Petroleum review

OCTOBER 2001

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- Added value of e-service stations

Europe
- Decommissioning high on North Sea agenda

Climate change
- El Niño – Return of the kid?

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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: Left: Phillips Petroleum's Maureen platform being towed to her parking slot near the Aker Stord yard

Photo courtesy: PPCoUK

Right: One sector where the City & Guilds senior Awards have been taken up as part of Lifetime Learning is the UK Fire Service.

Photo courtesy: Fire Service College

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ROUNDUP From the Editor

North Sea boost from global crisis?

The recent terrible events in New York and Washington and their potential consequences now dominate life for all of us. Our sincere sympathies go out to all who have lost friends and relatives in the tragedy.

For the oil and gas industry, the events of 11 September pose a two-fold challenge. The first is the security of personnel and installations in the face of a nebulous, but very real, challenge to western economic and political interests. The second, and longer-term, challenge is to ensure the continuity of supply to consumers in a world where the normally apolitical action of moving oil around the globe has suddenly assumed a political dimension.

So far oil markets have reacted calmly and fairly predictably, with prices initially rising to over $30/b and then falling back a little. The oil market is caught between the price depressing effects of economic slowdown and building stocks, and the price enhancing effects of uncertainty. If it turns out that one of the ambitions of the hijackers and their backers is to challenge existing Middle East political structures, this will add a whole new dimension to the crisis.

The events on 11 September have raised political risk everywhere, but probably most in the Islamic world and its fringes. As this takes in the whole area from North Africa in the west to Indonesia in the east, from the Caspian in the north to Sudan in the south, the impact could be enormous. A quick calculation on the basis of the latest *BP Statistical Review of World Energy* indicates that of the 74.5mn b/d of oil production in 2000, 30.5mn b/d (or 40.5%) were produced in Islamic countries. We must all hope that the origin of oil supplies remains only of academic interest.

Good news from Aberdeen

This year's Offshore Europe conference and exhibition was notable for two things – the optimism of the industry about its immediate development prospects and the commitment of the UK Government to do everything in its power to sustain production and encourage new developments.

The show saw the announcement that Shell is to develop the Penguins fields (see p4) using tie-backs of up to 65 km. This will push the technology envelope but, providing all proceeds according to plan, a 65-km tie-back could radically alter North Sea economics. It would bring virtually all known finds within reach of existing infrastructure – and for many finds will give the operators a choice of potential development infrastructure. This will provide a powerful incentive for development. The other possibility is it will allow some operators to reduce or de-man part of their existing infrastructure without locking out undeveloped discoveries.

In one of the most fascinating papers of the conference BP outlined how it expects to extract more reserves from Forties, potentially allowing it to maintain close to current production levels until 2006/7. BP claims to have already extracted 58% of the oil in place. Last year a 4D survey over the field established 50 drilling targets where the rock remains highly saturated and only partially swept or even unswept.

The company believes up to 30 targets could be economically developed with initial flow rates of between 3,000 and 4,000 b/d (high by the standards of recent infill wells). This work could potentially raise recovery to the mid to high 60%. It is theoretically possible to raise recovery rates to 70%–73% using miscible gas injection. As a question to the speaker made clear, the required gas volumes are not readily available and might be more economically sold as gas even if available. As the speaker noted, each 1% increase in recovery represents 40mn barrels.

The recent announcements of new field developments, including Penguins, means there are now very few undeveloped reserves with more than 40mn barrels of recoverable reserves. The Scoter (Shell) and Maclure (BP) accumulations also now seem close to go-ahead.

As we indicated last month, there is a lot more oil to be gained from the existing giant fields. Simon Todd in the presentation 'Forties – the biggest new oil field in the North Sea' showed a graph of where the oil to be produced from the UKCS in the period to 2010 would come from: 64% existing fields, 13% probable developments, 5% from currently non-commercial fields, 8% from known brownfield developments, 7% from possible brownfield developments, and 3% from new discoveries.

Clearly there is a lot more oil to be produced from the UKCS – the technology and people are available. The investment is also available and the terrible attacks on New York and Washington have just pushed the UKCS way up the oil companies' priority list.

Chris Skrebowski

e-world

Developed by the UK Health and Safety Executive (HSE), in partnership with Butterworths Tolley, **www.hsedirect.com** is an online information service providing instant access to the latest UK health and safety legislation; approved Codes of Practice and HSE guidance on legislation.

The Society of British Gas Industries (SBGI) (**www.sbgi.org.uk**) has recently launched a job search website at **www.gasjobs.org.uk** that has a specific focus on the gas industry.

Sibneft has unveiled its first issue of 'Sibneft Online' – a regular e-mail update alerting users of the company's website to additions and enhancements to the site at **www.sibneft.ru**

Opito has launched its new-look website at **www.opito.com** Incorporating all the information from the old site, the new version offers a number of new features and better functionality.

The Baltic Exchange has launched an e-broking website to allow its shipbroking clientele to match available cargoes with ships over the Internet at **www.balticexchange.com** The London-based exchange is said to regulate nearly half of all world tanker trades and one-third of dry bulk trades. The site has a search function for cargoes and ships and alerts brokers by text message on their mobile phones when new ships or cargoes become available. It also facilitates the direct trade of freight derivatives.

The **www.fuelcelltoday.com** community-based web platform brings together industry players to disseminate and share fuel cell innovations.

Version 4 of Energyweb's free, instant access website and search engine – **www.energyweb.net** – was launched at Offshore Europe 2001 in Aberdeen. Users have access to breaking news stories from the leading newswires and industry publications; industry related articles; and an international supply source directory.

Sibneft reports that trading has begun on NefteBid, a new portal for the electronic trading of oil products. The Russian oil company is the leading shareholder in NefteBid, which will facilitate electronic dealing in Russian refined products exported through Baltic Sea ports. The platform at **www.neftebid.com** is claimed to be the first of its kind in Europe. It enables traders to see the whole market at a glance and to negotiate bids and offers in real time.

Other sites of interest include **www.eksport.no** – which provides information from the Head Office of the Norwegian Trade Council – and **www.nortrade.com** – which details Norwegian business opportunities and company information.

In Brief

UK

***The Faroese Ministry of Petroleum has** given Amerada Hess approval to drill its first exploration well on the Faroe Shelf. Amerada Hess is the operator of the Faroes Partnership in which its partners are British Gas, DONG and Atlantic Petroleum.*

***Statoil's first wildcat well in the** Longan prospect of the Faroe Islands is understood to have come up dry.*

***Amerada Hess (32.5%,) Texaco North** Sea UK (32.5%), Dong E&P (20%) and OMV (15%) have been awarded the exploration licence for blocks 204/9 and 204/10 in the Atlantic Margin under the 19th UK Licensing Round.*

Europe

***Statoil is understood to have postponed** the submission of a plan for development and operation of the North Sea Svale field after appraisal drilling led the company to reduce its oil reserves estimate from 80mn to 50mn barrels.*

***Hydrocarbon production from the** Norwegian continental shelf in July 2001 was 22.3mn cm oil equivalent (cmoe), with oil production of 16.1mn cmoe, marketable gas 4.6mn cmoe and 1.6mn cmoe of NGLs and condensate. Total production in 2001 to date stands at 144.4mn cmoe.*

***Norwegian floating production contractor** Bergesen Offshore is understood to have awarded a $95mn contract to ABB for the construction and operation of the oil processing systems on two FPSOs. The first FPSO – Berge Hus – is slated to become operational in January 2002 and will be capable of processing 160,000 b/d of oil.*

***Statoil's Glitne field in the Norwegian** sector of the North Sea is reported to have come onstream. Between 38,000 b/d and 40,000 b/d of oil is to be produced via Petroleum Geo-Services' Petrojarl 1 FPSO.*

***TGS-Nopec is to acquire a 4,100-km 2D** seismic survey and a 38,000 aeromagnetic programme in the Cantabrian Sea in the first of a series of seismic programmes to be conducted offshore Spain. Following processing, the data will be available to oil companies in 1Q2002. Final aeromagnetic data will be available in December 2001.*

Call to unlock fallow fields on the UKCS

UK Energy Minister Brian Wilson has challenged the UK oil and gas industry to unlock the hundreds of fields lying unexploited on the UK Continental Shelf. There are currently 250 fallow fields and 200 unused licences. According to Wilson, research by the Department of Trade and Industry (DTI) shows that these fields could play an important role in helping the industry meet its ambitious investment target of £3bn each year.

Stating that 'hundreds of fallow fields and unused licences are a luxury which we can no longer afford,' Wilson also said: 'Our system has traditionally given operators a great deal of time and flexibility in determining the pace of development. However, at this stage in the life cycle of the UKCS, I think we [the government] are entitled to ask for firm plans or else alternative proposals.'

Speaking at the Offshore Europe exhibition, he stated that the UK's 20th licensing round – to be opened before the end of 2001 and to include all unlicensed acreage in the North Sea – would include terms to ensure that operators did not sit on their acreage.

Guillemot extension

The UK Government has given Veba Oil & Gas UK (VOGUK) the green light to develop the western extension of the Guillemot West and North West fields in the North Sea. The company holds an 80% stake in the fields, with co-venturers Shell UK Exploration and Production and Esso Exploration and Production UK each holding 10%.

The incremental extension of the fields will be developed by two horizontal wells through a 45–70 ft thick oil column and subsea tie-back to the Triton FPSO. Drilling is slated to commence in 4Q2001, with first production expected in mid-2002, bringing total production from the two fields to 25,000 b/d of oil. Initial recoverable reserves of the western extension are put at 16mn barrels, with further upside potential in the area.

Orwell operatorship

Tullow Exploration is to assume the operatorship of the Orwell field in block 50/26a in the southern North Sea. The company holds a 50% interest in the field, Texaco holding the remainder.

In conjunction with the assumption of operatorship, Tullow has also completed the acquisition of the Orwell field and the associated production licence from Arco British – the last element of the Southern North Sea divestment programme announced by BP/Arco in July 2000 as part of their merger.

Operatorship of the remaining Thames Area fields – comprising the Thames, Yare, Bure and Wensum fields and the satellite Gawain and Welland fields – have been assumed by ExxonMobil subsidiary Mobil North Sea.

First production from North Nemba

Chevron has reported the start of oil production from the North Nemba platform in block 0 offshore Angola. The field is expected to reach peak production of 50,000 b/d during 2Q2002, and to produce an average of 40,000 b/d in 2002.

The field, located in Area A of block 0, is being developed through two production platforms – South and North Nemba. Both platforms include gas compression facilities for gas conservation and secondary recovery through rich gas injection. South Nemba, installed in December 1997, came onstream in June 1998.

The North Nemba drilling programme includes 12 wells – nine oil/condensate production wells and three gas injection wells. Prior to commencing crude production from North Nemba, a gas injection well was completed in order to minimise gas flaring during commissioning and start-up. North Nemba crude is transported via pipeline to the Malongo terminal for export.

North Nemba production is reported to boost Chevron-operated crude volumes produced from block 0 and deepwater block 14 to an average of more than 500,000 b/d this year. Partners in block 0 are Cabgoc (operator, 39.2%), Sonangol (41%), Elf Petroleum Angola (10%) and Agip Angola Production (9.8%).

Gulf of Mexico licensing round awards

Independent companies dominated the US Minerals Management Service (MMS) August auction of leases on offshore blocks in the western Gulf of Mexico, reports *Judith Gurney*. High bids totalling $165.6mn were submitted by 50 companies for 320 blocks, a slight increase over the $153.7mn submitted in the August 2000 auction.

There were a few surprises in the list of top bidders, with Kerr-McGee coming first as it has done for three years in a row. Petrobras, a relative newcomer to the Gulf scene, came third in terms of high bids made, just under second-place Spinnaker Exploration.

A major departure this year, however, was considerably less interest in ultra-deepwater blocks with water depths greater than 800 metres. There was plenty of deepwater bidding, but it was concentrated on blocks mainly in the Garden Banks area with water depths ranging from 400 to 800 metres. The highest bid of $8.3mn, for Garden Banks block 245, was submitted by Kerr-McGee together with partners Amerada Hess and Petrobras.

Bidding competition was also strong for blocks with water depths of less than 200 metres. Substantial reserves of natural gas are believed to exist at great depths in these shallow waters, but their exploration and exploitation involves high risks and costs. The MMS attracted bidders by offering royalty suspension on the first 20bn cf produced from wells drilled 15,000 ft or more below the sea floor. Although this royalty suspension is tied to the market price of gas, it will cease only when prices stay at sustained high levels for more than a year.

Although royalty relief on deepwater projects continues, the MMS cannot guarantee royalty terms for the 53 blocks it offered in an area delineated as being under US jurisdiction by the recent US–Mexico offshore boundary agreement. These blocks will be subject to royalty provisions of the Law of the Sea Convention if the US becomes a signatory to this convention. Companies took heed of this danger and no one submitted bids for these blocks.

New oil-in-water monitoring club

Technology services company NEL of East Kilbride, Scotland, has launched what it claims is the first ever oil-in-water monitoring club to promote best practice in oil-in-water monitoring within the oil industry.

Accurate and reliable measurement of oil-in-water plays a vital role in minimisation of oil pollution into the environment. Although there is already a considerable amount of information available about oil-in-water monitoring, it is not easily available and this has resulted in duplication of work by offshore operators. The Oil-in-Water Monitoring Club has been established in order to provide a focal point for such information.

Over 20 organisations have joined the Club, including representatives from the UK Department of Trade and Industry (DTI), BP, Shell and Statoil. Members can access up-to-the-minute information on current issues such as discharge limits, freon replacements, online monitoring and alternative laboratory analysis methods through the Club's website.

The Club also provides regular detailed information briefings on manufacturers, monitoring techniques, operational experiences and new technology developments.

Penguins approval

The UK Government has approved the £350mn development of Shell Expro's Penguins field. A cluster of five fields – Penguin A to E – the project is one of the largest undeveloped accumulations in the North Sea and represents Shell Expro's largest single investment into the UKCS since 1996. Reserves are put at 88mn barrels of oil, gas and condensate.

The fields are to be developed via a 65-km subsea tie-back to the Brent Charlie platform, which is reported to be the longest subsea tie-back in the UKCS to date.

Green light for Columba-E

The Canadian Natural Resources (CNR) International-operated Columba-E phase 3 project on the edge of the Ninian oil field in the North Sea has been given the go-ahead for development by the UK Government.

The Columba-E Terrace has marginal economics and the partners negotiated a royalty remission agreement with the DTI to avoid a major disincentive for further development of the field which is anticipated to access up to an additional 25mn barrels of incremental oil reserves. Columba-E Terrace partners are: CNR International (34.06%), Kerr-McGee (26.04%), Agip (25.7%), Marubeni Oil & Gas (8.4%) and Murphy Petroleum (5.8%).

In Brief

BP is reported to have awarded a contract to Heerema Tonsberg of Norway for the engineering, procurement, construction and installation of a wellhead platform for the North Sea Valhall flank development project. The NKr1bn contract includes an option for a second wellhead platform. Development of the flanks of the Valhall field is expected to add 127mn boe to recoverable reserves. First oil is slated for 1Q2003, with production forecast to reach 30,000 b/d.

TotalFinaElf reports that the production platform for the block K1a field in the Dutch sector of the North Sea has been installed. Start-up is expected in early 2002, with production from two wells. The satellite field is forecast to produce around 3mn cm/d of gas, all of which has already been sold to Gasunie. Field partners are TotalFinaElf (operator, 42.37%), Energie Beheer Nederland (43.3%) and NAM (14.33%).

North America

Canada's National Energy Board is understood to have increased its estimate of heavy oil reserves in the Western Canada Sedimentary Basin by 20% to nearly 50bn barrels.

Conoco has entered in to a joint venture with Norsk Hydro USA under which it will acquire a 25% stake in five firm and three contingent exploration wells in the deep waters of the Gulf of Mexico for $130mn.

TGS-Nopec reports that it is currently acquiring 4,000-km of 2D seismic in West Greenland/Canadian waters.

A feasibility study on the development of 'A' block located five miles north-east of the Hibernia platform offshore Newfoundland is reported to have got underway.

Aminex reports that drilling has commenced on one of its 'most promising prospects' in the US – the Alta Loma field in Galvestone County, Texas. The field has already produced over 30bn cf of gas and the project is believed to have potential for undeveloped recoverable reserves of a further 50–100bn cf.

Middle East

Opening up the upstream oil sector to international competition is forecast to be the main task of Kuwait

In Brief

Petroleum Corporation upon its return from the summer recess in September, reports Stella Zenkovich. *Talks on renewing drilling rights in the partial neutral zone with Japan's Arabian Oil Company and the $7bn Project Kuwait scheme are expected to be the first issues to be tackled.*

***US-based Matco is planning to drill by** the end of 2001 exploratory oil and gas wells at five offshore sites in the Gulf of Oman following the interpretation of 3D seismic shot by Western Geophysical mid-year, reports* Stella Zenkovich.

***Ten majors have submitted bids for an** exploration and production contract in block 4 in the Partial Neutral Zone of Bahrain, writes* Stella Zenkovich.

PanCanadian Petroleum (operator, 39%) and partners OMV (33.2%), Cepsa of Spain (12.8%) and Yemen Company (15%) are reported to have signed an exploration and production sharing contract covering block 60 in northern Yemen's Rub Al-Khali Basin.

Russia & Central Asia

***The IEA's latest report on global oil** supplies has revealed that Russian oil production is now at a new post-Soviet high of 7.1mn b/d, 50,000 b/d higher than in June, according to UFG.*

***Ramco Energy reports that it has** received a further $5mn in connection with the disposal of its stake in the Azeri, Chirag, Gunashli (ACG) fields offshore Azerbaijan.*

***Agreement has been reached between** North and South Korea on a feasibility study into the pipeline transport of Kovykta gas from Russia, through North Korea to South Korea, reports UFG. Further feasibility studies are to be undertaken. If the pipeline does not go through North Korea, it would need to be a more expensive subsea line from Russia or China, comments the analyst.*

***Ramco Energy has transferred a 58.5%** shareholding in its Polish subsidiary Medusa Oil & Gas to RWE of Germany. RWE is to fund $12mn of an agreed work programme on Medusa's Carpathian blocks 434, 435, 454 and 455 in southern Poland, including seismic and the drilling of two wells before the end of September 2002.*

NEWS Upstream

Significant fall in North Sea oil production

North Sea oil and gas production in June 2001 fell significantly for the third month in a row, according to the latest Royal Bank of Scotland *Oil and Gas Index*. Oil production in the month was 18% down on that recorded in June 2000; combined production fell by 11.1% on the year.

Tony Wood, Oil and Gas Economist at the Bank, said: 'Based on production for the first six months of this year, we expect average oil production of 2.21mn b/d for 2001, around 8% down on last year.

However, the picture for gas is more positive with average 2001 production looking set to match last year's historic peak of 10,400mn cf/d.'

The price of Brent crude fell by 2.4% in June 2001 to $27.58/b. Prices subsequently weakened to $25/b in August.

The value of oil production in June 2001 averaged £39.23mn/d, down 8.8% on the month and 20.2% on the year. Revenues from gas production were also down, by 5.6% on May 2001 and by 1.8% on June 2000.

Wood commented: 'The outlook for oil prices continues to be uncertain. In the short term, Opec's recent announcement that it will cut output in September is being countered by an expected return of Iraqi oil on to the market.'

'However, there is considerable uncertainty over if and when this oil will return to the market. Such uncertainty could result in upward movement in prices. In the longer term a weakening market demand and an increase in world supply suggest further downward pressure in prices.'

Year Month	Oil production (av. b/d)	Gas production (av. mn cf/d)	Av. oil price ($/b)
Jun 2000	2,436,450	8,609	30.5
Jul	2,383,944	7,531	28.9
Aug	2,339,363	7,464	31.6
Sep	2,281,516	8,080	33.7
Oct	2,247,307	10,172	30.9
Nov	2,322,296	11,621	32.8
Dec	2,399,038	11,439	26.3
Jan 2001	2,274,671	13,061	25.8
Feb	2,206,542	12,293	27.5
Mar	2,301,409	12,465	24.5
Apr	2,223,924	11,918	25.9
May	2,170,520	9,155	28.3
Jun	1,993,483	8,639	27.6

Source: The Royal Bank of Scotland Oil and Gas Index

North Sea oil and gas production

Sunrise partners agree a way forward

Joint venture partners in the Sunrise gas project in the Timor Sea report that they have 'agreed a way forward that will enable critical decisions to be made on development of the Greater Sunrise gas fields by the end of October.'

According to Woodside Energy's Timor Sea Gas Business Unit Director, Chris Cronin, Woodside, as project operator, 'would undertake a full appraisal of the alternative LNG proposals as part of aligning the venture participants.' The alternatives are an onshore LNG plant favoured by Phillips and an offshore floating LNG facility promoted by Shell.

The Venture's appraisal is scheduled to be completed in time for development decision making at the end of October 2001, in parallel to signing Heads of Agreements for gas sales. Prospective customers, such as El Paso and domestic gas consumers, will be advised of progress during this period.

The Venture partners are Woodside (operator, 33.44%), Phillips (30%), Shell (26.56%) and Osaka Gas (10%).

North Sea Franklin field onstream

TotalFinaElf's Franklin field in the North Sea has come onstream, adding to output from the Elgin field that came onstream in March 2001. The combined production of both Elgin and Franklin is forecast to soon plateau at 140,000 b/d of condensate (equivalent to 5.5% of UK production) and 13mn cm/d of gas (4.5% of production) – a combined total of 220,000 boe/d.

Both fields have their own dedicated, normally unmanned wellhead platform with production processed through one central facility – a production/utilities/quarters (PUQ) platform – located close to Elgin.

Liquid condensate from the fields is transported to shore via the existing Forties pipeline system and on to Kinneil for processing. Commercial quality gas is exported via the new SEAL (Shearwater Elgin Area Line) pipeline to the terminal at Bacton where it is tied into the Transco and Interconnector gas transmission systems for UK and Continental deliveries.

The Elgin/Franklin project is claimed to be the largest high pressure/high temperature (HP/HT) development in the world with temperatures of 200°C and pressures of 1,100 bars. At 5,500 metres the reservoirs are said to be the deepest ever put into production in the North Sea.

Shell embarks on new geothermal venture

Shell El Salvador and Geotermica Salvadorena SA de CV (GESAL) have formed a new joint venture that will apply advanced geothermal technology to produce electricity from one of GESAL's existing geothermal fields in El Salvador. It is Shell's first geothermal project – earlier this year the company unveiled plans to invest between $0.5bn to $1bn in continuing to develop a range of new energy businesses, including solar, wind, geothermal and hydrogen.

The project in El Salvador will create a 'hot fractured rock' (HFR) reservoir by engineering an extensive network of cracks, or fractures, around an existing hot but non-productive well. A second well will then be drilled into the fracture network. Water circulated through the fractures via the wells will pick up heat and be converted to steam. This steam will be used to generate electricity for supply to the El Salvador electricity grid and will generate between 2 MW and 5 MW of power.

Conventional geothermal energy, in which naturally occurring steam is used, generates about 0.3% of the world's total power. Hot rock, exploitable by HFR technology, is abundant worldwide, and could develop into a major energy source, comments Shell.

No greenhouse gas emissions will be produced, so the project could earn carbon credits under the Clean Development Mechanism which is part of the Kyoto Protocol. This mechanism aims to assist developing countries towards sustainable development and to reduce their greenhouse gas emissions.

The technical viability of HFR geothermal developments has already been demonstrated in a number of government-sponsored research projects in the US, Japan and the European Union. However, some challenges remain to achieving large-scale commercial HFR power generation. Shell and GESAL believe that, by pooling their strengths, they can demonstrate for the first time that the technology can be a reliable, commercially viable

Fall in UK hydrocarbon releases offshore

A significant fall in reported major hydrocarbon releases from offshore installations on the UK Continental Shelf has been announced in a new UK Health & Safety Executive (HSE) report. The report, which gives the first results of a three-year HSE campaign to reduce hydrocarbon releases, shows a 10% reduction in the total number of major and significant releases, 125, reported for the period 1 April 2000 to 31 March 2001. Major reported incidents fell to eight, from 12 in 1999/2000, the first time that the number has been in single figures and a 33% reduction on last year's level. The report also shows more minor releases were reported in response to campaign publicity – some 145 compared with 95 in the same period a year earlier, a 50% increase.

The HSE is already working closely with industry to identify problem areas in order to reduce further the number of hydrocarbon releases, reports Taf Powell, Head of HSE's Offshore Division. It is currently working on providing good practice guidance on two areas identified – small-bore piping and bolted flanges.

In Brief

Asia-Pacific

***Oil production by CNOOC is expected** to reach 95mn barrels this year, according to Chairman Wei Liucheng. The company is also reported to be planning to boost output by 15%/y until 2005.*

***PetroChina's Pen-5 well in the Junggar** Basin in northwest Xinjiang, China, is understood to have tested at 300,000 cm/d of gas and 630 b/d of oil. The Mosuowan field in which the well was drilled has reserves put at 20mn toe.*

***Unocal is reported to have confirmed** that its Ranggas discovery offshore eastern Kalimantan has potential oil and gas reserves of between 190mn and 650mn boe.*

***Eni of Italy is reported to have discovered** gas in the Bonaparte Basin offshore Australia. Tests on its Blacktip-1 exploration well in block WA-279-P are understood to have indicated potential production of 2.53mn cm/d of gas.*

***Premier Oil is reported to have sold its** 40% state in Indonesia's Ujung Pangkah field to Amerada Hess for $30mn.*

Latin America

***Nicaragua is understood to be planning** to offer its first offshore exploration licences since the 1970s before the end of the year.*

Africa

***BP is reported to be planning to** develop all five of its deepwater fields in block 18 offshore Angola through a hub – most likely a floating production, storage and offloading (FPSO) vessel on its Plutonio field.*

***Norsk Hydro has signed a production** sharing agreement for block 34 with Angolan state oil company Sonangol. Sonangol (20%) has been given the operatorship, and Norsk Hydro (30%) will provide technical assistance. This is the first time that Sonangol has been given an operatorship for a deepwater license.*

***Bids are expected to be submitted to** Sonatrach by October 2001 for five blocks on offer in Algeria's Illizi Basin and ten blocks in a further six different basins, writes* Stella Zenkovich.

In Brief

UK

***Premier Oil is reported to have posted** a 57% increase in 1H2001 net profits to £12.4mn, with a 73% rise in turnover for the period to £94.5mn.*

***Fisher-Rosemount is changing its name** to Emerson Process Management.*

***Centrica has posted a record 1H2001** turnover of £6,753mn and operating profit (including joint ventures and associates) of £437mn compared with £4,707mn and £404mn in the same period a year earlier.*

***UK independent Dana Petroleum is** planning to raise £25.5mn by way of a placing and open offer to shareholders (£20mn) and a cash placing with institutional investors (£5.5mn).*

***The John Wood Group has reported a** doubling of pre-tax profits to £27.3mn in 1H2001 and a 50% rise in sales to £504mn.*

***Cairn Energy has reported a 25% year-**on-year rise in post-tax profits from £18.3mn in 1H2000 to £22.8mn in 1H2001.*

Europe

***Abbot Group of the UK has made a** £134mn takeover bid for German drilling contractor Deutag.*

***Repsol YPF has posted a 1H2001 net** income of euros 1,245mn, an 8.8% increase on its 1H2000 figure of euros 1,144mn. Operating revenues were up 4.5%, at euros 22,461mn.*

***TotalFinaElf has posted a 2Q2001 net** income, excluding non-recurring items, of euros 2.13bn, up 22% compared with the same period last year. 1H2001 net income rose by 27% to euros 4.33bn.*

***Dong of Denmark has posted a** 1H2001 profit after tax of DKK1,415mn compared with DKK1,322mn in 1H2000.*

***Kvaener has posted a 1H2001 pre-tax** profit of NKr205mn and an operating profit of NKr431mn.*

North America

***US independent Devon Energy is** reported to be acquiring Canadian*

FTC approves ChevronTexaco merger

The US Federal Trade Commission (FTC) has approved a consent order that will allow Chevron and Texaco to complete their previously announced merger. Separately, the companies have already negotiated a consent decree with the Attorney General of 12 US states and have obtained the necessary regulatory approvals from the European Union and several countries in which the companies have major operations.

