6 ft

Paktank AB

Baldersgaten 4, SE–411 02 Gothenburg, Sweden
Contact: Gøran Lundén
Tel: +46 31 80 39 50 Fax: +46 31 15 90 00
e: glunden@paktank.se
- No. of tanks: 76; Heated: 53
- Total storage capacity: 75,000 cm
- Minimum capacity: 150 cm
- Maximum capacity: 20,000 cm
- Range of products: Oil products, chemicals, vegetable oils
- Access: Road, Rail, Sea, Pipeline
- Draft: (Chemicals) 8 metres, (Petroleum) 11 metres

Södertälje
- No. of tanks: 35 + 3 caverns; Heated: 23
- Total storage capacity: 112,400 cm
- Minimum capacity: 150 cm
- Maximum capacity: 21,800 cm
- Range of products: Oil products, Chemicals
- Access: Road, Rail, Sea
- Draft: (Chemicals) 6.5 metres, (Petroleum) 10 metres; Channel approach 9 metres

Malmö
- No. of tanks: 15; Heated: 8
- Total storage capacity: 24,000 cm
- Minimum capacity: 75 cm
- Maximum capacity: 5,000 cm
- Range of products: Oil products, chemicals
- Access: Road, Sea, Pipeline
- Draft: 11.5 metres

Paktank Oil Nederland BV

Oude Maasweg 6, 3197 KJ, Rotterdam–Botlek, The Netherlands
Contact: F R Ploeg, Vice President
Tel: +31 10 295 3400 Fax: +31 10 416 0840
e: fploeg@pakhoed.nl *Facility address: as above*
- No. of tanks: 277; Heated: 75
- Total storage capacity: 1,549,000 cm
- Minimum capacity: 700 cm
- Maximum capacity: 40,000 cm
- Range of products: Oil products, chemicals
- Access: Road, Rail, Sea, Pipeline
- Largest vessel: 40,000 tonnes
- Draft: 12 metres

Access to own pipeline network. Naphtha/condensate pipeline to DSM and pipelines to local chemical companies.

Maasvlakte Olie Terminal (MOT)

Rotterdam
Tel: +31 10 295 3400 +31 10 416 0840
- No. of tanks: 6
- Total storage capacity: 720,000 cm
- Minimum capacity: 120,000 cm
- Maximum capacity: 120,000 cm
- Range of products: Crude
- Access: Sea, Pipeline
- Largest vessel: 450,000 tonnes
- Draft: 79 ft

Europak

Moeselweg 75, Rotterdam–Europak
Tel: +31 10 295 3400 Fax: +31 10 416 0840
- No. of tanks: 35; Heated: 10
- Total storage capacity: 1,973,000 cm
- Minimum capacity: 14,000 cm
- Maximum capacity: 100,000 cm
- Range of products: Crude, oil products, chemicals
- Access: Sea
- Largest vessel: 326,000 tonnes
- Draft: 60 ft

Access to the crude pipelines RAPL–Antwerp and RRP–Germany. Linked by pipeline to Rotterdam refineries. Access to pipeline network of Paktank.

Laurenshaven

Montrealaeg 25, Rotterdam–Botlek
Tel: +31 10 29 53 400 Fax: +31 10 41 60 840
- No. of tanks: 15
- Total storage capacity: 92,600 cm
- Minimum capacity: 60,000 cm
- Maximum capacity: 70,000 cm
- Range of products: Oil products
- Access: Pipeline
- Largest vessel: Barges only

Connected to Europak and Botlek terminal by pipeline.

Petroplus Tankstorage International BV

Max Euwelaan 25, PO Box 85002, 3009 MA Rotterdam, The Netherlands
Contact: Theo Pannekeet and Kees Bosman
Tel: +31 10 242 59 50 Fax: +31 10 242 59 50
e: tankstorage@petroplus.nl
Petroplus Tankstorage is a young, fast growing company and part of Petroplus International. Other subsidiaries of Petroplus International are Petroplus Shipping, Petroplus Engineering, Petroplus Power, Marimpex, Oxyde, North Sea Petroleum, Universal Refining and PetroCare. Petroplus has been quoted on the Amsterdam Stock Exchange since 1998.

The Netherlands

Petroplus Tankstorage Dordrecht BV

Wieldrechtseweg 35, 3316 BG Dordrecht, The Netherlands
Tel: +31 78 655 0855 Fax: +31 78 655 0859
- No. of tanks: 12; Heated: 12
- Total storage capacity: 35,000 cm
- Minimum capacity: 500 cm
- Maximum capacity: 4,000 cm
- Range of products: Oil products, chemicals, vegetable oils
- Access: Road, Rail, River
- Draft: 8 metres

Petroplus Tankstorage Vlissingen BV

Oosterhavenweg 14, 4382 NL, Vlissingen, The Netherlands
- No. of tanks: 36; Heated: 22
- Total storage capacity: 155,000 cm
- Minimum capacity: 50 cm
- Maximum capacity: 30,000 cm
- Range of products: Oil products, chemicals, vegetable oils
- Access: Road, Sea
- Draft: 12 metres

Germany

Petroplus Tankstorage Dortmund GmbH

Tankweg 7–11, 44147 Dortmund-Hafen, Germany
Tel: +49 231 822031 Fax: +49 231 823577
- No. of tanks: 26 + heated
- Total storage capacity: 65,000 cm
- Minimum capacity: 1,000 cm
- Maximum capacity: 6,650 cm
- Range of products: Oil products, chemicals, vegetable oils
- Access: Road, Rail, River
- Draft: 2.8 metres

Petroplus Tankstorage Frankfurt GmbH

Dieselstrasse 25–27, 60314 Frankfurt am Main, Germany
Tel: +49 69 410381 Fax: +49 69 425426
- No. of tanks: 6 + heated
- Total storage capacity: 22,100 cm
- Minimum capacity: 600 cm
- Maximum capacity: 5,000 cm
- Range of products: Oil products, chemicals, vegetable oils
- Access: Road, River

Petroplus Tankstorage Koblenz GmbH

Rudolf-Diesel-Strasse 3, 56070 Koblenz, Germany
Tel: +49 261 83065 Fax: +49 261 83067
- No. of tanks: 4 + heated
- Total storage capacity: 20,000 cm
- Minimum capacity: 5,000 cm
- Maximum capacity: 5,000 cm
- Range of products: Oil products, chemicals, vegetable oils
- Access: Road, River
- Draft: 3.2 metres

Petroplus Tankstorage Neuss GmbH

Konigsbergstrasse 19, 41460, Neuss, Germany
Te: +49 2131 26131 Fax: +49 2131 26133
- No. of tanks: 7 + heated
- Total storage capacity: 24,750 cm
- Minimum capacity: 2,500 cm
- Maximum capacity: 5,000 cm
- Range of products: Oil products, chemicals, vegetable oils
- Access: Road, River
- Draft: 4.5 metres

Petroplus Tankstorage Neuss GmbH

Duisburger Strasse 15-17, Neuss, Germany
Tel: +49 2131 91000 Fax: +49 2131 91099
- No. of tanks: 27 + heated
- Total storage capacity: 56,100 cm
- Minimum capacity: 600 cm
- Maximum capacity: 9,000 cm
- Range of products: Oil products, chemicals, vegetable oils
- Access: Road, Rail, River
- Draft: ±4.5 metres (Rhine level)

Petroplus Tankstorage Plochingen GmbH

Am Nordseekai 30, 73207, Plochingen, Germany
Tel: +49 7153 21073 Fax: +49 7153 72119
- No. of tanks: 15 + heated
- Total storage capacity: 85,000 cm
- Minimum capacity: 300 cm
- Maximum capacity: 10,000 cm
- Range of products: Oil products, chemicals, vegetable oils
- Access: Road, Rail, River
- Draft: 2.5 metres

Petroplus Tankstorage Salzgitter GmbH

Am Hafen, 38239 Salzgitter (Beddingen), Germany
Tel: +49 53 41 27146 Fax: +49 5341 27693
- No. of tanks: 8 + heated
- Total storage capacity: 80,000 cm
- Minimum capacity: 2,800 cm
- Maximum capacity: 10,000 cm
- Range of products: Oil products, chemicals, vegetable oils
- Access: Road, Rail, River
- Draft: 2.5 metres

Petroplus Tankstorage Uentrop GmbH

Kranstrasse 22, 59071 Hamm-Uentrop, Germany
Tel: +49 23 88 631 Fax: +49 2388 1700
- No. of tanks: 3 + heated
- Total storage capacity: 10,500 cm
- Minimum capacity: 3,000 cm
- Maximum capacity: 4,500 cm
- Range of products: Oil products, chemicals, vegetable oils
- Access: Road, River
- Draft: 2.5 metres

Petroplus Tankstorage Würzburg GmbH

Südlicht Hafeustrasse 14, 97080 Würzburg, Germany
Tel: +49 931 960138 Fax: +49 931 98389
- No. of tanks: 6 + heated
- Total storage capacity: 16,000
- Minimum capacity: 300 cm
- Maximum capacity: 4,000 cm
- Range of products: Oil products, chemicals, vegetable oils
- Access: Road, Rail, River

Belgium

Universal Refining NV

Haven 279, Beliweg 20, 2030 Antwerp, Belgium
Tel: +32 3 544 1600 Fax: +32 3 544 1660
- No. of tanks: 53 + heated
- Total storage capacity: 732,858 cm
- Minimum capacity: 500 cm
- Maximum capacity: 50,000 cm
- Range of products: Oil products, chemicals
- Access: Road, Sea, Pipeline
- Draft: 12.5 metres

Denmark

Petroplus Tankstorage Aabenraa Aps

Østre Havnevej 53, 6200 Aabenraa, Denmark
Tel: +45 74 620106 Fax: +45 74 625324
- No. of tanks: 6 + heated
- Total storage capacity: 26,575 cm
- Minimum capacity: 375 cm
- Maximum capacity: 10,000 cm
- Range of products: Oil products, chemicals, vegetable oils
- Access: Road, Rail, Sea
- Draft: 11 metres

UK

Petroplus Tankstorage Milford Haven Ltd

Pembrokeshire, SA73 1DR, Wales, UK
Tel: +44 (0)1646 692 461 Fax: +44 (0)1646 691258
- No. of tanks: 100 + heated
- Total storage capacity: 1,555,000 cm
- Minimum capacity: 800 cm
- Maximum capacity: 100,00 cm
- Range of products: Crude, oil products
- Access: Road, Rail, Sea, Pipeline
- Draft: 14.6 metres

Portland Port Ltd

Port Office, Portland Port, Castletown, Portland, Dorset DTS 1PP, UK
Contact: Steve Davies, General Manager/Director; Simon Hutt, Marketing Manager
Tel: +44 (0)1305 824044 Fax: +44 (0)1305 823055
Facility address: as above
- No. of tanks: 16
- Total storage capacity: 100,000 cm
- Minimum capacity: 6,000 cm
- Maximum capacity: 9,000 cm
- Range of products: MGO, Derv, Kerosene, UAN
- Access: Road, Sea
- Largest vessel: 40,000 tonnes
- Draft: 12 metres

Strategic location in the English Channel. Largest UK MARPOL reception facility for oily waste, low flash point tank washings.

Ross Chemical & Storage Co Ltd

Grange Dock, Grangemouth, Scotland FK3 8UD, UK
Contact: Robbie Reid
Tel: +44 (0)1324 474774 Fax: +44 (0)1324 485476
e: rrr@kpgb.98.co.uk
Facility address: as above

- No. of tanks: 47; Heated: 6
- Total storage capacity: 86,600 cm
- Minimum capacity: 800 cm
- Maximum capacity: 4,774 cm
- Range of products: Oil products, chemicals
- Access: Road, Sea, Pipeline
- Largest vessel: 20,000 tonnes
- Draft: 9.5 metres

Ross Chemical & Storage is the only independent import terminal for bulk supplies of chemicals and hydrocarbons in Scotland. 70% of the company's throughput is hydrocarbons and the remaining 30% are chemicals. SInce 1995, Q8 has invested £11.5 mn to ensure statutory VRU requirements are met and to improve speed of service to customers.

Scandinavian Tank Storage (STS) AB

Stigbergsliden 5, S–71763 Gothenburg, Sweden
Contact: Lars Jacobsson/Jonas Westerlind
Tel: +46 31 12 8080 Fax: +46 31 12 8001
e: sts@tankstorage.se
STS is the largest independent storage company in Scandinavia

- No. of tanks: 50; Heated: 24
- Total storage capacity: 1,833,242 cm
- Minimum capacity: 200 cm
- Maximum capacity: 220,000 cm
- Range of products: Oil products
- Access: Road, Rail, Sea, Pipeline

Stenungsund, Sweden
Tel: +46 31 12 8080 Fax: +46 31 12 8001

- No. of caverns: 6; Heated: 4
- Total storage capacity: 318,890 cm
- Minimum capacity: 40,000 cm
- Maximum capacity: 61,489 cm
- Range of products: Oil products
- Access: Sea, Pipeline
- Largest vessel: 45,000 tonnes
- Draft: 11.5 metres

Malmö, Sweden
Tel: +46 31 12 8080 Fax: +46 31 12 8001

- No. of tanks: 19; Heated: 15
- Total storage capacity: 257,744 cm
- Minimum capacity: 200 cm
- Maximum capacity: 29,757 cm
- Range of products: Oil products
- Access: Road, Sea, Pipeline
- Largest vessel: 45,000 tonnes
- Draft: 11.4 metres

Norrkoping, Sweden
Tel: +46 31 12 8080 Fax: +46 31 12 8001

- No. of caverns: 8; Heated: 1
- Total storage capacity: 158,000 cm
- Minimum capacity: 5,000 cm
- Maximum capacity: 100,000 cm
- Range of products: Oil products
- Access: Road, Sea, Pipeline
- Largest vessel: 45,000 tonnes
- Draft: 11.4 metres

Gauce, Sweden
Tel: +46 31 12 8080 Fax: +46 31 128001

- No. of caverns: 2; Heated: 1
- Total storage capacity: 310,000 cm
- Minimum capacity: 90,000 cm
- Maximum capacity: 220,000 cm
- Range of products: Oil products
- Access: Road, Sea, Pipeline
- Largest vessel: 25,000 tonnes
- Draft: 10.15 metres

Harnosand, Sweden
Tel: +46 31 12 8080 Fax: +46 31 12 8001

- No. of tanks: 4
- Total storage capacity: 31,579 cm
- Minimum capacity: 5,874 cm
- Maximum capacity: 9,991 cm
- Range of products: Oil products
- Access: Road, Sea, Pipeline
- Largest vessel: 25,000 tonnes
- Draft: 10 metres

SEPP

500 Bld Jules Durand, 76600 Le Havre, France
Contact: Eric Mahieu
Tel: +33 2 35 24 67 00 Fax: +33 2 35 26 78 89
e: Info@mahieu-sepp.com
Facility address: as above

- No. of tanks: 16
- Total storage capacity: 55,000 cm
- Minimum capacity: 640 cm
- Maximum capacity: 10,000 cm
- Range of products: Oil products, chemicals
- Access: Road, Sea, Pipeline
- Largest vessel: 12,000 tonnes
- Draft: 8.2 metres

Certified ISO 9002 for the storage and handling of petroleum and derived products (LRQA).

Simon Storage Group Ltd

Priory House, 60 Station Road, Redhill, Surrey RH1 1PE, UK
Contact: Peter Rendall, Marketing Director
Tel: +44 (0)1737 778108 Fax: +44 (0)1737 778112
Simon Storage manages storage investments in the UK and Eire for Simon Group plc. With the exception of the Seal Sands Terminal, these are in joint venture with Koninklijke Van Ommeren NV. Simon Management provides comprehensive facilities management services for the oil industry, including aviation into-plane services and oil and gas pipeine management.

Immingham Storage Co Ltd (Immingham Terminal)

Immingham Dock, Immingham, NE Lincs DN40 2QW, UK
Tel: +44 (0)1469 571241 Fax: +44 (0)1469 571037

- No. of tanks: 273; Heated: 44
- Total storage capacity: 585,000 cm
- Minimum capacity: 250 cm
- Maximum capacity: 15,000 cm
- Range of products: Oil products, chemicals, vegetable oils, pressure storage for gases
- Access: Road, Rail, Sea, Pipeline
- Largest vessel: 35,000 tonnes
- Draft: 35 ft

Two terminals – East and West. Drumming facility. Development land available. Vapour recovery unit, bonded hydrocarbon, oil warehouse.

Velva Liquids (North Shields) Ltd (Tyne Terminal)

Northumberland Dock, North Shields, Tyne & Wear NE29 6DY, UK
Tel: +44 (0)191 296 0999 Fax: +44 (0)191 258 6996

- No. of tanks: 62; Heated: 11
- Total storage capacity: 56,500 cm
- Minimum capacity: 300 cm
- Maximum capacity: 8,600 cm
- Range of products: Oil products, chemicals, vegetable oils, bonded ethanol storage
- Access: Road, Sea
- Draft: 7.1 metres

Three berths. Semi-automated drumming facility for tank or road tankers to drum. Land for expansion and specific client projects. CIMAH approved parking area for road tanks.

Seal Sands Storage Ltd (Seal Sands Terminal)

Seal Sands, Middlesborough, Cleveland TS2 1UB, UK
Tel: +44 (0)1642 546775 Fax: +44 (0)1642 546076

- No. of tanks: 110; Heated: 28
- Total storage capacity: 206,000 cm
- Minimum capacity: 250 cm
- Maximum capacity: 8,500 cm
- Range of products: Oil products, chemicals, vegetable oils, pressure storage for gases
- Access: Road, Rail, Sea, Pipeline
- Largest vessel: 35,000 tonnes
- Draft: 10.4 metres

Two jetties, three berths. VRU for gasolines. Land available for expansion for specific client projects.

Cumbrian Storage Ltd (Cumbrian Terminal)

Prince of Wales Dock, Workington, Cumbria CA14 1BN, UK
Tel: +44 (0)1737 778108 Fax: +44 (0)1737 778112

- No. of tanks: 18; Heated: 1
- Total storage capacity: 32,000 cm
- Minimum capacity: 750 cm
- Maximum capacity: 5,000 cm
- Range of products: Oil products, chemicals, vegetable oils
- Access: Road, Rail, Sea
- Largest vessel: 10,000 tonnes

Two berths. Lined tanks. Ships Agency.

Irish Bulk Liquid Storage Ltd (Shannon Terminal)

Foynes Harbour, Foynes, Co Limerick, Eire
Tel: +353 69 65506 Fax: +353 69 65601

- No. of tanks: 13
- Total storage capacity: 14,200 cm
- Minimum capacity: 750 cm
- Maximum capacity: 3,500 cm
- Range of products: Oil products, chemicals
- Access: Road, Sea
- Largest vessel: 10,000 tonnes

Two berths. Land for expansion available.