A number of conditions have been listed in the FTC consent order:

- Texaco is to divest its interests in the US downstream joint ventures Motiva Enterprises and Equilon Enterprises. If it is not able to complete a sale of its interest in Motiva to Shell and Saudi Refining, and its stake in Equilon to Shell prior to the merger, the stock of the Texaco subsidiaries that hold those interests will be placed in a divestiture trust for sale within eight months of the merger date.
- Subject to certain conditions, Texaco will extend its licence of the Texaco brand to Equilon and Motiva on an exclusive basis until 30 June 2003, and on a non-exclusive basis until 30 June 2006.
- ChevronTexaco will divest Texaco's interest in the Discovery pipeline system within six months of the merger date, and Texaco will resign as operator of the system.
- ChevronTexaco will divest Texaco's stake in the Enterprise fractionating plant in Mont Belvieu, Texas, within six months of the merger date.
- Texaco will divest a portion of its US general aviation business.

ChevronTexaco will have a combined enterprise market value of more than $100bn, assets of $83bn, net proved reserves of 11.5bn boe, daily production of 2.7bn boe and operations throughout the world. It will be the third-largest producer of oil and gas in the US.

E-collaboration

UK Energy Minister Brian Wilson has launched a new scheme aimed at bringing the benefits of e-commerce to companies in the oil and gas sector. Logic, the industry body charged with improving competitiveness in the UK oil sector, will provide experts known as 'e-collaboration champions' who will help organisations to work together to realise the benefits of e-enabled collaborative team working. The Department of Trade and Industry is providing £170,000 of funding to support the project, which will run between autumn 2001 and early 2003.

Potential innovations expected to be developed under the scheme include:

- virtual offices which will remove the need to waste valuable resources on physical office space for large high value projects; and
- groups of small and medium-sized companies (SMEs) who can communicate and work together more effectively and efficiently in joint ventures.

The pilot project will help up to 12 collaborative groupings in the oil and gas sector – with each group having at least one SME participant. Those interested can apply for support via the Logic website at **www.logic-oil.com**

Energie programme

The European Commission has launched the final calls for R&D and demonstration project proposals under the FP5 Energie Programme; the final deadline for submission of proposals is 14 December 2001. A UK helpline can be contacted by Tel: +44 (0)161 874 3636 or Fax: +44 (0)161 874 3644. It is also possible to register online at the Energie website – **www.dti.gov.uk/ent/energie**

Terrorist attack

The oil price surged to $31.05/b on 11 September, following the devastating terrorist attacks on the US World Trade Centre and the Pentagon. Although it subsequently fell back by more than $4/b as Opec assured the market of security of world supplies, it later rose to over $28/b as the US looked set on a course of military action. Among the many offices housed in the World Trade Centre were those of Nymex, the Bank of America, Deutsche Bank, ABS, Salomon Brothers and Lehmans. As we went to press, the number of dead and injured was unknown. However, it had been reported that all ABS staff known to be in the building at the time of the tragic events had been accounted for and had suffered only minor injuries.

BP Southern Africa sells equity stake

The Mineworkers' Investment Company (MIC) and WDB Investment Holdings (WDBIH) are to take an equity stake in BP's South African operations giving them an immediate three seats on the Board of BP Southern Africa (BPSA) and 25% shareholder voting rights. As part of the deal, MIC and WDBIH will also secure an initial 25% stake in a new BP marketing joint venture which will exclusively service the company's existing and future commercial and industrial clients. No financial details have been released, although the parties have confirmed that the deal has been 'designed to achieve long-term and sustainable economic empowerment' and that is has been 'structured to make it possible for MIC and WDBIH to self-finance the transaction and accomplish it entirely without external financiers.'

BPSA has 780 branded service stations in South Africa, operated by independent dealers; a half-share in the Sapref joint venture refinery south of Durban; and three lubricants blending plants – two located in Durban and one in Johannesburg. It has downstream operations in 11 countries south of the Sahara and holds extensive upstream interests offshore Angola which are due to enter production in November 2001.

The company reports that 'it is committed to increase its procurement from empowerment companies from 2% to 30% within five years.' The number of BPSA dealers from previously disadvantaged groups is also planned to rise from the present 28% of the network to 47% in the next nine years. 'This will add another R20mn/y to profits earned on fuel sales by these dealers,' reports the company. 'R20mn/y will in future be invested by BPSA in five retail sites to be annually set aside to be owned by dealers from previously disadvantaged groups. BPSA will also help them secure access to capital.'

Improving UK health & safety figures

The UK offshore oil and gas industry has agreed to a range of new occupational health and safety targets that go beyond the national targets set by the UK Government in its Revitalising Health and Safety initiative aimed at injecting new impetus into the national health and safety agenda.

The targets were developed through the Health & Safety Executive's (HSE) Offshore Industry Advisory Committee (OIAC) and the Step Change oil and gas cross-industry safety initiative. Taking the 1999/2000 industry performance as the baseline, the targets are:

- **to achieve a continuous year-on-year improvement trend in safety culminating in a 50% reduction in the fatal and major injury rate by 2010;**
- **to reduce the number of working days lost per 100,000 workers from work-related injury and ill health by 30% by 2010; and**
- **to achieve half the improvement under each target by 2004.**

The industry is also working to achieve a number of additional targets, set by the HSE's offshore safety division, by 2004:

- **a 10% reduction in the rate of injuries/ill health from manual handling;**
- **a 15% reduction in reported incidence of slips, trips and falls from height;**
- **a 15% reduction in accidents and dangerous occurences involving lifting/mechanical handling; and**
- **a 50% reduction in major and significant hydrocarbon releases.**

Secure Internet access to company info

Managed extranet service provider Aventail reports that Amerada Hess has selected the Aventail.Net managed service to provide secure access over the Internet to information and applications on its corporate network. The Aventail.Net managed service will replace existing access systems and will allow user communities to be connected on a simpler and more cost effective basis through secure Internet links.

Previously, any partner or customer requiring access to the Amerada Hess network required one of the company's computers to be installed on their premises. 'Leased lines were used in an operation that was both complex and costly to manage,' states Aventail. 'More collaborative working, along with the development of the company's international business, have also increased the demand for remote access by employees, stretching the IT department's resources even further. The Aventail.Net solution will help Amerada Hess to reduce these challenges, and alleviate the burden of user management across all these communities, allowing them to focus on other strategic initiatives.'

In Brief

independent Anderson Exploration for $4.6bn, including the assumption of $1.2bn of Anderson's debt. The US company is also understood to have recently made a $3.1bn offer for Mitchell Energy & Development Corporation.

***US companies Global Marine and** Santa Fe International are to merge their operations in a $6bn stock-for-stock deal. The merged company – GlobalSantaFe Corporation is reported to be the second largest drilling contractor with a fleet of 59 offshore rigs and operating a further 13 rigs for other contractors. Global Marine will own 50.6% of the new venture.*

Russia & Central Asia

***Hurricane Hydrocarbons has signed a** preliminary agreement with Amoco Production regarding the acquisition of a 0.86% effective stake in the Caspian Pipeline Consortium, through a 49% interest in Kazakhstan Pipeline Ventures, reports UFG.*

***Lukoil has acquired a 50% stake in** Permtex from UK-listed Soco for $50mn, reports UFG. Permtex is a joint venture between Lukoil-Perm and Soco, which produces around 5,200 b/d (1.9mn b/y) of oil and has proven reserves of 50mn barrels plus a further 50mn of probable reserves.*

Asia-Pacific

***BP is reported to have withdrawn from** PetroChina's $4.8bn gas pipeline project for western China, leaving the way clear for a rival consortium led by ExxonMobil and Shell.*

***British Gas is reported to have** recently acquired the Pipavav LNG port venture on the coast of Gujarat, India, through its purchase of Sea King Infrastructure's 100% equity for $79.8mn.*

Africa

***The Nigerian National Petroleum** Corporation and Chevron are reported to have agreed to invest $2bn in boosting gas production from the Escravos field from 200mn cf/d to 240mn cf/d and the construction of a 34,000 b/d capacity gas-to-liquids (GTL) plant.*

In Brief

UK

Shell Gas & Power has awarded a *$20mn engineering design contract for what will be the company's first large-scale gas-to-liquids (GTL) plant to a Kellogg Brown & Root and JGC Corporation joint venture. Investment will be made in 2001. The plant, the location of which is yet to be decided, is to be followed by four further GTL projects by 2010. The new facilities will have a capacity of 75,000 b/d, requiring a gas intake of around 600mn cf/d – roughly equivalent to the gas intake of a large LNG train.*

Star Capital is reported to have *acquired TotalFinaElf's UK gas pipeline operations – TotalFinaElf Connect and TotalFinaElf Pipelines – for an undisclosed sum. The two businesses will be incorporated into Inexus, a new business set up by Star Capital.*

Europe

TotalFinaElf has acquired Air Liquide's *50% interest in the LPG marketing joint venture between the two companies. The joint venture marketed 140,000 tonnes of butane and propane in 2000, generating revenues of euros 68.5mn (FFr450mn). The business will be integrated into Totalgaz, the TotalFinaElf LPG marketing subsidiary that sells some 700,000 t/y of LPG to the French market.*

North America

Phillip Petroleum has signed a *licensing agreement with Crown Central Petroleum for the use of Phillips' S Zorb Sulfur Removal Technology (SRT) at Crown's 100,000 b/d refinery in Pasadena, Texas, and its 52,000 b/d LaGloria facility in Tyler, Texas.*

Middle East

Abu Dhabi Oil Refining Company has *called for bids for a $400mn upgrade and expansion project at its two existing refineries at Ruwais and Umm al Naar, reports* Stella Zenkovich.

The contract for the repair and *upgrade of the Mina al-Ahmadi oil refinery in Kuwait has been awarded to a trio of local contractors – Kharafi National, Al-Baddah Contracting &*

EC and EU news update

Competition officials are examining a proposed German joint-venture merging the downstream and petrochemical operations of Deutsche Shell and its rival RWE-DEA, reports *Keith Nuthall*. The German Competition Authority has been given the right to adjudicate on the downstream elements by the European Commission, which is itself handling the deal's petrochemical implications. Brussels and Berlin fear a merger would harm competition in the motor-fuel sector and they could attach conditions to any approval. Particular concern has been aroused by the deal foreseeing a complete merger of the two subsidiaries by 2004.

Meanwhile, the EC is taking France to the European Court of Justice (ECJ) for failing to write safety regulations regarding the underground storage of gas and petrol into its national laws, as required by the EU Seveso II Directive. It imposes stringent rules on storage and insists preparations be made for possible explosions.

Brussels has also threatened Britain, France, Germany, Italy, Greece, Spain and Portugal with legal action at the ECJ for failing to adopt rules forcing car dealers to provide their customers with information about fuel consumption and carbon dioxide emissions from new automobiles.

It has also threatened Germany with heavy fines for not complying with an ECJ ruling that it complies with the waste oils directive, which says that they should be recycled.

Meanwhile, it has called upon national regulators and competition authorities to ensure that Norwegian gas companies do not act in concert when supplying the EU, following the temporary discontinuation of the Norway's joint market regime for gas.

Finally, Brussels applauded the creation of the new Odessa-Brody oil pipeline in the Ukraine as a step towards linking Caspian supplies with the EU via Poland and Slovakia.

Fuelling Manchester Airport

Penspen, the independent UK oil and gas pipeline engineering and project management company, is to acquire a majority stake in Manchester Jetline from GATX Terminals for an undisclosed sum.

Manchester Jetline owns and operates the pipeline system supplying aviation fuel from facilities at the Shell Stanlow refinery and from Killinghome on the east coast to Manchester Airport. The pipeline is currently operating well under capacity and handles some 80% of the total supplies into the airport at present.

Manchester Airport commissioned its second runway in January 2001 and the city of Manchester is to play host to the Commonwealth Games in 2002. The airport is claimed to be one of the fastest growing in Europe with 100% growth forecast over the next 15 years.

Bio-diesel refinery first

South Africa's first bio-diesel refinery is to built near Johannesburg at an estimated cost of R83mn ($9.7mn) and is expected to produce 60,000 t/y of diesel fuel, reports *Richard Hurst*. Managing Director of Seed Oil Refinery South Africa (SORSA) Bernd Schmidt said that production would help decrease the country's dependence on imported crude oil.

The plant is to produce fuel that is 100% biological and emissions will contain no sulfurous gases. The bio-diesel is reported to be suitable for use in any diesel engine or burner without any adaptations, and is expected to retail cheaply at around R2.50/l ($0.30/l).

The bio-diesel is essentially vegetable oil methyl ether, formed by removing its triglyceride molecules. The naturally oxygenated fuel contains 10% oxygen.

OTC clearing services

IntercontinentalExchange (ICE), one of the world's leading operators of over-the-counter (OTC) markets for oil, natural gas, power and metals products, has signed an agreement to offer optional clearing services to its OTC market participants as early as 4Q2001. With this service, ICE claims it will be the first provider of OTC commodity markets to offer participants the option to utilise clearing services.

With the recent acquisition of the International Petroleum Exchange (IPE), ICE reports that it will also be the world's first exchange organisation to offer market participants a full spectrum of risk management products ranging from traditional bi-lateral OTC agreements to cleared OTC products to exchange-traded futures and options on futures.

NEWS Downstream

EEX calls the changes to optimise trading

The European Energy Exchange (EEX) has changed the auction for trading in single hours in order to 'optimise trading at EEX for the market participants.' The auction for trading in single hours has been replaced by a new and simpler type of auction with revised transparency parameters. The existing safety and security mechanisms, such as volatility interruptions, remain unchanged.

It is claimed that the changes being made will make trading in individual hours on the EEX spot market 'easier for the participants' and 'offers new opportunities to optimise production and consumption peaks.' No changes will be made in the trading of blocks.

'With the changed parameters, the auction for single hours at 11.00am will be quicker and will be easier to handle,' states EEX. 'This results in a simpler auction sequence that no longer requires traders to be present at the terminal for trading in single hours.' Trading in single hours already accounts for 15% of the turnover on the EEX spot market, and trading in blocks 85%.

Museum tribute to Route 66

Nearly 70 years after its completion, the 2,300 miles of one of the world's most famous roads – Route 66 in the US – are being celebrated with a museum dedicated to its history, writes *Helen Jones*. In Clinton, Oklahoma, architects Elliot and Associates have designed the museum that presents the history of the two-lane highway linking Chicago and Los Angeles, the building of which was completed in 1932.

Principal Architect Rand Elliot says: 'I think of it as a cross between a beer can and a cheap motel, it evokes the quirky and curios on the surface, but as you dig deeper, it is clearly a portrait of the times when adventure was available on four wheels.'

Exhibits include a 1930s Phillips 66 gas station, vintage signs and space for Route 66 'groupies' to park their classic cars. All visitors receive a classic 8-ounce bottle of Coca-Cola!

Asian assets for Vopak

Vopak is to acquire for an undisclosed sum Chicago-based GATX Corporation's tank storage interests in Asia, including its 50% shareholding in GATX Terminals (Jurong) in Singapore with a capacity of 152,000 cm.

Through this company, in which the Port of Singapore Authority and Jurong Town Corporation also participate, Vopak will indirectly obtain a 30% stake in the Malaysia–based Kertih terminal (395,000 cm) and a 60% interest in the Chinese Shandong Lanshan terminal (96,000 cm).

Vopak will also acquire as part of the deal a 40% stake in Nippon GATX, a Japanese company owning three chemical terminals in Kawasaki, Kobe and Yokohama with an aggregate storage capacity of 136,000 cm.

Offshore pipeline study

The world offshore pipeline market could grow by more than 60% before the close of 2005, according to a new report from analyst Douglas-Westwood and data specialist Infield Systems. The *World Offshore Pipelines & Umbilicals Report* forecasts that the annualised value of the market will grow from $8.1bn in 2001 to $13.1bn by 2005. Europe is expected to remain the largest market segment, with a predicted market share of 29% in 2005. The largest growth is forecast to take place in the Asia-Pacific, with major trunklines being laid, such as the Russia–Japan–Sakhalin Line and the TransThailand–Malaysia project.

Nymex price cuts

US energy exchange Nymex is reported to have launched an aggressive round of price cuts in a bid to gain business from its London-based rival IPE (International Petroleum Exchange). Nymex has unveiled a new, floor-traded Brent crude oil market and is waiving all trading fees for the first year.

The IPE was recently bought out by electronic trading platform IPE (InterContinentalExchange), and subsequently announced that it was to close its trading pit and cease floor trading in order to focus solely on electronic trading.

In Brief

Trading, and Kuwait Shipbuilding & Repair Yard, writes Stella Zenkovich.

***The Sultanate of Oman Government is** to implement a gasoline sulfur reduction programme in its new refinery at Sohar using the Axens Prime G+ process to treat its RFCC gasoline, the main sulfur contributor to the gasoline pool. The technology will be combined with light naphtha etherification technology from Fortum.*

Russia & Central Asia

***The European Bank for Reconstruction** and Development (EBRD) wants to lend up to $95mn for the construction of 70 km of parallel gas pipelines in southwestern Ukraine, reports* Keith Nuthall. *The money would go to Gastransit, a joint venture between Naftogas Ukraine, Gazprom, Turusgaz (owned by Botas, Gazprom and Enka), and Transbalkan (a Turkish construction consortium).*

***Russia delivered 1.6bn cm of gas to** Greece in 2000 and has agreed to raise tariffs only once by 25% until 31 December 2003, reports* Stella Zenkovich.

***Lukoil-Neftochim of Bulgaria has** posted a levas 107.78mn profit for 2000, according to a report audited by PriceWaterhouseCoopers, on a turnover of levas 2.789bn – up by 59.3% – writes* Stella Zenkovich. *Some $268mn is understood to be needed to upgrade the refinery, $33mn of which was invested in 2000.*

***Lukoil is understood to be planning** to invest $70mn in its Odessky Naftopererobny Zavod refinery in southern Ukraine in order to boost its capacity to 3mn t/y.*

Asia-Pacific

***The Phillipines Government has proposed** a bill insisting on the use of coconut diesel in public transport vehicles and stationary engines, writes* Keith Nuthall. *They would be required to use standard diesel blended with 5% coconut diesel to increase consumption by at least 500,000 t/y.*

***China National Offshore Oil** Corporation (CNOOC) is reported to have formed a gas distribution joint venture with local companies Zhejiang Energy Group, Nandu Group Holding and Zhejiang Power Corporation in*

In Brief

Zhejiang Province, eastern China. CNOOC holds a 27% stake in the venture that is also expected to be involved in the development of gas-fired power plants in the region.

An alliance between Gazprom and Shell has been pre-qualified for the tender to construct the Trans-Chinese gas pipeline, reports UFG.

Africa

Phillips and its co-venturers the Nigerian National Petroleum Company and Nigerian Agip Oil Company have signed a Memorandum of Understanding with the Nigerian Government to develop a new LNG facility offshore the country.

US company AES has increased its stake to 65% in Tanzania's $320mn Songo Songo gas-to-power project which is supported by the World Bank, reports Stella Zenkovich.

Two years after signing the contract between National Oil Corporation (NOC) and Eni for the construction of a gas pipeline between Libya and mainland Europe, the $4.5bn Western Desert gas project is fast becoming a reality, writes Stella Zenkovich, ***with 8bn cmly of gas expected to arrive in Italy when the project completes in 2004.***

Dr Linus Cherulyto, Managing Director of Kenya Pipeline Corporation (KPC), has announced plans to route an oil/product pipeline to Mwanza via Lake Victoria in a bid to tap the Ugandan and Tanzanian fuel markets and help curb fuel dumping and vandalism, reports Stella Zenkovich.

NEWS Downstream

New additions to Shell Direct fleet

Shell Direct (UK) has taken delivery of 22 new Iveco Ford EuroTech 6x2 rigids with Magyar tanks, each with a comprehensive repair and maintenance contract, from Transolver Services. A further five 18-tonne EuroTech rigids and eight 4x2 EuroTech tractor units have also joined the Shell Direct fleet.

The vehicles, supplied by Dagenham Motors, have been jointly developed by both Iveco Ford Truck and Shell Direct in order to meet Shell's high safety and environmental requirements. They will be used to deliver fuel to farms, military bases, private fuel depots and homes with oil fire central heating in the UK.

Each of the EuroTech 6x2s features a rear steering axle to provide the extra manoeuvrability needed to allow a three-axle rigid truck to access restricted sites and locations. Previously, smaller 18-tonne 4x2 units were used by Shell Direct for this type of work, but the new 26-tonne vehicles offer a 46% greater payload advantage, allowing the company's fleet size to be significantly reduced. The vehicles also feature a lifting rear axle which rises automatically when reverse is selected – this maximises reversing approach angles, allowing access up customers' steep drives and reducing accidental damage to roads and driveways.

According to Keith Dixon, Operations Manager for Shell Direct, this latest generation of tanker 'has the potential to save up to 10 minutes per delivery on average... with eight deliveries per day, six days per week, that could amount to a full eight hours – or one working day – saved each week.'

UK Deliveries into Consumption (tonnes)

Products	†Jul 2000	Jul 2001	†Jan–Jul 2000	Jan–Jul 2001	% Change
Naphtha/LDF	125,845	178,799	1,285,630	1,000,651	–22
ATF – Kerosene	971,522	1,111,644	5,729,824	6,367,433	11
Petrol	1,733,863	1,736,071	12,142,663	12,042,500	–1
of which unleaded	1,608,352	1,647,418	11,153,144	10,910,614	–2
of which Super unleaded	30,575	37,894	231,300	250,823	8
of which Premium unleaded	1,577,777	525,295	10,921,844	5,524,379	–49
ULSP (ultra low sulfur petrol)	–	1,084,229	–	5,574,987	–
Lead Replacement Petrol (LRP)	125,511	88,653	989,519	622,426	–37
Burning Oil	159,994	165,860	2,172,550	2,412,923	11
Automotive Diesel	1,270,417	1,347,502	8,926,317	9,319,683	4.4
Gas/Diesel Oil	497,865	448,926	4,025,914	3,653,263	–9
Fuel Oil	96,665	100,155	913,143	1,168,924	28
Lubricating Oil	71,124	72,256	473,608	495,506	5
Other Products	631,508	630,325	4,778,427	4,762,312	0
Total above	5,558,803	5,791,538	40,448,076	41,223,195	2
Refinery Consumption	396,551	404,700	3,035,043	2,527,126	–17
Total all products	5,955,354	6,196,238	43,483,119	43,750,321	1

† Revised with adjustments

All figures provided by the UK Department of Trade and Industry (DTI)

Decommissioning high on the agenda

There has been no shortage of action in the decommissioning market in recent months, much of it involving Phillips. In the UK sector the company hit the headlines with the successful refloating of the Maureen platform, while on the Norwegian side it announced its intention of using new single-lift technology to remove two redundant platforms on the Ekofisk–Teeside oil pipeline, and received Ospar's blessing for its plan to leave the Ekofisk Tank base in place. TotalFinaElf has also been in the news, with the submission of a decommissioning plan for the Frigg field, while Statoil has been busy closing down the Yme field and removing other installations. *Nick Terdre* reports.

Above: Phillips' Maureen is towed through the skerries to her parking slot near the Aker Stord yard. *Photo: PPCoUK*

The Ekofisk Tank concrete base was the first case in which derogation was sought from Ospar's ruling that all offshore installations should be totally removed once redundant. The application for derogation is made by the owners to the relevant government, which, before it can grant the application, must consult with the other members of the Ospar group. In the event the 16-week consultation period ended in July 2001 without any objections having been made to the proposal – on the contrary, four countries: Belgium, Denmark, Germany and the Netherlands, all actively declared their support.

Had three or more Ospar members protested, a further 16-week period of consultations and meetings would have ensued in an attempt to reach agreement. What happens if this attempt to reconcile opposing positions fails is

unclear. In the case of the Ekofisk Tank base, the outcome was wholly expected – after all, at its historic Sintra meeting in 1998 Ospar based its rulings on the view that concrete bases could be technically difficult and unsafe to refloat, and indicated that it would look kindly on applications to leave them in place – in marked contrast to its attitude on steel sub-structures. The offshore concrete industry has since attempted to combat this view, arguing that concrete structures are inherently refloatable.

Unique structure

The Ekofisk Tank base is unique – the 290,000-tonne structure is surrounded by a protective wall weighing 300,000 tonnes and incorporating a further 600,000 tonnes of ballast. The wall is fixed to the base, although not structurally integrated with it. Of the refloating options, Phillips had concluded, refloating the base and wall together was the least risky. Even so it entailed an excessive level of risk, and would have been technically complex and very expensive.

So this case should not be seen as setting a precedent. Which throws the spotlight onto what will probably be the next case referred to Ospar – the three concrete bases on TotalFinaElf's Frigg field, which the licensees have recommended should be left in place. All three were installed before 1978 when Norway introduced a requirement that all concrete installations should be removable. TotalFinaElf has yet to detail how it arrived at its recommendation, but in reviewing it, the authorities will also take into account a joint industry project carried out in Norway in the late 1990s which concluded that it should be possible to remove most concrete structures.

RWE-DEA had intended to refloat the two small Schwedeneck See concrete platforms this summer, but has put the operation back to next year as its says that well abandonment and topsides cleaning has taken longer than expected.

Maureen sails away

Meanwhile the first platform refloating operation proved a great success. This was Phillips' Maureen platform, which with its steel gravity base is unique for a platform of its size. After years of meticulous planning the operation at the end of June 2001 went according to plan. Refloating was achieved by simultaneously deballasting the platform by pumping out water in the three storage tanks and replacing it with nitrogen, and extracting the skirts beneath the bases of the storage tanks. Extracting the skirts entailed pumping water under high pressure beneath the bases. To ensure that the pressure was not allowed to dissipate out through the surrounding seabed, a surcharge of 2,000 tonnes of gravel and magnetite was placed around each of the tanks.

Phillips is tendering for removal of the Ekofisk Tank topsides. When this is completed, the tank's concrete base and protective wall will be left in place.
Photo: PPCoN/Kjetil Alsvik

The solution worked well, as the bottom of the skirts came free of the seabed 62 hours after water injection began, rather than 72 hours as expected. The whole refloating operation, which was conducted by Aker Offshore Partner (AOP), took 71 hours. The platform was then towed across the North Sea and parked near the Aker Stord yard in western Norway, where AOP has a specialised decommissioning site. It was followed a few days later by the oil loading column, which first underwent a simpler refloating operation.

This October or November, Phillips will decide what will be the platform's ultimate fate. Despite efforts to sell it as a working piece of kit, the company has yet to find a buyer, and the most likely outcome is that parts of the structure will be used for civil engineering projects – as happened in the case of Shell Expro's Brent Spar and Elf's Frigg North-East structures.

One significant reuse project that is going ahead is Tamalone International's deal to supply used equipment to customers in China. In a first stage the company has acquired production facilities from Chevron's Akkrum onshore gas field in the Netherlands, including a 300,000 cm/d gas treatment plant. The equipment will be refurbished and shipped to China early next year where it will be reinstalled at the Shengli oil field in Shandong Province. Meanwhile, Tamalone is in negotiations with two companies for the purchase of small platforms for use offshore in Bohai Bay, China.

Frigg plans

Reuse has also been a priority for TotalFinaElf as operations in the Frigg area continue to run down. Some interest has been shown in the Frøy production facilities. Production on the field ceased in March 2001, less than six years since start-up in 1995. Potential buyers are understood to have emerged from the UK for the jacket and from Brazil for the process module that is installed on the TCP2 platform at the Frigg field centre.

The platform is due to be removed next summer by Heerema Marine Contractors' crane-barge *Thialf*. In July, the crane-barge removed subsea templates and manifolds from the Frigg satellite fields East Frigg and Lille Frigg. These structures had also been marketed but, as no one wants to buy them, will now be scrapped.

Meanwhile TotalFinaElf finally delivered its draft decommissioning plan for the main Frigg field to the Norwegian and UK Governments in February this year. Full details and explanations for its decisions will only be made available once it has finished a consultation process with the Norwegian Government and finalised the plan, which is expected to occur this autumn. But the main recommendations in the £256m plan are:

- all topsides together with jackets to

Crane-barge Thialf deposits the topside structures from Statoil's 2/4-S platform on the quay at Lyngdal Recycling's site in southern Norway. ***Photo: Sverre Dunseth/Statoil***

be brought to shore;

- equipment and materials to be reused or recycled as far as possible;
- all in-field pipelines and cables to be removed and disposed of onshore;
- the three concrete gravity-bases to be left in place; and
- drill cuttings to be left in place.

The heaviest of the five topsides is TCP2's 23,210 tonnes, which TotalFinaElf has said will have to be removed in several operations. The others though, including CDP1's 12,780 tonnes and TP1's 11,600 tonnes, could possibly be removed intact by new single-lift technology. The development of this technology has been supported by the Decommissioning Technology Group which consists of six oil companies facing demanding platform decommissioning operations – Phillips and TFE in Norway, BP, Shell, Kerr-McGee and Talisman in the UK.