ST Services Ltd

Sierra House, St Mary's Walk, Maidenhead, Berkshire SL6 1QZ, UK
Contact: David J McLoughin (Sales Manager)
Tel: +44 (0)1628 771242 Fax: +44 (0)1628 771678
A wholly-owned subsidiary of Kaneb Pipe Line Partners, LP of Dallas, Texas. Kaneb Pipe Line Partners conducts its terminalling operations in Europe through ST Services Ltd. ST Services operates six terminals within the UK subsidiary.

ST Eastham Ltd

Eastham, Bankfields Drive, Wirral, L62 0BA, UK
Contact: Paul Reynolds (Eastham)
Tel: +44 (0)151 327 1205 Fax: +44 (0)151 327 3232
e: ReynoldsP@stservices.demon.co.uk
- No. of tanks: 163; Heated: 94
- Total storage capacity: 346,500 cm
- Minimum capacity: 30 cm
- Maximum capacity: 10,900 cm
- Range of products: Oil products, chemicals, petroleum
- Access: Road, Rail, Sea
- Largest vessel: 40,000 tonnes
- Draft: 32 ft 10 inches depending on tide

Belfast

- No. of tanks: 38
- Total storage capacity: 50,290 cm
- Minimum capacity: 498 cm
- Maximum capacity: 5,000 cm
- Range of products: High- and low-flash petroleum products, chemicals
- Access: Road, Sea
- Largest vessel: 18,000 tonnes
- Draft: 8.5 metres

Two 8-inch stainless steel and one 6-inch mild steel dockline, all piggable. Fully automated top and bottom loading facilities.

Grays, Essex

- No. of tanks: 53
- Total storage capacity: 311,000 cm
- Minimum capacity: 1,700 cm
- Maximum capacity: 20,800 cm
- Range of products: High-and low-flash petroleum products
- Access: Road, Sea
- Draft: 11.3 metres

Five piggable docklines. Fully automated top and bottom loading facilities.

Runcorn, Cheshire

- No. of tanks: 4
- Total storage capacity: 40,000 cm
- Range of products: Heated liquid sulfur
- Access: Road, Canal

Leith, Scotland

- No. of tanks: 34
- Total storage capacity: 73,000 cm
- Minimum capacity: 50 cm
- Maximum capacity: 13,400 cm
- Range of products: High- and low-flash petroleum products, chemicals
- Access: Road, Sea, Rail
- Draft: 9.5 metres

Two 10-inch mild steel and two stainless steel docklines. Top and bottom loading facilities.

Glasgow, Scotland

- No. of tanks: 16
- Total storage capacity: 55,000 cm
- Range of products: High- and low-flash petroleum products
- Access: Road, Sea
- Draft: 6.7(min) – 11 (max) metres, depending on the tide

Four 10-inch and two 8-inch mild steel docklines. Fully automated top and bottom loading facilities.

Tanklagergesellschaft Hoyer GmbH

Essenerstrasse 64, 68219 Mannheim, Germany
Contact: Herr Lombardinol/Herr Kopp
Tel: +49 0621 89985 Fax: +49 0621 8998 690
e: tlg.sued@tlg-ma.de
Facility address: Werfthallenstrasse 43, 68159 Mannheim, Germany
Tel: +49 0621 107040 Fax: +49 0621 10704 29
- No. of tanks: 134; Heated: 35
- Total storage capacity: 300,000+ cm
- Minimum capacity: 50 cm
- Maximum capacity: 22,000 cm
- Range of products: Oil products, chemicals, vegetable oils
- Access: Road, Rail, River
- Largest vessel: Rhine barge tanker
- Draft: Rhine water level

The company acts on the requirements of the customer. Up-to-date handling facilities, large outside storage area with ramp access, several jetties, rail systems and truck filling stations guarantee maximum efficiency and make it possible to provide complete logistics concepts.

TDG Pinnacle

Howley Lane, Warrington, Cheshire WA1 2EB, UK
Contact: Denis O'Connor
Tel: +44 (0)1925 636971 Fax: +44 (0)1925 625527
e: o'connord@tdg.co.uk
Facility address: Choats Road, Dagenham, Essex RM9 6PU, UK
Tel: +44 (0)181 593 7211 Fax: +44 (0)181 593 1632
- No. of tanks: 236; Heated: 122
- Total storage capacity: 115,000 cm
- Minimum capacity: 7 cm
- Maximum capacity: 4,500 cm
- Range of products: Crude, oil products, chemicals, vegetable oils
- Access: Road, Sea
- Largest vessel: 40,000 tonnes
- Draft: 10 metres (at low tide)

Tees Storage Co Ltd

Seal Sands, Middlesbrough, TS2 1UA, UK
Contact: Stephen Lowdon
Tel: +44 (0)1642 546767 Fax: +44 (0)1642 543600
e: info@teesstorage.co.uk
- No. of tanks: 162; Heated: 45
- Total storage capacity: 230,000 cm
- Minimum capacity: 55 cm
- Maximum capacity: 8,500 cm
- Range of products: Oil products, chemicals
- Access: Road, Sea, Pipeline
- Largest vessel: 40,000 tonnes
- Draft: 11 metres; Length: 200 metres

Jointly owned by Royal Pakhoed and GATX Corporation; mild steel, stainless steel and coated tanks; 6,650 cm pressure sphere for vinyl chloride monomer; provision for rail; drum and IBC filling; covered drum storage; three jetties; 50 docklines (25 stainless steel).

Terminales Portuarias SA

Muelle de Inflamables, S/N 08039 Barcelona, Spain
Contact: Jordi Casademunt
Tel: +34 94 223 52 02/50 25 Fax: +34 94 223 45 79
e: Tepsa@ibm.net
Facility address: as above
- No. of tanks: 220; Heated:25
- Total storage capacity: 198,392 cm
- Minimum capacity: 50 cm
- Maximum capacity: 15,400 cm
- Range of products: Oil products, chemicals
- Access: Road, Rail, Sea
- Draft: 39 ft

There are four jetties. Mild steel, stainless steel and coated tankage, tanks with internal floating screen, tank trucks weighing, drumming, trans-shipment facilities, refrigerating, nitrogen blanketing, blending additive handling, denaturated spirits handling and warehousing. Heating possibilities are steam with water and with oil. Tanks for chemical products are equipped with dedicated product lines and pumps. ISO 9002 certificate.

Nuevo Dique del Este, S/N, 46024, Valencia, Spain
Contact: Juan Vicente Argente
Tel: +34 96 3367 68 02 Fax: +34 96 367 23 90
e: Tepsa@ibm.net
- No. of tanks: 24
- Total storage capacity: 36,765 cm
- Minimum capacity: 305 cm
- Maximum capacity: 3,050 cm
- Range of products: Oil products, chemicals
- Access: Road, Sea
- Draft: 39 ft

There is one jetty. Services available: mild steel tanks (some with internal floating screen), tank trucks weighing and nitrogen blanketing. Tanks for chemical products are equipped with dedicated product-lines and pumps. ISO 9002 certificate and CEFIC-SQAS audited.

Explanada Punta Ceballos, S/N 48508 Zierbena (Bilbao), Spain
Contact: José Tarrío
Tel: +34 94 636 54 48/54 56 Fax: +34 94 636 52 23
e: Tepsa@ibm.net
- No. of tanks: 53; Heated:1
- Total storage capacity: 116,665 cm
- Minimum capacity: 460 cm
- Maximum capacity: 7,600 cm
- Range of products: Oil products, chemicals
- Access: Road, Sea
- Largest vessel: 50,000 tonnes
- Draft: 52 ft

There are two jetties. Services available: mild steel tanks (some with internal floating screen), tank trucks weighing and product heating and nitrogen blanketing. Tanks for chemical products are equipped with dedicated product lines and pumps. ISO 9002 certificate and CEFIC-SQAS audited.

Muelle de Inflamables, S/N, 43004 Tarragona, Spain
Contact: José Enrique Mañé
Tel: +34 977 22 82 62 Fax: +34 94 22 00 54
e: Tepsa@ibm.net
Facility address: as above
- No. of tanks: 33; Heated: 6
- Total storage capacity: 38,980 cm

- Minimum capacity: 650 cm
- Maximum capacity: 3,850 cm
- Range of products: Oil products, chemicals
- Access: Road, Rail, Sea
- Draft: 41 ft

There are three jetties. Services available: mild steel, stainless steel and coated tankage and tank trucks; weighing and nitrogen blanketing. Heating possibilities are steam with warm water. Tanks for chemical products are equipped with dedicated product lines and pumps. ISO 9002 certificate and CEFIC-SQAS audited.

United Storage

Athel House, 167 Regent Road, Liverpool, L20 8DD, UK
Contact: Graham Hansen
Tel: +44 (0)151 933 1010 Fax: +44 (0)151 933 7434
e: grahamhansen@tateandlyle.com
Facility address: as above

- No. of tanks: 21; Heated: 21
- Total storage capacity: 20,590 cm
- Minimum capacity: 120 cm
- Maximum capacity: 1,718 cm
- Range of products: Vegetable oils
- Access: Road, Sea
- Largest vessel: 32.3 metre beam
- Draft: 10 metres

Dock Road, West Float, Birkenhead CH41 1DF, UK
Tel: +44 (0)151 638 2264 Fax: +44 (0)151 639 6997

- No. of tanks: 146; Heated: 110
- Total storage capacity: 126,472 cm
- Minimum capacity: 25 cm
- Maximum capacity: 10,600 cm
- Range of products: Oil products, chemicals, vegetable oils
- Access: Road, Sea
- Draft: 8.5 metres

Riverside House, East Street,Birkenhead, L41 1BY, UK
Tel: +44 (0)151 647 4111 Fax: +44 (0)151 666 2136

- No. of tanks: 54; Heated: 54
- Total storage capacity: 18,563 cm
- Minimum capacity: 66 cm
- Maximum capacity: 1,036 cm
- Range of products: Vegetable oils
- Access: Road, Sea
- Largest vessel: 26.5 metre beam
- Draft: 8.7 metres

King George Dock (West), Hull, HU9 5QB, UK
Tel: +44 (0)1482 375241 Fax: +44 (0)1482 795765

- No. of tanks: 11; Heated: 11
- Total storage capacity: 6,312 cm
- Minimum capacity: 40 cm
- Maximum capacity: 1,320 cm
- Range of products: Vegetable oils
- Access: Road, Sea
- Largest vessel: 185 metres
- Draft: 10.2 metres

King George Dock (East), Hull, HU9 5PR, UK
Tel: +44 (0)1482 781118 Fax: +44 (0)1482 781147

- No. of tanks: 61; Heated: 28
- Total storage capacity: 29,100 cm
- Minimum capacity: 30 cm
- Maximum capacity: 2,600 cm
- Range of products: Oil products, chemicals, vegetable oils
- Access: Road, Sea
- Largest vessel: LOA 152 metres; Beam: 21 metres
- Draft: 6.7–8 metres (with prior permission of Dock Master)

Shore Road, Seaforth, Bootle, Liverpool L20 1BE, UK
Tel: +44 (0)151 933 8931 Fax: +44 (0)51 922 2811

- No. of tanks: 26; Heated: 26
- Total storage capacity: 97,290 cm
- Minimum capacity: 600 cm
- Maximum capacity: 13,210 cm
- Range of products: Oil products, chemicals, vegetable oils
- Access: Road, Sea
- Draft: 12.4 metres

Van Ommeren

Head office: Westerlaan 10, 3016 CK Rotterdam, The Netherlands
Contact: Paul Dekker, Director of Marketing & Business Development
Tel: +31 10 464 2430 Fax: +31 10 464 2819

With about 55 terminals for the storage of petroleum products, chemicals and gases and of animal and vegetable oils and fats – in over 15mn cm storage capacity (including participating interests). Van Ommeren is one of the three largest independent tank storage companies in the world. Of the total tank storage capacity, 7.3mn cm is located in Europe, 0.1mn cm in Africa, 5.5mn cm in USA/Canada and Latin America, 2.4mn cm in Asia and Australia and the Middle East. As at 31 December 1998, approximately NLG1.093mn had been invested in tank terminals.

The Netherlands

Eurogas

Frankrijkweg 4, PO Box 410, 4380 AK Vlissingen, The Netherlands
Contact: Max Mazel
Tel: +31 10 24 12 208

- No. of tanks: 8
- Total storage capacity: 130,000 cm
- Range of products: Gas
- Access: Road, Rail, Sea
- Draft: 13.5 metres

Van Ommeren Terminal Botlek

Welplaatweg 115, 3197 ZG, Botlek, The Netherlands
Contact: John Paul Broeders
Tel: +31 1047 29700 e: terminals.botlek@vanommeren.com

- No. of tanks: 356
- Total storage capacity: 1,068,000 cm
- Range of products: Oil products, chemicals
- Access: Road, Rail, Sea, Pipeline
- Draft: 12.5 metres

Van Ommeren Terminal Europoort

Neckarweg 5, PO Box 1137, 3180 AC Europoort, The Netherlands
Contact: Jan Bert Schutrops
Tel: +31 181 240 232 e: terminals.europoort@vanommeren.com

- No. of tanks: 43
- Total storage capacity: 910,000 cm
- Range of products: Oil products, chemicals
- Access: Sea, Pipeline
- Draft: 21 metres

Van Ommeren Terminal Vlaardingen

Kon Wilhelminahaven Z0Z1, 3130 AA Vlaardingen, The Netherlands
Contact: Ronald Okker
Tel: +31 10 460 86 00 e: terminals.vlaardingen@vanommeren.com

- No. of tanks: 400
- Total storage capacity: 419,000 cm
- Range of products: Vegetable oils
- Access: Road, Rail, Sea
- Draft: 12.2 metres

Belgium

Gamatex

Haven 623, Scheldelaan 450, B-2040 Antwerp, Belgium
Contact: Pieter de Graeff
Tel: +32 35 611 522

- No. of tanks: 148
- Total storage capacity: 486,000 cm
- Range of products: Oil products, chemicals, gas
- Access: Road, Rail, Sea, Pipeline
- Draft: 13.5 metres

France

Dépots Pétroliers de Fos (DPF)

Zone Industrielle Secteur 81, Audience 818, 13270 Fos-sur-Mer, France
Contact: Jean-Paul Croisille
Tel: +33 44 247 6541

- No. of tanks: 40
- Total storage capacity: 780,000 cm
- Range of products: Oil products, chemicals,
- Access: Road, Rail, Sea, Pipeline
- Draft: 24 metres

Germany

Van Ommeren Terminal Hamburg

Rethedamm 15, D21 107, Hamburg, Germany
Contact: Bernd Kallsen
Tel: +49 40 751 96224 e: terminals.hamburg@vanommeren.com

- No. of tanks: 300
- Total storage capacity: 712,000 cm
- Range of products: Oil products, vegetable oils
- Access: Road, Rail, Sea, Pipeline

Kaliningrad (Russia)

BNK (Van Ommeren joint venture)

Ulitsa Sadovaya 1, Baltyisk 238520, Kalingradskaya, Oblast, Russia
Contact: Rein Roger
Tel: +46 31 648 321 e: terminals.kalingrad@vanommeren.com

- No. of tanks: 8
- Total storage capacity: 32,000 cm
- Range of products: Crude, oil products
- Access: Rail, Sea
- Draft: 7.5 metres

Spain

Terquimsa Barcelona

Muelle de Inflamables, Puerto de Barcelona, 08039, Barcelona, Spain
Contact: Yolanda Julián Saz
Tel: +34 97 72 41454

- No. of tanks: 69
- Total storage capacity: 42,000 cm
- Range of products: Oil products, chemicals, vegetable oils
- Access: Road, Sea
- Draft: 12.4 metres

Terquimsa Tarragona

Muelle de Inflamables, Puerto de Tarragona, 43004, Tarragona, Spain
Contact: Yolanda Julián Saz
Tel: +34 97 72 41454

- No. of tanks: 120
- Total storage capacity: 203,000 cm
- Range of products: Oil products, chemicals, vegetable oils
- Access: Road, Rail, Sea, Pipeline
- Draft: 12.4 metres

Sweden

Van Ommeren Terminal Gävle

Frederiksskans, SE-805 95, Gävle, Sweden
Contact: Rein Roger
Tel: +46 31 648 321 e: terminals.gavle@vanommeren.com

- No. of tanks: 18
- Total storage capacity: 192,000 cm
- Range of products: Oil products, chemicals
- Access: Road, Sea, Pipeline
- Draft: 10.4 metres

Van Ommeren Terminal Gothenburg

Brännoljegatan, Sharvikshammen Se-418, 34 Göteborg, Sweden
Contact: Rein Roger
Tel: +46 31 648 321 e: terminals.gothenburg@vanommeren.com

- No. of tanks: 117 + 3 caverns
- Total storage capacity: 701,000 cm
- Range of products: Oil products, chemicals, vegetable oils
- Access: Road, Rail, Sea, Pipeline
- Draft: 13 metres

Van Ommeren Terminal Helsingborg

Nastagan 7, SE-252 27 Helsingborg, Sweden
Contact: Rein Roger
Tel: +46 31 648 321 e: terminals.helsingborg@vanommeren.com

- No. of tanks: 12
- Total storage capacity: 34,000 cm
- Range of products: Oil products
- Access: Road, Sea, Pipeline
- Draft: 11 metres

Van Ommeren Terminal Norrköping

Gästgivarehagen SE-602 38, Norrköping, Sweden
Contact: Rein Roger
Tel: +46 31 648 321 e: terminals.norrköping@vanommeren.com

- No. of tanks: 36
- Total storage capacity: 14,000 cm
- Range of products: Oil products, chemicals
- Access: Road, Sea
- Draft: 8.4 metres

Switzerland

Van Ommeren Terminal Basle

Hafenstrasse 87-89, 4127 Birsfelden Basle, Switzerland
Contact: Rudi Feierabend
Tel: +41 61 3192929 e: terminals.basle@vanommeren.com

- No. of tanks: 63
- Total storage capacity: 347,000 cm
- Range of products: Oil products
- Access: River, Rail, Road

United Kingdom

Van Ommeren Terminal Barry

No 1 Dock, Barry, Vale of Glamorgan, CF62 5XX, UK
Contact: Colin Scott
Tel: +44 (0)1708 863399 e: terminals.barry@vanommeren.com

- No. of tanks: 80
- Total storage capacity: 108,000 cm
- Range of products: Oil products, chemicals, vegetable oils
- Access: Road, Sea
- Draft: 9.1 metres

Van Ommeren Terminal Barry Windmill

Hayes Road, Barry, Vale of Glamorgan, CF64 5YB, UK
Contact: Colin Scott
Tel: +44 (0)1708 863399 e: terminals.barry@vanommeren.com

- No. of tanks: 12
- Total storage capacity: 42,000 cm
- Range of products: Chemicals
- Access: Road, Sea
- Draft: 9.1 metres

Van Ommeren Terminal London

Oliver Road, West Thurrock, Grays, Essex, RM20 3EY, UK
Contact: Colin Scott
Tel: +44 (0)1708 863399 e: terminals.london@vanommeren.com

- No. of tanks: 125
- Total storage capacity: 350,000 cm
- Range of products: Oil products, chemicals, vegetable oils
- Access: Road, Sea
- Draft: 10.5 metres

Van Ommeren Terminal Ipswich

Landseer Road, Ipswich, Suffolk, IP3 OB6, UK
Contact: Colin Scott
Tel: +44 (0)1708 863399 e: terminals.ipswich@vanommeren.com

- No. of tanks: 76
- Total storage capacity: 89,000 cm
- Range of products: Oil products, chemicals, vegetable oils
- Access: Road, Sea
- Draft: 7.7 metres

VOTOB

Vereniging van Onafhankelijke Tankopslagbedrijven, Vlietweg 16, Leidschendam. Postal address: PO Box 443, 2260 AK Leidschendam, The Netherlands.
Contact: H Standaar, Secretary
Tel: +31 70 337 8750 Fax: +31 70 320 3903 e: h.standaar@wxs.nl

VOTOB embraces four member companies in The Netherlands which are active in the storage of bulk liquid commodities and products. Together the members offer 14 installations in the ports of Amsterdam, Dordrecht and Rotterdam. VOTOB is active at the interface with national government and with other professional associations with relevant similar interests. VOTOB is an active member of FETSA (Brussels), the European umbrella organisation which consults with government on an international scale, EU Commission, IMO and similar bodies.