Single-lift JIPs

A report on a series of joint industry projects (JIPs) set up by the group to test the applicability of single-lift concepts to topsides removals was delivered by DNV in mid-year. To the seven concepts originally selected to participate in these projects – Archipose 20000, GM Lifter, *Master Mind*, MPU Heavy Lifter, Offshore Shuttle, *Pieter Schelte* and Versatruss – Seametric International's recently launched Twin Marine Lifter was later added.

With the exception of Phillips, the Group is understood to be preparing for studies on jacket removal, with Shell's Gannet A and Kerr-McGee's Ninian North structures providing the models. Phillips, however, is ready to apply the new technology to an actual task – the removal of 36/22-A and 37/4-A, the two redundant booster platforms on the Ekofisk-Teesside oil export line.

Only companies that are developing single-lift technology will be allowed to participate. The two platforms are similar, with topsides of around 5,500 tonnes and jackets of between 4,400 tonnes and 5,000 tonnes. Both stand in a water depth of around 75 metres. A contract is expected to be placed in 2003.

Phillips will also award contracts for the cleaning of the Ekofisk Tank and the topsides removal. The topsides consists of some 82 modules and equipment packages totalling some 24,000 tonnes. Removal will either have to be carried out by a conventional heavy-lift barge, or by the 'piece-small' method, involving the cutting or dismantling of everything on the topsides to a size that can be handled by platform cranes and supply vessels. Probably a combination of the two methods will be used.

Statoil at work

The first removal of an Ekofisk area installation, the topsides of Statoil's redundant 2/4-S riser platform, took place this summer. The platform had sunk so much that Statoil decided it should be removed in the short term for safety and economic reasons. The 5,000-tonne topsides was lifted off by *Thialf* in seven or eight main lifts. The crane-barge delivered the various parts to Lyngdal Recycling's new decommissioning site in southern Norway. Some items such as the crane and fire-pumps have been sold, and most of the rest will be recycled. Separately Statoil retrieved from the seabed the 1,100-tonne Tommeliten template using Saipem's *S7000* crane-barge, and brought it to shore for scrapping.

Statoil has also abandoned its Yme development this summer, after recovering some 50mn barrels over five years. The production platform here was Mærsk Drilling's *Mærsk Giant* jackup drilling rig, converted for simultaneous drilling and production. Once the platform wells had been plugged and abandoned, and pipelines and risers disconnected, the rig was able to jack up and leave the field. Semisub *Mærsk Jutlander* abandoned the four subsea satellite wells, and the removal of subsea equipment was being carried out in late summer by Halliburton Subsea using the *Toisa Perseus* construction vessel.

Cuttings research nears end

UKOOA's drill cuttings initiative is on its final lap, and results are expected to be published towards year-end, ahead of a final meeting with stakeholders. These will include a report on the cuttings lifting trial that was carried out at BP's North-West Hutton platform in July.

Meanwhile, high oil prices continue to keep ageing fields in business around the world. However, they may not be able to save Kerr-McGee's Hutton field, which is produced by the world's first tension-leg platform. Following loss of integrity in the export pipeline, the field was shut in this summer and the operator is now pondering whether future income would justify the cost of repairing or replacing the pipeline.

Continued development of Captain

Photos courtesy of Texaco

A series of innovative gas-handling hydraulic submersible pumps (HSPs) on Area B of the North Sea Captain field have just completed more than six months of successful operation. Texaco is currently assessing the potential of Area C, further to the east of the field, while Weir Pumps, developer of the HSPs, is anticipating an increased demand for its innovative products. *Kim Jackson* reports.

The Texaco-operated Captain field in block 13/22a of the UK North Sea reached a peak production of 98,399 b/d of oil on 21 August 2001, with the daily average production in July and August exceeding 70,000 b/d. This is the field's highest sustained production since first oil from Area B in December 2000. 'Current production levels represent an important landmark for Texaco as we continue to improve reliability and increase production from the field, whilst always maintaining our priority of safe operations. This is a significant step towards the targeted plateau production rate of 85,000 b/d in 3Q2001,' commented Steve Smith, Texaco's Captain Field Asset Manager, at a recent press briefing.

The second phase of the Captain project – the £350mn development of the field's eastern extension, known as Area B, which completed in December 2000 – was achieved via an industry partnership between Texaco (85%), field partner Korea Captain Company Ltd (KCCL) (15%) and Weir Pumps, working together to overcome the technological challenges presented by free gas in Area B. Reserves in Area B are being developed subsea, utilising a single, unitised 18-slot manifold connected via pipelines to a new process/utility platform installed in 2000. This is bridge-linked to an existing wellhead protector platform used to develop Area A.

World first

A downhole gas-handling hydraulic submersible pump (HSP) was developed for the project, specifically designed to handle the high gas content of the Area B reservoir. According to Smith, Captain is the first oil and gas field in the world to base its development on the use of gas handling multiphase hydraulic submersible pumps. Conventional electrical submersible pumps (ESPs) used on Area A were unable to cope with the gassy oil encountered in Area B reserves, because of their propensity for gas locking and motor overheating at elevated inlet gas void fractions.

The pumpset had completed its seventh month of successful operation in Area B as *Petroleum Review* went to press. Five pumps are currently operational and Stuart Oakley, Weir Pumps Director for Oil, Downhole and Subsea, reports that they are all 'performing well, with as much as 70% free gas at

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Real-time, remote testing

Weir Pumps has developed an innovative extension to its performance testing capabilities. The Rapport system allows a test engineer to remotely monitor pump testing undertaken in the test loops on the shop floor via a real-time Internet connection. Test data are automatically acquired by the system through test loop sensors and the results can be printed in report format within minutes of the tests completing. The system also features a 'walk around' 360° tour of Weir Pumps' test facility and a working schematic of the pump illustrating what is happening as the tests take place.

The system will allow Weir to provide customer access to performance testing from anywhere in the world. It will also enable customers to significantly reduce their testing costs, as they will be able to monitor testing as it happens without having to go to the expense of sending personnel to the site for the duration of the testing period, which can extend into a number of weeks, if not months.

The system is currently undergoing further trials and Weir hopes to market the product in the near future.

Where will all the sulfur go?

New regulatory requirements for sulfur levels in petrol and diesel will result in the removal of thousands of tonnes of sulfur every year. But where is it all going to go? asks *Gordon Cope*.

New regulations on the allowable levels of sulfur in fuel refined in Europe and North America have recently come into effect:

- Within the EU, sulfur fell to 350 ppm in diesel and 150 ppm on 1 January 2000. On 1 January 2005 it will fall to a maximum of 50 ppm for diesel and petrol.
- In the US, the Environmental Protection Agency (EPA) has proposed a rule to reduce the average sulfur content in petrol to 30 ppm by 2004. Diesel regulations are set to follow.
- In Canada, the Federal Government announced regulations that required the sulfur content of petrol to average no more than 150 ppm by 2002 and 30 ppm by 2005.

Regulatory driving forces

The reasons for introducing the legislation are two-fold and inter-related – health and motor exhaust levels.

Sulfur dioxide (SO_2) generated by automotive engines has been connected to a myriad of medical problems, such as bronchitis in children, asthma and premature deaths. The Canadian Government, for instance, predicts the new rules will prevent two premature deaths per week, 86 cases of childhood bronchitis and 3,000 fewer asthma incidents.

Reducing sulfur in fuel will also help to reduce other noxious components. Sulfur competes with nitrogen oxides (NO_x), carbon monoxide (CO) and volatile hydrocarbons (VHCs) on the active surface of catalytic converters to limit their effectiveness. In order to meet stringent new standards for tailpipe emissions, motor manufacturers insist that low sulfur fuels are a necessity.

Refining the product

The basic technology for removing sulfur from fuel is already in place. When crude oil first enters a refinery, it is distilled (fractionated through boiling) in an atmospheric distillation tower. One of the fractions is raw naphtha, or raw petrol, which contains about 600 ppm sulfur. In order to increase the octane level of the raw naphtha, it is fed into a platinum/iridium catalytic reformer that rearranges its hydrocarbons. Because sulfur degrades the platinum/iridium catalyst, the naphtha feedstock is first fed through a 'hydrofiner,' a catalytic system with a different catalyst that scavenges all sulfur and converts it into hydrogen sulfide. By the time the naphtha goes through both the hydrofiner and catalytic reformer, the end product – known as reformate – has levels of sulfur below 1 ppm, well within the new regulations.

Unfortunately, this treatment is only applicable to the raw naphtha fraction; it leaves almost 80% of the initial crude unexploited. The remaining crude is therefore sent to a collection of distillation towers where ethanes, propanes and butanes are removed.

The bulk of the remaining distillates, known as gas oil, holds most of the sulfur. The gas oil is then routed through catalytic cracking units that break the long-chain gas oil molecules into smaller chains. This second source of naphtha is called catalytic light naphtha, with sulfur contents ranging from 1,200 ppm to 3,000 ppm.

Traditionally, refiners then blend catalytic light naphtha with sulfur-free reformate naphtha, butane and other feedstocks to produce various grades of petrol with a sulfur content around 350 ppm.

In order to meet the new regulations, refiners have spent several billion dollars upgrading their hydrofiners and catalytic converters to de-sulfurise the naphtha further. The industry generally expects to meet the regulated targets, although some price distortions in regional markets are expected to take place as the deadlines pass.

The question goes begging, however; what will be done with the new source of sulfur that is extracted to meet the regulations? Will it end up creating yellow mountains of surplus brimstone?

The answer, in short, is no. 'It [the supplemental amount produced by refiners to meet new regulations] is a drop in the ocean, maybe 30,000 t/y [for North America],' according to Barry Clarke, who is a Sulfur Consultant with Pentasul in Vancouver. 'The tar sands alone produce a million tonnes of sulfur a year.'

Photo courtesy of Husky Oil

Sulfur stockpiling at Husky Oil's Ran River operations

Sulfur mining dead

Unfortunately, there are far greater challenges facing the sulfur commodity. 'The fundamentals have changed,' comments Clarke. 'There is no demand/supply commodity market [in North America] now. Sulfur mining is completely dead.'

This parlous state of events has arisen due to the fact that most of the world's sulfur production arises as an unwanted by-product of the petroleum industry.

Currently, the world produces approximately 60 mn tonnes of the yellow stuff annually. Major producing countries include the US, Canada, Western Europe, China and the FSU. Although the element is found in many different natural forms throughout the world, most commercial sulfur arises either through mining, extraction during refining of crude oil, or as a by-product of natural gas production.

The primary sulfur-mining technique is known as the 'Frasch process.' Hot water is injected into underground beds of elemental sulfur. The sulfur melts, and the mixture is then pumped to the surface where the mineral separates on cooling. Over recent decades the process has been an important source of sulfur production in the US.

Over the last 10 years, however, the amount of sulfur that must be removed from crude oil during refining has risen dramatically. 'In the US [the amount of sulfur in crude] used to be below 1% by weight,' says Clarke. 'Now, it's creeping past 1.5%, and some crude, like the tar sands, is over 2%.' US refiners are now removing 6.5mn to 7mn tonnes of sulfur per year during the refining process.

Sulfur is also associated with natural gas, in the form of sour gas containing hydrogen sulphide (H_2S). This poisonous component is stripped from the natural

gas during processing and recovered in elemental form. Canada alone produces over 8mn tonnes from this source annually. In all, approximately 40mn t/y of sulfur are recovered from oil and natural gas, mostly in North America.

Sulfur prices

Most of this recovered sulfur is unwanted. While demand was strong, this was not a problem. Sulfur prices of approximately $60/t covered the costs of shipping the recovered element from North American refineries and gas plants to their continental consumers. Important uses of sulfur include the production of pigments, detergents, sheet metal, explosives, and storage batteries. It is also used in making paper, insecticides, fungicides, dyestuffs, and carbon disulfide (a solvent employed in making rayon and cellophane).

Over 90% of all the sulfur produced is converted into sulfuric acid, however, for which the largest single use is in the manufacture of fertilisers. It takes around half a tonne of sulfur to produce one tonne of fertiliser. The US is a major fertiliser producer, accounting for 22% of world sulfuric acid consumption in 1998. In addition to a large domestic market, several million tonnes of US fertiliser products are annually exported to agricultural nations in Asia and South America.

The fertiliser industry was recently thrown into disarray, however, when China decided to curtail US shipments in an effort to develop its own domestic fertiliser industry. American fertiliser exports to that country dropped from 5mn tonnes in the late 1990s to under 3mn tonnes forecast for 2001. 'Around 75% of [US fertiliser producers'] output went to China,' says Clarke. 'They were over-committed to one market.'

As a result, over the last year, sulfur prices have spiraled downward. 'We are now seeing the lowest prices ever in the world,' comments Clarke. 'One year ago, it was $58–$60/t delivered to the consumer in Tampa, Florida. It is now $25-$30/t.' With the collapse of prices, Freeport closed its Main Pass mine in Louisiana, the last Frasch facility in North America.

That still leaves immense amounts of recovered sulfur with few places to go. Most refineries have a policy of shipping, regardless of the price (so the few extra tonnes due to the new fuel regulations will not accumulate outside their doors). Others, including many Canadian gas processors and oil sand facilities, are stockpiling. 'Alberta produces around 8mn tonnes, with 7mn tonnes shipped to market,' states Clarke. He reckons Canada's stockpile was at around 13mn tonnes at the end of 2000 and, under current market conditions, could rise to around 15mn tonnes by the close of 2001.

Search for new markets

With the amount of sulfur recovered from refineries and natural gas unlikely to diminish in the near future, new uses for sulfur must be found to stimulate demand. Some of the areas of experimentation include:

- The substitution of sulfur for Portland cement and water to act as a binding agent to produce a durable, acid-resistant concrete.
- The use of sulfur in protective coatings to improve the resistance of conventional building materials to chemical attack and other stresses. Fabrics can be impregnated with sulfur and additive materials to produce flexible or rigid lining materials.
- The use of sulfur as an asphalt extender or as an asphalt replacement, which totally eliminates the need for asphalt.

These alternative applications are not expected to have a decisive impact on demand in the near future, however. 'You can put part of it back in asphalt, but no matter how many new uses you come up with, the massive use is in fertiliser,' explains Clarke. 'And the consumption of fertiliser can be influenced by weather, policy decisions and trade decisions.'

Eventually, the fertiliser market will stabilize, and demand may even exceed the production of recovered sulfur within a few years – especially if gas producers move ahead with schemes to strip hydrogen sulfide from natural gas and inject it into non-producing reservoirs. 'Prices will likely then be more volatile,' predicts Clarke, mainly because the only alternative viable source, Frasch mining, has now been largely eliminated. 'The oil industry will only produce the sulfur that it has to get rid of. If there is a strong demand turnaround, where will the supply come from?'

Captain's wellhead protector platform is bridge-linked to a process/utility platform.

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pump suction.' Texaco and Weir engineers will deploy the remaining production pumps, supplied under a 15-pump contract worth £7.6mn, over the next 13 months as new wells are drilled and completed.

Oakley anticipates worldwide interest in the new pumpset on the back of its first commercial deployment, stating: 'The current upturn in the oil sector, coupled with the need to maximise returns from existing asset infrastructure, should present opportunities for further growth in this side of the business. The new technology is one of several innovative fluid engineering solutions currently being developed by Weir and its oil company partners, which are aimed at oil and gas production enhancement.' The company has already secured an order for two HSPs from Norsk Hydro as part of a new downhole system for an as yet undesignated location in the Norwegian sector of the North Sea.

Upsides potential

There remains on-block upside at the Captain field as an allowance was made in the design of the Area B facilities. Further work is currently underway to assess the most easterly reserves in Area C that cannot be accessed from Area B and that will require a new drilling centre. Appraisal wells are planned on Area C this year, with development possible in 2003/2005. No more than four to five wells are expected to be drilled in this region, the aim being to maintain Captain's overall production rate for as long as possible rather than significantly boosting outputs.

Racing to buy North American gas reserves

IHS Energy Group has utilised its Petroleum Economics and Policy Solutions (PEPS) Transactions Database to highlight upstream trends during 2001, noting the dominance of Canadian and US gas takeovers in worldwide transactions over recent years and the rising value of the gas reserves taken over.

According to IHS analysis of takeover trends is a key indicator of industry activity and financial health as many oil and gas companies increase their reserve holdings through acquisitions of other companies' assets or by taking over entire companies.

Transactions in the database include company takeovers, the purchases of acreage and reserves, swaps and selected block awards. The database also puts a value on exploration acreage.

Dominating reserves transactions

The year has seen, Canadian and US takeovers involving gas have continued to dominate worldwide reserve transactions.

The trend towards North American gas takeovers started in 2000, when 74% of worldwide takeovers were located in Canada. In 2000, the US accounted for 69% of worldwide reserves involved in takeovers and 72% of worldwide takeover value. Following 1H2001, Canadian acquisition of gas reserves represented 65% of worldwide takeover transactions.

In terms of total reserves and total value of reserves, there has been a dramatic shift away from US takeovers in favour of Canadian takeovers. US takeover activity decreased to 33% on a reserves basis and 35% on a value basis in 1H2001, while Canadian takeover activities escalated (see **Table 1**).

Of greater significance is that in 1H2001 the average price paid for Canadian reserves acquired through takeover was $6.75/boe. This compares with an average price of $5.56/boe in 2000, and $4.88/boe in 1999. A similar increase in average value of reserves acquired through takeovers was seen in the US, where US reserves acquired through takeover in 1H2001 were valued at $7.05/boe. This compared with $6.28/boe in 2000 and $6.05/boe in 1999.

These changes represent a narrowing of the gap between the average value of US and Canadian reserves through 1H2001 (see **Figure 1**). The increase in reserve value in North American takeovers is a direct reflection of the increased demand for gas supplies in the US. In 1H2001, IHS estimates that approximately 85% of the reserves in US takeovers were gas. In Canada, approximately 50% of takeover reserves (in 1H2001) were estimated to be gas.

Major takeovers

The most significant single impact on the overall takeover statistics in 1H2001 came from the acquisition of Barrett Resources. This netted Williams approximately 2.1tn cf of gas-equivalent, at an average price of approximately $1.33/thousand-cubic-feet of gas-equivalent.

Major Canadian takeovers in 1H2001 included Gulf Canada Resources, which was acquired by Conoco for $6.3bn (estimated $6.20/boe), and Encal Energy, which was acquired by Calpine for $1.2bn (estimated $7.80/boe).

Period	Takeover reserves (bn boe)-	Canada (%)	US (%)
1999	16.2	5	48
2000	10.1	20	69
1H2001	2.9	65	33
Period	**Takeover reserves value ($bn)**	**Canada (%)**	**US (%)**
1999	90	5	52
2000	61	18	72
1H2001	20	64	35
Period	**Takeover transactions (Number)**	**Canada (%)**	**US (%)**
1999	48	58	29
2000	73	74	22
1H2001	46	65	33

Table 1: Global takeover statistics highlighting Canadian and US dominance (1999–2000)

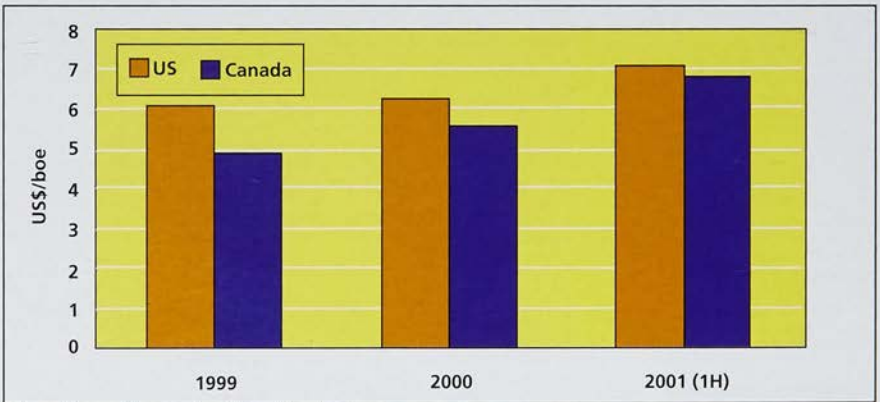


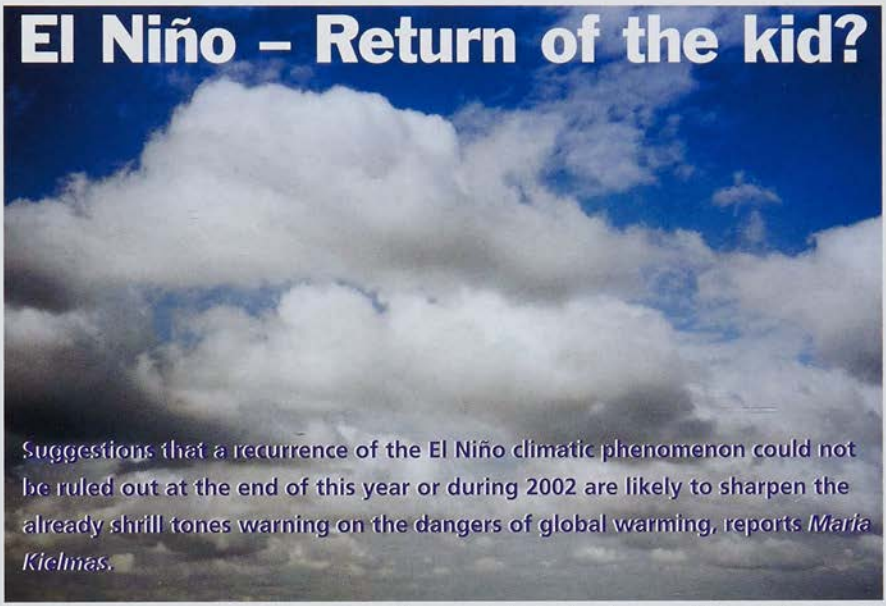
Figure 1: Average takeover value of US and Canadian reserves

In the US, significant takeovers in 1H2001 included Barrett Resources, which was acquired by Williams for $2.5bn (estimated $7.95/boe), and Belco Oil & Gas, which was acquired by Westport Resources for $848mn (estimated $7.01/boe). Gas reserves acquired through US takeovers were largely located in the US and Canada.

Started in 1994 the PEPS database includes more than 5,500 reserve and exploration transactions representing more than 100 countries that can now be viewed on-line or by CD-ROM. ●

For more information about PEPS, contact Tel:+44 (0) 1372 745959 or e: **mark.elliston@ihsenergy.com**

El Niño – Return of the kid?



Suggestions that a recurrence of the El Niño climatic phenomenon could not be ruled out at the end of this year or during 2002 are likely to sharpen the already shrill tones warning on the dangers of global warming, reports *Maria Kiclmas.*

The major problem for the hydrocarbons industry is that although serious climate scientists rule out any connections between observations that may indicate a global warming and the El Niño – Southern Oscillation (ENSO) (see box), popular perceptions attuned to an already apocalyptic debate may not be straightforward to address.

The possible appearance of El Niño comes at a time when large parts of the Western Hemisphere, and now even New Zealand, are undergoing or expecting an energy supply crisis. Although these crises are largely due to bungled deregulation (such as in California and also increasingly in New Zealand) or government inaction on investment regulations (for example, in Brazil, Mexico, Chile), it may prove difficult to refute a popularly perceived notion that climate problems are caused by the energy industries.

Uncertain forecasts

The Climate Prediction Center of the US National Oceanographic and atmospheric Administration (NOAA), based in Maryland, issued a very guarded statement in July this year. 'Near normal conditions are likely to continue in the tropical Pacific during the remainder of the northern summer. This assessment is consistent with most coupled and statistical model predictions. Thereafter, predictions indicate slightly warmer than normal conditions, a reference to sea surface temperatures (SSTs), during late 2001 and early 2002.' These 'warmer than normal conditions' are regarded as a strong indicator of an El Niño. Ecuador's National Institute of Meteorology and Hidrology (Inamhi) and Peru's Marine Institute (Imarpe) also both forecast a 'moderate' El Niño event for late this year or early next.

However, according to Patricio Aceituno, a Climate Scientist at the Geophysics Institute at Chile University in Santiago, these forecasts hold many uncertainties. While there was a slight warming of the coasts of Ecuador and northern Peru during March–April this year – which produced alerts of an imminent El Niño by the national weather services in Chile, Ecuador and Brazil – the situation later evolved towards normality. However, by mid-July (the date of the NOAA statement) there was further evidence of sea warming.

Past experience

Latin American nervousness about El Niño is grounded to a large part in recent experiences over the past decade and a half. Of the $33.2bn economic losses worldwide attributed to the 1997–1998 event some 54.4% were experienced in Latin America. El Niño-related droughts in Colombia and Central America reduced hydroelectric capacity causing severe power crises in the early 1990s and government plans to shift power generation towards the use of gas have not yet been fully realised. (Drought last year in Chile and this year in Brazil, although not related to an El Niño event, led to similar power cuts.)

However, this fear is not yet reflected on the other side of the Pacific. Scott Power, Head of Climate Analysis and Prediction at Australia's Melbourne-based Bureau of Meteorology (BOM) notes that between only 20 and 25 of the past 100 years have been what could be termed El Niño years. Only a handful of these El Niños started late in the year (July/August) and only a few tame Southern Oscillation Index (SOI) values have been observed in recent months this year. So, while it is difficult to be precise, the results suggest that it is unlikely that an El Niño will unfold this year – although it cannot yet be ruled out.

New Zealand's National Institute of Water and Atmospheric Research (NIWA) also reports that it cannot rule out the occurrence of an El Niño by early 2002. 'Most of out forecasting is

What is the El Niño – Southern Oscillation?

The El Niño – Southern Oscillation (ENSO) is an atmosphere/ocean interaction occurring over the entire tropical Pacific Ocean, in some part extending throughout the Southern Hemisphere, and linking with the Northern Hemisphere. It represents the most prominent example of natural climate variability at seasonal to inter-annual timescales.

El Niño is an irregular warming of the eastern equatorial Pacific Ocean while the Southern Oscillation is the associated change in pressure distribution between the eastern and western sides of the Pacific Ocean. The Southern Oscillation Index (SOI) measures the difference in atmospheric pressure between Tahiti and Darwin on either side of the International Date Line. When the pressure is persistently low over the mid-Pacific it is high over Australia and the Indian Ocean. A persistent, below average atmospheric pressure in the mid-Pacific is associated with an El Niño.

The opposite set of conditions to El Niño are known as La Niña. When an El Niño event occurs eastern Australia, parts of Asia and southern Africa may be plunged into severe drought, while parts of South America and the west coast of the US may suffer unusually heavy rain and floods.

Current concept

The current concept of ENSO as understood by climate scientists and their oceanographers is that of a coupled ocean–atmosphere phenomenon and the result of the cyclic warming and cooling of the surface ocean of the central and eastern Pacific. This part of the ocean is usually colder than would be expected from its equatorial location because of the influence of north-easterly trade winds, such as the Humboldt Current which flows equatorward along the coast of Peru and Ecuador, and the upwelling of cold deep water off the coast of Peru.

According to Goddard et al[1] under normal conditions the thermocline – the boundary between a warmer upper ocean and a colder abyssal ocean – is drawn towards the surface in the east as zonal winds blowing from east to west cause divergence in the oceanic surface currents away from the equator and colder water is brought to the surface. This creates a zonal gradiant in sea surface temperatures (SSTs) – colder in the east and warmer in the west – reinforcing the easterly winds. The STT is some 8°C higher in the west with the cooler temperatures in the South American coastal waters. The sea surface is also about half a meter higher in Indonesia than in Ecuador. The atmospheric circulation, together with the pattern of SSTs, place the deep convection over the western Pacific. Significant perturbations to any one of these components can potentially lead to a chain reaction of positive feedback, developing into an ENSO event.

During an El Niño event the central and eastern tropical Pacific warms as the warm upper ocean waters of the western Pacific extend eastward. This reduces the equatorial SST gradient and results in an eastward migration of active convection and rainfall, a slackening and even reversal in near-surface easterly winds, and a decrease [increase] in atmospheric surface pressure in the eastern [western] Pacific waters [the Southern Oscillation proper]. The changes in near-equatorial winds allow even more of the warm Pacific waters to move eastward. As the changes in the ocean lead to changes in the atmosphere, and vice versa, positive feedback is established. During the opposite extreme, now commonly known as La Niña, anomalies of the opposite sign are observed to grow through positive feedback. The period for a complete El Niño/La Niña cycle is typically three to seven years.