WESER-PETROL Seehafentanklager GmbH & Co. KG

Cuxhavener Strasse 42/44, D-28217 Bremen, PO Box 106149, D-28061, Germany
Contact: Claus Meyer
Tel: +49 421 396 99-0 Fax: +49 421 396 9999
e: meyer@weser-petrol.de *Facility address: Bremen-Holzhafen*
Tel: +49 421 396 9972 Fax: +49 421 396 9999

- No. of tanks: 4
- Total storage capacity: 51,000 cm
- Minimum capacity: 4,000 cm
- Maximum capacity: 30,000 cm
- Range of products: Oil products
- Access: Road, Sea
- Largest vessel: approx. 20,000 tonnes
- Draft: 9.45 metres

A part of the Diersch & Schröder group of facilities for import and distribution of middle distillates at the river Weser (Bremen and Nordenham) as well as in Greifswald (Baltic Sea), with five storage installations and a total capacity of 286,500 cm.

Bremen-Industriehafen

Windhukstrasse 15, 28237 Bremen, Germany
Tel: +49 421 64 11 44 Fax:+49 421 6464 0543

- No. of tanks: 14
- Total storage capacity: 24,000 cm
- Minimum capacity: 1,000 cm
- Maximum capacity: 2,500 cm
- Range of products: Oil products
- Access: Road, Sea
- Largest vessel: 15,000 tonnes
- Draft: 9.45 metres

Nordenham Midgard-Hafen

TeL +49 4731 81 113 Fax: +49 4731 81 204

- No. of tanks: 5
- Total storage capacity: 114,000 cm
- Minimum capacity: 9,500 cm
- Maximum capacity: 34,000 cm
- Range of products: Oil products
- Access: Road, Rail, Sea
- Largest vessel: 30,000 tonnes
- Draft: 13 metres

Zweigniederlassung Greifswald

Greifswald-Ladebow, Thomas-Müntzer-Strasse, Germany
Tel:+49 38 34 899 548 Fax: +49 3834 899 543

- No. of tanks: 6
- Total storage capacity: 37,500 cm
- Minimum capacity: 6,250 cm
- Maximum capacity: 6,250 cm
- Range of products: Oil products
- Access: Road, Sea
- Largest vessel: 5,000 tonnes
- Draft: 5.2 metres

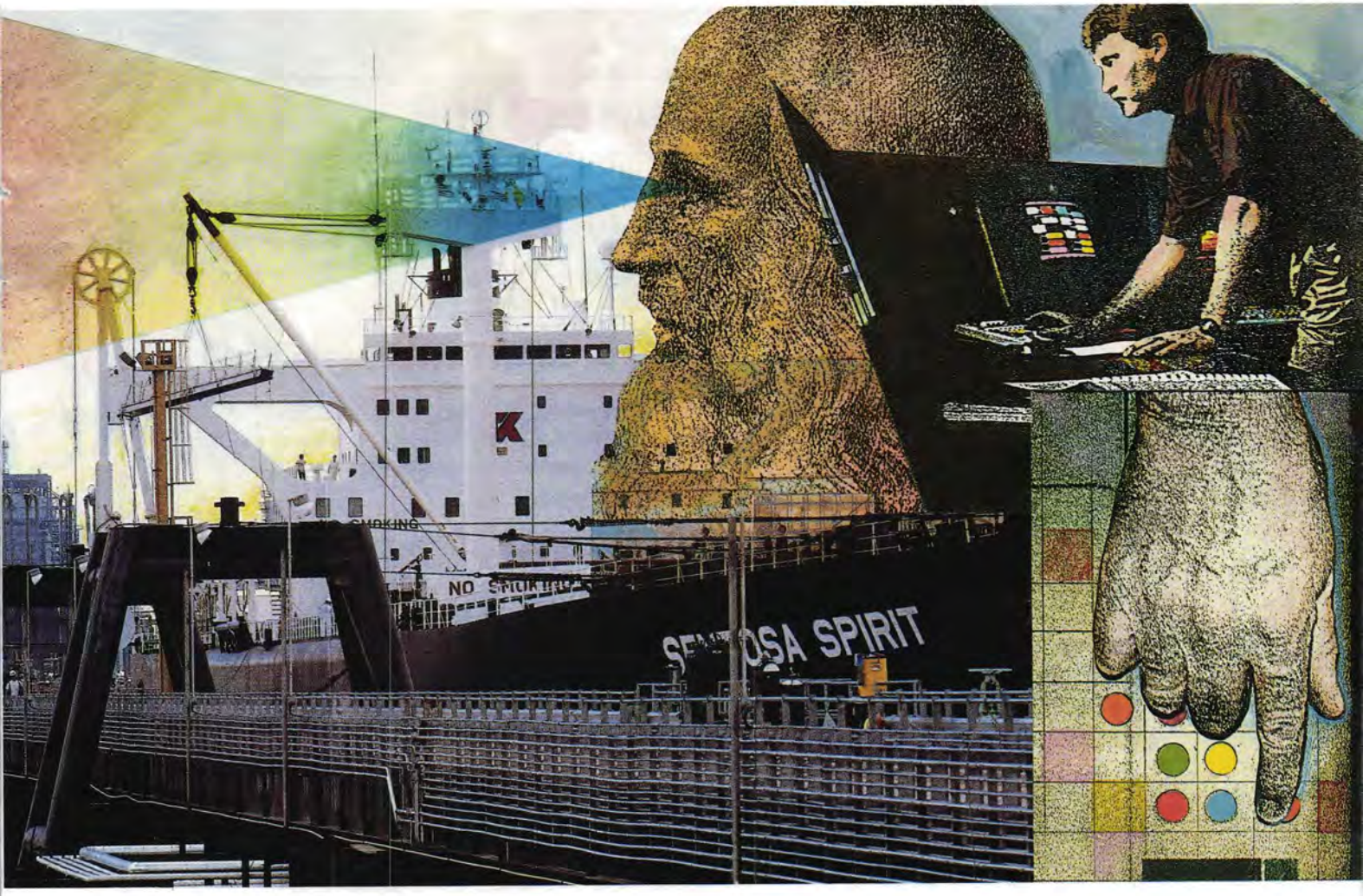
WESER-TANKING GmbH & Co. KG

Bremen-Industriehafen, Hüttenstrasse 100, 28237, Bremen, Germany
Tel: +49 421 39 69 946 Fax: +49 421 39 69 999

- No. of tanks: 2
- Total storage capacity: 60,000 cm
- Minimum capacity: 20,000 cm
- Maximum capacity: 40,000 cm
- Range of products: Oil products
- Access: Sea
- Largest vessel: 60,000 tonnes
- Draft: 13 metres

WESER-TANKING is a joint venture between Oiltanking Deutschland GmbH, Hamburg and WESER-PETROL Seehafentanklager GmbH & Co. KG, Bremen.

Please note that the UK is currently changing its telephone dialling codes. For example, inner London numbers will change from 0171 to 0207 and outer London numbers will change from 0181 to 0208. While both old and new systems will operate for a period, please call your international operator if you have any problems.



We Wouldn't Mind If Da Vinci Paid A Visit.

In fact, we think Leonardo would be quite impressed with the new technologies of today's Oiltanking terminals. Since he foresaw automation, we'd show him the hydraulic, articulated loading arms. And point out the advantages of our computerized control rooms: better in/out efficiencies, contamination-free product handling. Then we'd invite him to sit in as our professional engineering teams explore even more ways to customize the best of modern science to better serve our customers. Da Vinci might admire Oiltanking technology. You, however, can profit from it.

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Fax: +65-479-4500

IP THE INSTITUTE OF PETROLEUM

Training Courses 1999

The IP is extending its range of learning events in 1999 by acting as the 'commissioning partner' for industry related training in the fields of economics, business and management, working with a number of different organisations and groups, each of which has recognised sectoral expertise and a proven track record as a training supplier.

Planning and Economics of Refinery Operations (PERO)

organised in association with ENSPM Formation Industrie

London: 20–24 September 1999

This intensive five-day Training Course will cover: ● Technical Resumé ● Refinery Simulation ● Present Situation of the Refining Industry ● Refinery Margins and Costs ● Optimisation of Refinery Operations ● Scheduling of Refinery Operations ● How to Improve Refinery Profitability

Who should attend?

- Technical, operating and engineering personnel working in the refining industry
- Trading and commercial specialists
- Independent consultants
- Process licensors
- Catalyst manufacturers and refining subcontractors

Trading Oil on the International Markets (ITO)

Cambridge: 4–8 October 1999

INVINCIBLE

Delegates become part of Invincible's fictional trading team, taking decisions about the company's activities to maximise profits through an understanding of the economics of trading and the management of inherent price risks. They trade the live crude oil and refined product markets worldwide, reacting to events as they happen using real-time information provided by *Reuters* and *Telerate*, as well as industry publications such as *Platt's* and *Petroleum Argus*.

Delegates negotiate and cost deals, calculate profitability, charter a ship and examine the legal and operational aspects of trading. They also learn to identify and manage price risks using futures, forwards and over-the-counter markets.

Operations Practice in Supply Trading (OPST)

Newbury, Berks: 1–5 November 1999

KENNET OIL LOGISTICS

This new and unique five-day residential Training Course is designed primarily to teach the skills employed in the operation of supply trading contracts in the international crude oil and product markets. Delegates will achieve an understanding of the refining process and selection of the most profitable crude oils together with the basic principles of oil trading followed by their respective trading groups.

Who should attend?

- Operational and trading professionals who have recently acquired positions within an oil trading function
- Managers, administrators and other professionals within an oil trading company
- Vessel operators, ship brokers, banks, solicitors, oil brokers, independent inspectors, insurance brokers, cargo underwriters, vessel P&I clubs and storage companies
- Managers and professional staff from Government departments and agencies
- Professionals from energy related and news publications and consulting groups

For a copy of the programme and registration form for any of the above Courses, contact:
Pauline Ashby, The Institute of Petroleum, 61 New Cavendish Street, London W1M 8AR, UK
Tel: +44 (0)171 467 7100 Fax: +44 (0)171 255 1472 e:pashby@petroleum.co.uk

***or view the IP website:* www.petroleum.co.uk**

Why forecast?

At a time when many forecasters have once again been wrongfooted by the market, *Chris Phipps-Jones examines the methods and requirement for forecasting in the oil and gas industry.**

As the millennium scholar Stephen Leary of the University of Southern California noted: 'The most successful millennial prophets remain "strategically ambiguous". The prophets who do get specific tend to be the more marginal ones.'

Numerical forecasts are invariably different from the eventual outcome – incorrect or, at best, inaccurate by some margin – while imprecise allusions as to how events might turn out can often be interpreted to match events. Those forecasting the oil price last year and any activities directly dependent on oil price and companies' revenues will be only too aware of the potential dangers of forecasting specific values.

Nevertheless, there is much to be gained from the process of forecasting specific items. Forecasting is not merely an academic exercise, it is a necessity for any organisation that wishes to make successful decisions. The discipline of analysing the pattern of past events and activities, understanding the driving forces behind events and formalising what is likely or could happen in the future, improves decision-making. While not always recognised as forecasting, whenever we make a decision on capital goods, we make some assumption on future values and costs.

Decision-making models

The basis for forecasting can be described as a model. We build and use simple models for many decisions, for example when to buy a new car. There is a predictable decline in a car's value with age and mileage, although different factors apply for the rate of decline for the various makes of cars. In the first year medium-sized cars usually lose between 30% and 40% of their market value, almost irrespective of mileage. However, with age mileage depreciation becomes more important, and the maintenance and repair costs are expected to increase. While financial aspects are by no means the only factor in car buying, the above will be understood by most car owners when considering replacing their car.

A simple model also can be considered to describe the cost and performance of computers: there is the expectation that their capability (speed and memory) will increase with time (exponentially?), while the price reduces much more slowly. It is debatable whether this increased numerical performance necessarily equates to increased efficiency of use – but that is a different matter.

Simple models (mathematical relationships) have been developed in science to enable us to predict physical events. Newton produced a series of equations to model the motion of bodies, which works for most terrestrial movement, rockets, satellites and planets. Einstein went on to demonstrate that at the extreme this was inaccurate and produced a more precise model, although it is indistinguishable from Newton's model for most purposes. This illustrates a key point: while models may not be perfectly accurate, it is sufficient if they are accurate enough to guide the decision to be made.

In the case of the simple cost model for cars, it will be appreciated that other factors have an impact: newer models of cars tend to have longer service intervals and may last longer and be more reliable. However, with increasing sophistication the cost of repairs tends to be higher, and manufacturers inevitably charge high prices for spares to take advantage of their captive market. Thus, one could develop a more detailed/complicated model, depending on the type of car. However, if these aspects do not directly contribute to the purchase decision, it would not be beneficial to model them.

Forecasting and time-scales

The simplest projections are direct extrapolations of recent trends, which perhaps are best presented graphically. **Figure 1** (a, b, and c) shows a set of time series; however, more background information is required before a projection could confidently be made. Market understanding is essential to provide the validity for such trends to continue, and to appreciate the factors that influence them. This may lead to identifying more complex relationships for estimating future values involving the market forces (drivers) and related to actual data.

Different decisions have effect over different time periods. For example, a company seeking to make decisions on what should be its regional or sector priorities for marketing activities may be looking for forecasts of the relative sizes of the respective sector – for example drilling equipment – for up to five years ahead. However, a decision by a manufacturing company considering the investment in major plant making, say, the drilling equipment, may want assessments of the total size of the market over a longer term, perhaps in excess of 10 years. National planners, particularly where the country is at a major stage of investment, industrial development, or discovery of new reserves, may be looking for projections of at least 20 years or so for a range of economic, energy and national aspects.

These different time-scales – and market sectors – will encourage the use of different approaches and forecasting techniques.

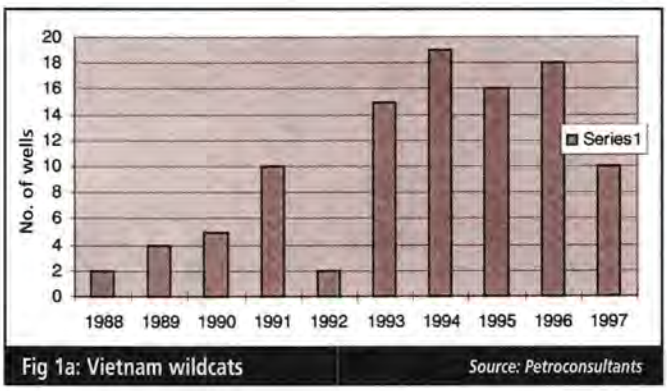

Fig 1a: Vietnam wildcats — Source: Petroconsultants

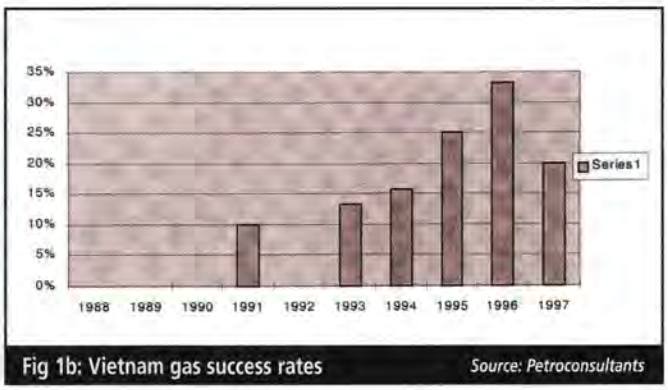

Fig 1b: Vietnam gas success rates — Source: Petroconsultants

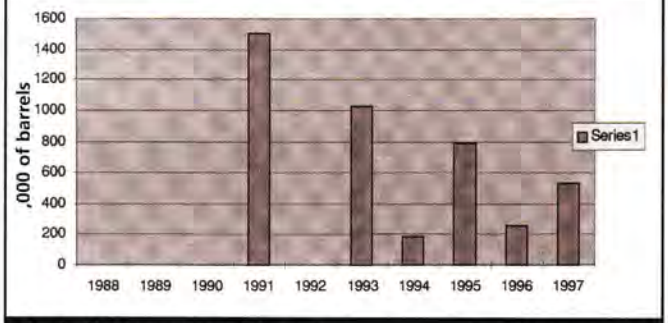

Fig 1c: Vietnam reserves/discovery *Source: Petroconsultants*

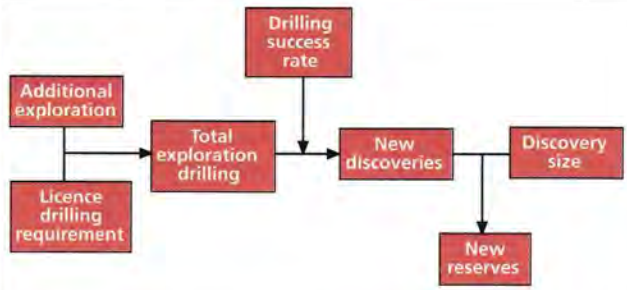

Fig 2: Methodology for forecast of new reserves

Forecasts and computers

Forecasts will use some underlying growth assumption(s), which is likely to be represented by a numerical parameter in the relationship, for example average annual GDP or energy consumption growth. Particularly with longer-term projections it will be more difficult to be assured that the 'best' assumptions are being made: some unforeseen political event, technological breakthrough or economic change could render the underlying assumptions inaccurate.

Generally, both forecasters and those using forecasts are not looking for a single number, but a range of values that give an idea of the sensitivity of the model and its output to realistic variations in the key parameters and assumptions. This can also provide an appreciation of the robustness of the output to the assumptions, or scenarios.

Alternative views (or scenarios) on how the future may develop can usually be obtained by changing the values of the various parameters. This requirement is another reason for the common use of computers to build and run models, which incorporate the identified relationships and allow parameters to be simply changed.

Short-term forecast

As an example of simple short-term projection, consider the expected level of new oil and gas reserves in a particular country or basin. If there is a history of exploration activity, then the initial step is to look at levels of exploration drilling (wildcats), discoveries, and derived performance figures – the percentage success rate and resulting size of reserves (see **Figure 1**). Although exploration is a risk business with variable levels from year to year, consideration of several years should provide a reasonable basis of expected performance (in the absence of more specific information, say geological). With some basis for projecting the number of exploration wells an estimate or forecast of future discoveries can be made. Such a model is indicated by **Figure 2**.

If the statistics can be related to a particular/single basin, and there are a large number of wells (and discoveries) each year, there will be more confidence in the results. With suitable industry knowledge, aspects such as oil price, local tax terms, available acreage, availability of drilling rigs, number of oil companies interested, etc, will provide a basis for projecting the level of drilling activity. Considering geological aspects, one would expect a decline in success rate in the longer term – certainly a reduction in the size of discoveries. However, it is unlikely that such a model would be used for other than short-term projections, though it may be more than sufficient to provide an indication of the relative attractiveness of countries for future availability of reserves.

Medium-term model

Levels of oil industry activity, for example relating to field developments, can be assessed on the basis of enumerating all the identified projects and prospects. This requires engineering interpretation on the likely form and extent of development, and the quantity/value of the resource or service that is of interest in each project. While there may be some inaccuracy on, say, the type of production system selected for an individual prospect, or the content of an individual project, nevertheless experience and knowledgeable interpreta-

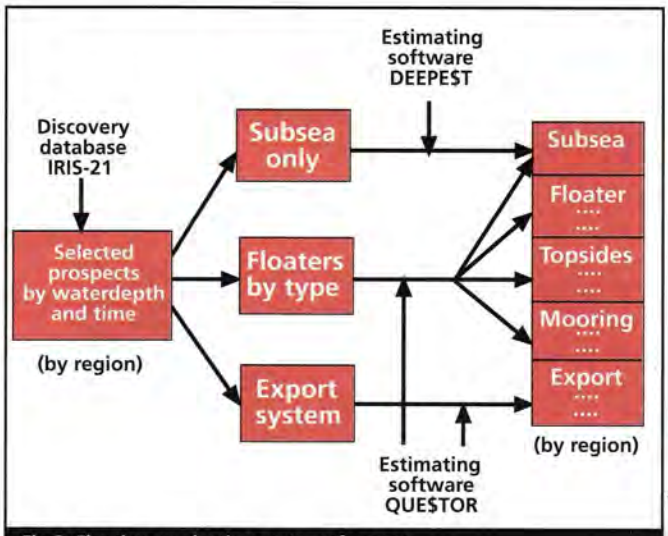

Fig 3: Floating production systems forecast

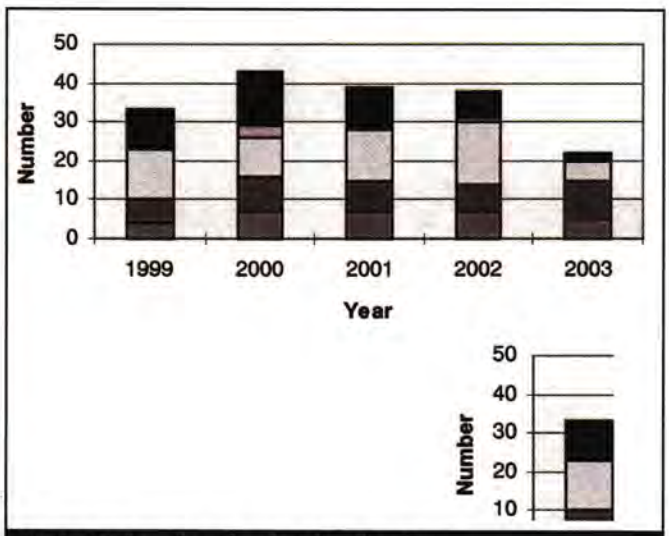

Fig 4a: Total number of projects for all regions

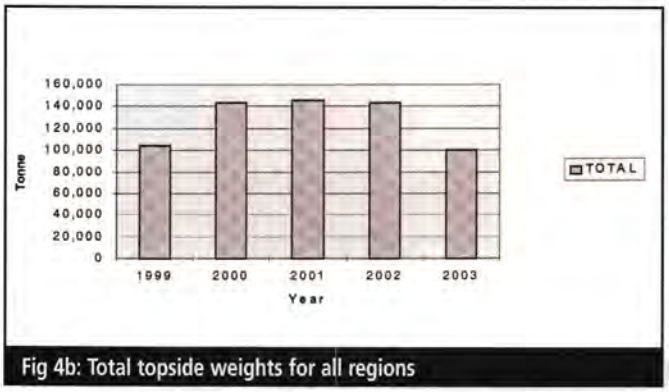

Fig 4b: Total topside weights for all regions

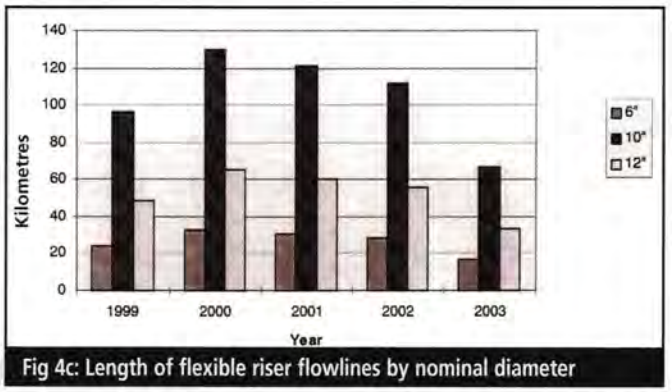

Fig 4c: Length of flexible riser flowlines by nominal diameter

tion will ensure a realistic assessment when a large number of projects are being considered.

Typically, such aggregations are done using a computer, so that alternative assumptions can be considered and the impact assessed. One set of variations to the base case could include the timing of discoveries' development. For example, a delay to the start dates from the 'best/earliest' estimate for a proportion of the prospects could reflect the effect of a reduced oil price. The impact of different delays and proportions of the projects could be considered. There could be an investigation of the possible variations with different technology developments or acceptance, for example if there was an accelerated trend to subsea production (including full subsea processing, power generation and pumping), or continued delay (or acceleration) of the acceptance of ship-based floating production systems in the Gulf of Mexico. Clearly engineering experience and up-to-date appreciation of new technology are needed as a basis for identifying and considering realistic scenarios.

The methodology of such a model is indicated in **Figure 3**. This particular model uses Petroconsultants' worldwide database on geological, well and reserves information (IRIS-21) and MAI's cost-estimating software (QUE$TOR). This is used to derive the system, product or service content of prospective oil and gas field developments. Examples of summary output of such a forecasting model are given in **Figure 4** (a, b and c).

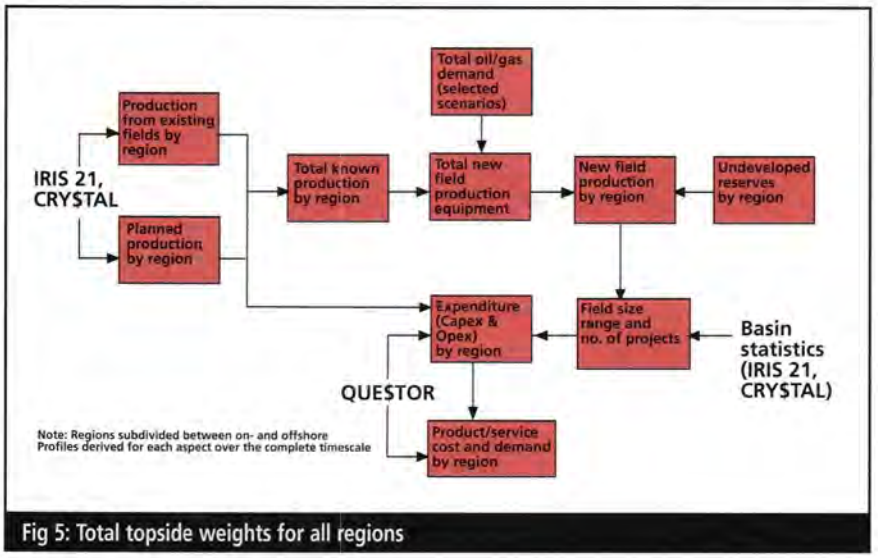

Fig 5: Total topside weights for all regions

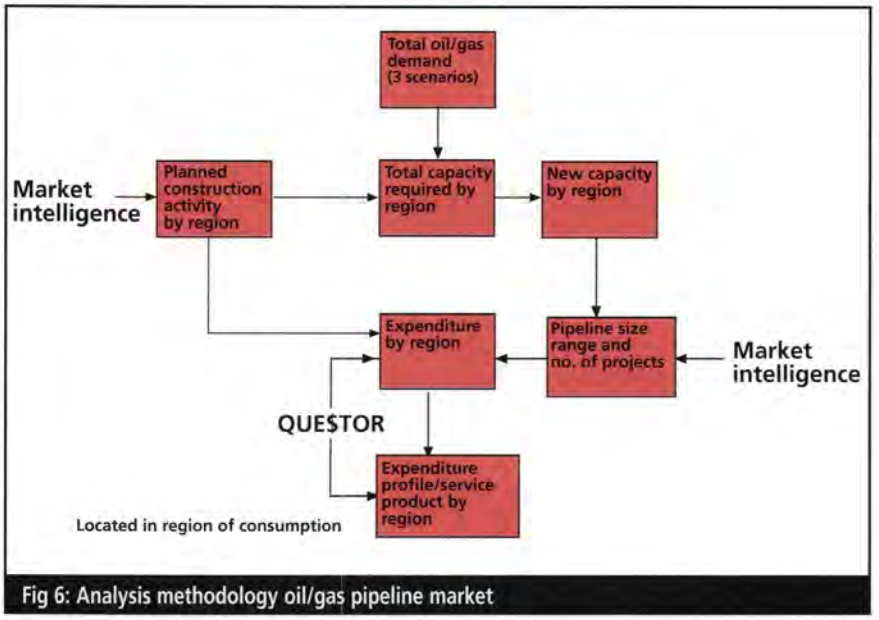

Fig 6: Analysis methodology oil/gas pipeline market

Long-term world model

To extend a model forecasting oil and gas activity levels world-wide, on a comparative regional basis, for more than 10 years, then a more advanced basis, rather than 'straight line' projection, of these levels for each basin is required. It becomes necessary to incorporate some aspects of the world demand as well as supply of oil. Within the given time-scale, fields will cease production and need to be replaced, and new (increased) demand will need to be met. While existing fields can be enumerated – given suitable resources (database or researchers) – approximations must be made beyond identified projects, for example in the form of a typical range of field sizes.

Further, some basis must be determined for selecting which world basins will provide the potential new production (fields). At times of high oil price, the relative cost of development will be relatively unimportant, and oil will be developed if it's there. At times of (very) low oil price, the relative cost of development will be paramount. Mostly it

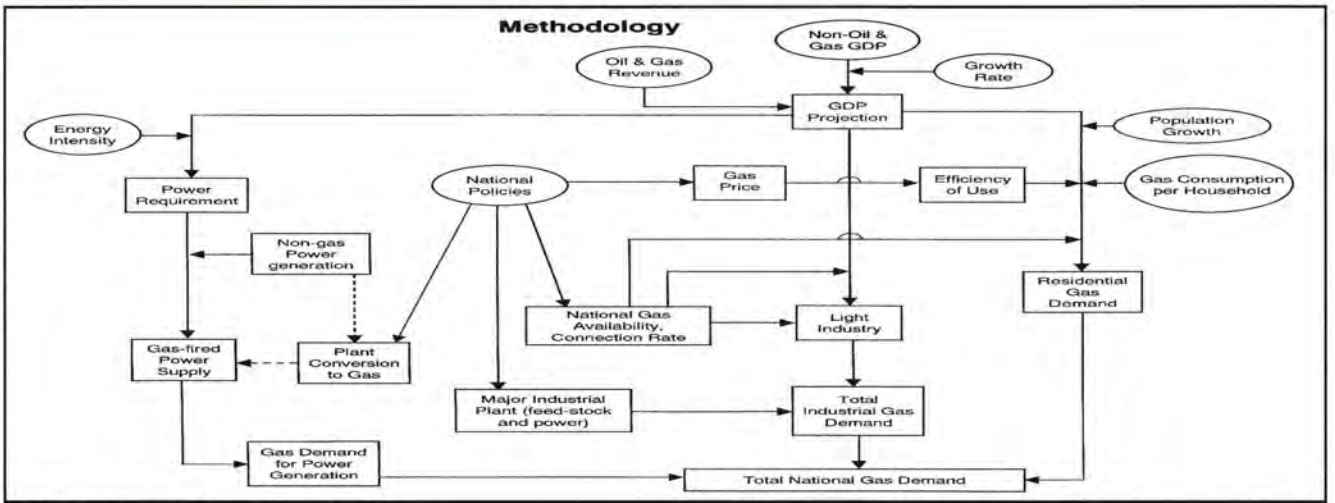

Fig 7: Gas demand forecasting methodology

will be somewhere between the two – a combination of the inherent (physical) availability of reserves, their financial attractiveness (cost) and the political will to develop the resources. Depending on one's view of the long-term supply from basins other than in the Middle East and the time horizon of the forecast, one may wish to allow for a change in balance between oil exporting countries and others in the model as indicated in **Figure 5**.

Range of uses

Such a model forecasting future oil field development can have alternative end calculations ('post processors'), to make it appropriate for a range of international contractors in the oil industry; for example engineering design, power generation, the use of different vessels for offshore activities, and for particular processing equipment.

In the offshore case, the model may be used to assess the impact of the changing use of production platform types: increased use of floating systems (ship, semi-submersible/TLP or SPAR/DDCV type) and subsea systems. This reflects the development and credibility that these less traditional systems offer and the need for them if fields in greater water depths are to be developed. Other changes for consideration are the possible impact of advanced drilling technology, which could reduce the number of wells required to exploit a given reservoir and affect the oil project economics.

Using a similar methodology, the demand for gas fields and also for related industry facilities – gas plants, gas and oil pipelines – can be forecast as illustrated in **Figure 6**.

National gas demand

As an example of a more general forecasting approach, forecasts may be developed to estimate the future demand for particular energy types, such as gas. Gas is becoming of increasing importance, because of its qualities as a clean fuel and its availability as an alternative to oil and coal, and when infrastructure is developed, it provides a competitive alternative. Gas forecasting, as that for any energy resource, will be undertaken on a national basis, particularly where strategic decisions have to be made on gas sector supply and demand developments. A national demand model has been developed which considers separate market sectors.

Necessarily the sectors include power generation, increasingly a major consumer of gas which is able to provide significant demand early in a project's life. Various industrial uses will be considered: as a feedstock for methanol or petrochemical plant, or as a fuel for high energy users such as ore smelting. Smaller industrial users are only likely to become important collectively. Residential users, who may be significant collectively, require a major and expensive distribution system. The forecast for these will be influenced by a range of factors such as GNP growth, population growth, energy demand (considering perhaps varying energy intensity), and efficiency of use, which may be affected by price as illustrated in **Figure 7**.

The projections of gas demand cannot be sensibly considered without consideration of the gas supply, infrastructure, national policies, unit costs of supply and a range of other economic parameters – but that is a subject for another paper...

Senior Management Consultant, Petroconsultants–MAI

Marine Energy task force with 2020 vision

When Foresight, the UK government programme to clarify important pointers for industry and research, was announced in 1993 there was still an expectation that hydrocarbons would eventually be in short supply. But, when its Marine Panel set the Energies from the Sea Task Force to work last year, the world was awash with relatively cheap oil and gas and there was more concern about the global warming that burning it up could create, reports *Judith Mirzoeff*.

This rapidly changing background illustrates the difficulty of the exercise that the Task Force undertook – to define goals for marine energy in the year 2020, and then to work out a plan of how to reach them. It divided the sector into the conventional offshore oil and gas business that we know, and the potential for offshore renewable energies, principally wave, wind and current. Under the chairmanship of John Griffiths of JWG Consulting, the Task Force evolved a series of road maps to portray milestones on the journey. The result of these deliberations, *Energies from the Sea – Towards 2020*, was published in April 1999.

The Foresight process aims to involve people from target groups in business as well as research providers and funders. It brings them together in brainstorming sessions without boundaries and invites them to imagine how their world could be changed within the Foresight scope (see box).

These days some of the largest oil majors look on themselves as energy companies rather than oil and gas suppliers. This makes the split between conventional energy and renewable energy look slightly artificial, a view that was reinforced when the Task Force defined a number of common issues affecting both types of development. The members also found great potential for sharing.

Any offshore planning depends on data – the wind, wave and current conditions, the structure of the seabed and the local shipping traffic being the principal items. Renewable projects could use the data already collected by the offshore industry or share with it the cost of collecting new data. A common infrastructure would save even more, as cabling costs to bring power ashore are significant.

In the longer term there could be greater costs associated with strengthening the onshore national grid. One creative scheme suggested was to generate electricity in situ from marginal pockets of gas in the southern North Sea, sharing installations and facilities with offshore renewables, particularly wind. The UK has perhaps the most favourable offshore wind environment in the world. Although the North Sea is not quite as rich in this respect as the western seas, it is still a valuable resource. Gas generation could be turned on whenever the wind dropped, to guarantee customer supply.

Getting permission for new developments is another common issue. The approval procedure for offshore installations is rightly onerous because of the potential hazards of producing hydrocarbons, but an offshore wind farm or wave generator does not entail that scale of risk.

The Task Force recommended that the government should establish a 'regulator facilitator' for renewable energy to enable fast temporary licences for offshore renewable energy projects. This would reduce the administrative burden on emerging renewable energy companies and also contribute to formulating the most suitable permanent regulations. This is a sensible proposal given that it took two years for the Osprey wave generator to obtain planning permission.

Government backing

Marine renewable energies have recently been promoted by UK Energy Minister, John Battle. He welcomed the fact that three wave energy projects were awarded contracts in March under the Scottish Renewables Obligation.

'I propose to expand the objectives of the Department's new and renewable energy programme to include new work on wave energy technology,' he announced. This meets the first milestone on the wave energy road map (see **Figure 1**), which also shows the three levels of device, shoreline, near shore and offshore, and some of the issues that will have to be considered.