Past events

Over the last 30 years El Niños have occurred during 1972–1973, 1976–1977, 1982–1983, 1986–1987, 1991–1992, 1994–1995 and 1997–1998. The two largest – 1982–1983 and 1997–1998 – caused economic losses of $10.2bn and $33bn respectively, according to the US National Oceanographic and Atmospheric Administration (NOAA). However, the figures for economic losses are misleading. The 1982–1983 event was in fact the more destructive of the two events given the lower asset values and third-world debt crises of the time. In climate terms, the 1982–1983 event is also regarded as the strongest – even though media accounts gave the impression that the later event was worse.

Although relationships have been observed between rainfall and ENSO, these relationships do not occur with every event. The degree to which ENSO shifts local climate depends on the region's season and also the strength together with the spatial distribution of ENSO–related SST anomalies, according to Goddard et al. But there are some consistent signs. During El Niño, warmer than normal waters occur in the northern US and Canada while normally arid parts of the eastern US and Europe experience wet conditions. Drought conditions are generally observed in Australia and the Philippines and fewer Atlantic hurricanes are recorded than during non-Niño years. However, even these consistent signs are not necessarily simultaneous during one event. ●

1. L. Goddard, S.J. Mason, S.E. Zebiak, C.P. Ropelewski, R. Basher and M.A. Cane. *Current Approaches to Seasonal and Interannual Climate Prediction*. International Research Institute for Climate Prediction, 2000.
www.iri.colombia.edu

for one season ahead, where so far we have been expecting neutral conditions in the tropical Pacific to continue,' says NIWA Senior Scientist Brett Mullan.

Limited predictability

Limitations both in data and the models adopted curtail the predictability of an ENSO event. There is neither an adequate observational network nor historically broad enough data – this is particularly true of the southern oceans before the 1980s. Existing models of global climate do not produce an ENSO or, if this is attempted, they do not do it well, reports Tim Barnett from the Scripps Institution of Oceanography. Another major problem is the great amount of 'noise' in the climate system.

Mojib Latif, Senior Scientist at Hamburg-based Max Planck Institute of Meteorology has tried to investigate how perceived changes in the tropical climate system during recent decades may have affected ENSO. The changes referred to were slow variations in the mean state of the tropical Pacific. Using a series of British meteorological data in the area over 150 years, Latif observed that the changes in the mean state biased SSTs (sea surface temperatures) towards the warm side. This, he concluded, explained the stronger and more frequent El Niños observed during recent decades.

However, the calculations were repeated using a set of data originating from the US and no such changes were observed. The failure of this correlation contrasts with the general government and environmentalist outcry in 1998 when it was claimed that the first five years of registering record global temperatures showed that global warming was making the effects of El Niño even worse.

The available data is not accurate enough to give any indications of the natural variability of the Pacific climate system, even though the scientists do claim that there has been a long-term increase in global ocean temperatures. Climate change modellers show a surprising reluctance to adapt geological, historical and anecdotal data for use in any statistical analysis, in the manner that historical seismicity and paleoseismology have become disciplines in their own right in earthquake risk analysis.

Tim Barnett believes that there is too much noise in the climate system to attempt a correlation between expected global warming and El Niños, but nevertheless believes that his models show a distinct anthropogenic signal for this warming in that it has produced observed changes in ocean heat with surprising accuracy. He warns, however, that often the shortcomings of climate modelling are not emphasised enough – a view upheld in numerous recent articles in the climate science literature. Notable points made in the literature include the difficulties for a public audience to grasp the notion of a probabilistic method of statistical prediction often applied to climate forecasts, as well as the absence of key variables, such as subsurface salinity distributions, in the modelling assumptions.

Solar influence

In contrast with the view accepted among many earth scientists and some commercial weather consultants that the predominant influence in climate change is the sun, both Tim Barnett and Mojib Latif rule out solar activity and geothermal activity as the main engine for this warming. In interviews Barnett has claimed that less that 5% of observed warming is attributable to solar activity, while Latif believes that about 20% could be due to natural factors.

However, in an article published in April 2001 in the journal *Science* on the detection of anthropogenic climate change in the world's oceans, Barnett and others note that the forced runs used in the detection of a climate change signal in their models – a so-called Parallel Climate Change Model (PCM) forced by observed and estimated concentrations of greenhouse gases and the direct effects of sulfate aerosols – did not include indirect sulfate ozone, black aerosols, and other (unspecified) anthropogenic factors, nor did they include external forcing due to solar variability and volcanic activity. Despite these shortcomings, Barnett et al claim that their PCM is the only model to currently reproduce observed changes in ocean heat content, even though it indicates a lower anthropological impact on climate compared with those models which force a strong anthropological signal.

In contrast, Piers Corbyn of UK consultant WeatherAction says that his studies have concluded that solar activity is indeed the main arbiter of climate change and world temperature – especially when looked at over the past 20 years. Meanwhile, Tasmania-based Climate Scientist John Daly believes that most of the early 20th-century ocean temperature data is unreliable because of the crude way in which it was measured. More modern techniques suggest a warming of the ocean of just a few hundredths of a degree. Although the sun can be shown to have been giving more radiant heat in the latter part of the 20th century, a heat which penetrates the ocean readily to about 100 metres, infra-red heat from the atmosphere (including any human contribution) is only capable of heating the top millimetre of the ocean surface and cannot penetrate beyond the surface skin. This means that most of the sun's heat is quickly lost through evaporation.

Daly also refutes the notion that all of the world's oceans have warmed and that there are indeed differential effects going on, especially with ENSO and the more recently discovered Pacific Decadal Oscillation (PDO), along an ENSO-like pattern which causes shifting zones of warmth and cold across the entire Pacific over a period of decades. In the 20th century PDO events persisted for 20 to 30 years while ENSO events last between just six and 18 months. In addition, PDO patterns are at the most visible in the North Pacific/North American sector of the globe with secondary signatures in the tropics – the opposite to what is observed with ENSO.

We just don't know

The shortcomings of global climate models used to date implies that their application in forecasting the effects of global climate change on ENSO events and vice versa is a distant prospect.

A plausible hypothesis for the mechanism triggering these events in the first place would help. But on this the climate scientists have one answer – 'We don't know.'

Lifetime Learning

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A special supplement to

Petroleum review

Published by

IP THE INSTITUTE OF PETROLEUM

On the Institute of Petroleum's road to success

John Evans, Director of IP Membership Services, reports on the continued development and uptake of the Institute's Lifetime Learning programme.

It is now more than four years since the IP Council made a declaration to put resources behind 'stimulating and assisting members to acquire all the knowledge, values, skills and understanding that they require throughout their lifetimes.' This statement was the genesis of the IP's commitment to Lifetime Learning as an approach that we would advocate to our Members and for which we would provide support facilities. At the core of this is the IP's Lifetime Learning Plan – an alternative framework to those provided by major companies and other professional bodies – which recognises that individuals need to take responsibility for their own learning and the capacity to manage continual change as a feature of their careers.

Beyond the Lifetime Learning Plan, the IP helps its Members by working with national bodies for improved management and professional training, by gaining recognition from other professional bodies for the learning it offers and the forum it provides for the debate of key industry issues, and by the delivery of information necessary to the development of skills and abilities for the development of individual careers.

These are provided through:

- The networking opportunities within the Institute's community.
- Information sources which include the Library & Information Service, *Petroleum Review*, and the IP's website at **www.petroleum.co.uk**
- Attendance and participation on conferences, events and seminars.
- The technical and other publications of the Institute.
- Guidance provided on sources of training within the industry and the IP's own training programmes.
- Playing an active role in the Technical Committees of the Institute, developing new codes, guidelines and standards.

The IP's Lifetime Learning Workbook and Plan (see box) recognise the growing need for guidance amongst our Members in managing their own personal and career development, and provides them with help in terms of:

- self-assessment;
- checking its validity;
- identifying specific aims and objectives;
- developing an action plan;
- implementing that plan;
- monitoring and recording performance, and
- providing a template for self-management.

Additional services

Building on this framework, the IP has decided to provide some additional, elective services for IP Members in association with human resource specialists, the **Chiumento Consulting Group**, designed to enhance members' ability to manage their own Lifetime Learning and career development.

Some of the services can be provided free to IP Members – others will be chargeable but at a discount appropriate to IP Membership – and will include access to Chiumento's Virtual Career Management Resource Centre databases, and also personal advice as appropriate. For further details of the Chiumento Consulting Group package see page III.

Lifetime learning workbook and plan

IP Members will remember that the IP Lifetime Learning Workbook and Plan were launched in 1998 in recognition of the growing need for guidance to Members on managing their own personal and career developments. The Workbook and Plan guide Members to self-assessment, a reality or validity check, identification of aims and objectives, and the development and implementation of an action plan and its subsequent monitoring.

Many companies in the oil and gas sector and other professional institutes provide similar templates – designed as an alternative which you may wish to use to suit your circumstances.

The IP Lifetime Learning Plan and accompanying Workbook are available only to Members of the Institute. For more information contact the IP Membership Department, Institute of Petroleum, 61 New Cavendish Street, London W1G 7AR, UK. Tel: +44 (0)20 7467 7100; Fax: +44 (0)20 7255 1472.

Elective services

Some additional, elective services for Members embarking on the IP's Lifetime Learning programme will shortly be offered in association with human resource specialists, the **Chiumento Consulting Group** (CCG). These are designed to further enhance Members' ability to manage their own Lifetime Learning and career development.

Some of these services are provided free by CCG, including:

- A telephone advice line providing career advice for simple, straightforward questions, providing answers to frequently asked questions such as 'How do you put together a career plan?'
- For unemployed IP members only, a free hour's career counselling with an experienced CCG counsellor, either in person or by telephone/e-mail.
- Provision of results of relevant reports from commissioned research and articles, tackling questions such as 'How to create an effective CV' and 'Succeeding at assessment centres.'
- The IP will also arrange for career counsellors to speak at Branch meetings around the country, allowing informal contact as well as access to information on general principles.

Other services will be available at a special discounted IP rate. These include:

- Access to CCG's Virtual Career Management Resource Centre, which includes a database of current vacancies and a web-based source of unadvertised vacancies specifically tailored to oil and gas industry needs.
- An initial hour's career counselling with a CCG counsellor, comprising an audit of the individual's career-change progress to date, addressing specific sticking points such as CV not working and a workshop on career direction through the use of questionnaires.

Beyond these services, further consultation will be available on a contracted basis at a discounted rate together with additional speciality services such as psychometric evaluation and feedback for IP Members wishing to clarify their career direction.

Open-ended, one-to-one outplacement and jobsearch programmes are also available at discounted prices. ●

Learning through experience

In May 1995 *John Evans* became Membership Services Director of the Institute of Petroleum after nearly a quarter of a century working for a global company. Here he reflects on how learning has been a constant factor throughout his working lifetime – although he barely recognised this until he was forced to.

'Product management; distribution and logistics; industrial and consumer sales; contracting; contractor and distribution management; training; marketing; together with "quality management"; business planning; general management; experience working in the UK, Africa, east and southeast Asia, the Middle East, central and eastern Europe, the former Soviet Union, and western Europe – these are just some of the factors that did, or did not, prepare me for my role as Membership Services Director of the Institute of Petroleum.

In 1993, after 25 years working for a global giant in the chemical industry, I found myself redundant with at least another ten years' of working life and a family to support and educate. I also recognised that the likelihood of my finding a similar role in the commercial world at my level and age was quite low. What was to be done? What was I equipped for?

Facing the challenge

Like most people facing redundancy and unemployment, there was a psychological challenge to meet – the perception of failure and inadequacy, and the feeling of victimisation and self-doubt.

Perhaps the first step in reversing these negative feelings came from preparing to write the CV, by listing the functional responsibilities and the geographical scope of my experience, and adding to it personal involvement in different industries as buyer and/or seller – textiles, paint, plastics, food, swimming-pools, paper, central-heating, refrigeration, shoes, automobiles, as well as chemicals. A register of formal training, covering everything from sales through HR management to corporate finance and barter, helped to define the substantial range of skills that I had acquired over the years. However, in reality, I recognised that much more had been learned from 'on-the-job' training and application of newly-learned capabilities than was ever derived from a classroom environment.

Most people underestimate how much they know and the extent of their range of competencies. Clarifying these was the first step for me. My recent business experience had, for almost a decade, been focused on the former Soviet Union and central and eastern Europe. My expertise in this area immediately provided opportunities, initially through a government-supported consultancy scheme to small and medium-sized enterprises (SMEs), promoting trade and investment in that part of the world. This led to the development of new skills in the areas of publications, exhibitions and conferences, together with a significant understanding of the needs and demands of small companies, their problems of under-resourcing and inadequate skills – all relevant to an organisation such as the IP. When the opportunity came, I did not feel that my lack of background in the oil sector was a serious impediment.

Continued learning

Whether acquiring knowledge through formal training courses, attending events, reading around the subject, or simply meeting and talking with other people, I realise I have learned continuously throughout my working life. For much of it I worked in an environment where my employer mapped out my future career development. A few years before I was made redundant I realised that this was not continuing any longer and I had to start thinking about planning ahead for myself – I clearly didn't make a very good job of it – but redundancy concentrated my mind.

I recommend to people in any industry and any business today to think about their future career plan, to define the competencies that they require, and to take individual steps to ensure that they have those necessary skills to enjoy and effect their future ambitions. Personal development responsibility rests with no one else but one's self.' ●

'Personal development responsibility rests with no one else but one's self.'

CPD – a driving force for change

Success as an engineer or technician depends on a number of factors. With increasingly demanding jobs it is critically important to be able to demonstrate continuing competence as a professional. Personal aspirations, developments in technology, changing employment structures, together with increased international competitiveness, require continuing professional development (CPD) to be high on everyone's agenda. *Chris Senior (below), Senior Executive of the Engineering Council reports.**

Individuals have always had to update their knowledge and skills. However, continuing professional development (CPD), as a key part of lifelong learning, has a much wider function. It aims to enhance the potential of all staff by encouraging innovation and enterprise. Engineers must manage technology, be innovative and respond positively to a continuously changing world. Success comes from anticipating needs and recognising opportunities. CPD should be a driving force for change.

CPD in practice

The challenges and opportunities of work experience provide the central vehicles for ongoing professional development. They can be supported by structured activities that include:

- in-house courses;
- external courses;
- work-based learning;
- distance learning programmes;
- self-directed private study;
- preparation and delivery of lectures and presentations;
- attendance at lectures, seminars or conferences;
- coaching, tutoring, monitoring, teaching; and
- secondment and special projects.

The focus in CPD is on the learning outputs. Individuals should manage their learning, treating it as an investment in their career. Key activities include auditing their competences and experience; identifying development needs; planning appropriate activities; and evaluating the results.

The Engineering Council, as the central body for the profession, is responsible for establishing policies and promoting practice so that CPD underpins the professional competence of engineers throughout their working life. The Council emphasises:

- the responsibility of individual engineers for continuous improvement and development in order to ensure high competence as professionals throughout their careers;
- the need for development to include a range of technical, commercial, financial and management subjects; and
- the use of a wide range of structured job-related activities, that would include courses, distance learning, in-company programmes and professional institution activities.

Professional institutions have a central role to challenge their members to be committed to CPD, and to help them take effective action. Promotion and guidance documents are available. Learned society activities and publications provide valuable sources of help. There are opportunities for networking and important developments in the use of websites and mentoring is strongly supported.

Commitment and sharing

A commitment to improving and developing competence is a hallmark of professional staff. Registration with the Engineering Council and membership of institutions include an obligation to maintain professional competence. Engineers should not only be competent but should be in a position to provide evidence of their commitment to remaining competent. They should assess the results of their learning, using relevant benchmarks such as occupational and professional standards, and employers' competence frameworks. Assessment through academic and vocational qualifications is encouraged.

The Engineering Council Survey of Registrants shows that some 50% have undertaken more than five days of training sponsored by their employers. Over 13% of Incorporated Engineers and more than 20% of Engineering Technicians have undertaken part of an NVQ. Over 18% of Chartered Engineers have gained a relevant Masters degree since their initial education, while over 60% of registrants have a record of their development. However, planning of CPD is not well established, with only 30% having plans or 44% for those under 34 years old.

The Council, in partnership with the institutions, has developed a CPD Code of Practice that places obligations on engineers to:

Commitment – demonstrate commitment to continually enhancing professional competence.

Self Management – take responsibility for and manage CPD.

continued on pVI...

Tackling the skills shortage

At Offshore Europe 2001 in September a major theme running through the exhibition and conference was skills. A business breakfast jointly sponsored by Aberdeen and Grampian Chamber of Commerce and the Institute of Petroleum set the scene for this important issue. The conference programme also included 'Winning the Talent Wars,' which heard from major companies in the industry about their work to attract and retain talented people, together with a round table discussion focusing on the skills challenge for well engineering. *John Ramsay*, General Manager of OPITO, summarises the main conclusions drawn from the presentations.

The question of skills shortages has now moved up the agenda. Over one-quarter of UK firms are reporting significant skills shortages, with major deficits at the craft and technician level. The country needs 35,000 new engineering entrants a year to meet current demand. In 1999 there were just 17,750 entrants into engineering and technology related further and higher education courses.

There is a national shortage of IT workers and a year-on-year decrease of 9% per annum of applicants for engineering qualifications. Many engineering graduates fail to enter the engineering profession while many science, technology and engineering university places in the UK are filled with overseas students.

In addition, many experienced professionals have left the industry over the last few years as the cyclical nature of employment made jobs redundant. Quality graduates are generally not attracted into the industry thanks to a mixture of poor image, comparatively unattractive pay, poor training and development and a perception of no long-term future.

Future shortages are anticipated to be greatest in the technical, managerial, commercial and business fields with figures recently produced by OPITO indicating a shortfall of 600 technicians by 2007 based on current estimates.

Skills issues

The oil and gas industry does not exist in isolation. It is currently feeling the adverse effect of skills issues that impact across the whole of the UK and the industry globally. The recent White Paper on Enterprise, Skills and Innovation recognises that the future prosperity of the nation depends on collaboration between government and employers to address these issues. The focus will particularly be on increasing literacy and numeracy, developing vocational specialisms, rationalisation of vocational qualifications and increasing investment in information and communications technology skills.

Gender – While the male workforce in the UK will remain constant over the next decade the female, ethnic and disabled workforce will grow. Females now exceed the number of males as higher education full-time students and continue to grow as a proportion of this population.

Skills levels – Although skill levels across the UK are increasing, 75% of companies face a chronic shortage of talent. One in five of the working population are estimated to be functionally illiterate or enumerate with employers still finding employability skills lacking in new recruits.

There is increasing competition for talent and there is a lack of business input into education at all levels.

Education and training – Although an estimated £60mn/y is spent on training and development by the oil and gas industry, much of it is sporadic and focused on larger companies. Little is done to track where the money is spent and where it adds value.

Up to 20% of companies in the industry offer no regular training to their employees, and for those companies that do, training is limited to a select percentage of staff. Investment in training and development is very much influenced by the cyclical nature of the industry. This has the impact of curtailing long-term planning and development and contributes to the negative image of the industry amongst new entrants.

Graduate recruitment – Changes in education and training are having a major impact on the oil and gas industry in terms of the shortage of engineers; the unattractiveness of the industry to graduates; the impact of long-term debt on career choice; the rise of females as a proportion of higher education population and the development of new methods of development and delivery. With poor strategic links between education and industry there is little debate on how to collaborate to ensure a better understanding and bring about long term and on-going improvements.

The 'shelf life' of an engineer's knowledge today is, at best, four years; soon it will be less than two. Year-on-year there is a shortage of over 18,000 new entrant engineers at graduate and HND level to meet the current requirements of the UK.

Lower student attainment in mathematics and physics in primary and secondary education is having an impact on the level of entrants into further and higher education in engineering, science and technology disciplines.

Among graduates, there is also a poor perception of the relative social influence and worth of careers in the engineering disciplines compared to

finance, law and bio-sciences. For example, in a survey of the top 50 companies where UK final year business/engineering/science students were asked where they wanted to work, Shell was 37th (down 17 places since 1999) and BP was 48th (down 22 places since 1999).

Other factors are that long-term debt means that good starting salaries are important for graduates. Females now exceed the number of males as higher education full-time students and continue to grow as a proportion of this population while the male population of higher education full-time students is declining. Women now account for 15% of engineering and technology applicants for first degrees/HNDs.

During 'Winning the Talent Wars' presentation at Offshore Europe, Jane Richardson of Electronics Scotland, described similar challenges in that sector.

Not a surprise

There is general consensus that many of the workforce development issues faced by the oil and gas industry have been around or at least been known about for the last ten years. Many of these problems are part of a legacy of an inadequate and antiquated education and training infrastructure in the UK.

This has been coupled with a lack of strategic links between industry and education and the low priority given to training and development in many companies. These factors are not exclusive to the oil and gas industry – they are being experienced in different degrees across many sectors of the UK.

The problem arising now is that to bring about the substantive change required will take up a considerable amount of time, money, resources and commitment.

There is now a better understanding in the industry and a recognition that skills issues have the potential to limit or indeed threaten the planned developments in the next few years. There is a need for a pan-industry approach and the recent success achieved by a partnership of operators and contractors to double the number of technician trainees for production operations this year is an excellent example of a way forward which can form the basis for action in other areas.

Recruiting young people

The industry is now taking action in some areas and it can clearly show that by working together we can make a difference. It may be gloomy looking back but it is bright looking forward.

It is essential to attract talented young people into oil and gas to meet future employment needs. It is necessary to convey the full range of career opportunities that are available to young people. A comprehensive strategy has been developed – Careers in the Oil and Gas Sector (COGS) – to address this. The strategy calls for the formation of at least four more COGS groups to replicate the successful regional group already established in Aberdeen. This includes representatives from the NTO Group, Grampian Education Business Partnership, the Institute of Petroleum, the Society of Petroleum Engineers and the Grampian Careers Service, as well as individual companies. COGS is now working with partners in East Anglia to promote careers.

Education Day at Offshore Europe 2001 presented an integrated picture of the full range of career opportunities within the industry to some 300 young people. The industry website **Oilcareers.com** gives access to information for new entrants and a careers advice service developed in conjunction with the NTO Group. It is also planned to develop a pan-industry graduate careers strategy between 2001 and 2004.

Careers support and training

Careers advice is available for current employees, since many people change jobs or return to the industry each year. **OilCareers.com** to provides an efficient and transparent alternative to traditional redeployment and recruitment methods, giving existing and potential employees better access to job, career and training opportunities.

The existing system of new entrant technician training and apprenticeships is also being revitalised. One of the targets for this initiative will be SMEs (small/medium-sized enterprises) – the likely focus for much future technological innovation for the sector. In common with other industries, the offshore industry faces a shortage of skilled technicians to meet current and future needs.

Flexibility in the workforce

Training is a vital component of the government-industry vision for 2010, essential to help employees adapt to new technologies and business practices. There is a need for a flexible workforce at all levels and the development of a pool of skilled people capable of working with other people as well as with technology.

...continued from pIV

Learning Support – to support the learning and development of others.

The last point highlights a central issue of professional development – that learning should be a shared activity. Real achievements in professional and business life depend on group activities, on shared information and values, and on shared learning. Learning, innovation and growth depend on the synergy of individuals committed to continuous improvement. Professionals should to look outwards to society rather than inwards to themselves.

Obligation and benefits

Registered engineers are expected to take steps to maintain and develop their professional competence and knowledge. CPD is, therefore, a key obligation on engineers and technicians. Evidence of professional development and of compliance with the CPD Code are requirements for registration. Institutions monitor the CPD carried out by their members, using registration, upgrading and other relevant occasions to review evidence of the CPD planned and undertaken.

Knowledge is central to business success. The knowledge-driven economy is today's buzz-word – but what does it really mean? Technology-based companies recognise that their core capabilities must include technical knowledge and expertise, complemented by managerial skills. Technical staff are the holders, indeed the champions, of these capabilities. However, knowledge does not just happen – it needs to be developed and nurtured. Above all, it requires a culture of continuous improvement and learning throughout the organisation.

Investment in lifelong learning is a central business activity aimed at maintaining and improving the key competencies needed for success. For employers their staff are more capable, both technically and managerially and committed to continuous improvement. The benefits for individual engineers and technicians are increased job performance and employability, and enhanced opportunities for career advancement. The overall aims are high competitive performance for industry, and a positive image for the engineering profession.

Chris Senior CEng is the Senior Executive at the Engineering Council responsible for promoting professional development, in partnership with the professional institutions. He links with government, employers and academic bodies, and contributes to national and international initiatives.

Lifetime learning in practice

In April 2000, after 18 years in the upstream wellservice sector of the oil and gas industry, *Colin Black* joined Aberdeen-based IT company Ty-com Business Systems as their Business Development Manager. He is also part of the UK Government's LOGIC e-commerce initiative and is part of a team developing standards for e-business. Here, *Gill Haben*, IP Education Manager, asks how this step change in career path came about and what lessons he could share from his experience.

Colin explained that having completed an MSc in Management and the company he worked for being sold to a large multinational, a number of career options were presented to him. In order to help decide on what career to follow, he used the IP Lifetime Learning Workbook and Plan (see pII) to map out new personal development goals and objectives.

Asked to expand on his background and experience gained, he continued: 'As Operations Support Manager for Petroleum Engineering Services (PES), a completion and well intervention service company, I had developed a team working culture within my areas of responsibility – logistics, rentals, after sales service and technical training. With continual rapid company growth and many areas of responsibility, we had developed numerous business systems and processes to enable our teams to operate effectively. Tracking equipment movements and revenue generated was problematic in the early days and we worked together with Ty-com to develop software specific to PES needs.'

'When PES was sold to Halliburton in early 2000, the empowered teams re-aligned to allow me to take on a more strategic role of integrating PES and Halliburton well intervention product lines. At the same time, Ty-com were looking to expand their already extensive client base, by promoting their rental tracking/asset management software, the same system PES had used.'

Career change choices

'In the end the career change choices came down to either integrating systems and product lines at a corporate/international level within a large multinational or working with Ty-com to develop business software with multiple companies. It was never really about oil and gas or IT. Using the Lifetime Learning Workbook I realised that the key skills required for each role were similar. For me, IT is about delivering business information to the right people, at the right time and in the right way to maintain focus on commercial and business risk issues. IT is then seen as a collection of tools used to support highly efficient and effective teams.'

Asked what were the problems of moving from a large corporation to an SME (small/medium-sized enterprise), Colin replied: 'There are many challenges and this type of step change in career is not a decision to be taken lightly – but, as far as lifetime learning and personal development is concerned, it has been invaluable. Learning more about sales, marketing, new technologies – diverse business sectors with changing commercial pressures – is extremely interesting. Working with a team of software originators, Microsoft engineers and professional trainers is a new experience for me – but one that I learn from every day.'

On the knowledge trail

***Catherine Cosgrove*, Head of the IP Library & Information Service (LIS), provides a brief history of her career to date, in which learning and skills development have played a key role throughout.**

Just one week after my 18th birthday I left home and joined the British Army, where I learnt many things, including how to touch-type – probably the most useful skill I have ever learnt. After serving for six years, I decided a career change was in order – as I wanted to start building a career in the civilian world while I was still reasonably young.

Having been accepted on a Library Studies degree course at Loughborough University, I chose first to improve my typing on a shorthand/typing resettlement course – thinking that the skills would be useful not only for my studies but also for gaining temporary jobs in the future if necessary.

Three years later I graduated with an Upper Second BSc Honours degree in Library Studies, with a subsidiary in Computer Studies. In June 1980 I joined Marathon Oil as Assistant Librarian, just as the massive Brae A field project in the North Sea was really getting under way. During my nine years with Marathon I applied and volunteered for every course I could go on in order to enhance and add to my skills. These courses included First Aid at Work; Report Writing; Time Management; and Supervision. I also took an Open University degree course to stop myself going mad while my husband was studying for his, and gained a BA – although my subjects were all technology based.

While at Marathon I was promoted to Librarian. I became an Associate of the Library Association and also a Member of the Institute of Petroleum so that I could make use of its comprehensive library facilities and services. When the Information for Energy Group (IFEG) was set up under the auspices of the Institute of Petroleum, I volunteered to become Secretary. I rapidly read several books about how to be a group secretary – how to take minutes, etc – skills that have proved useful on many occasions.

Life at the IP

Since joining the IP in 1989 – first as Senior Information Officer and then as Head of LIS – I have attended many more courses including the IP's very useful 'Introduction to Petroleum Operations' which gives a thorough grounding in activities in the oil and gas sector. Even though I had been involved in the industry for nine years, the course – which is run annually by the IP – introduced me to a lot that I had no previous knowledge of, especially on the downstream side as my experience with Marathon had focused on the upstream sector.