The Task Force recommended the early establishment of a National Wave Test Centre. This should be at a coastal site that already had a good grid connection, such as a coastal nuclear power station, and would enable a range of experimental wave energy collectors to be tested and act as a service station for nearshore devices.

'The world market for wave energy devices is huge' comments Gordon Senior, a consulting engineer involved in wave energy development for 18 years. 'I firmly believe that environmental pressures will change public and government perception of what can be done, and difficulties with planning applications on land will force people to look offshore. What we need now is a success story and I am confident that one or more of the eight imminent wave energy projects around the world will soon be delivering power to the grid'.

Wind energy is more mature, and the Task Force considered that demonstrator projects would be a brake on rapid implementation. Denmark, the leading innovator in wind technology, has just announced plans to build a series of largescale wind farms at sea which could eventually generate up to half the country's power requirements.

The windmills will be much larger than anything seen to date, 56-metre tall towers supporting blades 60 metres in diameter. The Danes have two advantages with respect to developing wind

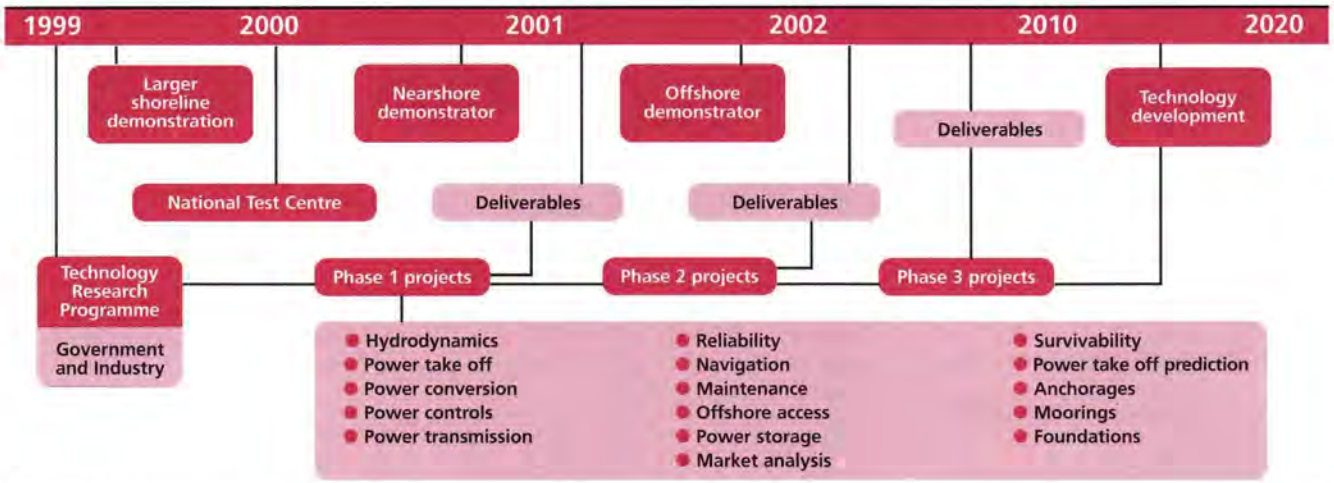

Figure 1: Wave energy road map

power: environmental sensitivity that precludes nuclear power and seeks to cut carbon dioxide emissions, and tax incentives for installing wind energy which have allowed the technology to be perfected.

Energy derived from tidal and marine currents is the least advanced of the three renewable marine resources considered, despite the high energy concentration of these sources. The technical problems were not thought to be great and, as the development was still in the steep part of the learning curve, rapid progress might be possible. The rate of progress is hard to predict but again there is the potential for the UK to seize the initiative in a new industry.

Market stimulation

Among the actions recommended by the Renewable Task Force were changes in government policy and regulation to provide the right conditions for market stimulation, such as a guarantee to buy electricity on favourable terms. There should also be a working party on environmental issues which would tackle problems of public perception, and develop environmental impact assessment methods based on new data collected. In combination these actions would help to create a climate of encouragement for marine renewable energies.

Research and development

Where does all this leave research into conventional hydrocarbons, when all major companies have reportedly cut back on R&D budgets? The low price was felt to have shortened the timescale and also increased the opportunity for step-change advances as opposed to more gradual improvements.

The general view of the Task Force was that oil and gas would remain a significant part of a total energy policy for the foreseeable future, although Greenpeace maintains that their contribution to global warming and impact on the marine environment are real problems.

The Task Force recognised that the oil industry has a poor image which it needed to improve if it was to attract the right calibre of young people to work in it. To be environmentally responsible has two advantages – as well as improving the public perception, it can lead to marketable clean technology.

In hydrocarbon technology, the Task Force focused on topics where R&D would still pay off. Deepwater technology was an obvious choice as such projects have a longer lead time and are less sensitive to oil price fluctuations.

Whatever the long-term prospects West of Shetland, deepwater technology is highly exportable and companies that specialise in it have been shielded from the worst of the recent market slump.

Design engineers emphasised that the whole marine substructure including moorings and risers should be considered as a single system, with the development of improved reliability analysis methods to feed back into new designs. A major need was to cut the cost of drilling wells substantially – even in a conventional offshore development they can account for 60% of capital expenditures.

This was felt to be the single most important factor in maintaining North Sea activity (see **Figure 2**). The problem of getting oil ashore was also considered. Subsea processing would reduce the amount of low value material to be transported, and cheaper pipelines, perhaps made of novel materials that could be rolled out flat and inflated, were also suggested.

One thing that a low oil price does encourage is getting the most out of the reservoir. With as little as 30% of oil in place being extracted from some fields, the target of doubling to 70% was defined. The specific components of the scenario for hitting this target include downhole processing, better or 'smart' technology to allow reservoir management in real time, and longer wells to improve reservoir drainage. The cheaper wells called for by the deepwater subgroup would also help

What is Foresight?

The Foresight programme is a UK government initiative with two chief objectives:

- to improve the competitiveness of the UK economy
- to enhance the quality of life.

It approaches this mammoth task by bringing together business, the science base and government in discussions to identify and respond to emerging opportunities in markets and technologies.

The Foresight programme operates through 16 panels, of which two – Marine and Energy – are relevant to the UK hydrocarbons industry. Because of the importance of the offshore industry, the Marine Panel has an energy subgroup which set up a task force in 1998 to look at the future opportunities offered by offshore energy.

The programme is organised by the Department of Trade and Industry's Office of Science and Technology (OST). The second phase of Foresight has just started, with a new Chairman for the Marine Panel, Dr Tim Jones, Chief Operating Officer of Lloyd's Register.

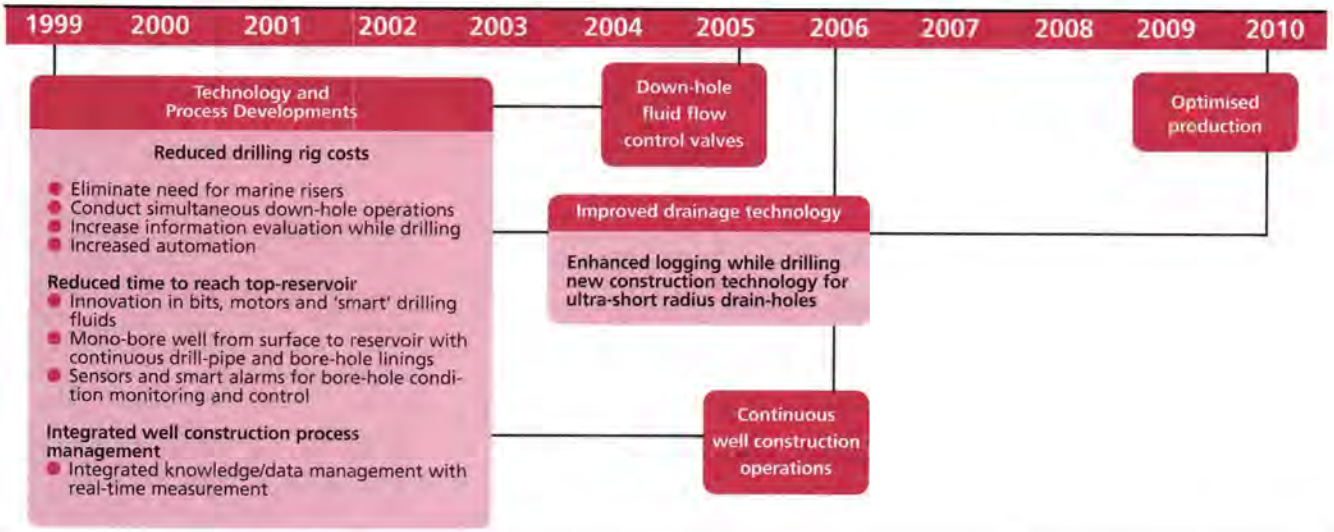

Figure 2: Well-bore construction and maintenance road map

achieve this goal, as would improved geological modelling and simulation at both basin and well level.

'I was pleased that at the launch of the report in April, a number of companies and individuals volunteered to start developing the road maps into coherent programmes,' comments Task Force Chairman John Griffiths. 'This work has begun but three key issues remain: synergies between the offshore industry and the marine renewable community; the perceived need for an independent environmental task force; and a Marine Energy Technology Centre, conceived as a virtual network. We are also keen to identify renewable energy projects that could be sufficiently commercial to attract investment and establish a marine renewable energy industry in the UK.

'We have started planning how to take all these ideas forward and are reviewing potential investors. We would welcome suggestions from any company or group that would like to participate in any way. These are exciting days and a real opportunity for industry, the science base and government to move ahead in partnership.' ●

The full plan can be found in The Foresight Marine Panel's report, Energies from the Sea – Towards 2020, *available from Jeremy Rogers, OST, DTI, 1 Victoria St, London SW1H OET.*
e: **jeremy.rogers@osct.dti.gov.uk**
Fax: +44 (0)171 215 6760.

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record of 22.1tn cf was set in 1972. Industrial demand increased by an estimated 1.8%, and electric utility demand was up 4.3%. Utility demand rose as gas-fired power replaced nuclear power shortfalls resulting from maintenance shutdowns in some New England plants.

Increased gas demand is predominantly coming from the industrial and electric utility markets. The generating industry is investing in gas-fired capacity and this additional demand is strengthening prices.

According to the Security and Exchange Commission (SEC) guidelines, oil and gas companies are required to report the value of their reserves discounted by 10% (referred to as 'PV-10') based upon the price of oil and gas at the end of a company's fiscal year. This policy means that the values of a company's reserves can be inflated or, in the case of 1998, reported at abnormally low levels.

There are two consequences: the write-down of assets impacts on near-term earnings and the value of reserves as collateral to lending institutions declines.

The reduced collateral is leading to dynamic changes within the gas industry as companies merge and form joint ventures.

Promoting fast-track projects

One of the problems raised by lower hydrocarbon prices in 1998 is that many companies do not have the financial strength to continue with new projects. Often the front-end costs, such as acreage, seismic and interpretation, have been met but the funds for drilling are difficult to procure. Royale is seeking to create joint ventures in which it can provide the necessary drilling capital to allow the projects to be fast tracked. This can produce high quality exploration prospects with minimal upfront expenditure and a relatively short lead time to book the economic potential if successful.

The Four Isle Dome prospect demonstrates this approach. Royale purchased an 8.5% interest in the project where all the geological and geophysical work was done. Royale acquired the interest from another company that did not have the funds for its portion of the drilling budget. While an agreement with Royale might not have been ideal for the seller it gave it some residual value on its initial investment.

Royale acquired this interest in April 1999 and drilling commenced with partners Phillips Petroleum and Burlington Resources. In early May gas-bearing formations had been found. In under 90 days Royale evaluated, purchased a prospect, drilled the well and was on the way to recording results. Hosmer explained the well is now producing 16mn cf/d and 1,100 b/d of oil. These attractive special situations will probably remain available to cash rich companies through 1999.

In September 1998 Hart's *Oil and Gas Journal* ranked Royale Energy in the top ten for return on assets (11%) of all publicly traded oil and gas companies for two consecutive years. The company was also ranked in the top-ten for return on equity (25.6%) for three year in a row (see **Table 1**).

The road ahead

In the short term, a growing number of companies will be seeking investment opportunities of the type that Royale Energy is currently exploiting. In the longer term, as prices strengthen further, companies will be looking for more conventional gas prospects, almost certainly starting in the higher priced Californian market. As the table of comparative results shows, this sector can be highly rewarding to the most effective companies. ●

Offshore industry risk decision support framework

Risk management approaches are evolving throughout all industry sectors, with an increasing expectation for involvement and openness and less trust in 'expert' judgements. There is also an ongoing trend from prescriptive regulations to goal setting, with an increasing emphasis on 'participative' approaches. The offshore industry is probably in the forefront of implementing such a goal-setting approach. This has necessitated a greater transparency on how the offshore industry makes decisions when managing major accident hazards. *Ian Tope*, Consultant, Hazard Management at Shell UK Exploration and Production – operator in the UK sector of the North Sea for Shell and Esso – outlines the framework that UKOOA has developed to support such decision making.

The Risk Decision Support Framework developed by the UK Offshore Operators Association (UKOOA), with support from a number of other interested parties such as the British Rig Owners Association (BROA), aims to provide transparency on the range of issues that are considered when making decisions concerning major accident hazards. Extensive consultation has been undertaken with all stakeholders involved in the management of major accident hazards offshore. Some of the issues addressed are unique to the offshore industry and its environment, while others are a reflection of today's society and its approach to risk issues.

Risk climate

All industries, not just the offshore sector, need to be able to determine how to evaluate risks and assess when the risks associated with their activities have been reduced to a level that is as low as reasonably practicable (ALARP). The offshore industry, by its very nature, is exposed to hazardous events with very large consequences. The industry also crosses many traditional industry boundaries that have different approaches to hazard management. Air transportation, marine operations, pipeline operations and heavy lifts all carry the potential for major accidents and hence expose the offshore workforce to risks. These risks are in addition to the hazards associated with the production of hydrocarbons in remote and hostile environments.

Reducing risk involves looking at the risks arising from all phases of the lifecycle of the asset, and from all associated activities. Such an approach crosses regulator domains and may require trade offs. It will also cross different worker groups. As a result, there is a need to have a clear framework to show how the decisions are made which, in turn, will promote effective consultation and communication.

Goal-setting approach

There has been an ongoing trend in risk management away from prescriptive regulations towards a goal-setting approach which places duties on duty-holders to set their own standards and working methodologies. However, the goals to be satisfied are open to interpretation and challenge. 'Good prospect', 'appropriate measures' and 'effective arrangements' are all legislative terms that have to be interpreted, currently without the benefit of a case law precedent.

One consequence of the goal-setting approach is that such issues as risk aversion, gross disproportionality, and cost benefit analysis (CBA) are having to be addressed by the duty holder. Previously these issues were often addressed implicitly within prescriptive regulations. The duty holder also has to be able to communicate these issues and concepts with the appropriate stakeholders. This is itself difficult enough as these issues are complex. It is further compounded by the lack of an agreed language to use when communicating risk issues. Every workplace activity involves risk, but 'safe' is defined in the dictionary as 'not involving risk' and the media often appears to promote the concept that zero risk is possible. This, in turn, has an influence on perception. The results of the difficulty in communicating risk issues was clear during the UK BSE crisis and the struggles that were evident in explaining 'safe'. The ongoing debate about the use of genetically modified (GM) foods is a more recent example.

Framework inputs

To be effective, the framework supporting decision making in risk management must add clarity and transparency to the way decisions on major accident risks are made. It must build on and improve existing approaches, while allowing each duty holder to make his or her own decisions. At the same time, it must not try to be too constraining or to include elements that don't add value.

The heart of the framework developed recognises that some risk decisions can be based on technological bases and some on values bases. Both are valid, but the key is how to determine when which approach is applicable to use.

The drivers to technological bases or to values bases largely follow the same issues that influence perception. They include issues such as how well established is the technology, how novel is the technology, what are the stakeholders' views and are significant risk trade-offs involved?

The evaluation and assessment of risks at the technological end of the spectrum are more routine and well practised as risks are well understood. In this context, the decision can often be based on technological codes and standards. Hence, these decisions can be made by engineers and operators who are competent in the technology.

However, at the values end of the spectrum, the decisions are often

more complex, maybe involving competing societal or corporate goals. These decisions may create strong stakeholder response, and should therefore be made at senior level in the organisation.

All decisions need to be calibrated to ensure that they adequately reflect stakeholder views. At the technological end this is achieved by the ongoing reviewing, updating and improving of the technological standards. This is aided by peer reviews and benchmarking. At the values end, this is achieved by consultation and participation of the stakeholder.

The framework will allow for continuous improvement and flexible, but transparent, decision making. The technological end of the spectrum will be updated and improved via the standards improvement process. At the values end, decisions by duty holders will often be different, reflecting their different values. However, when a common approach does emerge, it will be accepted as good practice and eventually be incorporated into codes and standards.

Detailed framework

Having identified the drivers that need to be input into the framework, the next step is to provide more detail to assist decision making. The decision drivers are grouped into three broad decision contexts: A, B or C (see **Figure 1**). The groupings are not intended to split the framework into three discrete sections, but should be seen as an indication of a continuum of decision types from a strongly A type at one extreme to a strongly C type at the other. The broadly accepted risk assessment approaches – codes, good practice, engineering judgement, quantified risk assessments (QRA) and cost benefit analysis (CBA) – have also been included in the framework.

At the technological end, codes and standards, engineering judgement and good practice can largely form the bases for decision making. In the middle band, which might involve higher costs, more uncertainty and some risk trade-offs, additional tools are required. These include QRA and CBA.

At the values end, these tools have reducing significance and company and society values will tend to dominate the decision making.

Applying the framework

The framework enables the decision maker to assess the context of the decision and determine to what extent it will be based on technical or value based judgements. The user should consider the various decision factors and use these to assess how these relate to the type A, B or C decision characteristics on the right-hand side of the framework. The aim is to establish which part of the framework (in terms of a horizontal band or line across it) best reflects the context of the decision being considered.

Once the location of the band has been established, it can be used to assess which decision bases may be important and help the decision maker decide the relative weightings that could be given to these bases. The proportions of the horizontal band in the various zones of the framework are intended to give an indication of the extent to which the factors relating to the decision bases need to be addressed and weighted. This information can then be used either when deciding which approaches to take when evaluating risks or when determining the relevant weightings to give to the differing approaches when assessing if the resulting risks are tolerable.

Finally, the left-hand side of the framework indicates some of the activities or reference points that can be used to check the relevance of the information being used to support the decision making process.

The final word

The framework developed by UKOOA to aid in risk management decision making is not a prescriptive process. It provides a flexible generic structure and approach that should be tailored and adapted to suit the situation being considered and to reflect future changes in technology, practices and values.