Since then I have had to expand my IT skills by learning the raft of software packages used in the LIS. These included HTML so that I could set up the initial IP website in 1996. This website – **www.petroleum.co.uk** – has since expanded, with a revamped, new-look version launched last month.

IFEG runs a range of seminars and conferences of interest to information workers in the energy industries. I have attended all of these, first in my role as Group Secretary for nine years and now as Vice Chairman – not only have I learnt how to run such meetings, I have also greatly expanded my knowledge of the industry.

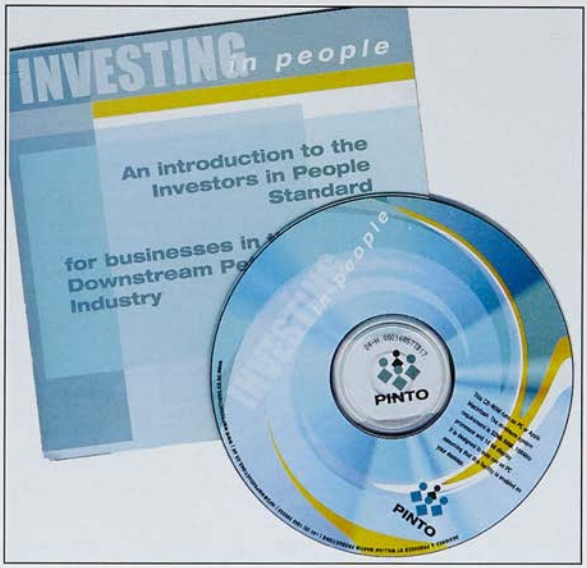
Working in the Library & Information Service at the IP means that every day I have to find information for people on new topics from library material, external sources and often from my colleagues – I never stop learning.

Championing skills development downstream

Although facing major UK Government-initiated organisational changes, the Petroleum Industry National Training Organisation (PINTO) is more determined than ever to champion and enhance sector skills in the UK downstream oil industry. It is currently spearheading the implementation of a Workforce Development Plan that aims to address the key issues facing employers and trade associations in this sector over the next three years.

Generated by PINTO through the valued input and participation of all sectors in the downstream petroleum industry, the Petroleum Industry Workforce Development Plan came together in March 2001. It establishes key priorities to resolve the skills issues affecting the industry's performance across the UK. These issues – identified by the industry itself – include the urgent need to attract a new generation of employee in sub-sectors with mature workforces, and the response to the impact of new technology. Tom Wolstenholme, who recently took over as General Manager of PINTO from Allan Connarty, explains: 'The Plan is an important strategic document and process, produced *by* the industry *for* the industry. Focused and purposeful, it sets a clear agenda.'

Tom Wolstenholme



The issues and workforce development priorities identified in the Plan cover four industry sub-sectors:

- stabilising, refining and manufacturing;
- storage, blending and distribution;
- heating services as well as forecourt retailing; and
- commercial and corporate.

'The Workforce Development Plan mandates the setting up of management groups for each of these sub-sectors, involving all relevant stakeholders in that particular area of activity,' continues Wolstenholme. 'PINTO's initial role is to facilitate the formation of these groups and act as enabling body for each of them.'

Together with PINTO's operations managers, Wolstenholme will be canvassing to encourage involvement in the management groups. 'We want to enlist not only valuable Human Resources participation, but also line manager support in other departments. We aim to achieve the widest possible industry contribution. The groups will bring the Plan to fruition and update it annually.'

Over the coming months, PINTO will be building relationships with the new Learning and Skills Councils and the Department of Education and Skills in support of the UK industry's training initiatives. 'There is a fresh impetus for action, delivery and funding across all government organisations at the moment,' says Wolstenholme. 'PINTO

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Award recognition for lifetime learning

_Dr Tony Jeans_* explains how the City & Guilds Senior Awards are helping to mark a milestone along the road of continued professional development.

The professional in today's organisations, either in a managerial or technical role, has to acquire and apply a whole raft of knowledge, skills and personal qualities to be effective. These will take the individual well beyond the original field in which he or she specialised and are developed through experience, formal as well as informal study, together with reflection.

The Institute of Petroleum supports personal and professional development through its publications and programmes and we at City & Guilds have been pleased to be able to support this process.

Some people are able to meet their development needs through a programme of study leading to an academic award at the level of degree, diploma, masters etc. Others can consolidate and certificate their experience through a work-based competence qualification (S/NVQ) or through membership of a professional body such as one of the engineering institutes.

City & Guilds awards

However, these routes may be unavailable or impracticable for many successful and well qualified professionals. City & Guilds Senior Awards provide a means of structuring development and recognising achievement in the work place and are integrated into the individual's professional practice.

There are three main Senior Awards:

- Licentiateship (LCGI) – at a comparable level to HND/NVQ 4;
- Graduateship (GCGI) – at the level of First Degree; and
- Membership (MCGI) – at Masters degree level.

The three awards are work-based and they each involve assessment against defining criteria for application of professional knowledge; personal skills and attributes; and successful performance in the work place.

The *Licentiateship Award* is used as recognition of supervisory or managerial development

- for people with technical or administrative qualifications who have progressed to roles of greater responsibility; or
- to certificate the sandwich year for university undergraduates.

The *Graduateship Award* records the achievement of the candidate against two main requirements:

- the ability to understand and apply the principles of a technical subject or professional activity; and
- the ability to demonstrate personal skills and specific competence against the following criteria areas:
  - self management and development;
  - understanding, application and critical assessment of established practices;
  - effective working relationships; and
  - clear and effective communication.

This is broadly comparable in level to the competence expected of a UK or European graduate with some three years' relevant experience.

The *Membership Award* (MCGI) has a more demanding level of achievement broadly comparable to that expected of the holder of a Master's degree with subsequent years of supervisory management or advanced technical experience.

At the moment, the Awards are available to Members of the Institute of Petroleum by direct application to City & Guilds. The Licentiateship requires applicants to submit proof of personal development and achievement and referee statements to City & Guilds. This documentation is matched against the

Photo courtesy of the Fire Service College

Hot on the award trail

One sector where the City & Guilds Senior Awards have been taken up extensively is the UK Fire Service, where a large number of Fire Officers have achieved Senior Awards either directly work based or else derived from project work within special vocational courses. The arrangement is operated by the Fire Service College through Coventry University.

In 1997, and again in 2001, Assistant Chief Officer (ACO) Terry Standing MBA, MIE, MCIPD, MIFireE, Hertfordshire Fire and Rescue Service, was awarded a Gold Medal by the City & Guilds Senior Awards Committee for excellence. His outstanding project report – entitled 'Understanding climate change: an evaluation of climate change and its impact on the role and function of the Fire Service' – was the result of his international research project, which is a requirement of the Brigade Command Course at The Fire Service College. It was submitted for the Membership of City & Guilds Senior Awards (MCGI).

One of the key drivers for ACO Standing in carrying out his research into climate change were his personal experiences in dealing with the storm force winds of 1987 and 1990. On each occasion he was made very much aware of the demands on the Fire Service and felt that understanding climate change was important for the future, if the Service is to be able to manage its personnel and its activities comprehensively.

LCGI criteria to establish whether the standard has been achieved

A project report or portfolio is required at Graduateship or Membership level. To apply, candidates initially submit a synopsis detailing the objectives, scope and methodology of the project. Once approved candidates then have 18 months in which to complete their project. Ongoing guidance and support is available throughout the process. A team of specialists finally assesses the project and the candidate must undertake a *viva voce* interview.

'City & Guilds Senior Awards provide a means of structuring development and recognising achievement in the work place and are integrated into the individual's professional practice.'

Valuable tool

Senior Awards represent a valuable tool in the process of staff development and supporting continuing professional development. The individual can gain recognition for achievement and experience in a very flexible manner. The structure of the awards, in terms of criteria and progression, provides a flexible approach for employers that can produce business improvement, meet the criteria of Investors in People (IIP) etc.

Full details on Senior Awards are available on the City & Guilds website at **www.city-and-guilds.co.uk** The Senior Awards team at City & Guilds will be very happy to provide advice and guidance to individuals or organisations interested in the Awards. Contact Ian Frith, Senior Awards Manager at City & Guilds, Tel: + 44 (0)20 7294 2637; Fax: + 44(0)20 7294 2416; e: **ianf@city-and-guilds.co.uk**

**Dr Tony Jeans works with the City & Guilds Senior Awards Team. He has worked in Further Education, Higher Education and Vocational Training at Senior Management level and is currently an independent consultant.*

What next for NTOs?

National Training Organisations (NTOs) were set up by the UK Government in 1997 as strategic industry bodies with responsibility to promote high standards of training in their respective sectors and to provide a central point of information on skills development. In 1998, the Petroleum Employers' Skills Council (PESC) successfully applied for NTO status on behalf of the downstream petroleum industry and became PINTO.

Earlier this year, the government launched a consultation into the future of NTOs, with a view to building a 'smaller but stronger network.' There are currently 73 NTOs in the UK. The government would like to reduce this number to fewer but more effective NTOs through a process of mergers and possibly the creation of 'clusters of NTOs.'

The Department for Education and Skills has been assessing the response to the consultation. John Healey, the new Parliamentary Under Secretary of State for Adult Skills, is to unveil the government's plans on 17 October 2001. 'Whatever the outcome of the consultation and the format under which PINTO operates in the future, we will ensure that the interests of the downstream petroleum industry remain strongly represented,' states UKPIA's Malcolm Webb, Chairman of PINTO.

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will capitalise on this opportunity on behalf of the downstream sector.'

Investing in people

Another important PINTO activity is the promotion of the Investors in People Standard, which aims to help businesses improve their performance through people development. To that effect, PINTO has produced 'Investing in People' – a CD-ROM guide to the Investors in People Standard, in close collaboration with Investors in People UK, petroleum industry employers and training providers.

As well as giving details of the principles of good practice behind the Standard and listing the many advantages attached to it, the CD-ROM features video case studies from two prominent names in the oil industry – Connors Maxol Direct of Northern Ireland and TotalFinaElf. 'There is no better way to demonstrate the benefits of the Standard than through the testimony of users within our industry,' comments Jocelyne Bia, PINTO's Communications Manager. 'Simultaneously to producing this CD-ROM, we were working towards Investor in People recognition, which we achieved earlier this year. This puts PINTO in an even stronger position to promote the benefits of being an Investor in People.'

Raising the standards

In the past year, industry groups and PINTO have committed much time and effort to the updating and upgrading of industry standards and qualifications. PINTO has also been involved in the development of a Forecourt Contractor Safety Passport Scheme and a Forecourt Risk Assessment Programme.

Additionally, it has set up a Learning and Development Support Network in South Wales, as well as its own Training Providers' Network. 'Through these networks, our aim is to promote the sharing of best practice, the adoption of a common, high quality approach to training, and provide an industry-specific focus, whenever and wherever possible,' explains Wolstenholme. 'This is particularly relevant for health and safety training.'

'Another project is to establish a Training Course Accreditation scheme by which we audit, endorse and certificate specific training courses, thus providing a quality assurance of contents and delivery, whilst crucially benchmarking the courses against industry national standards.'

PINTO is also embarking on a four-year standards development strategy to include new functional and occupational maps, technical certificates and suites of awards covering activities such as lubricants and marine tanker/jetty operations, as well as oil spill prevention and management.

'The downstream petroleum industry makes a vital contribution to the UK's gross domestic product,' states Wolstenholme. 'The standards development strategy is an essential tool to ensure the health of our sector, and hence that of the GDP.'

He adds 'PINTO's paramount ambition throughout our range of activities is to deliver, deliver, deliver and to play our part in enhancing the industry's overall level of skills, and thereby economic performance.'

To find out more about PINTO, visit **www.pinto.co.uk**
To order copies of the Petroleum Workforce Development Plan or the IIP CD-ROM, please contact PINTO on Tel: +44 (0)20 8982 1550 or e: **reception@pinto.co.uk.**

Training in the working world

Damien Scott (right) was the recipient of an IP 2000 Prize for his MSc in Petroleum Geology at the University of Aberdeen. Here, he reports on why he entered the oil and gas industry in the first place, and why he has chosen to embark on the road of lifetime learning.

The award of the IP Prize marked the end of a demanding and enjoyable year at Aberdeen University. My decision to undertake the Master's degree was not easy, especially at a time when the oil price was in the region of $10/b and graduate recruitment was not on most exploration department's agenda. Despite this, I decided to leave my position as an offshore data processing geophysicist with Schlumberger and returned to the joys of student life after a break of three years.

I completed my first degree in Geology and Geophysics at Durham University, which sparked off my interest of a possible career in the petroleum industry. I initially chose my degree on the basis of which subjects I enjoyed most at school and strongly believe this is the most sensible option for any new student. Having studied A-levels in Maths, Physics and Geography (Geology not being an option at my school) a degree in Geology and Geophysics seemed to be an obvious choice.

A new challenge

On completing my degree at Durham, although tempted with the idea of continuing my studies I decided to take up a job with Schlumberger. The lure of a salary and frequent foreign travel outweighed the thought of more exams at the time! Three years on my priorities had changed, however. Although I had thoroughly enjoyed my time in the seismic industry and had managed to work in the UK, Germany, Norway, the Netherlands, Tunisia and Egypt in a short period of time, I was now ready for a new challenge.

But why the University of Aberdeen? Basically because of its excellent reputation in the petroleum industry and the wide variety of topics that are covered from fundamentals such as sedimentology, geophysics and geochemistry through to subjects such as prospect evaluation and petroleum economics. The prospect of a field trip to Utah may also have swayed me slightly!

Fortunately the mood of the petroleum industry changed considerably during my year in Aberdeen, encouraged by the ever-increasing price of oil. Despite this, the number of graduate positions available in the industry was slow to benefit from the escalating cost of a barrel of oil. The situation has improved in recent months, especially in the service sector, and it is a healthy sign that most of last year's MSc class are now employed in the industry.

Working world

I am now working as a geophysicist with Enterprise Oil. In October last year, I started the two-year training programme that is in place at Enterprise. This involves working on a series of three- to four-month projects in a variety of geophysical topics at a number of the company's offices around the world. This gives new graduates an excellent opportunity to be exposed to a wide range of exploration and production issues whilst working with a broad spectrum of international staff.

Having attended PETEX 2000 I am more than aware of concern regarding the age distribution in the petroleum industry. It is vital that young people are attracted to the industry but many talented graduates are put off by the 'hire and fire' cycles that have plagued the industry in recent years. It was therefore promising to see many companies making some attempt to address this problem as they recognise that much young talent is being lost to what some may see as more fashionable high-tech industries. Of course it is vital that this talent is retained as it is new computer-based technologies which hold the secret to the future of this industry.

However, from a geoscience perspective, I believe that most geologists and geophysicists are attracted mainly by their interest in the subject and for this reason there will continue to be demand for these positions despite the ups and downs which are inevitable in the future.

Personally I hope to be able to continue my career in the oil and gas industry through what will inevitably be exciting years ahead.

Benefits all round with distance learning

Distance learning on specialist topics using information technology is an effective way of delivering education and training to dispersed individuals, enhancing both their skills and the technical level of the industry in which they work. *Dr Sarah-Jane Davies*, of De Montfort University's Chemistry Department, outlines how distance learning works and the benefits that students and their employers derive from such education.

'Distance learning' is now the fastest growing area of higher education, delivering 'lifelong learning' through information technology coupled to tutor support systems. It might be traced back to the old 'correspondence course' but the Open University (OU) has given distance learning an enormous boost as an exemplar of high quality education delivering degree level qualifications to people who could not/would not be able to use conventional routes. The OU has established its role and now many courses in other institutions are offered as full-time, part-time or 'distance learning' – particularly for 'post experience' or continuous professional development (CPD) education. CPD is increasingly required to maintain Chartered (or equivalent) Status.

Technological change

Distance learning arises from technological change. For people already employed, it enables their personal skills to be kept relevant to current industrial development. The narrowing content and range base of undergraduate courses means that graduates need further skills for modern industry, especially for interdisciplinary areas. Shortages exist in materials science – metallurgy, polymer technology – and in interdisciplinary areas such as tribology and then lubricant/hydraulic technologies. Scientists and technologists can 'grow' from their respective disciplines to cover these topics, but need a balanced course to integrate both sides.

Distance learning courses vary in structure but the essentials are that the material is delivered by information technology from a dedicated website base that is seamless with textual material on a CD-ROM. As yet, the Internet cannot carry sufficient information for courses and CD-ROMs are temporary substitutes. Text is written in a simple, direct manner with interactive text and graphics used for explanation and localised help. The text is related to standard textbooks.

Modular approach

Course material is divided into modules, each of which is subdivided into work units. Learning is reinforced by progress checks throughout the text, with answers and recaps. These are not examined but are aids/reinforcements to learning. An open book 'post test' at the end of each work unit is answered on the course website, useful in that this reinforces learning and also checks on students' progress. An assignment is another module assessment component and a formal, two-hour, closed book examination completes the assessment. We, at De Montfort University, feel that the formal examination is essential for the credibility of distance learning courses.

Mastering the work

The MSc postgraduate distance learning route is a 'stair-cased' progression of Postgraduate Certificate, one year (four module credits); the Postgraduate Diploma over two years (eight module credits); and the MSc over three years (12 module credits). Three years is the optimum time for people in employment to discharge their job properly, keep their family happy and progress the course. The MSc year has two taught modules and a double project module based on their own work. The topic is difficult to define precisely, but a rule of thumb would be an investigation into a work area which the company might wish to look at if it had an additional pair of hands and is of value to them.

Learning and contact is reinforced by 'workshop weekends', one per module, when students meet with their tutors and other students. Students travel from all parts of the UK, the Netherlands, Belgium and even the US to attend the workshops. They are mature, motivated and able, and very stimulating. A problem is that as their professional skills improve and are recognised by the company, many of the students are then promoted and given greater responsibility, putting more pressure on their progress on the course. Good contact and interaction between staff and students is achieved by discussion over the Internet. These methods are essential for supporting and encouraging students who are learning at a distance. Progression rates so far have been above average for higher education.

'Distance learning enables employees to keep their personal skills relevant to current industrial development.'

Distance learning on specialist topics using information technology is an effective way of delivering education and training to dispersed individuals. Their skills and the technical level of their industry are both enhanced. We need those skills to survive and prosper as an industrial nation.

Training and education directory

This directory lists training and education suppliers, both within the UK and overseas, which offer courses that are particularly relevant for the oil and gas industry. Where courses have received official accreditation from the relevant National Training Organisations (NTOs), this is indicated. Additional sources of general information are also provided.

*Note: *OPITO approved establishment*

IP partners in training

BMT Cordah Ltd
Kettock Lodge, Aberdeen Science & Technology Park, Aberdeen AB22 8GU, Scotland
Tel: +44 (0)1224 414200 Fax: +44 (0)1224 414250
e: **main@cordah.co.uk www.cordah.com**
Provides services, consultancy and training in all aspects of environmental management for the oil and gas industry. Courses on environmental management (in association with the IP).

ENSPM Formation Industrie
232 Avenue Napoleon Bonaparte, 92852 Rueil – Malmaison, Cedex, France
Tel: +33 1 47 52 72 93 Fax: +33 1 47 52 70 66
e: **josee.foucault@enspmfi.com www.ifp.fr/enspmfi**
ENSPM Formation Industrie covers all aspects of the oil, gas and petrochemical industry, including economics and management, exploration, drilling, production, refining. Courses run in conjunction with IP – 'Investment Profitability Studies in the Petroleum Industry'; 'Advanced Process Control'; 'Fundamentals of Petroleum Refining Process'; 'Planning and Economics of Refinery Operations'; 'Economics of the Natural Gas Industry'.

International Boundaries Research Unit (IBRU)
Suite 3P, Mountjoy Research Centre, University of Durham, Durham DH1 3UR, UK
Tel: +44 (0)191 374 7701 Fax: +44 (0)191 374 7702
e: **ibru@durham.ac.uk www-ibru.dur.ac.uk**
Courses on maritime jurisdiction and boundary disputes (in association with the IP).

Invincible Energy
Westport House, Bentley, Farnham, Surrey GU10 5HY, UK
Tel: +44 (0)1420 22862 Fax: +44 (0)1420 22863
e: **learning@invincible-energy.com**
www.invincible-energy.com
Courses in 'Trading Oil on the International Markets'; 'Price Risk Management'; 'Economics of the Oil Supply Chain' (in association with the IP); 'Refining for Oil Traders'; 'Supply and Price Risk Management of Aviation Fuels'; 'Price Risk Management in Traded Gas and Electricity Markets' (this course only in association with Alphatania).

The Professional Development Institute of The University of North Texas (PDI)
PO Box 310769, Denton, Texas 76203-0769, US
Tel: +1 940 565 2483 Fax: +1 940 565 3362
e **hbrock@pdi.org www.pdi.org**
Offers seminars, schools, conferences and in-house training programmes in oil and gas accounting, finance and taxation. PDI is the continuing professional education arm of the University of North Texas in Denton, Texas. Course on financial accounting for petroleum companies. Courses run on 'Accounting for International Petroleum Contracts'; 'Production Sharing and Risk Service Contracts' and 'Joint Operating Agreements' (in association with the IP).

QinetiQ
Fuels and Lubricants Centre, Building 442, Cody Technology Park, Ively Road, Farnborough, Hants GU14 0IX, UK
Tel: +44 (0)1252 374772 Fax: +44 (0)1252 374791
e: **pcarberry@qinetiq.com www.qinetiq.com**
Courses on aviation jet fuel (AV) (in association with the IP).

General information sources

ECCTIS 2000 Ltd
Oriel House, Oriel Road, Cheltenham, Gloucestershire GL50 1XP, UK
Tel: +44 (0)1242 252627 Fax: +44 (0)1242 258600
e: **enquiries@ecctis2000.co.uk www.ecctis.co.uk**
The official courses guide to approximately 100,000 courses at over 1,000 universities and colleges of further and higher education. Users can search by course subject, location, method of study or by institution. The database also provides information on routes to professional qualifications, including how study can lead to exemption from examinations.

EMD – European Management Development
Naarderstraat 296, NL-1272 NT Huizen, The Netherlands
Tel: +31 35 695 1111 Fax: +31 35 695 1900
e: **mail@emdcentre.com www.emdcentre.com**
Since 1992, EMD Centre provide has provided annual Executive Education Directories for Europe, Asia-Pacific, North America and in-company. All directories are available in hard cover and on-line – see **www.emdcentre.com/demo**. Training managers in over 60 countries worldwide use these directories for selecting, budgeting and planning management courses. EMD Centre also hosts company specific course catalogues for many international corporations. These contain in-company courses plus external courses from preferred suppliers. Company specific course catalogues – featuring company colours and logos – are online accessible for all employees through a hyperlink on the company intranets. Over 650,000 people worldwide have access to such company specific courses, from diverse companies such as Phillips Electronics, Sara Lee, Heineken, and TNT Post Group.

OPITO (National Training Organisation for Oil and Gas Extraction)
Minerva House, Bruntland Road, Portlethen, Aberdeen AB12 4QL, Scotland
Tel: +44 (0) 1224 787800 Fax: +44 (0) 1224 787830
e: **info@opito.co.uk, opito@opito.co.uk www.opito.com**
Develops and sets training standards for the offshore oil and gas industry, as well as programmes and courses to satisfy training needs.

PINTO (Petroleum Industry National Training Organisation)
8 Fulton Road, Wembley HA9 0ND, UK
Tel: +44 (0)20 8982 1550 Fax: +44 (0)20 8982 1554
e: **reception@pinto.co.uk www.pinto.co.uk**
PINTO is the National Training Organisation for the downstream petroleum industry. It is recognised by the UK Government as the industry's voice on education and training issues. It belongs to its member companies and provides information on developing people. Further information of PINTO's services is available on its website.

Professional level and short courses

Abacus International
Abacus House, Watton Road, East Wretham, Thetford, Norfolk IP24 1QS, UK
Tel: +44 (0)1953 497099
Fax: +44 (0)1953 497098 or +44(0)870 052 2235
e: **info@abacus-int.com www.abacus-int.com**

courses

A totally independent organisation which, since 1993, has specialised in providing professional training for the petroleum industry. Regular open seminars are presented in Europe, the Middle East and the Asia-Pacific region. We also design customised in-house training courses for individual clients that can be presented almost anywhere worldwide.

Aberdeen Drilling School & Well Control Training Centre
50 Union Glen, Aberdeen AB11 6ER, Scotland
Tel: +44 (0)1224 572709 Fax: +44 (0)1224 582896
e: **info@aberdeen-drilling.com**
www.aberdeen-drilling.com
All aspects of drilling technology and equipment, well control, drilling technology, management and safety training. Standard in-house training and specialised training offered to meet individual customer requirements.

Aberdeen First Aid School
Norton Centre, Poynernook Road, Aberdeen AB11 5RW, Scotland
Tel: +44 (0)1224 585844 Fax: +44 (0)1224 585899
e: **info@afas.co.uk www.afas.co.uk**
HSE approved offshore and onshore first aid courses. Four-day HSE courses with two-day refresher courses running every week. Places always available; we never cancel a course. Advanced courses also available.

Aberdeen University Oil and Gas Centre, Research and Innovation
23 St Machar Drive, Aberdeen AB24 3RY, UK
Tel: +44 (0)1224 272484 Fax: +44 (0)1224 487658
e: **e.bowie@abdn.ac.uk www.abdn.ac.uk/oilgas**
Offers wide ranging multi-disciplinary expertise including petroleum economics, petroleum geology, safety engineering, environmental monitoring, environmental law, as well as business management, and international relations. The Centre facilitates and project manages collaboration with the University of Aberdeen. It works with the University's professional development department – Prospect CPD – to develop accredited programmes and short courses requested by the industry.

AEA Technology plc
F4 Culham, Abingdon, Oxfordshire OX14 3ED, UK
Tel: +44 (0)1235 842424 Fax: +44 (0)1235 464319
e: **alan.wilcockson@aeat.co.uk www.aeat.co.uk**
Short courses in a wide range of topics including safety, environmental hazards, risk based inspection, all aspects of plant and equipment (including rotating machinery and pumps), production engineering, reservoir engineering, and decision risk management.

The Alphatania Group
Rodwell House, 100 Middlesex Street, London E1 7HD, UK
Tel: +44 (0)20 7650 1402 Fax: +44 (0)20 7650 1401
e: **training@alphatania.com www.alphatania.com**
Alphatania offers an expanded series of natural gas management training courses designed to cater for the professional development needs of all levels of staff concerned with natural gas. The courses provide an integrated mix of lectures and case study, and course staff are available throughout each course to provide continuity. Alphatania has for many years offered specialised training for individual client companies. These courses offer the advantage of meeting specific needs of the client and provide an opportunity for team building.

Allomax Engineering
Innovation Centre, Exploration Drive, Bridge Of Don, Aberdeen AB23 8GX, Scotland
Tel: +44 (0)1224 827217 Fax: +44 (0)1224 827218
e: **Cameron.Laing@Allomax.com**
www.allomax.com www.casmax.com
www.organisationallearning.com
Training in well completion design and production performance optimisation are provided through both public and in-house courses. Both in-depth courses, tuned to graduate engineering needs, or short courses, tuned to production operators or equipment sales representatives, are provided. Allomax is a well engineering consultancy and can supply well engineering personnel, well construction project management systems – Wellmax, and the leading well engineering competency assurance system – Casmax.

Appropriate Training Ltd
Strand Street West, Preston, Lancashire PR2 2NS, UK
Tel: +44 (0)1772 723377 Fax: +44 (0)1772 768611
e: **train@appropriatetraining.demon.co.uk**
www.appropriatetraining.co.uk
Design and implementation of bespoke technical training programmes and producers of interactive and multi-media training materials.

AUPEC Aberdeen University Petroleum and Economic Consultants
Block C, Davidson House, Campus 1, Aberdeen Science and Technology Park, Balgownie Road, Aberdeen AB22 8GT, UK
Tel: +44 (0)1224 853700 Fax: +44 (0)1224 853701
e: **mail@aupec.com www.aupec.com**
AUPEC Ltd provides economic products and services to industry and public organisations worldwide. Our services/products include benchmarking, cost-benefit analysis, economic modelling and forecasting, economic risk analysis, investment appraisal, and taxation analysis. In-house training for clients also offered.

Baker/OTS International Training Services
Third Floor, 104 College Road, Harrow, Middlesex HA1 1BQ, UK
Tel: +44 (0)20 8861 0104 Fax: +44 (0)20 8861 3101
e: **training@ots.co.uk**
Extensive experience in preparing human resources (HR) development plans for clients in the petroleum and energy sectors, as well as in producing and conducting programmes and short courses to international standards which are tailored to individual client requirements. These courses cover production operations, marine operations,mechanical/electrical/instrumentation maintenance, onshore and offshore HSE.

Bentham Technical Training
Dilke House, Malet Street, London WC1E 7JN, UK
Tel: +44 (0)20 7436 7500 Fax: +44 (0)20 7436 2112
e: **v.li@bentham.com www.bentham.com**
Two- and three-day offshore engineering training courses (introduction, advanced and specialised); finite element analysis; pipeline design and engineering; risk analysis techniques/offshore safety; general management and engineering training; and engineering technology.

***Blackpool and the Fylde College – Fleetwood Offshore Survival Centre**
Fleetwood Offshore Survival Centre, Broadwater, Fleetwood, Lancashire FY7 8JZ, UK
Tel: +44 (0)1253 779123 Fax: +44 (0)1253 773014
e: **jb@blackpool.ac.uk www.blackpool.ac.uk**
Basic offshore safety induction and emergency training, as well as further offshore emergency training. OPITO-approved establishment. Fleetwood Testing Laboratory is one of the premier test houses in the EU, for the testing of lifejackets, immersion suits and buoyancy aids. FTL also undertake R&D work for manufacturers. The College recently won a contract for the compatibility testing of various combinations of lifejackets and immersion suits for a major operator in the UK sector of the North Sea.

BMT Cordah Ltd
Kettock Lodge, Aberdeen Science & Technology Park, Aberdeen AB22 8GU, UK
Tel: +44 (0)1224 414200 Fax: +44 (0)1224 414250
e: **main@cordah.co.uk www.cordah.com**
Provides services, consultancy and training in all aspects of environmental management for the oil and gas industry. Courses on environmental management (in association with the IP).

Caledonia Training & Consultancy Ltd
Crombie Lodge, Campus 2, Aberdeen Science & Technology Park, Balgownie Road, Bridge of Don, Aberdeen AB22 8GU, UK
Tel: +44 (0)1224 708141 Fax: +44 (0)1224 705718
e: **info@caledoniactc.co.uk**

Specialists in drilling and well services. Accredited by IWCF, IADC and SQA.

Cambrian Consultants Ltd
Mayfield, Llanbadoc, Usk, Monmouthshire NP15 1SY, UK
Tel: +44 (0)1291 673022 Fax: +44 (0)1291 673023
e: **training@cambri.com www.cambrian-group.com**
Cambrian provides specialist geoscience and IT training courses to the upstream oil industry. It also offers geoscience services and products ranging from wellsite geology to technical evaluation and software applications. Offices in Usk (South Wales), Houston and Kuala Lumpur, enable the full range of services to be supported internationally.

Centre for Advanced Maritime Studies
Albert House, 7 Johns Place, Edinburgh EH6 7FL, UK
Tel: +44 (0)131 555 0525 Fax: +44 (0)131 554 0565
e: **admin@camsedin.org.uk www.camsedin.org.uk**
Courses on 'Petroleum Tanker Safety'; 'Liquified Gas Carrier Safety'; 'Crude Oil Washing and IG Systems'; 'Pollution Prevention and Abatement'; 'Chemical Tanker Safety'; 'Introduction to Ship Inspection Principles'; 'Competent Analyst (Marine)'; 'Transportation of Packed Dangerous Goods by Sea'; 'Jetty Operations Safety'; 'Introduction to Sea Transportation of LNG'.

The Centre for Professional Advancement
Oudezyds Voorburgwal 316 A, 1012 GM Amsterdam, The Netherlands
Tel: +31 (0)20 6382806 Fax: +31 (0)20 6202136
e: **amsterdam@cfpa.com www.cfpa.com**

CHARM – Centre for Hazard and Risk Management
Loughborough University, Loughborough, Leicestershire LE11 3TU, UK
Tel: +44 (0)1509 222175 Fax: +44 (0)1509 223991
e: **J.G.Bostock@lboro.ac.uk**
www.lboro.ac.uk/departments/index.html
Courses on occupational health and safety management; waste management; healthcare risk management; backcare management; industrial and commercial security.

College of Petroleum and Energy Studies
52 New Inn Hall Street, Oxford OX1 2QD, UK
Tel: +44 (0)1865 250521 Fax: +44 (0)1865 791474
e: **info@oxfordprinceton.com**
www.oxfordprinceton.com
Courses on supply and trading; international oil, gas, petrochemical and energy short and long courses; bunkering; tanker ownership, chartering and operations; petrol retail; and lubricants.

Construction Industry Training Board
Bircham Newton, Kings Lynn, Norfolk PE31 6RH, UK
Tel: +44 (0)1485 577577 Fax: +44 (0)1485 577689
www.citb.co.uk

Corrosion Engineering Consultancy
15 The Close, Hampstead Norreys, Newbury, Berks RG8 0RY, UK
Tel: +44 (0) 1635 202329 Fax: +44 (0) 1635 202329
e: **CBrit 79727@aol.com**
Training courses (of four to five days' duration) are provided in corrosion engineering for several training companies, universities and professional societies. These are scheduled on a regular basis in London, Amsterdam, Abu Dhabi and Saudi Arabia. Courses available include 'Corrosion Basics'; 'Corrosion Control in Industrial Plant'; 'Corrosion in the Oil and Gas Industry' and 'Corrosion Monitoring and Inspection'. Courses provided in-house for companies and organisations.

Cranfield University
Cranfield, Bedford MK43 0AL, UK
Tel: +44 (0)1234 750111 Fax: +44 (0)1234 751206
e: **shortcourse@cranfield.ac.uk www.cranfield.ac.uk**
Safety, corrosion, underwater engineering, pipelines, and maintenance courses.

De Montfort University
Department of Chemistry and Physics, De Montfort University, The Gateway, Leicester LE1 9BH, UK
Tel: +44 (0)116 257 7698 Fax: +44 (0)116 257 7287
e: **sjd@dmu.ac.uk www.dmu.ac.uk**
Offers Postgraduate Certificate/ Postgraduate Diploma/MSc in Lubricant & Hydraulic Technology.

Edinburgh Telford College
Crewe Toll, Edinburgh EH4 2NZ, Scotland
Tel: +44 (0)131 332 2491 Fax: +44 (0)131 343 1218
e: **mail@ed-coll.ac.uk www.ed-coll.ac.uk**
Courses on measurement technology; computing; programmable systems; pneumatics and hydraulics; electricity; electromagnetism; and mathematics.

Engineering & Marine Training Authority
EMTA House, 14 Upton Road, Watford, Hertfordshire WD18 0JD, UK
Tel: 0800 282167 (UK only), +44 (0)1923 238441
Fax: +44 (0)1923 256086
e: **ecis@emta.org.uk www.emta.org.**

ENSPM Formation Industrie
232 Avenue Napoleon Bonaparte, 92852 Rueil – Malmaison, Cedex, France
Tel: +33 1 47 52 72 93 Fax: +33 1 47 52 70 66
e: **josee.foucault@enspmfi.com www.ifp.fr/enspmfi**
ENSPM Formation Industrie covers all aspects of the oil, gas and petrochemical industry, including economics and management, exploration, drilling, production, refining. Courses run in conjunction with IP – 'Investment Profitability Studies in the Petroleum Industry'; 'Advanced Process Control'; 'Fundamentals of Petroleum Refining Process'; 'Planning and Economics of Refinery Operations'; 'Economics of the Natural Gas Industry'.

Environment & Resources Technology Ltd (ERT)
Research Avenue 1, Heriot-Watt University, Edinburgh EH14 4AP, Scotland
Tel: +44 (0)131 449 5030 Fax: +44 (0)131 449 5037
e: **Ingeborg.McNicoll@ert.co.uk www.ert.co.uk**
Provides environmental and scientific services and consultancy to industry, government and government agencies. Technical areas include environmental management, oil spill studies, waste management, environmental survey and monitoring, consent and compliance support.

***Fire Service College**
Moreton-in-Marsh, Gloucestershire GL56 0RH, UK
Tel: +44 (0)1608 650831 Fax: +44 (0)1608 651839
e: **enquiries@fireservicecollege.ac.uk**
www.fireservicecollege.ac.uk
Offshore Fire Emergency Response Team Member & Team Leader/Offshore Emergency Helideck Team Member courses. OPITO-approved establishment.

Geosphere Ltd
Netherton Farm, Sheepwash, Beaworthy, Devon EX21 5PL, UK
Tel: +44 (0)1409 281810 Fax: +44 (0)1409 281810
e: **timharper@geosphere.demon.co.uk**
www.geosphere.demon.co.uk
Short course on the basics of well performance for asset team staff, primarily geoscientists and drilling engineers. Complex wells offer new opportunities and effective asset teams depend on the informed contribution of ALL members. Provides the means to quantitatively estimate the influence of reservoir and well characteristics on well productivity.

GSM Training Services Inc
PO Box 9920, Amarillo, Texas 79105, US; PO Box 50790, Amarillo, Texas 79159, US
Tel: +1 806 358 6894 Fax: +1 806 358 6800
e: **gsmrdg@arn.net www.gsm-inc.com**
Training seminars about drilling.

courses

***HOTA**
Malmo Road, Sutton Fields Industrial Estate, Hull HU7 0YF, UK
Tel: +44 (0)1482 820567 Fax: +44 (0)1482 823202
e: **bookings@hota.org www.hota.org**
HOTA is one of the UK's leading offshore, standby vessel and maritime training providers, offering over 80 training courses. More recently, it has diversified into the provision of nationally approved health & safety, medical, first aid and electrical (City & Guilds and COMP 'Ex') courses available for both onshore and offshore organisations.

***IFAP Survival Training Centre**
PO Box 339 Willetton Western Australia 6955
Tel: +61 8 9430 6611; Mobile: 0418939667
Fax: +61 8 9430 6093
e: **mgillespie@ifap.asn.au www.ifap.asn.au**
IFAP Survival Training Centre provides OPITO and Australian accredited courses in HUET; sea survival; OSH management; equipment (crane, scaffolding, rigging,) safety consulting; and customised training. Courses include 'BOSIET', 'FOET'; 'Basic Offshore Survival & Refresher'; 'Aviation Escape and Survival – HUET'; 'Fast Rescue Craft – STCW95'; 'Firefighting'; 'Helicopter Landing Officer'; 'H2S'; 'Confined Spaces'; 'Breathing Apparatus'.

Imperial College Centre for Continuing Education
Room 318 Sherfield Building, Exhibition Road, London SW7 2AZ, UK
Tel: +44 (0)20 7594 6884 Fax: +44 (0)20 7594 6883
e: **cpd@ic.ac.uk www.ad.ic.ac.uk/cpd**
Short courses on petroleum engineering.

Institute of Energy
18 Devonshire Street, London W1G 7AU, UK
Tel: Admin & Accounts: +44 (0)20 7580 7124; Membership, Education & Training: +44 (0)20 7580 0077; Marketing: +44 (0)20 7 580 0008 Fax: +44 (0)20 7580 4420
e: **info@instenergy.org.uk www.instenergy.org.uk**
The Institute provides short courses, distance learning and national qualifications in energy management. Tailor-made courses based on The National Standards for Managing Energy can be developed for teams. Free energy management training consultation and staff awareness programmes are available for companies in membership. The Institute is an accrediting body able to approve and certificate in-house training.

Institute of Petroleum
61 New Cavendish St, London W1G 7AR, UK
Tel: +44 (0)20 7467 7100 Fax: +44 (0)20 7255 1472
e: **ip@petroleum.co.uk www.petroleum.co.uk**
Introductory courses on oil industry operations, petroleum economics and other courses relevant to the oil industry.

International Boundaries Research Unit (IBRU)
Suite 3P, Mountjoy Research Centre, University of Durham, DH1 3UR, UK
Tel: +44 (0)191 374 7701 Fax: +44 (0)191 374 7702
e: **ibru@durham.ac.uk www-ibru.dur.ac.uk**
Courses on maritime jurisdiction and boundary disputes (in association with the IP).

International Human Resources Development Corporation (IHRDC) Boston
535 Boylston Street, Boston, Massachusetts 02116, US
Tel: +1 (617) 536 0202 Fax: +1 (617) 536 4396
e: **mgmt.programs@ihrdc.com www.ihrdc.com**
Their energy management programmes include 'The International Petroleum Management Certificate Program'; 'The International Gas Business Management Certificate Program'; 'Negotiating Successful International Petroleum Agreements'; 'International Trading of Oil'; 'Gas and Power –The New Realities'; 'Knowledge and Learning Systems for International Petroleum Companies'; 'The International Petroleum Exploration and Development Business Management Program'.

International Human Resources Development Corporation (IHRDC)
Brouwersgracht 288, 1013 HG Amsterdam, The Netherlands
Tel: +31 20 638 0110 Fax: +31 20 421 6228
e: **ihrdceurope@compuserve.com www.ihrdc.com**

Invincible Energy
Westport House, Bentley, Farnham, Surrey GU10 5HY, UK
Tel: +44 (0)1420 22862 Fax: +44 (0)1420 22863
e: **learning@invincible-energy.com**
www.invincible-energy.com
Courses in 'Trading Oil on the International Markets'; 'Price Risk Management'; 'Economics of the Oil Supply Chain' (in association with the IP); 'Refining for Oil Traders'; 'Supply and Price Risk Management of Aviation Fuels'; 'Price Risk Management in Traded Gas and Electricity Markets' (this course only in association with Alphatania).

IPE (International Petroleum Exchange)
International House, 1 St Katherine's Way, London E1W 1UY, UK
Tel: +44 (0)20 7481 0643; Training Centre: +44 (0)20 7265 3745
Fax: +44 (0)20 7481 8485
e: **training@ipe.uk.com; info@ipe.uk.com www.ipe.uk.com**
The IPE is Europe's leading energy futures and options exchange. Established in 1980, it trades a variety of products – Brent Crude, Gas Oil and Natural Gas. The IPE has recently merged with Intercontinental Exchange (ICE) and continues to research opportunities in energy related markets. The IPE runs short courses (one day to one week) covering energy markets.

John M Campbell & Company (JMC)
1215 Crossroads Blvd, Norman, OK 73072, US
Tel: + 1 (405) 321 1383 Fax: +1 (405) 321 4533
e: **registrar@jmcampbell.com**
Provides a range of consultancy services and technical training in oil and gas production facilities, gas processing, LNG and commercial issues, as well as short courses targeting technical areas within these broad fields (such as dehydration, refrigeration, oil and gas separation, carbon dioxide facilities/injection). Operations training also provided. JMC also publishes textbooks dealing with various aspects of gas processing and production facilities and will develop site-specific manuals for operator training.

Kennet Oil Logistics
Trevellion Barn, Trevellion, St Austell, Cornwall PL26 8RT, UK
Tel: +44 (0)1208 831145 Fax: +44 (0)1208 831143
e: **rabkol@aol.com www.kennetoil.com**
Courses in international supply, trading, transportation and operations practice.

***Lancashire Fire & Rescue Service**
Training and Development Centre, Washington Hall, Southport Road, Chorley PR7 6DH, UK
Tel: +44 (0)12572 66611 Fax: +44 (0)12572 61767
e: **bobbradshaw@lancsfirerescue.org.uk**
www.lancsfirerescue.org.uk
IOSH and NEBOSH courses. Extinguisher training, emergency management response (CIMAH & COMAH). Company specific or generic courses available. OPITO, JOIFF, NEBS accredited.

***Lowestoft College**
St Peter's Street, Lowestoft, Suffolk NR32 2NB, UK
Tel: +44 (0)1502 583521 Fax: +44 (0)1502 500031
e: **info@lowestoft.ac.uk www.lowestoft.ac.uk**
'Management of Major Emergencies' (OPITO approved establishment); 'Processing Hydrocarbons NVQ 2 & 3' (OPITO approved); 'Engineering Maintenance NVQ 3' (OPITO approved); 'Permit to Work'; 'Permit Systems Auditing'; 'Offshore First Aid' (HSE approved); 'Offshore Safety Representatives' (OPITO approved); 'OIM's Legislation & Safety Management' (OPITO approved); 'COSHH User and Assessor'.

***Marine Safety Training Centre**
Wapping Street, South Shields, Tyne & Wear NE33 1LQ, UK
Tel: +44 (0)191 427 3642 (enquiries); +44 (0) 191 427 3772 (bkings)

Fax: +44 (0)191 427 3600
e: **marsim@stc.ac.uk www.stc.ac.uk**
OPITO approved basic offshore safety induction and emergency training; further offshore emergency training; universal combined survival and firefighting; basic offshore European refresher; basic offshore European upgrade.

MDT International
45 Albert Street, Aberdeen AB25 1XT, Scotland
Tel: +44 (0)1224 561521 Fax: +44 (0)1224 561530
e: **info@mdtinternational.com www.mdtinternational.com**
Specialist petroleum industry training provider in finance, accounting, economics, investment appraisal, contracts/procurement, business strategy, personal development and international management development. Courses held in-house throughout the world and public/open courses held in Aberdeen, Caracas, Dubai, Kuala Lumpur and London. Visit website for annual training programme.

National Centre of Tribology
AEA Technology plc, National Centre of Tribology, Risley, Warrington, Cheshire WA3 6AT, UK
Tel: +44 (0)1925 254432 Fax: +44 (0)1925 253676
e: **chris.j.barlow@aeat.co.uk www.aeat.co.uk/nct/**

NETA Training
Pennine Avenue, North Tees Industrial Estate, Portrack Lane, Stockton TS18 2RJ, UK
Tel: +44 (0)1642 616936 Fax: +44 (0)1642 612431
e: **enquiries@neta.co.uk www.neta.co.uk**

***NUTEC Centre For Safety**
Haverton Hill Industrial Estate, Billingham, Cleveland TS23 1PZ, UK
Tel: +44 (0)1642 566656 Fax: +44 (0)1642 563224
e: **tina.lucas@nutecuk.com www.nutec.no**
Basic offshore safety induction and emergency training, as well as further offshore emergency training.

OGCI Training, Inc/Petroskills
PO Box 35448, Tulsa, Oklahoma, OK 74153-0448, US
Tel: +1 918 828 2500 Fax: +1 918 828 2580
e: **registrations@ogci.com www.ogci.com**
Courses in geology; geophysics; petrophysics; well construction; reservoir engineering; production engineering; production facilites design, operation and maintenance; environment; economics and management.

Oil Firing Technical Association for the Petroleum Industry
Century House, 100 High Street, Banstead, Surrey SM7 2NN, UK
Tel: +44 (0)1737 373311 Fax: +44 (0)1737 373553
e: **enquiries@oftec.org www.oftec.org.uk/**
Comprises major oil companies, oil distributors and manufacturers of oil firing equipment in UK and the Irish Republic. Operates OFCERT equipment testing and approval scheme. Also provides technical training and registration, as well as other technical support for oil firing industry.

***Onsite Training Services**
Unit 3, Burnside Industrial Centre, Wellheads Road, Farburn Industrial Estate, Dyce, Aberdeen AB21 7HG, Scotland
Tel: +44 (0)1224 729500 Fax: +44 (0)1224 729300
e: **onsite_training_services@msn.com**
www.onsitetrainingservices.com
OPITO approved 'Helicopter Landing Officer' course; 'Lifting and Slinging Operations'; 'Helicopter Refuelling'; 'CAA Aeronautical Radio'; 'VHF Marine Radio'; 'Offshore Crane Operator Stages 1–4'; 'Banksman Slinger'; 'Forklift Truck Safety'; 'COSHH'; 'Confined Space Entry'; 'Risk Assessment'; 'Abrasive Wheels'; 'High Pressure Water Jetting'; and 'Manual Handling'.

The Oxford Princeton Programme
52 New Inn Hall Street, Oxford OX1 2QD, UK
Tel: +44 (0)1865 250521 Fax: +44 (0)1865 791474
e: **info@oxfordprinceton.com www.oxfordprinceton.com**
Supply and trading; international oil, gas, petrochemical and energy short and long courses; bunkering; tanker ownership; chartering and operations; petrol retail; and lubricants.

Pegasus Training Centre
Bentalls Pipps Hill Industrial Estate, Basildon, Essex SS14 3BX, UK
Tel: +44 (0)1268 284695 Fax: +44 (0)1268 270495
e: **tricia@pegasustraining.co.uk**
National training and certification for operatives installing and maintaining electrical equipment working in potentially explosive atmospheres. Course accredited by EIEITO (the Electrical Installation Engineering Industry Training Organisation).

PEICE – Petroleum Institute for Continuing Education
Bankers Hall Box 22325, Calgary, Alberta T2P 4J1, Canada
Tel: +1 (403) 284 1250 Fax: +1 (403) 685 4621
e: **domenic@peice.com www.peice.com**
PEICE offers short courses, conferences and mentoring, as well as CD-ROM and web-based resources for the technical and personal development of working professionals in the petroleum industry. Our mission is HOPE – Helping Other People Excel.

***Petans Ltd**
Offshore Fire & Survival Training Centre, Bullock Hill, Horsham St Faith, Norwich NR10 3HT, UK
Tel: +44 (0)1603 891255 Fax: +44 (0)1603 890827
e: **bookings@petans.co.uk www.petans.co.uk**
Courses include 'Basic Offshore Safety Induction & Emergency Training'; 'Further Offshore Safety & Emergency Training'; 'Offshore Fire Emergency Response Team Member & Team Leader'; 'Offshore Emergency Helideck Team Member'; 'Offshore Lifeboat Coxswain'; 'Helicopter Landing Officer'; 'Flashover/Backdraught Training'; 'Dangerous Goods by Air/Sea'; 'Managing Safely'; 'Working Safely'; and 'Risk Assessment'.

Petroleum Economics Limited
PO Box 105, Baird House, 15/17 St Cross St, London EC1N 8UW, UK
Tel: +44 (0)20 7831 5588 Fax: +44 (0)20 7831 4567 / 5313
e: **marketing@petroleum-economist.com**
www.petroleum-economics.com
Residential, in-house and bespoke courses across the energy value chain. Topics include 'Basin Analysis and Ranking'; 'Contracts Management'; 'Exploration and Production Technology'; 'Energy Industry Fundamentals'; 'Fiscal Issues and Contracts'; 'Logistics'; 'Natural Gas Industry Fundamentals'; 'Oil Refining'; 'Oil Trading'; 'Portfolio Valuation and Risk'; 'Project Management'; 'Prospects and Reserves'; 'Strategic Planning'; 'Unitisation'.

Petroleum Economist
P.O. Box 105, Baird House, 15/17 St. Cross St, London EC1N 8UW, UK
Tel: +44 (0)20 7831 5588
Fax: +44 (0)20 7831 4567/5313
e: **marketing@petroleum-economist.com**
www.petroleum-economist.com
Runs short courses on 'Commercial & Trading Aspects of Oil Refining', 'Exploration & Production', and 'Fundamentals of Natural Gas'.

Petroleum Open Learning (OPITO)
Minerva House, Bruntland Road, Portlethen, Aberdeen AB12 4QL, Scotland
Tel: +44 (0) 1224 787813 Fax: +44 (0) 1224 787830
e: **corinnam@opito.co.uk www.opito.com**
Open learning courses on oil and gas well technology, including oilwell drilling technology, well completions and wireline servicing, and drilling calculations. Petroleum Processing Technology modules all carry City & Guild certificatation by examination.

Petroleum Training Ltd
48a West Bar, Banbury, Oxon OX16 9RZ, UK
Tel: +44 (0)1295 255811 Fax: +44 (0)1295 273110
e: **ptftraining@compuserve.com**
Forecourt staff training provided – management, supervision, risk assessment, and competent persons. BTEC in Petroleum Risk

Management (Retail). CD-ROM Forecourt Management (with built-in Test). Driver Training – ADR, beyond ADR, customer care, team building, and risk assessment. Health and safety, legislation update. CD ROM Class 3 (with built-in test). Depot staff – depot operations, health and safety, environment, risk assessment. Electrical contractors – on forecourts, sites with special hazards. Dangerous goods safety adviser courses (DGSA). Training needs assessments. Courses tailored to meet customers' specific requirements.

The Professional Development Institute of The University of North Texas (PDI)
PO Box 310769, Denton, Texas 76203–0769, US
Tel: +1 940 565 2483 Fax: +1 940 565 3362
e: **hbrock@pdi.org www.pdi.org**
Offers seminars, schools, conferences and in-house training programmes in oil and gas accounting, finance and taxation. PDI is the continuing professional education arm of the University of North Texas in Denton, Texas. Course on financial accounting for petroleum companies. Courses run on 'Accounting for International Petroleum Contracts'; 'Production Sharing and Risk Service Contracts' and 'Joint Operating Agreements' (in association with the IP).

QinetiQ
Fuels and Lubricants Centre, Building 442, Cody Technology Park, Ively Road, Farnborough, Hants GU14 0IX, UK
Tel: +44 (0)1252 374772 Fax: +44 (0)1252 374791
e: **pcarberry@qinetiq.com www.qinetiq.com**
Courses on aviation jet fuel (AV) (in association with the IP).

Robert Gordon University
School of Mechanical and Offshore Engineering, Schoolhill, Aberdeen AB10 1FR, Scotland
Tel: +44 (0)1224 262400 Fax: +44 (0)1224 262444
e: **l.power@rgu.ac.uk www.rgu.ac.uk**
Postgraduate courses and CPD modules (short courses) in oil and gas engineering; drilling and well engineering; field and well management; asset management; and materials engineering.

Robertson Research International Ltd, Petroleum Training Centre
Llandudno, North Wales LL30 1SA, UK
Tel: +44 (0)1492 581811 Fax: +44 (0)1492 583416
e: **training@robresint.co.uk www.robresint.co.uk**
Long-term training and open and proprietary short courses in petroleum geology; geophysics and engineering; exploration and production management; petroleum economics; petroleum contracts; field trip advice, assistance and technical expertise. Training can be delivered in virtually any global location.

Royal Holloway University of London
Department of Geology, Egham Hill, Surrey TW20 OEX, UK
Tel: +44 (0)1784 443612 Fax: +44 (0)1784 471780
e: **bosence@gl.rhbnc.ac.uk www.gl.rhbnc.ac.uk**
Courses in applied geosciences of particular relevance to the petroleum industry. MSc in Basin Evolution and Dynamics. MSc in Tectonics. Special short courses for industry on demand in the fields of basin analysis; geotectonics; structural geology; stratigraphic modelling; and sedimentology.

Schlumberger GeoQuest Training Centre
Schlumberger House, Buckingham Gate, Gatwick, West Sussex RH6 ONZ, UK
Tel: + 44 (0)1293 556508 Fax: + 44 (0)1293 556499
e: **training@gatwick.geoquest.slb.com www.geoquest.com.**
Software training for the exploration and production industry.

Scitech Educational Ltd
15–17 St Johns Business Centre, St Peter's Road, Margate CT9 1TE, UK
Tel: +44 (0)1843 234741 Fax: +44 (0)1843 231485
e: **mikeh@scitechdiol.co.uk www.scitechdiol.co.uk**
Centre for NEBS management training programmes. Customised course design and delivery.

SGS Redwood Services
Old Station Approach, London Road, Purfleet, Essex RM19 1QS, UK
Tel: +44 (0) 1708 681923 Fax: +44 (0) 1708 681910
e: **bradcerny@hotmail.com www.sgsredwood.com/**
Courses on custody transfer of crude oil (in association with the IP).

Shell Global Solutions Learning & Development Consultancy
Langelaan 3, 2211 XT Noordwijkerhout, The Netherlands
Tel: +31 (0)252 379 334 Fax: +31 (0) 252 379205
e: **learn@opc.shell.com**
www.shellglobalsolutions.com/learning
After 30 years of providing training within Shell, the Learning & Development Consultancy now offers over 60 courses to commercial clients in the petrochemical industry and wider process industries. First-class teaching facilities and access to 1,500 industry experts ensures that all training courses deliver up-to-date information, reflecting worldwide best practice.

SIRA Training
South Hill, Chislehurst, Kent BR7 5EH, UK
Tel: +44 (0)20 8467 2636 Fax: +44 (0)20 8467 2096
e: **siratraining@siratc.co.uk www.siratraining.co.uk**
Calibration; hazardous areas; technology management; laboratory accreditation; and QEMS courses.