The use of a common framework for decision support may make the decision making process more consistent, but it will not necessarily lead to consistent decisions. The actual decision taken will depend on the values and perceptions of stakeholders, which will vary from stakeholder to stakeholder, and company to company.

UKOOA believes that the framework will provide an effective means to assist decision making wherever there are major accident hazards implications. This expectation is based on the fact that the framework has the following key attributes:

- Transparency
- Promotion of effective dialogue
- Support for continuous improvement
- Support for a participative approach
- Integrated objective and subjective assessment
- Allowance for different individual/organisational values
- Support for a goal-setting regime
- Clarification of ALARP demonstration

The framework has the full backing of UKOOA members and it is hoped that, in the fullness of time, it will be applied not just to the upstream sector of the oil and gas industry, but also downstream and by industry at large. As already indicated, the framework is flexible and adaptable, and it is anticipated that its use will develop over time once feedback is incorporated into the model. A workshop at the end of this year will provide an early opportunity to do this.

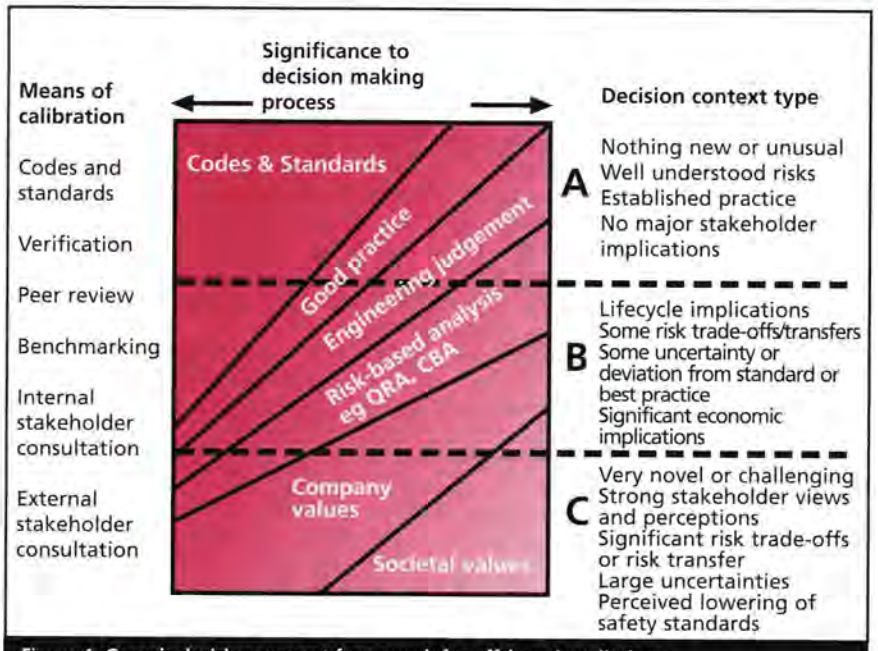

Figure 1: Generic decision support framework for offshore installations

Investor uncertainties persist despite new foreign oil policy

Venezuelan President Hugo Chávez was voted into office in December 1998 on a campaign promise to curtail the power and patronage of the country's huge state oil company, Petroleos de Venezuela (PdVSA), and to reform the country's fragile relationship with its Opec partners. However, despite changes to oil policy aimed at promoting foreign investment, many western companies remain wary, writes *Maria Kielmas*.

Six months after assuming office in February, the Venezuelan government claims that PdVSA is firmly under its control. The company's spending plans over the next ten years have been cut by 43% and reoriented towards gas, chemicals, petrochemicals and light crude projects rather than to boosting oil production capacity irrespective of international market circumstances.

The government claims that Venezuela has become a significant player in re-shaping Opec future production policy while promoting government-to-government oil industry integration within the Caribbean basin and the Latin American continent as a whole. But the government has issued few details on how it will achieve its oil policy objectives while its overall economic policy is incoherent and contradictory, leaving foreign investors wary about the future profitability and even legality of their contracts.

President Chávez has concentrated on his principal project of reforming the constitution and consolidating his own power. The former lieutenant-colonel paratrooper who staged a failed coup against President Carlos Andrés Pèrez in 1992 and was jailed for two years as a result, has appointed his former military colleagues in many influential positions. These include the positions of Financial Vice President and the Security Chief at PdVSA.

When criticised by the opposition-controlled congress or the Supreme Court, Chávez has threatened to dissolve both and to encourage mass street protests by his supporters against both institutions. His habit of dividing Venezuelans into those who support him and calling those who do not 'corrupt' has helped maintain his 80% popularity rating. His promises to tackle entrenched corruption in the trade unions crumbled in June, in the face of labour unrest and threatened strikes in the oil and other industrial sectors. Faced with a choice between economic pragmatism and popularity, Chávez caved in to union wage demands for fear of damaging his chances in the upcoming constituent assembly elections. Such presidential arbitrariness combined with Venezuela's capricious judicial system which still has to decide on the fate of a number of oil contracts signed with foreign companies, signals worrying times ahead for oil investors.

The government has been at pains to reassure the private oil sector that it has an important role in the Venezuelan oil industry. However, the combination of low oil prices, corporate investment cutbacks and the government's agreed production cuts with Opec means private investors will produce much less oil than originally planned.

Agreements with Opec last year cut oil production from an estimated 3.4mn b/d to a quota of 2.85mn b/d, which Energy Minister Ali Rodriguez says remains valid until March 2000. Oil production in the 33 marginal fields operated by private investors will rise from 400,000 b/d as of April this year to between 500,000 b/d and 600,000 b/d in two or three years time. This production will then decline at between 15% and 25% annually, according to PdVSA's Production Vice President, Alberto Finol.

In 1997 PdVSA forecast that the 33 fields would produce a peak of 750,000 b/d by 2002, not counting a further 440,000 b/d from heavy oil joint ventures in the Orinoco belt. The company's 10-year business plan unveiled in June this year forecast a world market for Venezuelan crude of between 4.8mn b/d and 5.2mn b/d by 2010, out of a total world oil market of between 85mn b/d and 92mn b/d. The country's previous target for 2010 was 6.5mn b/d. The new plan includes increasing domestic refining capacity by 300,000 b/d and increasing investment in gas and petrochemicals by $2.2bn and $3bn respectively.

Redirecting investment

The government wants to direct private sector investment into its new priorities of gas and petrochemicals. New legislation collating all the existing ten laws defining hydrocarbon legislation, the drafting of a specific contract for gas exploration and the creation of a regulatory agency for the gas and electricity industries are being planned.

Successive Venezuelan governments have been promising gas legislation for years but none has materialised to date. The current taxation scheme for gas is contradictory. Net profits from gas developments onshore are taxed at 67% while those offshore are taxed at 34%. The government's first step was to try to unify this tax to 34%. Recent leaks from the energy ministry suggested that net tax on gas projects could be cut to 24% – but this would be accompanied by a steep increase in royalties. Current royalties vary between 1% and 16.67%. The latest idea is to set a minimum royalty of 12.5%, though a maximum limit has not been specified. The pattern of lower income taxes and higher royalties is to be the norm for all oil and gas projects.

Initially industry reaction to the news was grim. Executives noted that royalties levied on gross production have the most immediate impact of a project's profitability. In a number of statements Energy Minister Rodriguez referred to the 1943 oil legislation passed by the then President General Isiais Medina Angarita's (1941–1945) government as a model. Angarita doubled oil royalties to 16.67%, a figure calculated to ensure that the government obtained one-half of the net profits of the industry. There was also an obligation to refine in Venezuela a minimum percentage of domestic production. In return the government gave new titles on concessions and agreed to drop past claims for back taxes.

Energy Minister Rodriguez has also claimed that the oil opening or 'apertura', which dates from 1992, discriminated against the domestic oil sector and never produced new oil industry jobs or service company contracts in Venezuela as the foreign companies continued to procure services from

overseas suppliers. According to Middle East oil industry sources Venezuelan oil officials have successfully convinced their counterparts in Saudi Arabia to delay an upstream opening to foreign capital as it would develop counter to their national interest.

The Supreme Court still has to pronounce on the legality of seven oil exploration contracts signed in 1996. It was Rodriguez who, during his period as Congressional Energy Committee President, sponsored a constitutional injunction against these contracts. Since becoming Energy Minister he has said he will uphold any decision the Supreme Court makes on the matter. Influential oil analysts in the country have predicted that, in the interests of economic pragmatism, the Supreme Court will delay its judgement on the issue indefinitely.

Strategic associations

The future of the so-called 'strategic associations' in heavy oil ventures depends largely on private companies' investment plans and world oil prices rather than a government change in policy towards the contracts – although PdVSA is cutting back its liabilities in this sector. In July 1999 the company announced the sale of 15% of its 38% stake in the Sincrudos del Orinoco (Sincor) project to upgrade Orinoco heavy crude to produce 170,000 b/d of 32° API crude. Partners TOTAL and Statoil will increase their stakes to 47% and 15% respectively. Meanwhile, Arco has withdrawn from the Hamaca heavy oil upgrading project that hopes to produce 190,000 b/d by 2004. Partners Phillips and Texaco increased their Hamaca stakes to 40% and 30% respectively. Arco traded 20% of its Hamaca stake with Texaco for a larger stake in the LL-652 oil field located in the Maracaibo Basin, and 10% for an unspecified amount of cash. As yet PdVSA is keeping its 30% stake in Hamaca.

The government said it plans no further upstream oil licensing rounds and will concentrate future exploration opportunities on gas. How it will finance field maintenance and exploration to achieve its 5.8mn b/d production capacity in 10 years time remains unanswered.

President Chávez is keen to promote cooperation between Opec members and neighbouring country state oil companies from the upstream sector to marketing outlets. One step in this direction is an agreement with Iran on joint management of their oil exports so each country exports closer to its borders.

In the western hemisphere the Chávez government revived a 1995 agreement with Brazil to create a joint venture between Petrobràs and PdVSA called Petroamérica. Initially this venture was supposed to integrate some refining and marketing ventures but the only real progress has been to examine the feasibility of a gas pipeline between Venezuela and Brazil. Today the ambitions include Petrobràs exploring for gas in eastern Venezuela with Venezuela exporting refined products to northeast Brazil. President Chávez believes that Petroamérica could form the core of further Latin American oil integration, and has expressed hopes that the venture could embrace Ecopetrol in Colombia, Pemex in Mexico and Petroecuador in Ecuador. The project has been dubbed 'Opep Latina' or Latin Opec.

However, an eventual merger between PdVSA and Petrobràs has been ruled out by informed specialists since Petrobràs is believed to be well on the way to a future privatisation. A future PdVSA privatisation is thought unlikely under a Chávez government. Venezuela has already displaced some Argentine oil from the Brazilian market and the prospect of doing the same in gas has made Southern Cone producers even more nervous. But environmentalist protest against the construction of an electricity link between Venezuela and Brazil has already prompted a rethink of the project.

Cuban relations

The Chávez government is also keen to improve both its diplomatic relationship and oil links with Cuba. Although the Chávez government appears more sympathetic to Cuba, previous governments had no ideological problem with selling oil to the island, but only if Cuba could pay for it. Cuba still owes Venezuela about $60mn for past oil supplies under an old three-way agreement with the then soviet Union.

Venezuelan foreign ministry officials confirmed in April that talks were underway with Cuba about possible Venezuelan investment in the Cienfuegos refinery and oil exploration on the island. Pemex, through its one-time affiliate Mexpetrol, had agreed to invest $200mn in this refinery in the early 1990s but the deal fell apart due to a combination of US sanctions and Mexican financial problems.

PdVSA is in no position today to invest serious money in Cuban refining and exploration, a move which in any case will fall foul of US sanctions. The country cannot afford such a risk, as its main oil export market is the US.

President Chávez has also suggested that Cuba should be included in the San Jose Accord – an agreement where Mexico and Venezuela supply oil at cheap credit to small Caribbean and Central American countries – but this could also fall foul of US sanctions. PdVSA's Roberto Mandini said recently that if Mexico opposes the entry of Cuba into the San Jose Accord, then Venezuela could go it alone and create its own oil agreement with Cuba under the auspices of the Caribbean Common Market (Caricom).

One explanation for this persistence could be that the proposed oil deals are a side-show as Venezuela positions itself as an intermediary to improve relations between Cuba and the US. But Venezuelan relations with the US were strained recently following the government's refusal to allow the US access to its airspace during counter-narcotics operations.

Further complications have arisen after the Oklahoma-based save Domestic Oil Inc. filed a complaint alleging Venezuela, Saudi Arabia, Mexico, Kuwait, Iraq and Nigeria are dumping crude oil on the US market at below-production prices.

Economic deterioration

Venezuelan oil diplomacy shifted into a higher gear as Opec member countries individually agree to attend a head of state summit at year-end or early-2000 in Caracas. In addition to raising its profile as an active Opec partner, the Venezuelan government hopes to improve relations with Iraq and President Chávez has already said he is opposed to the continuation of UN sanctions against the country.

The diplomatic flurry is a convenient smokescreen for the economic deterioration at home. The International Monetary Fund (IMF) has estimated (using figures supplied by the government) that the economy contracted by 7.9% between January and May 1999, while the local press reported a 9.8% economic contraction in the first quarter of the year. The departure of Finance Minister Maritza Aziguirre left a further vacuum in economic policy as she was succeeded by her unknown 35-year old deputy Jose Rojas. Other recent problems include labour violence at the José industrial complex which halted production at the heavy oil projects in May until troops from the national guard were able to ensure workers' safety. President Chávez' acquiescence of oil workers' wage demands has stalled the labour unrest for a while, though wage disputes in other industries continue.

There is still no coherent policy to tackle the country's 9% GDP ($9bn) budget deficit. Clearly Venezuela faces considerable economic problems while a popular president is committed to a nationalist economic agenda and a key role in Opec. For the international oil industry investment in Venezuela has become more difficult, even problematic. The next few months are likely to determine whether economic pressures return the country to encouraging inward investment and increased development. ●

Aviation Fuel Filtration Specification

The IP's Aviation Committee is responsible for maintaining two fuel filtration specifications. The one for Aviation Fuel Microfilters took several years to develop, and the first edition was published in March this year. The more established performance standard 'Specifications and Qualification Procedures – Aviation Fuel Filter Monitors with Absorbent Type Elements' was first published in 1990, and a revised second edition was issued in January 1995.

The committee identified the need to update the IP's Filter Monitor Specification, following the completion of the major technical work required for the revision of the other global filtration standard API 1581. By ensuring that the testing requirements of the three standards are as closely aligned as possible, the cost of filtration equipment can be minimised.

An invitation to an open meeting was extended to all those involved in the design, manufacture, supply and operation of aviation fuel filtration equipment. It was held on 25 May at TOTAL's office in Paris, in order to give all those that have an interest in the filter monitor standard the opportunity to provide technical input. The meeting was attended by 39 delegates from all over the world, representing all of the major filter monitor manufacturers, the majority of oil companies and also military representatives, that together form the main purchasers of monitors.

During the full-day session, proposals from the IP's Filtration Sub-Committee were discussed and agreed. These included:

- The test fuel to be changed to the new chemistry developed for API 1581 4th Edition and the IP Microfilter Specification
- Solids tests to use the new test dust mix of 90/10 A1 Ultrafine Test Dust ISO 12103-1 (Silica) and Red Iron Oxide R-9998 (following confirmation through IP research that this will not produce any adverse effects on monitors)
- Use of a hopper system for dispersion of test dust
- Inclusion of a new Low Flow Water Test
- Inclusion of a new Sea Water Test

There was excellent technical input from the delegates. During the discussions it was revealed that the specification is widely used by the military (a fact that was not known to the custodians of the specification). The following proposals were also agreed:

- The development of parameters for the testing of elements capable of withstanding the effects of Fuel System Icing Inhibitor (FSII). (One of the deliverables of a joint IATA/MOD/IP project)
- Inclusion of an optional test for JP8+100
- Inclusion of testing with compatibility with AvGas
- Full-scale testing to be mandatory
- Investigating the possibility of including monitors of diameters other than 2- and 6- inch
- Mechanical specifications for vessels to be revised

It seems likely that the 3rd Edition will include parameters for the testing of two classes of filter monitor – one for typical civilian use, the other for more extreme conditions where FSII is widely used.

The major need for research, identified during the meeting, was into the effects on monitors that the new test dust may have. A programme for IP funded research during the rest of the year is now being put in place, which will initially include work at Shell in Thornton, Esso in Abingdon and Services des Armées in Paris. Following this work a draft will be prepared during the 1Q2000 and circulated to all representatives for comment. As long as the research does not throw up any unexpected surprises, publication of the 3rd Edition can be expected towards the end of 2000.

The meeting was very successful and acknowledged by many as being the most efficient way of capturing technical input from all interested parties. The IP would like to extend its thanks to all those that spared the time to attend, and to TOTAL for being such an excellent host.

If you would like any further information please contact Martin Hunnybun
Tel +44 (0)171 467 7133, e: mh@petroleum.co.uk

More ISO/TC 67 Standards

As reported in last month's *Petroleum Review*, several long-awaited standards have recently been published by ISO/TC 67. The following are brief descriptions of a further two standards that have been prepared by the UK experts most involved with developing the documents.

BS EN ISO 13702 Petroleum and natural gas industries – Control and mitigation of fires and explosions on offshore installations – Requirements and guidelines

This standard provides detailed practical guidance on the design of all types of offshore installations to limit the likelihood and consequences of fires and explosions. The standard recognises that effective management of fires and explosion requires a process of identification and evaluation of hazardous events in order to select the risk reduction measures that are appropriate for a particular installation.

The standard details the objectives and functional requirements of the principle measures that have a major role in the management of fires and explosions. These include installation layout, emergency shutdown and blowdown, control of ignition, control of liquid spills, emergency power, fire and gas detection, active fire protection, passive fire protection, explosion mitigation, evacuation escape and rescue. Supporting Annexes provide more detailed guidance on these measures.

Application of the standard should ensure that cost-effective solutions are adopted which are consistent with other parts of the offshore industry.

Effective UK input to the development of the standard through BSI panel PSE/17/6/2, coordinated by the IP, has ensured that the adopted approach is consistent with the UK goal-setting regulatory regime for the offshore industry.

Nigel Savage, Shell UK Expro, Lead UK Expert, PSE/17/6/2 Chairman

BS EN ISO 13628-4 Petroleum and natural gas industries – Drilling and production equipment – Design and operation of subsea production systems – Part 4: Subsea wellhead and tree equipment

Part 4, published by ISO and soon to be issued as BS EN ISO by BSI, is based on API 17D, which has been expanded and updated by Working Group 6 of ISO/TC67/SC4.

This standard now addresses conventional trees, horizontal trees, subsea wellhead, conventional mudline suspension equipment and drill-thru mudline suspension equipment. The user of this standard should be aware that it contains a clause relating to patent coverage of the horizontal tree.

The standard has been written in a functional manner with particular attention being given to ensure that barrier requirements and the number of failsafe closures are not restrictive and over specified in order to cater for all legislative requirements. The user can increase the number of valves to meet legislation or project requirements.

A significant change from the API base document, has been to bring pressure test requirements of lower working pressure equipment in line with 10,000 psi WP equipment. The requirement is now standardized at 1.5 X WP throughout the range of equipment.

Part 4 frequently calls upon the requirements of ISO 10423 (formerly API 6A) to avoid the duplication of requirements. This also means that if one standard changes the other is in effect automatically updated. It is worth noting that a further ISO standard is currently being drafted which will contain all the common requirements such as materials, quality, welding, etc. Therefore, in the future it will be possible to revise 13628-4, and various other ISO standards, to remove these requirements.

Dave Garnham, Cooper Cameron UK, Lead UK Expert

Positioning for the upturn

Coflexip Stena Offshore (CSO) recently commissioned the newly upgraded deepwater pipelay vessel *Sunrise 2000* (see photo). The vessel, which has just had its charter to Petrobras extended until March 2003, is now capable of laying flexible pipes in water depths of up to 2,000 metres (6,500 ft) and of installing up to three flexible lines simultaneously. CSO performed all the engineering, design and project management associated with the upgrading in-house (predominantly in Aberdeen and Brazil).

The conversion work and installation of the new tensioning capacity was undertaken at the Rio de Janeiro Navy Dockyard and completed in 45 days. In 1997, the *Sunrise 2000* set a world depth record with a flowline installation in 1,709 metres of water linking in the Marlim Sul-3 wellhead in the Campos Basin, Brazil, for Petrobras.

During a recent visit to CSO's Le Trait production facility in Normandy, Jean Francois Mattei, the Senior Vice President, Production told *Petroleum Review* that the impact of recent low oil prices on the group's activities was a 24% decline in 1Q1999 revenues versus year earlier levels (euro 208.70mn versus euro 273.90mn). In this period there was a notable reduction in the contribution coming from Brazil, largely as a result of economic conditions in the country that, coupled with low oil prices, led to reduced expenditures by Petrobras.

Mattei went on to explain that in the face of tough operating conditions CSO had already reduced expenditures with the closure of the flexible flowline construction plant in Freemantle, Western Australia, and the layoff of 200 contract staff since September 1998. At the same time the company was positioning itself for the upturn by improving performance and increasing its global presence. To this end CSO is opening an office in Angola and increasing its presence in Asia-Pacific as well looking to the next wave of deepwater developments in the Gulf of Mexico. Capacity is being expanded in Brazil to supply the new deepwater developments in the Campos Basin.

As well as working to ensure its competitiveness for the next upturn, CSO is maintaining research spending to ensure that it has the products that the industry will be requiring. In 1999 the company will spend FFr167mn, or 2.2% of turnover, on R&D. In terms of flexible lines the company currently manufactures a range with inside diameters of 1.5 inches to 19 inches with pressure ratings of up to 20,000 psi (500 bar). The most recent developments have been new designs of interlocking reinforcement to achieve high pressure ratings at acceptable weights. Reducing weight while increasing strength is a key development objective.

Another area of development is to increase the temperature range the lines are rated for. Current production is designed and rated for temperatures of up to 130°C depending on the resins used for the lining and sheathing. The target is to raise this to between 170°C and 200°C. This work is specifically targeted at developments such as Statoil's Kristen field where flowline temperatures will be around 170°C. At the other end of the temperature scale CSO's Le Trait facility is working as the supplier to a joint industry programme (BHP, BP Amoco, Shell, Chevron and GdF) to develop a range of LNG duty flexible lines in sizes up to 16-inch inside diameter by 2000.

As CSO anticipates that increasing volumes of hydrocarbons will be produced from ever-greater water depths its main research and development effort is aimed at providing solutions for ultra-deep waters. One development that is now fairly close to commercialisation is the use of carbon fibre reinforcement instead of steel to reduce the weight of flowlines. Tests are currently underway on test samples of the new construction with commercial production expected in 2000. Other routes to lower weights, and therefore greater water depths, are the use of high strength steels for reinforcement and the use of a newly developed interlocking 'I' profile. The latter also increases collapse resistance.

The third challenge of deep water after collapse resistance and suspended weight is thermal insulation. To avoid or minimise hydrate formation and wax deposition flowlines need to have good passive insulation or to incorporate pipes through which hot water can be pumped to actively heat the riser/flowline. In the Åsgard development the risers feature open loop heating by means of small bore pipes built into the flexible riser. Other alternatives are pipe-in-pipe solutions with high thermal insulation.

Over recent years the control line and umbilical bundles have become ever more sophisticated and CSO has produced integrated bundles for a number of recent projects. An idea of their size and complexity can be gauged from three 1998 projects: an umbilical for BP's Schiehallion field which at 253mm was the largest built to date; an umbilical system for Amerada Hess' Triton project which at 854 tonnes was the heaviest thermoplastic umbilical to date, and a production umbilical for Kerr McGee's Janice field which with 77 functional components is the most complex to date.

At the moment the Le Trait production facility is working on four major field flowline contracts. These are for the Kuito oilfield in Angola, Terra Nova in Canada, the Triton project in the North Sea and the Åsgard B project offshore northern Norway. However, the first three projects are due onstream this autumn so CSO, along with all the other offshore contractors, will be hoping that recent higher oil prices will rapidly translate into a new projects upturn.

Tel: +33 1 40 67 60 00
Fax: +33 1 40 67 60 03

Micro Motion unveils host of enhancements to Coriolis flow meters

Micro Motion (part of the Fisher-Rosemount group) has recently announced a series of enhancements and extensions to its range of Coriolis flowmeters. The company – which claims to have developed the first practical Coriolis flowmeter in 1997 – is currently allocating 7% of its budget to R&D in order to defend its position as the main supplier of Coriolis flowmeters.

According to Lee Smith, Vice President Fisher-Rosemount Flow Europe, Middle East and Africa, Coriolis meters account for 15% of global flowmeter sales of $2.3bn/y. The petroleum industry accounts for 15% of sales, oil refining for 6% and chemicals 57%, with a number of recent developments targeted at these sectors.

Micro Motion has just released its new Elite CMF300A high temperature mass flow and density sensor. Created for flow rates from 0 to 272,160 kg/h and temperatures from 0°C to 343°C, it is claimed to provide low maintenance, trouble-free operation.

Several types of plant, such as crude oil refineries, lube oil refineries and asphalt facilities, require a reliable flow sensor which can handle relatively large flow rates and high temperatures. The Elite High Temp is Micro Motion's response to an industry-wide need for a rugged flow sensor in applications such as vacuum tower feeds and bottoms, coker feeds, FCC feeds and slurry units, deasphalting unit feeds, asphaltenes and asphalt. Sensors and explosion-proof transmitters can be installed in the same hazardous area.

When coupled with a Model RFT9739 transmitter or the Altus™ platform, the multiple output capabilities of the Elite High Temp can provide simultaneous density, temperature and volumetric measurements for slurry, liquids and gases with equal ease.

The Elite range of sensors – which range from the CMF010 with maximum flow rate 108 kg/h to the CMF300 which exhibits a maximum flow rate of 272,160 kg/h – has been extended with the launch of the CMF400. The CMF400 can handle 4-inch to 6-inch line sizes, with a maximum flow rate of 544,200 kg/h and 0.1% accuracy at 40:1 turndown. Gas accuracy for this stainless steel device is ±0.50% of flow rate. Density accuracy is claimed to be ±0.0006 g/cc.

In a move to extend the range of applications for Coriolis meters, the company has also introduced the R Series. This is aimed at the 85% of flow measurement applications that require accuracies of 0.5% or less but good repeatability. Currently available in three sizes (1/4-, 1/2- and 1-inch), the meters are offered at a universal price of £1,711, $2,795 or euro 2,565.

The company has upgraded the Altus applications platform to provide on-line density derived measurement as well as flow and ancillary functions. Traditionally, Fisher-Rosemount was recognised as being the industry leader in flow technology; with the Altus Series 3000, users can obtain batch control functions as well as Coriolis flow and density measurements in a single package. Alan Johnston, UK Flow Business Director, describes this latest technical development as 'a fundamental shift of focus'. He comments that: 'This is the next phase of an applications platform that will deliver a whole new set of measurements.'

Elite CMF300A high temperature mass flow and density meter

Altus can include an integrated transmitter and/or batch controller with % Brix or % HFCS monitoring and net sugar flow. Also included is automatic overshoot compensation (AOC) for batch applications, which works by compensating for flow rate and valve closure time. Enhanced applications include percent solids, net solids, PID, API gravity and specific gravity, which will be of particular interest to chemists and production/process engineers. The Altus platform is suitable for a whole range of industrial functions, from copper gravity control to interface detection and spray dryer atomisation control to in-line caustic blending.

With modular hardware and software, the Altus platform can adapt to user requirements, with functionality obtained by simply downloading new software or adding hardware options for more outputs or digital communications. Each Altus device can run up to three applications simultaneously and optional applications include discrete batch control and a Net Oil computer.

As well as ease of use, other benefits accruing from Altus are less waste, greater process stability and improved production yields, together with higher product quality and consistency.

Future enhancements include a variety of digital communications protocols, such as HART, Modbus, FOUNDATION fieldbus, Profibus, DeviceNet, Allen-Bradley Remote I/O and others.

Micro Motion has also introduced the new Model 5300 mass flow and density transmitter with FOUNDATION fieldbus. This device exploits Coriolis technology for precise mass flow and density related measurement, with the added dimension of fieldbus interoperability. The device is said to be an immediate money saver, claimed to reduce wiring costs by 60% and cutting installation, commissioning, operation and maintenance time by between 30% and 60% when compared with traditional smart transmitters.

The unit features flow accuracy up to ±0.10% of flow rate and density accuracy to ±0.0005 g/cc, depending on the sensor type. Coriolis measurement comes into its own with precision fluid measurement. Outputs include mass flow, volume flow, density and temperature. These are all given in units that can be selected by the user. In addition, the Model 5300 can deliver real-time flow rate indication and on-line fluid density without the need for additional devices.

Another innovation is that the company has released its first straight tube meter. The T-Series is said to be the shortest, most compact, straight tube Coriolis flowmeter on the market and comes in 3/4-, 1- and 1 1/2-inch bore sizes. An outstanding feature of the device is the fact that that bore is identical to the internal bore of hygienic piping. This means that unlike some competitors, adapters such as O-rings are not needed and therefore, there is much less risk of entrapment and bacterial growth.

Consequently, the T-Series is both sanitary and self-draining, making it ideal for highly specialised and demanding applications in the food and beverage, chemical/petrochemical and pharmaceutical industries.

Tel: 0800 966180
Fax: 0800 966181

DRB and BP maintenance agreement – a BluePrint for success

DRB has been providing electrical and mechanical engineering services, including design, installation and maintenance, to a wide range of UK businesses and organisations for over 25 years. The company is a leading service provider in this sector, counting BP, Esso, Texaco and Shell among its customers.

Robert McArthur, Managing Director of DRB comments: 'We could see that the major players in petroleum retailing were becoming more and more focused on creating a strong brand presence to help secure customer recognition and, ultimately, loyalty. At DRB we know the importance that the management of image has, and we knew we could offer the kind of fast and reliable service throughout the UK that these companies needed.'

Such a business philosophy enabled the company to recently secure a new contract from BP. DRB has worked with BP for some years, but saw an opportunity to develop this relationship further by developing a new kind of maintenance contact which took the uncertainty out of budgeting for BP and gave it back a tight control of its maintenance budget. From 1 July 1999, DRB has been appointed to handle the signware and electrical maintenance of around 800 BP owned service stations across the UK. The three-year contract – which has a value in excess of £4mn – offers an innovative concept in petroleum retail maintenance as it is a totally transparent contract with payments linked to agreed performance levels, explains DRB.

DRB is underwriting the maintenance of the full electrical systems across the whole BP network, which means all repairs during the contract period will be carried out for a fixed sum, agreed in advance. Testing and inspections (for HSG41 and EWA) of the full company owned network, as well as image and sign maintenance, are included.

To ensure that BP gets the level of service it needs, DRB has set up a 24-hour call centre in its Hamilton, Scotland-based headquarters. 'We have to guarantee that BP will get an immediate response to any problems it encounters, regardless of where the problem is located,' explains McArthur. 'The call centre is staffed by experienced people who can deal with our clients' queries and get to the root of any problem. Details will then be passed onto the engineer with responsibility for the area who, through our COGNITO communications system, can immediately access a full inventory for each site and locate the part, or parts, needed to fix it. This system means that engineers are working to a high level of efficiency which allows for most repairs to be rectified on the first visit. Clearly this means we can be more competitive in pricing each new contract and the client, in this case BP, gets a realistic price linked to quality of service.'

A representative of the BP/Bovis Alliance, who manage the contract for BP, commented: 'BP has worked closely with DRB over a number of years and is looking forward to the quality of service levels required to operate our dynamic business more effectively. This includes offering a speedy response on a nationwide scale and enjoying an increased quality of service, as well as controlling a predetermined budget.'

Tel: +44 (0)1698 283075
Fax: +44 (0)1698 425853

Tank blanketing to control vapour space

Two ranges of pilot-operated valves designed specifically for tank blanketing and venting applications are now available in throughout the UK and Europe from Sabre Flow Safe. The Series 95 VaporSaver and Series 97 Pad-Depad valves, developed in the US by Appalachian Controls Environmental (ACE), are claimed to 'represent a cost-effective, accurate and reliable solution to any blanketing application'.

The use of inert blanketing gas to safeguard stored liquids and eliminate atmospheric emissions is widespread throughout industry. Such systems also play a key role in minimising risk where volatile liquids are being stored. Fundamental to tank blanketing systems is the reliability of the controlling valve, which safely maintains pressure by introducing new blanket gas into the vapour space or venting it as necessary during tank filling, pump-out or changes in ambient temperature.

The ACE Series 95 and 97 pilot-operated valves are available in a variety of materials to suit most blanketing applications. A vast range of accessories and control options are also offered. Both models are 'balanced valves', operating to high inlet pressures (up to 200 psig) and low set pressures (down to –12 mbar vacuum). The design also prevents any change in set point should the inlet gas pressure vary. Use of the largest regulator actuator is claimed to heighten accuracy and increase sensitivity to even small changes in tank pressure.

In addition, the valves incorporate a rolling diaphragm which is virtually

free of hysteresis, ensuring a repeatable set point and blanket regulation accuracy levels of ±1/10-inch WC from the set point. A diagnostic feature is also available, allowing speedy problem-solving and at-a-glance evaluation of system integrity.

Tel: +44 (0)161 925 4000
Fax: +44 (0)161 925 4001

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Kim Jackson

Deputy Editor, *Petroleum Review*

61 New Cavendish Street, London W1M 8AR, UK

NEW Publications and Data Services

Caspian Oil and Gas Opportunities*

(Contact Mark Walsh, British Trade International, Infrastructure and Energy Projects Directorate (IEP), on Tel: +44 (0)141 228 3615). Price: No charge.

An interactive CD-ROM offering details of forthcoming business opportunities in the Caspian region has been produced by the Infrastructure and Energy Projects directorate at British Trade International. The CD-ROM provides a comprehensive package of information with key details on the region's principal oil and gas producing countries: Azerbaijan, Kazakhstan and Turkmenistan. It contains useful information for visitors and detailed advice on the challenges of doing business in these countries. It also offers an interactive database with maps and data-sheets on the key oil and gas fields. Also identified are current and future field development plans to help UK companies locate and pursue potential business opportunities.

** Available from the IP Library*

Fossil Fuel Resources in the 21st Century*

Peter R Odell (FT Energy, Maple House, 149 Tottenham Court Road, London W1P 9LL, UK). ISBN 1 84083 135 9. 97 pages. Price: £395 ($632).

In this book, Peter Odell confidently predicts that there will be sufficient fossil fuel resources to supply the world's energy demand into the 22nd Century. Part of this confidence stems from the fact that energy demand growth since 1973 has reverted to its long-term 1860–1945 trend of only about 2%/y compared with around 5% in the 1945–1973 period.

The book is based on, and develops, an earlier study commissioned from the author by the Planning and Economic Studies Section of the International Atomic Energy Agency (IAEA) in Vienna (see *Petroleum Review*, February 1999). Odell examines the prospects and development of coal, oil and natural gas, concluding that these non-renewable energy sources will dominate energy supply until at least 2060. Gas will become increasingly important and will account for over 50% of non-renewable supply by 2100. In contrast, oil supply is expected to peak in the 2050s, while coal use will be restricted to around 25% of primary energy by environmental regulation and likely carbon taxes.

A fascinating chapter on trends in production costs predicts little or no pressure of demand on supply for at least the next 15 years. However, the author does predict that after 2010 increased investment and production costs to maintain conventional oil production and expand supplies of non-converted oil will take prices from the $14–18/b range to the $17–21/b range around 2020. The next upward price move is expected to come in the 2040s when conventional gas production approaches maximum production. As downward price pressures from improving technology will not fully offset the upward price pressure, the author anticipates a move to the $20–24/b range (in 1998 dollars) in the 2040s. These two price moves are the only ones anticipated as, later in the 21st Century, falling costs of renewable energy (from improved technology) will constrain any upward move in the price of non-renewables. The main feature will be lower cost renewable energy sources displacing higher cost non-renewable oil, gas and coal.

The book also examines the inorganic theory of the generation of oil and gas, and, without making any judgement as to its validity, examines the impact this might have if oil and gas were to be regarded as renewable rather than non-renewable sources of energy.

This publication provides a very positive, long-term outlook for the world oil and gas industry, effectively countering the view that resource availability may be a constraint to the industry's future development.

Chris Skrebowksi

Latest from the Library

Library refurbishment – reminder

The IP Library at 61 New Cavendish Street is currently CLOSED for refurbishment. Although you will be unable to visit our facilities, you will still be able to contact us with your queries by post, telephone, fax and e-mail. We hope to reopen to visitors on 16 August 1999.