***Southampton Institute of Higher Education**
Warsash Maritime Centre, Newtown Road, Warsash, Southampton SO31 9ZL, UK
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e: **wmc@solent.ac.uk www.solent.ac.uk/wmc/**
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Executive education in the oil and gas industry

The Centre for Executive Education at the University of Durham Business School has been working with Amec Offshore Services over the past eight years to deliver the 'Amec Charter Plus+' education programme. Over 100 managers from Amec and its partner organisations – including BP, Conoco, Phillips, Amerada Hess and Shell – have benefited from the programme. *Alistair Russell* from the University of Durham Business School reports.

The Amec Charter Plus+ programme offers managers, and their organisations, an opportunity to achieve significantly improved performance either in their current role or in preparation for future, more challenging and demanding positions. At the same time, successful programme participants are able to achieve academic recognition through an Advanced (postgraduate) Diploma in Business Administration (ADBA) awarded by the University of Durham.

The modular programme (typically completed over 12–18 months) covers the main subject areas of business strategy, marketing, human resources (HR), operations, finance and information, using case studies and company visits to examine the pragmatic application of ideas introduced and developed in seminars. The focus on pragmatic learning is supported through the completion of an NVQ in Management at Level 4 or 5, as an integral part of the programme.

Unique partnership

Amec Charter Plus+ is a unique partnership in the number of ways in which it exemplifies the principles of:

- *Programme management* – The HR team at Amec Offshore Services work in close partnership with the Programme Director at the University of Durham Business School and the team at VTS Ltd (who are responsible for working with the manager to complete the NVQ portfolio) to ensure that the programme is effective and efficient in meeting its business objectives and is continuously improved.
- *The learning approach* – The programme management team work in with the participant managers as individuals through tutorial support; the programme design facilitates structured and informal joint working amongst the programme participants to create a learning community within Amec and into its client organisations.
- *Delivery* – The programme delivery is achieved through an extended virtual network that includes the Business School faculty, associate tutors with relevant industrial and consulting experience, practising senior managers and directors as guest speakers on key topics, and study visits to organisations from a wide range of sectors that are established partners of the Business School within its geographic region.

Programme management

Based on the extensive experience within the combined programme management team, it is the partnership approach at all levels of the relationships that provide the foundation for the success of the Amec Charter Plus+ programme.

A clear accountability framework, supported by an effective logistics infrastructure ensures that all aspects of the programme – from the broad-scale business and learning objectives to the detailed – are handled in a way that is responsive and client-centred.

Two important features of the programme management approach to Charter Plus+ are:

- Director level sponsorship of the programme by the Steering Group within Amec to ensure that the programme is integrated into the appraisal and development systems and retains a focus on the current, relevant business and management development issues. For example, the coverage of issues such as managing in a cultural, diverse environment has been developed in response to Amec's successful launch and growth in key international areas of oil and gas.
- Comprehensive annual evaluation of the programme based on the University of Durham's quality assurance procedures. A wide variety of perspectives are sought to feed into a continuous improvement process, including structured evaluations from participants, sponsor organisations, delivery team and the academic and vocational assessments.

Learning approach

The learning and development philosophy of the University of Durham's Centre for Executive Education is:

'to increase effectiveness and to achieve behavioural change in the individual through the development of knowledge, skills and judgement which result in improved organisational performance.'

The modules on the Amec Charter Plus programme lay down a solid platform of business and management knowledge upon which managers develop, critique and refine their behaviours, thinking and ability to make sound judgements. These objectives are achieved through the use of a number of development processes, including:

- individual assignments to reflect and critique current approaches;
- syndicate working on case studies;
- action learning sets for consultancy study visits; and
- informal networking and co-consulting sessions.

In addition, learning must be sustainable, with a 'shelf life' far beyond the duration of any formal programme. Our approach aims to engender both in individuals and in organisations, an enthusiasm and responsibility for learning, with a clear focus on performance improvement.

Delivery

The approach to programme delivery includes the use of an extensive network of partners including:

- Business School faculty on key areas including human resource management, operations and information management systems.
- Associate Tutors who are practising consultants in strategy, marketing and change management.
- Guest speakers from the industry on operations strategy, HR practice and knowledge management.
- Study visits to regional partners of the Business School, purposefully from other sectors of operation including Nissan, Vickers, Black and Decker and Churchill Insurance.

Opportunity knocks

Young graduates looking for a challenging and interesting vocation with early responsibility and fast-track career progression should look no further than the oil and gas industry, according to a recent study of the sector's newest recruits.

Interviews with recent graduates for a study researching young people's views of career prospects in the oil and gas sector show that the UK's multi-billion pound industry is seen by those already working in it as having much to offer young people looking for ultimate job satisfaction.

Top of the list comes the diversity of opportunity presented by an industry of such a grand scale where the huge variety of jobs, both upstream and downstream, offers flexible and often rapid career progression. The industry is seen to provide good prospects for personal development through training and continual learning, while the excitement and 'buzz' of working on big capital projects in an international industry at the forefront of technology are also considered to be major attractions.

Phased research

The study, which is being carried out by independent market research company BPRI, was commissioned by the Industry Leadership Team (ILT) for Pilot, the joint UK Government and industry initiative aimed at boosting investment in the UK Continental Shelf (UKCS) in response to concerns that the industry is not attracting sufficient new recruits. The number of UK engineering and technical students has fallen by 27% over the past six years and demand for technicians in the UKCS is expected to exceed supply by 2003.

The research is being conducted in two stages. The first stage, completed in August 2001, targeted graduates recently employed by contractor and operator companies in the oil and gas industry. Most of them were engineers, although some non-engineers also participated. The second stage of research, due for completion by the end of the year, will sound out attitudes amongst recent graduates who have chosen to pursue a career in engineering outside the oil and gas industry. The findings from both stages will be used to develop a programme to raise the industry's profile amongst undergraduates in selected universities to highlight the range of opportunities and long-term career prospects on offer.

The findings of the first phase were launched at the Aberdeen and Grampian Chamber of Commerce's Business Breakfast at the Offshore Europe 2001 exhibition in September. At the breakfast, James McCallum, President of Global Marine Integrated Services said: 'The image of the oil and gas sector as a "sunset" industry couldn't be further from the truth. At least half of the UK's total offshore oil and gas reserves remain still to be produced and demand for our product continues to grow. Provided investment plans for 2001 and beyond are realised, peak production could be maintained for several years. The economic and technical challenges that increased maturity bring to the North Sea makes working in the sector no less rewarding than in its pioneering days over 30 years ago.'

'Indeed, it will be the innovative thinking and technological expertise provided by new recruits today that will secure the country's oil and gas supply in the years to come. The industry needs the best and what this research shows is that we can offer satisfying and rewarding careers to the best. This is the message that the industry needs to put across more forcefully in the future.'

Looking forward

The Amec Charter Plus+ programme benefits from the diversity of participants, in terms of sponsor organisation and the wide range of current role. The programme includes offshore and onshore operational managers, project managers, maintenance managers, design, engineering and key functional managers – for example, IT and HR. In all cases, the opportunity to develop and deepen knowledge of management and achieve a measurable improvement in competence is valued by sponsoring organisation and participant.

William Serle, HR Director of Amec Offshore Services comments: 'The Charter Plus Programme is important for the development of managers and potential managers within Amec. It has been shown to be unique in its dual approach of vocational qualification and academic routes. The programme offers great potential for learning within a multi-cultural environment and exceptional networking opportunities with internal and external clients.'

This is supported by comments from the graduates on completion of the programme, who cited that:

- it had been a 'very enjoyable and interesting programme; have used many features through my daily work';
- 'information presented is of practical value and relevant to my daily work; presenters have valid industrial experience, which certainly helps in assimilation';
- overall the programme has been of great benefit to me, the quality of the learning has been excellent; business planning and finance were the key areas of benefit for me.'

The University of Durham's Business School

Looking ahead, potential developments of Charter Plus include the use of e-learning to further facilitate the development of a learning partnership within the programme and beyond. The University of Durham Business School's Virtual Centre provides access at the desktop, via the Internet, to a wide range interactive tools. The capability of the Virtual Centre includes:

- enabling online lectures, seminars and tutorials, business simulations and discussion forums;
- the development of learning networks, so students can communicate and transfer information and ideas easily and quickly; and
- access to an extensive learning resource via the Virtual Library and Media Centre.

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Hopes high but fields declining

Photo © BP plc (2001)

The 460mn barrel Wytch Farm field, discovered in 1974 in Dorset, is still the most prolific onshore oil producer in Western Europe and one of the largest oil fields in the UK. At its peak, output was over 100,000 b/d but since 1998–1999 it has been in decline. *Priscilla Ross* reports.

The Wytch Farm field decline rate is 3% to 4% a month, but BP is managing the decline and expects to maintain production at the current rate of 55,000 to 60,000 b/d for the next two years. Over 100 wells have been drilled and water injection to maintain reservoir pressure has been a feature of the development from the start. As a result water management is an important part of production operations. Not all 100 wells are in production now and some are candidates for in-fill drilling as BP manages production in the decline phase and builds up detailed reservoir knowledge.

The Wytch Farm oil field produces from two major reservoirs, the shallower Bridport at a depth of 900 metres and the larger, as well as more productive Sherwood reservoir at about 1,600 metres. The proportion of Bridport to Sherwood oil produced is about 1:27. Estimated reserves of the Bridport reservoir are 30mn barrels and those of Sherwood are 170mn barrels in the onshore part of the field and 260mn barrels in the offshore part under Poole Bay. The so-called third phase of the Wytch Farm development entailed drilling long reach wells into the offshore section, a distance of up to 11 km from existing onshore well sites.

Onshore operators group

For 60 years BP has been the UK's main onshore oil explorer and producer.

The company is also the only major oil company, which remains a member of UKOOG (United Kingdom Onshore Operators Group).

The Bow Valley led consortium (Bow Valley 45%, Sterling Resources (UK) 45% and Egdon Resources (UK) 10%) has identified a dozen Sherwood closures in the Wessex Basin area and they claim reserve potential of up to 60mn barrels individually and up to 300mn barrels collectively on its licences, none of which have ever been tested by the drill-bit.

Egdon Resources argues that the lack of exploration success in the Wessex Basin area since the discovery of Wytch Farm can be ascribed to difficulties in mapping deeper Sherwood targets on 1970–1980s vintage seismic and the lack of a good petroleum migration model to understand the charging mechanisms in the basin. Egdon has developed new migration models using computer software to define hydrocarbon migration pathways in this basin.

'Dorset County Council granted planning permission on 17 July 2001 for the construction of a drill site and access for the drilling of an exploration borehole and carrying out short-term drilling if required,' said Andrew Hindle, the joint Managing Director, Egdon Resources.

Oil prospects

West Compton is a 50mn barrel oil prospect that lies at the western end of the Central Wessex High, a stable structural trend, which was the focus for the migration of oil and updip of the Wytch Farm oil field. The operator of PEDL048 – Bow Valley – says prior to commencement of drilling in November 2001, upgrading of certain roads will be undertaken.

Exploration drivers

Shell is reputed to have spent £20mn exploring onshore the UK and has found virtually nothing. The only oil major with onshore production is BP with Wytch Farm and its adjacent sites. Onshore UK exploration levels appear to be driven by oil prices and recent success levels. The UK Government has actively encouraged onshore exploration drilling with annual licensing rounds and the latest, the 10th

Courage	Pentex Oil & Gas Ltd
BP Exploration Operating Company Ltd	Mustang Oil Ltd
Bow Valley Petroleum (UK) Ltd	Roc Oil (UK) Ltd
Edinburgh Oil and Gas plc	Tullow UK Gas
Evergreen Resources (UK) Ltd	STAR Energy UK Onshore Limited
MIDMAR Energy Onshore Ltd	

Source: UKOOG

Table 1 UKOOG members as at July 2001

Licensing Round, will close end-October 2001. The UK Energy Minister Brian Wilson at the recent launch of the 10th round invited applications for all unlicensed acreage in Great Britain above the Mean High Water Mark. Despite this it is not expected to be as big as the 9th Round, but the Government is trying to keep to annual licensing rounds.

In the UK oil and gas reserves belong to the Crown. In return for appropriate fees and taxes, oil companies are licensed by Department of Trade and Industry (DTI) to explore for oil and gas and to develop and produce discoveries that prove commercial.

Although modest in size compared with the big North Sea fields, the UK's onshore deposits are important as a source of energy and in helping to create jobs. 'It is a good domestic training ground and nursery for the oil industry, which is probably Britain's most global industry,' says Henry Boyd, Secretary of UKOOG.

UK oil production (May 2001) was running at 55,000 b/d from Wytch Farm/Wareham, 3,600 b/d from other onshore fields and 2.2mn b/d from the offshore fields.

Onshore geophysical library

The UK Onshore Geophysical Library (UKOGL) is one of the UK's onshore success stories. It has received no government financing but the DTI is committed to supporting it and considers the data acquired by the Library to have equal value to new 2D seismic data. The DTI is encouraging operators to store their data with UKOGL and will be pressing all applicants in the 10th Round to agree to place new seismic with the Library. Such data will still remain confidential for a period of five years. Thereafter the information becomes part of the public domain.

UKOGL was established in 1994 and it has been transferring data originally on magnetic tape to CD-ROM. The Library is a national charity and much of the data could not be shot again. It has been estimated that in excess of £400mn was spent on acquiring the onshore seismic data held by UKOGL.

Malcolm Butler, Chairman of UKOGL told *Petroleum Review* that the Library has now archived over half of the UK's onshore seismic data. The majority of around £1.5mn spent to archive information has been raised from the sale of data and the balance from donations from oil companies. This data is now available at £100/sq km. Companies pay UKOGL to archive their seismic data. Such archiving is obligatory for companies in the UK. Academics are allowed to use the data for virtually nothing. Another £850,000 is required to archive the remaining UK onshore seismic.

Acquiring seismic onshore the UK is expensive because of environmental legislation. 2D seismic, which requires shooting down roads, costs about £8,000/km. 3D seismic is more expensive because a field may have to be shot and the farmer/land-owner requires compensation.

Alan Chan, Exploration Manager of Edinburgh Oil and Gas says: 'UKOGL brings down the cost of research. It is not too expensive for a first look.' He said there were 'lots of opportunities onshore UK and that it remains underexplored because the cost of drilling is high compared to onshore North America'.

He also noted that: 'Planning and environmental approvals take longer and UK exploration costs are much more expensive than a North American equivalent'. He estimated 'depending on how deep and if you deviate conventional onshore exploration drilling costs typically £500,000 to £1.5mn onshore UK and could be ten times more for offshore.' Edinburgh Oil and Gas produces 600 boe/d onshore UK.

Rob McKie, the Chairman of UKOOG explained: 'Environmental assessment prior to development is dealt with by the mineral planning authorities, which are the County Councils. By a process of consultation and an awareness of environmental issues, onshore operators have successfully shown it is feasible to locate oil and gas developments in environmentally sensitive locations within the onshore UK. This has been carried out to the complete satisfaction of local people and environmental groups. With this proven track record we look forward to the development of new discoveries in the knowledge that they will be developed in harmony with the environment.'

Onshore gas

Roc Oil, the Australian junior, is the operator of the UK's largest onshore gas field. By end-2000 gas was being produced at 44mn cf/d. Saltfleetby-5 was completed in September 2000 and is the first gas producer from a Namurian reservoir found below the main Westphalian Saltfleetby gas play.

Tikal, a Toronto-listed company shot 2-D seismic over a potential world-class (1tn-2tn cf) gas filled structure in the Welsh East Broadlands in December 2000. The seismic has been interpreted and confirmed the presence of a major structure at depth. Cogen, the major UK-based electrical utility, will be involved in the next data gathering phase after which a partner will be sought to assist in the drilling of this 4,500 metre well in late 2002 or early 2003.

Exploration delays

Delays have occurred in exploration for both oil and gas exploration prospects in the UK this year because of Foot and Mouth Disease. However, although planning permission is time consuming, small overseas and UK independents are still pursuing and raising venture capital to prospect for oil and gas onshore Britain. ●

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Exploration	12	11	6	2	3	2	6	12 (2)	5	6	8
Appraisal	1	–	–	–	–	–	1	2 (2)	9 (4)	2 (1)	6
Development	23	3	8	9	13	19	28	26 (9)	21 (13)	11 (5)	11 (6)
Total*	36	14	14	11	16	21	35	40 (13)	35 (17)	19 (6)	25 (6)

*The first figure is the total number of wells including geological sidetracks. The actual number of geological sidetracks included in the total is the second figure in brackets.

Source: Development of UK Oil and Gas Resources 2001 (The Brown Book)

Table 2 UK onshore drilling: numbers of wells drilled by category

Still space in the marketplace?

Which country has the world's oldest oil industry? And which has the youngest in Europe? Paradoxically, the answer can be Romania in each case. The oldest is easy to justify – Romanian records show 100 tonnes of crude were produced in 1857, two years before Col. Drake drilled his well in Titusville. And youngest is based on progress towards liberalisation and privatisation; Romania is possibly the most recent mainstream European country to create a fully competitive industry. *Ian Byrne* takes a closer look at downstream developments in the country.

Just a few of the service station operators serving the Romanian fuels market.

The antiquity of Romania's industry is part of the problem today. Before the First World War, it was the world's third largest oil producer with numerous small refineries and important indigenous companies such as Concordia and Steaua Română. Although it rather marked time between the wars, it became an important supplier to Germany and thus suffered almost total destruction by allied bombers in the Second World War. In 1948 the new Communist Government nationalised all 35 companies operating in the industry and set about rebuilding the refineries. As Romanians are proud of their engineering heritage they chose to do this very much alone, producing a legacy of small and inefficient refineries by the early 1990s.

Slow progress

After the fall of Ceaucescu's highly oppressive regime at Christmas 1989, Romania was less well placed than other central European countries to move to a market economy. Although the industry was partially reorganised in 1991, it was not until the creation of a new national oil company – Petrom – in August 1997 that work on the dismantling of the Communist structures began in earnest.

The first step was to sell the surplus oil refineries. With ten operational (at least in theory, although many were running well below capacity) international oil companies showed little interest. Some of them were privatised, bringing such venerable names as Astra Română onto the Bucharest stock market. Russia's Lukoil bought a majority stake in the Petrotel refinery in Ploiesti, and Rompetrol – which had started life as the Romanian state concern for non-domestic exploration and production – bought the Vega refinery. The privatisation of Petromidia, on the Black Sea coast and potentially one of

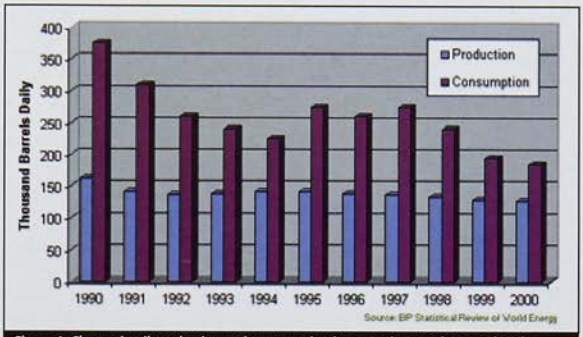


Figure 1: Change in oil production and consumption in Romania over the past decade.

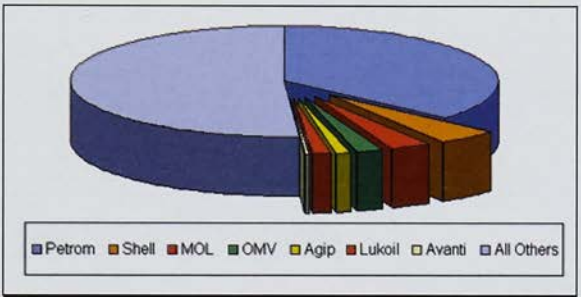


Figure 2: Approximate share of branded service stations in Romania (Note: this does not necessarily equate to market share.)

the more valuable units, is widely agreed to have been mishandled. The refinery was sold twice, initially for over $400mn, but both transactions collapsed. Finally Rompetrol stepped in last year and bought it for the much reduced sum of $51mn. The two largest refineries – Arpechim and Petrobrazi – remain with Petrom, although both have been running at well below capacity.

Moving further downstream, oil terminals and pipelines remain under the control of companies linked to the former monopoly. This has made life difficult for some newer entrants to the retail market, and only Lukoil – which is adding a terminal to its Petrotel facility – has been in a position to take much action. Most independents continue to buy their products at the refinery gate.

More action in retailing

The most obvious market changes can be seen at the retail end of the market. The old Peco service stations have progressively been transformed into brighter outlets under the Petrom name, and there are a large number of new forecourts under international and local brands.

Shell was the first foreign company to enter the market, and remains the largest new entrant with over 75 petrol stations. In declining order of station numbers, it has been joined by Hungary's Mol, OMV and Avanti of Austria, Russian oil company Lukoil, Agip and of Italy. Together, international names have around 200 outlets compared to Petrom's 570. However these numbers are more than matched by several hundred locally branded outlets, often bearing bright colours and names such as Ascot, Cevi (pronounced 'Chevvy') and Nova 91.

Brand protection

Brand protection should be an important issue for Western companies not presently active in Romania. Many of the local companies wish to be seen to be bigger than they are or associated with Western quality products. For example, there are a couple of outlets in the Ploiesti area carrying the name JET OIL. These appear to have nothing to do with the large Greek independent petrol supplier of the same name; indeed the sign owes more to Conoco's Jet brand with black letters on a strong yellow background.

As well as simple copying of Western identities, there is a less clear-cut issue where a genuine lubricants name is attached to fuel sales by an independent petrol station. Aral seems to have suffered from this most, with several apparent Aral stations, including an impressive one just north of Otopeni Airport. Mobil Lubricants also turns up as a fuel brand on several Bucharest stations, complete with green and yellow pumps suggestive of a BP link.

In some cases the lubricants supplier may be actively encouraging this trend. Brand development is important, especially as the market for domestically produced lubes more or less disappeared in the mid-1990s. There is no firm data on market share but, if space on service station shelves is anything to go by, the market leaders appear to be BP, Mobil and – surprisingly – Aral Super Elastic. Texaco, although it only started selling oil in Romania in 1999, has invested heavily in its Club.

The market is still immature, with many other brands widely on sale including Chevron, Castrol, DEA, Total, Valvoline and Yacco. Petrom still gives most shelf space to imported brands, although it is trying to get back into the market with its RO3 line of oils. Perhaps unexpectedly, Shell, MOL, OMV and Agip lubricants are not commonly sold except in their own service stations.

Western-style trend

The clear trend in service stations is towards larger Western-style facilities with attached convenience stores. International brands can bring their own C-store names, and a Shell Select store in Bucharest looks much like one in Bristol. Most of the goods are imported and, by Romanian standards, highly priced. The only concessions to the old regime are in bureaucracy (once the till receipt has been printed, it must still be validated with a rubber stamp) and possible overmanning, although each store appears to need a security guard.

Agip stresses its Italian roots with its *Ciao'Agip* format and, as in Austria, OMV often includes cafes in its Viva offering. Although Petrom has also introduced a C-store brand, Noroc ('Cheers!'), its product range is usually limited as most stations lack space to build a full line store. At the moment there is no competition from hypermarkets; these are being built more slowly than service stations and at least one leader, the Austrian chain of Billa, does

not sell fuel in its home market.

The market for modern service stations has some way to go before it reaches saturation. The next trend is likely to be signing up some of the bigger or better located private stations as franchised outlets; Petrom, Lukoil and Agip have already started this. There may still be opportunities for additional entrants into the market, although most companies are waiting to see the result of the partial privatisation of Petrom, now promised by the new Socialist Government sometime in 2002. There is speculation that OMV may be interested – it was the underbidder for Bulgaria's former monopoly Petrol – or that it may pull in one of the big absentees, such as BP, ExxonMobil or TotalFinaElf. Western companies are concerned, however, that the sale may again be a flawed process, with Turkish or Russian interests making a high bid that they are unable to follow through.

Auto LPG is also beginning to appear at some service stations. Shell has added this fuel to some of its sites, whilst Petrom has built a few standalone facilities in a joint venture with Italy's ButanGas. As elsewhere, the fuel is attractive mainly due to lower taxes.

Opportunities

Opportunities also exist for vendors of service station equipment. Many of the private stations were built to a low budget, using second-hand dispensers. (This can also lead to unauthorised use of Western brands; for example Gheorghe Baden's outlet in suburban Ploiesti apparently has two Fina pumps and one selling BP. Closer inspection reveals that all three were formerly used in Germany and now sell unbranded local fuel.) As the market matures, better positioned sites will need to upgrade, probably introducing self-service at the same time.

Price sensitivity

The main brake on new investment at the moment is uncertainty over prices and market volumes. Most Western markets are highly insensitive to price. In Romania, it is different. A 70% increase in taxes in early 1999 led to an immediate fall in fuel sales of around 20%. Although petrol may appear cheap to Western visitors at under 40 p/l, it is still something of a luxury to many in Romania, where a qualified engineer only earns around £110 a month. Petrom has also been taking an aggressive pricing stance in order to maintain market share before its privatisation. In response, Shell has stopped displaying prices outside its service stations, instead using the space to promote its new V-Power fuel additive.

Another unknown factor is how much volumes will recover over the next few years. As in most Eastern European countries, total consumption of oil products has fallen sharply since the revolution – in 2000 it was just 8.9mn tonnes, less than half the 1990 figure. The fall in motor gasoline has been less proportionately, but as Romanians move away from their old Dacia cars into newer models, they can drive much further on a litre of fuel. (Daewoo, which is now the main Romanian car assembler, stresses the fuel economy of its products in local advertising.)

In conclusion, there are still opportunities for Western companies to work in the Romanian downstream oil industry. Refineries need to be upgraded and the service station network is immature. The world's oldest oil industry still has a lot of catching up to do before Romania joins the European Union. ●

Government starts planning full deregulation

The Japanese Ministry of Economy, Trade and Industry has started to draw up plans to fully deregulate Japan's gas industry by 2003. While Japan's gas distribution companies generally are opposed to opening the domestic gas market, the government intends to continue with deregulation as part of a wider process of expanding competition to increase the efficiency of Japan's gas and electricity industries which still are operated almost as traditional monopoly services. *David Hayes* reports.

Above: Gas transmission lines, Osaka Gas Company

Since the first move to deregulate the gas industry was enacted in 1995, Japan's gas market already has been opened to electricity and oil companies which are allowed to supply large gas users consuming more than 1mn cm/y. The new government initiative is intended to extend deregulation to include gas sales to office buildings, hospitals and even households. By increasing competition in the gas wholesale and piped city gas markets the government aims to reduce domestic gas prices which generally are two to three times higher in Japan compared with many western countries.

The government's new initiative already has started to achieve results. Earlier this year Tokyo Gas, Japan's largest city gas company, announced a cut in tariffs by an average of between 2% and 3% on 15 February. The reductions cover fees for a wide range of customers including residential consumers as well as larger user industrial customers. According to Tokyo Gas an average family with two children can expect its normal monthly gas bill to drop by Yen 168. Monthly charges have dropped by a maximum of 9% at commercial facilities and office buildings where gas companies are competing with power companies to supply gas. Tokyo Gas is funding the tariff cuts by reducing staff numbers and cutting operating expenses.

Japan's other leading city gas companies – Osaka Gas and Toho Gas – also are cutting tariffs to increase gas price competitiveness.

Growing competition

Moves to fully deregulate the gas market come at a time when city gas companies are under growing competition from other energy suppliers. As a result of deregulation in the electricity industry following the latest revision to the Electricity Utility Industry Law in November 1999, some of Japan's 10 regional electricity companies are looking to supply gas to offset an anticipated loss of electricity sales as new electricity suppliers enter the electricity generation market in the future.

Currently, six electricity utilities – including Tokyo Electric Power Co (Tepco) and Kansai Electric – are planning to supply gas in the future. Tepco already has started supplying gas on a wholesale basis to Otaki Gas, a city gas company in Chiba Prefecture. Chubu Electric, serving the central Tokai region, and Kansai Electric, serving Osaka and the surrounding region, also plan to supply gas to nearby factories and other customers.

Power companies are well placed to supply gas as many import LNG for their own power stations. To supply gas to other customers the power companies need only to increase their LNG imports which will also allow them to make better use of their existing LNG import terminal and storage facilities.

Tepco is looking at other ways of expanding its gas business. The company has started a feasibility study looking into the construction of an undersea gas pipeline across Tokyo Bay to transmit gas from its LNG import ter-

minal and storage facilities on the eastern coast in Chiba Prefecture across to Kanegawa Prefecture on the western side of Tokyo Bay. Plans call for the pipeline to supply gas to several thermal power plants as well as to supply gas to household, commercial and other customers in central Tokyo and Kanegawa Prefecture.