Recent additions to library stock

- *Proceedings of 31st Annual Offshore Technology Conference 1999.* Astrodome USA, Houston, Texas, US, 1999.
- *Asia-Pacific Petroleum Directory 1999;* incorporating the South East Asia Directory. 15th Edition. Pennwell Directories, Houston, Texas, US, 1999.
- *ANEP 99 European Oil and Gas Yearbook.* 32nd Edition. Urban-Verlag, Hamburg, Germany, 1999.
- *Arab Oil and Gas Directory.* Arab Petroleum Research Centre (APRC), Paris, France, 1999.
- *Chemical Industry Europe 1999;* incorporating Laboratory Equipment Buyers' Guide. 36th Edition. Miller Freeman, Tonbridge, Kent, UK, 1999.
- *Comparative Domestic Heating Costs United Kingdom and the Republic of Ireland.* Sutherland Associates, Banstead, Surrey, UK, 1999.
- *Betriebsstoff-Liste 1999;* (lubricants directory, in German). DEKRA, 1999.
- *Development of the Oil and Gas Resources of the United Kingdom 1999;* (The Brown Book). The Department of Trade and Industry. Available from The Stationery Office, London, UK, 1999.
- *Digest of United Kingdom Energy Statistics 1998.* Government Statistical Service, Department of Trade and Industry. Available from The Stationery Office, London, UK, 1998.
- *The Geophysical Directory 1999.* 54th Edition. Geophysical Directory Inc, Houston, Texas, US, 1999.
- *International Petroleum Encyclopedia.* Pennwell Directories, Houston, Texas, UK, 1999.
- *Lubricants Europe: Directory of Lubricant and Lubricant Additive Suppliers in Europe.* 3rd Edition. Leaf Coppin Publishing, Deal, Kent, UK, 1999.
- *Offshore Oil and Gas Directory 1999/2000.* 27th Edition. Miller Freeman, Tonbridge, Kent, UK, 1999.
- *Proceedings of 3rd Reserves Acquisitions in Oil and Gas Conference.* SMi, London, UK, 1999.

Contact details

- Information queries to:
  Chris Baker, Senior Information Officer, +44 (0)171 467 7114
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Mr S D Winkworth, Farnborough

IP Conferences and Exhibitions

Aviation Workshop

API Monogram Program for Filtration Equipment

London: 6 September 1999

The American Petroleum Institute is investigating the possibility of including API Standard 1581 'Specification and Qualification Procedures for Aviation Jet Fuel Filter/Separators' in its Monogram Program. The aim of this conformity assessment system is to facilitate the availability of safe interchangeable, off-the-shelf equipment for general use in the industry.

The IP will be hosting a Workshop on Monday 6 September where there will be presentations from API on the use of the program for this equipment. The afternoon session will provide a forum for open discussion. It is recommended that this workshop be attended by all those who manufacture, supply and operate 1581 filtration equipment.

The programme and registration form is now available

International Conference and Exhibition on

Offshore Marine Support (OMS '99)

Southampton: 12–13 October 1999

A joint IP/ABR Company Conference

The Conference will discuss developments in the offshore oil industry and the opportunities and challenges they present to marine support contractors in the coming decade. For the first time in many years, it will present a unique opportunity for naval architects, yards and vessel owners to present their capabilities and new ideas to the oil industry.

Exhibition and Sponsorship

An Exhibition of related equipment and services will be held in association with the Conference. To receive a copy of the Sponsorship and Exhibition brochure, please contact Sue Nixon in the IP Conference Department.

The programme and registration form is now available

International Conference on

The Re-use of Offshore Production Facilities

The Netherlands: 13–14 October 1999

Organised by the Netherlands Energy Research Foundation (ECN), the IP Netherlands Branch, Aberdeen University Oil & Gas Institute and the Institute of Marine Engineers

The decommissioning of offshore facilities has been an emotive topic for the past couple of years. The debate has moved from dismantling to dumping, from recycling to recommissioning. The third in this series of international conferences, organised by the IP, focuses on the re-use of platforms and topside equipment.

The programme includes case histories and practical experience which will encourage companies to find alternative solutions to the disposal of redundant facilities.

The programme and registration form will be available in August

Workshop on

Health Effects of Fatigue on Performance

London: 21 October 1999

The Occupational and Environmental Medical Sub-Committee of the IP is organising this Workshop on the health effects of fatigue on performance. It will be restricted to 30 participants and will be of interest to health professionals in all sectors of the oil and related industries.

For more details or to book your place costing £100, please contact Jo Howard-Buxton at the IP on +44 (0)171 467 7127 or e-mail: jhb@instpet.co.uk

Business Seminar on

Opportunities in Canadian Oil and Gas

London: 9 November 1999 and Aberdeen: 11 November

Supported by

The Canadian High Commission *and* *British Trade International*

Autumn Lunch

Guest of Honour and Speaker: Dick Cheney

Chief Executive Officer, Halliburton Company, Former US Secretary of Defense 1989–1993

Savoy Hotel, London: 15 November 1999

The IP Autumn Lunch is an established date in the oil and gas industry calendar of events and provides a unique opportunity to hear an internationally renowned figure speak on the issues influencing our global industry today.

It is expected that many companies will purchase tables and maximise the opportunity to entertain guests at one of the key social events in the industry year.

The Ticket Application Form is now available.

Please note that tickets are limited. Book now to avoid disappointment

Training Courses

The Institute of Petroleum is organising a portfolio of nine energy related training courses. For further information and a copy of the programme of 1999 Training Courses, please contact Jane Hill in the IP Conference Department.

Programmes and registration forms for all events are available from:

Pauline Ashby, Conference Administrator, at the Institute of Petroleum

Tel: +44 (0)171 467 7100 Fax: +44 (0)171 255 1472

e-mail: pashby@petroleum.co.uk

EVENTS Forthcoming

AUGUST

23–24 **Singapore**
Petroleum Trading and International Law
Details: Abacus International
Tel: +44 (0)1245 328340
Fax: +44 (0)1245 323429
w: www.abacus-int.com

25–26 **Singapore**
Petroleum Trading and Cargo Shortages
Details: Abacus International
Tel: +44 (0)1245 328340
Fax: +44 (0)1245 323429

25–27 **Vancouver**
Permeable Boundaries and Borders in a Globalising World: New Opportunities or Old Problems?
Details: IBRU, University of Durham
Tel: +44 (9)191 374 7701
Fax: +44 (0)191 374 7702
e: IBRU@durham.ac.uk

SEPTEMBER

6–10 **Dundee**
Contracts in the Oil and Gas Industries: Negotiating and Drafting
Details: CEPMLP, University of Dundee
Tel: +44 (0)1382 344300
Fax: +44 (0)1382 322578
e: cpmlp@dundee.ac.uk

6 September
London: Aviation Workshop – *API Monogram Program for Filtration Equipment*
Details: Pauline Ashby, The Institute of Petroleum

7–8 **London**
Emissions Abatement Mechanisms for Major Energy Users and Producers
Details: Penny Richards, IBC Global Conferences
Tel: +44 (0)171 453 5491
Fax: +44 (0)171 636 6858
e: cust.serv@ibcuk.co.uk

7–10 **Aberdeen**
Offshore Europe 99
Details: Offshore Europe Partnership
Tel: +44 (0)181 949 9222
Fax: +44 (0)181 949 8193

13–14 **New York**
Oil and Gas in Brazil
Details: Jon Neale, CWC Associates
Tel: +44 (0)171 704 6742
Fax: +44 (0)171 704 8440

13–17 **Fife**
UK Oil and Gas Law
Details: CEPMLP, University of Dundee
Tel: +44 (0)1382 344300
Fax: +44 (0)1382 322578

14 **London**
Information Management Through the Supply Chain
Details: IMechE
Tel: +44 (0)171 222 7899
Fax: +44 (0)171 222 4557
e: enquiries@imeche.org.uk
w: www.imeche.org.uk

15–17 **The Netherlands**
Reliability Conference: Oil, Petrochem, Power
Details: Global Technology Forum
Tel: +44 (0)1737 365100
Fax: +44 (0)1737 365101
e: events@gtforum.com

16–17 **London**
World Oil Prices
Details: Jon Neale, CWC Associates
Tel: +44 (0)171 704 6742
Fax: +44 (0)171 704 8440

16–17 **Geneva**
Petroleum Loss Control and Measurement Uncertainties
Details: GHB Consultant
Tel: +41 22 348 7378
Fax: +41 22 348 7978
e: ghbconsu@worldcom.ch

17–20 **Surrey, UK**
Oil Refining Course
Details: Petroleum Economist
Tel: +44 (0)171 831 5588
Fax: +44 (0)171 831 4567/5313

20–21 **London**
Oil and Gas in Angola
Details: Jon Neale, CWC Associates
Tel: +44 (0)171 704 6742
Fax: +44 (0)171 704 8440

20–21 **London**
Petroleum Trading and Cargo Shortages
Details: Abacus International
Tel: +44 (0)1245 328340
Fax: +44 (0)1245 323429
w: www.abacus-int.com

20–24 **Oxford, UK**
International Oil Supply, Transportation, Refining and Trading
Details: Jenny Butterworth, The College of Petroleum and Energy Studies
Tel: +44 (0)1865 260203
Fax: +44 (0)1865 791474
e: jenny@colpet.ac.uk

20–24 September
London: *Planning & Economics of Refinery Operations (PERO)*
Details: Pauline Ashby, The Institute of Petroleum

21–22 **London**
Knowledge Management in Energy
Details: Penny Richards, IBC Global Conferences
Tel: +44 (0)171 453 5491
Fax: +44 (0)171 636 6858
e: cust.serv@ibcuk.co.uk
w: www.ibcglobal.com/eq149

22–23 **London**
Petroleum Trading and International Law
Details: Abacus International
Tel: +44 (0)1245 328340
Fax: +44 (0)1245 323429
w: www.abacus-int.com

22–23 **London**
Gas-to-Liquids
Details: SMi Customer Services
Tel: +44 (0)171 252 2222
Fax: +44 (0)171 252 2272

22–24 **Turkey**
Gas and Power in Turkey
Details: IBC Global Conferences
Tel: +44 (0)171 453 5491
Fax: +44 (0)171 636 6858
e: cust.serv@ibcuk.co.uk

23–24 **London**
Re-identifying and Meeting China's Oil and Gas Demand
Details: Jon Neale, CWC Associates
Tel: +44 (0)171 704 6742
Fax: +44 (0)171 704 8440

27–29 **London**
The European Bus and Clean Fuel Summit
Details: Alison Turtle, IQPC
Tel: +44 (0)171 430 7300
Fax: +44 (0)171 430 7301
e: bus.emissions@iqpc.co.uk

29 **London**
Managing and Exploiting Innovation Conference
Details: ERA Technology
Tel: +44 (0)1372 367125
Fax: +44 (0)1372 377927
e: conference@era.co.uk

29–30 **London**
An Introduction to Offshore Engineering
Details: Bentham Technical Training
Tel: +44 (0)171 436 7500
Fax: +44 (0)171 436 2112
e: v–li@bentham.com

MOVES People

Christian Cléret, Managing Director of Elf Oil UK and Chairman of UKPIA, has been appointed Chairman of the Petroleum Industry National Training Organisation (PINTO), which was formed in March.

Repsol SA has named two new Vice Chairmen. They are **José Vilarasau Salat** and **Antonio Hernández-Gil**, who has also been appointed as Member of the Delegate Commission, along with **Enrique de Aldama y Miñón**. **Ramón Blanco Balín**, Board Member of Repsol and YPF, has been appointed Co-ordinator of the newly created Integration Committee. Following the acquisition of YPF, the top management for the new Repsol–YPF Group is as follows: Chairman and CEO, Repsol–YPF Group, **Alfonso Cortina**; Executive Vice President for Exploration and Production, **Roberto Monti**; Executive Vice President for Refining and Marketing, **Juan Sancho Rof**; Executive Vice President for Chemicals, **Antonio Gonzàlez-Adalid**; Executive Vice President for Natural Gas and Electricity, **Guzmán Solana**; Senior Vice President for Planning, Control and Strategic Development, **Miguel Angel Remón**.

Presidential Envoy for the Balkan Crisis **Viktor Chernomyrdin** has been elected Chief Executive Officer of Gazprom. The new Council includes **Rem Vyakhirev**, State Property Minister **Fraid Gazizullin**, and Deputy Foreign Minister **Andrei Petrov**.

Jock McKenzie has taken over from **David J Law-Smith** as Chairman and Chief Executive Officer of Caltex Corp. Law-Smith is retiring after 38 years with the company. Since joining Caltex Oil in 1973 McKenzie has held a number of managerial positions and in 1998 was appointed Senior Vice President and elected as a Director.

Lasmo has elected the **Rt Hon Tim Eggar** and **Thierry de Rudder** as Non-Executive Directors of the company. Eggar joins Lasmo from Monument Oil and Gas where he was Chief Executive. De Rudder has been a Non-Executive Director of Monument since 1991.

Rick Hamm **has been appointed Chairman of Conoco Ltd, the UK refining and marketing subsidiary of Conoco Inc. Hamm joined Conoco in the US in 1970, and was appointed Managing Director and Chief Executive Officer of Conoco Ltd in June 1998. As well as his responsibilities in the UK, Hamm will be involved in marketing operations in Denmark, Finland, Norway and Sweden.**

The Oil Companies International Marine Forum (OCIMF) has appointed *Richard Paniguian*, Chief Executive of BP Amoco Shipping, as its new Chairman. He succeeds *Gerhard Kurz*. Paniguian has been with BP since 1971 and has worked in the Middle East, US and Europe in both the upstream and downstream sectors.

Chris Fay **is to take over as Non-Executive Chairman of the Expro Group following the retirement of previous Chairman *Alan Binder*. Fay joins the Group after a long career with Shell, most recently as Chairman and Chief Executive of Shell UK. The Group has also appointed *Tony Kitchener* as Vice President, Americas. Kitchener has worked for the company for over nine years, and was Region Director of the Continental Europe Region before his recent promotion.**

David Moorhouse is to become Chairman of Lloyd's Register of Shipping in November this year, succeeding **Patrick O'Ferrall OBE** who is retiring. Moorhouse was previously Chairman and Chief Executive Officer of Kvaerner's Process Division. Three new Non-Executive Directors have now joined the Lloyd's Shipping Board. They are **Soo Ho Cho**, President of Hanjin Shipping Company; **Dong Jiufeng**, Executive Vice Chairman and President of COSCO (Hong Kong) Group; and **Alain Perroy**, Group Vice President, Health, Safety and Environment, Rhone-Poulenc.

Sir Graham Hearne, Chairman of Enterprise, has been named as Non-Executive Chairman of Caradon, the building materials group. He succeeds **Peter Jansen**, former Chairman and Chief Executive, who died last year, and takes over from **Sir Eric Parker**, former Chief Executive of Trafalgar House, who has been standing in while a permanent replacement was being found.

Mark Thatcher has assumed the newly created title and role of Houston-based Executive Vice President and Chief Operating Officer of ABB Vetco Gray. He is succeeded as Aberdeen-based Senior Vice President, Eastern Region, by **John Munro**.

Syntroleum Corporation has re-elected Directors **Alvin R Albe, Jr** and **J Edward Sheridan** to its Board of Directors until 2002. Albe has served as a Board Member since 1988, and Sheridan since 1995.

Rudolph Heinz has been appointed a Director of EuroGas. He is currently a Money Manager and Independent Financial Advisor, and General Manager of the German Federation of Money Managers.

Stolt Comex Seaway has appointed **Bruno Chabas** as Chief Financial Officer. He replaces **Paul Frikstad** who is leaving the company. Chabas joined Stolt in 1992 and was most recently Executive Vice President of Stolt Comex Seaway in Houston.

John Napier is now Director and Manager of Mott MacDonald's Oil, Gas and Maritime Division. Napier was previously with BP for more than 30 years, during which he directed many of the company's major exploration and production developments and operating interests overseas and in the UK. He is also a Fellow of the Institute of Petroleum.

Vice Chairman of Saga Petroleum **Jannik Lindbaek** has taken on the role of Acting Chairman for the company following the resignation of **Wilhelm Wilhelmsen.**

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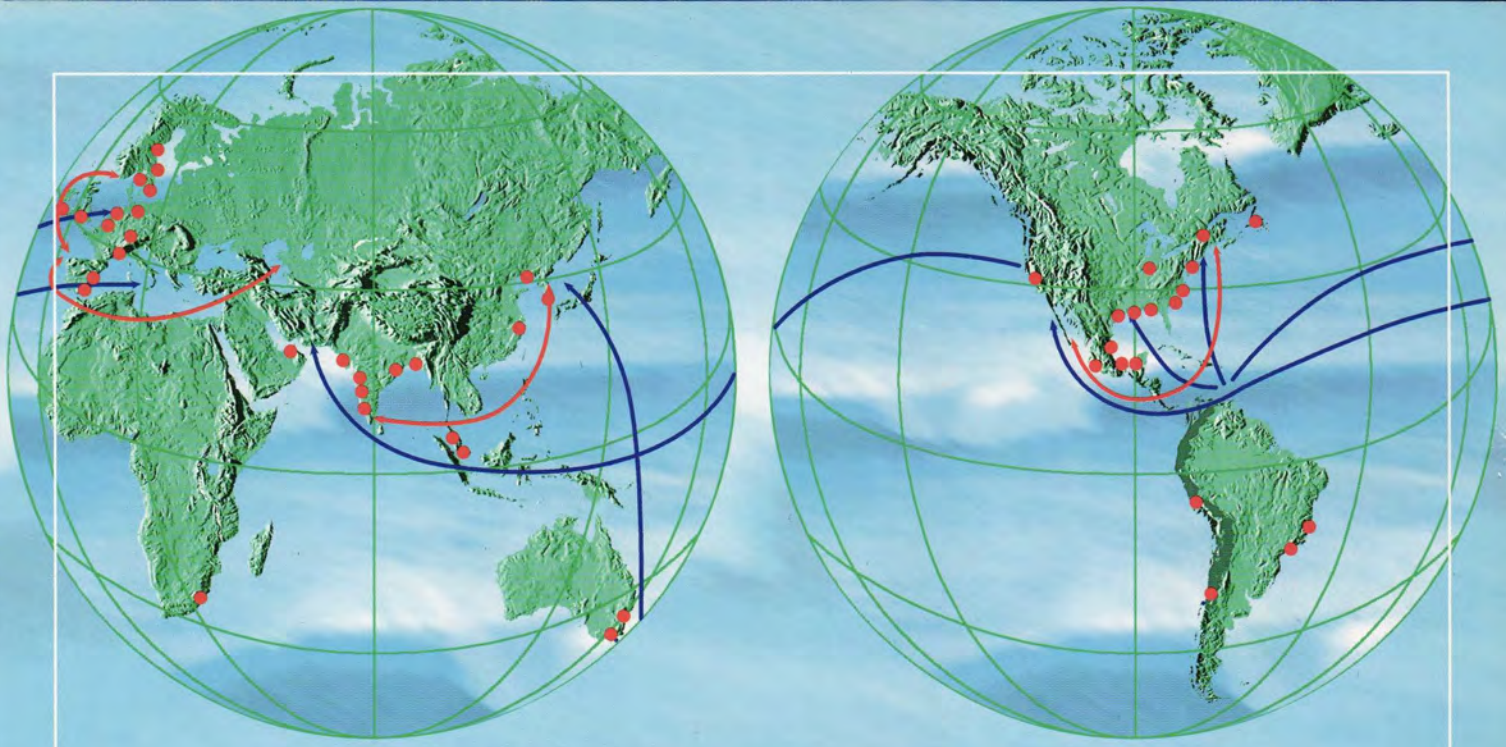

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