New opportunities

However, Japan's major city gas companies are not letting the power companies have it all their own way. Deregulation of the electricity industry also offers city gas companies new business opportunities.

New entrants to Japan's deregulated electricity industry are due to include Tokyo Gas and Osaka Gas, both of which are planning to build large gas-fired power stations in the future. The two city gas companies have been looking at the electricity market for some time as a way of expanding their related energy business and to regain some of their expected lost gas sales revenue after the gas industry is fully deregulated.

Tokyo Gas has established a subsidiary called Tokyo Bay Company to build a 1,000 MW gas-fired combined cycle power plant. A completion date for the project has not been announced so far. Also, the company has not revealed the identities of the proposed purchasers of the new electricity supplies.

Meanwhile, Japanese oil companies and possibly steel companies importing LNG also are poised to begin supplying gas on a larger scale than at present. For example, Nippon Mitsubishi Oil Corporation is understood to have set up a joint venture with Teikoku Oil Company in April to supply gas on both a wholesale basis and a retail basis to customers in the Kanto region, including Tokyo. The joint venture partners also are preparing plans to build LNG storage and supply facilities in Okayama and Niigata Prefectures to sell gas to electric power companies and factories.

Slow to start

'Deregulation has been very slow so far,' commented a Manager at Tokyo Gas. 'The first stage was in 1995 to open the market to supply gas to large volume customers using over 2mn cm/y. In November 1999 the volume was reduced to 1mn cm/y. Usually a customer using this much gas is the size of a factory. It is a big liberalisation for the industry. Anyone can choose their gas supplier.'

In fact, the government's decision to partially open the gas market in 1995 had little initial impact as few gas users require more than 2mn cm/y of gas. The further opening up in 1999 was intended to have greater impact as the number of industrial customers using over 1mn cm/y is much larger.

Sodegaura LNG terminal, Tokyo Gas, Japan

'Customers using over 2mn cm/y account for a small share of the gas market while customers using over 1mn cm/y account for 30% of the gas market by volume in the Tokyo area,' the Tokyo Gas Manager said. 'But not so many customers have changed their gas supplier. Less than 10 customers have changed supplier in the Tokyo area after 1999. The biggest reason for changing is price.'

The picture is the same across most of Japan so far with gas companies managing to hold onto most of their customers, though often having to reduce their tariffs in the process. Companies changing their gas supplier represent a wide range of industries including printing companies, electronic equipment manufacturers, pharmaceutical companies and others.

Regulatory changes

Apart from expanding the category of large volume city gas customers to those using over 1mn cm/y, the 1999 gas deregulation extension included establishing open access to gas transmission pipeline facilities. To encourage new entrants to the gas supply business Japan's four largest gas companies – Tokyo Gas, Osaka Gas, Toho Gas and Seibu Gas – are now required to publish standard tariffs and other conditions for their gas transmission services.

'The government wants to deregulate the gas industry more and more,' the Tokyo Gas Manager said. 'Opening LNG terminals and high pressure pipelines to all gas suppliers to users is now under discussion at the Ministry of Economy, Trade and Industry. No decision has been taken yet. We do not know if a government paper will be published on this.'

Two other changes were made to the Gas Utility Industry Law in 1999, one regarding tariff setting, the other concerning safety technical standards. Previously gas companies had to obtain official approval for all tariffs they charged residential customers. Since November 1999 gas companies need only notify the local authorities when planning to reduce residential gas tariffs or offer discounts to commercial and industrial customers, giving them more flexibility in setting lower tariffs in response to changes in the gas market.

The change affecting technical safety standards has involved replacing standards relating to gas handing structures and materials with performance-based criteria. This change is intended to make it easier for gas companies to use imported technology and allow commonly used international standards to be used as specification standards in Japan.

Impact on LNG imports

Meanwhile, as the government continues to deliberate over various gas market liberalisation proposals it is not

clear if LNG import and storage facilities belonging to electricity utilities and all other companies importing LNG will be affected by full deregulation or whether the opening of LNG facilities will be confined to gas companies. Gas companies are fiercely resisting the idea of opening their gas terminals and other facilities to third parties in much the same way that Japan's electric power companies resisted plans to open their power lines to third party use when the deregulation of the power sector was being planning.

Gas companies also fear that deregulation could lead to important changes in the gas industry structure. Small companies, in particular, are concerned that they may be forced to merge with larger gas companies if they face financial problems from competition in their small markets.

'There have been some mergers, especially with small city gas companies which have been bought by bigger gas companies,' commented a Japanese gas industry analyst. 'This will happen more in future with deregulation as it is very difficult for the small gas companies to operate. City gas feedstock is switching to natural gas and conversion costs a lot so small gas companies face financial problems.'

'Deregulation is a very big change as the gas industry has a long monopoly history. Japanese city gas companies do not want deregulation but they cannot stop it because of the worldwide trend.'

Market statistics

According to figures published by Japan Gas Association, there are 239 city gas companies in Japan serving about 25.6mn customers. In the financial year ending 31 March 2000, city gas sales reached 24bn cm, a 5.6% increase compared with the previous year. This gas sales figure represents a 60% rise compared with city gas sales 10 years earlier when 256 city gas companies were in operation.

In terms of use, the residential market consumed 39% of Japan's city gas supplies in financial year 1999, followed by the industrial sector which used 37%. The commercial sector used 16%, while public buildings including hospitals consumed the remaining 8%.

Siberian gas

Although many city gas companies are worried that deregulation will lead to the loss of business to other suppliers entering the gas market, government plans to fully deregulate the gas market also are linked to Japan's future plans to import natural gas from Siberia.

Importing Siberian gas would require changes to the structure of the Japanese gas industry which has developed facilities based on gas companies supplying their own geographical territory. For example, Japan does not have a national gas transmission grid at present. Instead LNG-importing companies supply their own needs and those of city gas companies in the surrounding region which do not require sufficient natural gas feed stocks to initiate their own LNG import programmes.

According to recent press reports ExxonMobil – which is leading the Sakhalin One gas pipeline project consortium that includes a number of Japanese energy and trading companies – is confident the pipeline scheme will be shown to be commercially viable when the results of an ongoing project feasibility study are published in April 2002.

The first deliveries of Sakhalin gas could reach landfall in Japan about five years after firm contractual commitments are signed with customers in Japan. Estimates of the project cost are huge with figures as high as $8bn being mentioned. Surprisingly, Exxon is reported to believe that government funding will not be required for the project. This has come as a surprise to most energy analysts as many previously had assumed that some state investment would be involved due to the sheer size and status of the project as a major national infrastructure scheme.

Gas supplies for the Sakhalin One project will come from three offshore oil and gas fields – Chayvo, Odoptu and Arkutun-Dagi, off the east coast of Sakhalin. The three fields are estimated to have recoverable reserves totalling 485bn cm, of which 309bn cm lie in the Chayvo field. Oil production at the fields is due to begin in 2005. Associated gas production will be reinjected until construction of a submarine pipeline expected to total over 1,000 km from the fields to Japan's northern Hokkaido island is completed.

Exxon and its Sakhalin partners are due to begin marketing Sakhalin gas shortly, just as the Japanese Government is considering plans to complete the full deregulation of the domestic gas industry. While Japan's gas and electricity utilities are the obvious target market for Sakhalin gas it is possible that new customers will emerge in Japan as the deregulation of both the electricity and gas industries is interlinked.

Japanese city gas companies yet to convert to natural gas would be one market for Sakhalin gas. During the past decade the share of imported LNG as a proportion of total city gas feedstocks rose from 72% in the early 1990s to 86% by the close of the decade. Almost all city gas companies still using other feedstocks are expected to convert to natural gas feedstocks when affordable supplies become available.

New markets

New gas uses also will create new gas markets in Japan. In a bid to reduce vehicle emission of nitrogen dioxide pollution Japan Gas Association is overseeing a government sponsored research programme developing a new engine for natural gas-fueled vehicles with the target of getting 1mn natural gas fuelled vehicles onto Japan's roads by 2010.

While other new uses also could expand the market for Sakhalin gas, the Sakhalin developers are looking for large initial gas customers to provide the initial baseload demand to ensure the pipeline is commercially viable.

A number of Japanese companies and foreign investors, including Enron of the US, are planning to build private power stations in Japan and could favour gas as the preferred fuel if the price is right as gaining permission for gas-fired power stations in Japan is far easier than seeking approval for coal-burning plants, the other main fuel option for new power stations.

As existing electricity and gas companies already control access to most of Japan's LNG import facilities, the electricity and gas utilities have a vested interest in keeping new competitors out of the market. Without a national transmission grid at present, new power plants do not have the chance to buy gas from a distant supplier due to the lack of national gas pipeline transmission facilities.

New power plant operators are obvious target customers for the Sakhalin consortium as many regional electric power companies and gas utilities already are locked into long-term LNG import contracts which could slow the build up of orders for Sakhalin gas until the long-term contracts start to expire.

Meanwhile, without a national gas grid, government gas deregulation planners also need to consider how Sakhalin gas can be transported to different customers once the gas arrives in Japan. Building a national pipeline grid is expected to be expensive and slow, although it is possible an offshore pipeline could be built along the Japanese coastline supplying major cities and markets through various off-take points.

One possibility is that clusters of gas-fired power plants could be built near the Sakhalin pipeline's landfall point in Japan. However, Japanese power utilities control access to the underdeveloped national power transmission grid which could hinder the transmission of bulk competing electricity supplies to customers across the nation.

Added value of e-service

Now, as with so many areas of modern business, the Internet is entering the fray as western European service station operators continue to expand their non-fuel offerings at the forecourt. *Michael Phillips*, Oil Analyst at Datamonitor, discusses the advantages and disadvantages of introducing the Internet to the forecourt and forecasts the future popularity of e-service stations.

For several years, the prevailing wind in western European forecourt retailing has been blowing towards expanded non-fuel offerings, as companies seek to increase site profitability and transform their stations from refuelling points to 'one-stop-shops.' Across the Continent, forecourt shops are increasing in size and number as convenience retailing makes an ever-growing contribution to site revenues. ATMs and hot snacks are now commonplace in many markets, with more unusual features such as video rental, dry cleaning, vehicle rentals and forecourt TV becoming increasingly apparent. And now, as with so many areas of modern business, the Internet is entering the fray, with the introduction of access terminals in forecourt shops and at fuel pumps.

In a world where everything from mail to marketing, from commerce to communities, now seems to have the prefix 'e' latched onto it, the emergence of e-service stations comes, perhaps, as no surprise. But any move that brings the Internet into previously uncharted territory is, of course, subject to the cold hard principles of sound business, starting with the desire to maximise earnings. So what is the commercial motivation behind Internet access on the forecourt, and is it strong enough to make access terminals as common as ATMs in years to come?

Added value

At first sight, it may appear as though oil companies are simply aping the business of Internet cafés, generating revenues from those that do not have web access at home or at work. But with full Internet access charged at around £1 per 10 minutes, it is unlikely that a web-surfing terminal will outperform the old-fashioned set of shelves it will replace on a revenue-per-square-metre basis.

An online shopping service harbours greater potential for direct revenue generation as it enables vast expansion of the available product range to include goods of a far higher value than has traditionally been possible. However, without high levels of usage, the revenue will still not justify compromising a forecourt's capacity for convenience retailing. As PC prices and access charges both continue to fall, the Internet is penetrating a rapidly increasing proportion of European households. In time, all those that wish to use the Internet regularly will either install it at home, or remain content to use it whilst at work. The available revenues from public Internet access will therefore steadily decrease. Under this scenario, aren't Internet terminals destined to become expensive white elephants, wasting space in the forecourt shop?

Datamonitor believes that customers will use the terminals, and use them regularly. But they won't, for the most part, be paying for the privilege. The value of forecourt Internet access is not primarily as a revenue generator, but as a differentiating, value-added feature that offers free provision of useful services to people on the move.

It is precisely the rapid proliferation of the Internet to the European population that presents the opportunity to gain competitive advantage. The target audience should not be those without existing access to the Internet, but the ever-growing proportion of consumers that already use the web to manage their everyday lives. Whilst the majority of Internet use for personal needs will occur in the home, the Internet does not cease to be useful as you walk out of the front door. Once aware of what the Internet can offer and how quickly it can deliver, consumers will inevitably want to use it at times when they are away from their PC. Not all will invest in a mobile platform, and so would make use of publicly available free-to-use terminals to satisfy their immediate Internet needs.

On-the-go services

On-the-go services such as news, sports and weather updates, e-mail, timetables, online shopping and online banking will be useful to modern time-pressed customers. Route finders and traffic information will appeal to service stations' primary customer base – motorists. Local information covering entertainment, restaurants, accommodation, leisure activities and places of interest will be of use to both tourists and residents.

It is essential that the 'walled garden' of free services be administered via a customised desktop, so that each service is quickly and easily accessible. A branded desktop can also be used to market the forecourt retailer and its alliance partners. A strong offering of free content will not only draw customers away from competitor service stations, it will also differentiate forecourts from traditional convenience stores. Not only will it form a reason to choose one forecourt brand over another, it will itself stimulate visits to the forecourt, attracting additional spend in the process. The ability to gain full access to the web, on a pay-as-you-go basis, must be included so that the competent user can dip into favourite sites that are not available for free. However, the free offering must be regularly reviewed, maintaining as broad a range of popular sites as possible, since the scope of free content will itself become a competitive issue as forecourt terminals proliferate across brands.

Datamonitor believes, therefore, that Internet terminals are indeed a worthwhile addition to forecourt shops – not primarily because of their revenue generating capacity, but because they will expand the service offering to include information, communication and commercial services that are of true value to the modern e-consumer.

E-service at the pump

Touch sensitive multimedia screens are also appearing mounted in fuel pumps (see **Figure 1**). Again, their primary benefit is as a free value-added customer service – utilising the 1-4 minute window of 'dead time' spent filling the tank. As the available timeframe is small, the range of content must be strictly limited. Since the users will necessarily be motorists, the emphasis must be on journey-related services such as route finders, traffic updates and local information. The offering must not be over-

Figure 1: Internet-enabled fuel pump

Figure 2: 'E-kiosk' in BP Connect fore-

complicated, as any customer relationship management (CRM) benefit will be wiped out if customers are left queuing behind people using an extensive range of services. The danger of pump waiting times increasing may concern some forecourt retailers, but simple practical measures can be employed to limit any adverse effect. For example, the screens could reset 30 seconds, say, after the fuel has stopped pumping.

Contrary to operational concerns, pump terminals can actually be used to boost site performance. For sites with an expanded range of forecourt services, the terminals can be used to speed up operations. For example, fast-food orders could be made at the pump or videos to rent could be chosen, both ready for collection upon entering the shop. Collection of dry cleaning or parcels (in a 'drop-zone' scheme) could be streamlined by announcing one's presence at the pump. If customers are not using the interactive services, the screens form an ideal medium for marketing of non-fuel goods and promotions – stimulating impulse purchases.

Proximity of the screens to filling data or, better yet, inclusion of filling data on the screen itself should ensure that these attractive features command the customer's attention. The simple boredom of filling a tank will be enough to motivate many customers to use, or at least look at, the screens. Effective marketing at this stage of the customer's stop at the station could significantly improve non-fuel sales. There is also the opportunity to sell airtime on the screens to advertisers, directly generating revenue.

In addition to these varied functions, the terminals would also be capable of supporting all current and future speed payment methods, by virtue of their web-connection. Credit cards, smart cards, mobile payment and the debiting of online accounts using passwords could all be integrated into the terminals' operations.

Service	Average ratings
Restaurants	2.5
Postal Services	2.4
Entertainment facilities	2.4
Internet access	2.1
Dry cleaning	2.0
Drop zones	1.9
Financial services	1.9
Vehicle rentals	1.5
Travel services	1.3

Source: Datamonitor

Table 1: Industry ratings of customer preferences in respect of forecourt services – seven country averages

Looking to the future

So, when can you expect to see Internet terminals at your local service station? If you live in the UK, you may already have an Internet-enabled BP Connect forecourt in your vicinity (see **Figure 2**). BP has taken a clear lead in this area, being the first company by some distance to launch a roll-out of both shop and pump terminals. The terminals are an integral part of the BP Connect forecourt concept, currently spreading across the UK and parts of the US. The concept, which includes hot food cafés and employs solar panels to part-power the sites, will gradually be introduced to all markets in which BP operates.

Petrogal, Galp's fuel retailing arm, will be launching a similar project in Portugal and Spain from the start of 2002, and several other major players including Shell, Texaco, Conoco, and TotalFinaElf have been conducting trials. The companies have, between them, tried a wide variety of offerings, but Datamonitor believes that the free provision of useful services is the key to success in this area.

The eventual presence of terminals in shops will be limited by the forecourt shop network. We predict that, in 2005, 23.6% of European forecourts will not feature a shop at all. A further 42.4% will feature shops that are too small to accommodate a terminal. Datamonitor believes that terminals will become commonplace amongst the remaining 34.1% of sites as customers respond positively to a growing range of useful services. Pump terminals can, in principle, be introduced to any site and their eventual presence is likely to exceed that of shop terminals. Pump terminals can service customers' information needs more efficiently as they do not extend the time spent on the forecourt. They are a versatile addition to the 'one-stop-shop' concept, and they can also be usefully applied to unmanned sites – adding branding and a differentiating service aspect to an otherwise robotic experience.

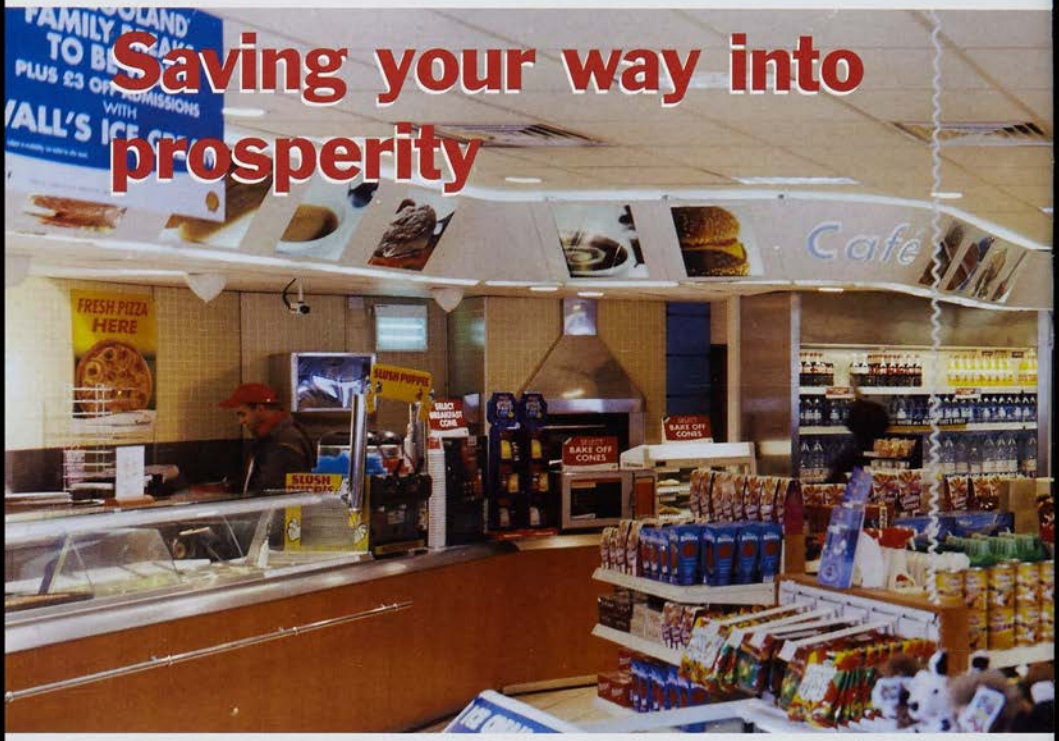
Cost barrier

A possible barrier to the spread of Internet services on the forecourt is the expense associated with their introduction. Pump terminals, in particular, can add as much as 40% to the cost of installing a new pump. With so many options available for future expansion of forecourt services, how keen are fuel retailers on investing in this area over others? **Table 1** shows how Internet access compares to other services in terms of industry perception of customer preferences. The survey was conducted with oil company executives across seven European markets. It can be seen that Internet access ranks highly, and that it is easier to introduce than the three most popular initiatives in terms of investment and available forecourt capacity.

The way ahead

Internet services on the forecourt are not a futuristic gimmick that will waste space and expense. Publicly usable Internet terminals, offering free access to a range of useful services, are appearing in airports, rail stations, bars, cafés, supermarkets and even mounted on public payphones. Modern consumers are using them because of an increasing appreciation of the Internet's power as a tool for managing everyday life. Service stations that include them will possess an attractive differentiating feature that will help win custom from rival brands, and generate increased revenues.

Saving your way into prosperity



Effective management is not just about controlling costs as stories of cutbacks, re-engineering and fat trimming might suggest. *Mott Groom takes a look at how forecourt and C-store retailers can get the most out of their operations.**

When results were poor in the corporation I used to work for and someone would call for a cost-cutting exercise, a senior executive I knew would say: 'You can't save yourself into prosperity.' The problems, he suspected, lay elsewhere.

Effective management is not just about controlling costs as stories of cutbacks, re-engineering and fat trimming might suggest. Cost control is often the easy way to show action and results but, done without identifying the real problem, it can often only postpone problems that reappear in another place at a later time.

There are two levels to a P&L (profit and loss) statement and approaching the top portion first might be the smarter way to begin to solve the problem of why a business is not doing what is expected. Approaching the revenue side requires a fresh examination of the strategy and the tactics employed to achieve it. Starting with revenues will require you to use your imagination – it may end with cost cutting, but that should be a result not a starting point.

The retail convenience store business is no exception and convenience store owners and operators with a forecourt past have to be very careful on this issue. I say this as one with such a past myself, who is still trying to 'unlearn' many years of oil company training and mind sets.

Making a service station perform well requires two things:

- attracting customers to earn revenue – which requires the right location, promotions, price, housekeeping and services, and
- keeping costs under control – which requires buying right, maintaining facilities and manning efficiently.

The revenue side of the equation is limited by competition, which controls the price you can charge, and by a gross margin ceiling which exists because the average customer couldn't buy more than 12 or 15 gallons if he wanted to. So, a good manager counts customers and controls costs. He can calculate monthly gross margins by multiplying his register transactions by the gross margin on 10 gallons of gasoline.

It is in the cost data where surprises arise. As that service station starts adding new products and services the dynamics of the business change, revenues become more complicated and diverse, and a customer's arrival is as much a matter of his rumbling stomach as his vehicle's empty fuel tank. Gross margins

per transaction vary by the hour and the day, and a seemingly busy cycle of fuel and cigarette sales may look like a paltry contribution to profits against an early morning sale of fresh doughnuts.

Retail optimisation

All of a sudden the commodity fuel product which produced a steady stream of gross margin and a relatively uncomplicated life has turned into a retail optimisation problem.

Welcome to roadside niche marketing, where the business cycle changes as fast as the traffic flows, and the appeal to the customer either keeps up the same three-hour cycle pace or business is lost as you try to sell fuel to a crowd that wants lunch.

The dynamics of a C-store operation follow a full spectrum of complexities depending upon the products and services offered, the facilities available and the interaction of these with the potential customer.

A C-store operator has to manage gross margins. Like the service station operator above, he has to watch his customer count and his cost control, but he has to add to that his selection of non-fuel products that fit with his site, his traffic patterns, the changing demographics of his customers and his gross margin objectives. This can be tricky for a traditional oil company operator who usually thinks in terms of standardising sites. It is easier, but no less daunting a task, for an independent owner/operator who can fine tune his market niche with perseverance and experimentation.

The exercise might start with looking at the fixed elements to the puzzle – location, site infrastructure, traffic patterns and competition. Assuming these factors are fixed, at least until some capital spending or other changes occur, you can drop an anchor to establish a starting point. Then the exercise is to match product and service lines to fit those fixed elements and provide a range of gross margin results.

As you change products offered or promotions you will see shifts in your gross margins. It might vary over a period of time or even during the day, but finding that shift will help you make re-adjustments in the business dynamic. This is a top-down or revenue-led exercise and it will take time, close observations and some flexible experimentation.

If you find that your morning coffee and doughnut cycle is 40% of your day's non-fuel gross margin generation you might find that a re-arrangement of parking space would pay big dividends, or that expanding fast food and removing a fuel pump might be a better route.

Who knows, you might even put the fuel in the back where it belongs, hire more help and open a drive-through doughnut window.

When they started calling these things convenience stores they weren't talking about convenience for the owner!

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Joining forces

Many of you will by now have seen in the August edition of *Petroleum Review* the announcement that the Institute of Petroleum is investigating the possibility of an alliance with the Institution of Gas Engineers and Managers (IGEM). It is too early to go into detail about this particular opportunity for the IP and the IGEM but it does seem timely, once again, to air the question of the value of mergers and alliances to organisations like the IP, says *Charles Henderson*, IP President.

You will know by now of the IP's strategy for growth developed in the first half of last year. The two key planks of that strategy are growth and more effective and more efficient means of communicating, including the IP's upgraded website found at **www.petroleum.co.uk**. The latter will certainly take us into new areas and will probably allow us access to potential new members, both in the UK and abroad. It will also give us a much-needed opportunity to make the products of the IP more widely known. The other main plank of our strategy – growth – is to work with other organisations in specific collaborative ventures, joint ventures, alliances and, where appropriate, mergers.

Close ties

Some of you may be aware that the IP works closely with a large number of other organisations worldwide. We have close links in information dissemination with continental organisations like IFP, AFTP and DGMK and many others. We also work closely with API, with OGP and with sister organisations all over the world. The advantage of this sort of arrangement is that it gives IP members access to the information available to the members of these other organisations and vice versa. Some of our members are also able to take advantage of the alliances by attending conferences in France, Germany and elsewhere. On the information dissemination side, there is also collaboration with various commercial organisations.

Sponsorship of our conferences and events enhances the IP's activities enormously. Next February, during IP Week 2002, you will see evidence of such sponsorship and/or cooperation from a number of organisations which allow the IP to offer products and services to its members. Alone the IP could not do this. The IP Awards are another good example of this collaboration, with sponsorship coming from across the industry, including companies such as Wood Mackenzie, EDS, BP, ExxonMobil, Texaco, TotalFinaElf, Grandfield Communications, MMC Enterprise Risk in association with Geel, and Bloomberg. Clearly, working with others on information dissemination is of great advantage to IP members and non-members alike.

Technical alliances

Our technical activities, too, involve a very wide range of alliances. Those with whom we work include:

- American Petroleum Institute (API)
- American Society for Testing Materials (ASTM),
- UK Offshore Operators Association (UKOOA)
- UK Petroleum Industry Association (UKPIA)
- European Petroleum Technical Cooperation (EPTC)
- Oil Companies International Study Group for Conservation of Clean Air and Water (CONCAWE)
- International Association of Oil and Gas Producers (OGP)
- Environment Agency
- Health and Safety Executive (HSE)
- EUROPIA

The scientific and technical work we undertake with these organisations varies, but a common theme throughout all of our technical alliances is to make available to more organisations the skills and expertise of the IP in areas such as codes, standards, guidelines, etc. The advantage to the IP, of course, is that we gain access to the skills and opinions of our alliance partners. It is always a two-way process.

So, alliances already enhance the benefits that the IP and its alliance partners can offer their members and the public. Looked at in another way, it helps to avoid the duplication that could so easily be the alternative to cooperation and collaboration.

The next step

If alliances are valuable, why not go the next step and merge fully?

To do so there are a number of constraints in the case of two charities such as the IP and IGEM – their charitable objects must be compatible and the interests of the public protected while the interests of the members of both organisations must be properly accommodated. However, where these prerequisites can be fulfilled, the advantage of alliances could be extended further by merger resulting a single new, larger, better resourced organisation, more able to meet the requirements of both constituent bodies and better able efficiently to utilise all of its assets fully for the meeting its charitable objects. For example, a single library for the merged organisations would be better stocked, a single education department would cover a wider range of activities, and a single training department would be able to offer a wide range of training packages, to name but a few.

The attractions of alliance and merger seem compelling. They seem to offer a great deal of potential benefit to the public and IP/IGEM members. Moreover, they seem to present few risks where such mergers are within the allowable remit permitted by the Charity Commission and the Privy Council.

I began this article by referring explicitly to the possible alliance or merger with the Institution of Gas Engineers and Managers. Investigation of the feasibility and potential benefits of a merger has confirmed that this is an objective that the Councils of both organisations want to pursue. The management and trustees of the IP and IGEM are now engaged in detailed consideration of how such a merger could be structured, and on what terms. We are keen to find a way to make this merger work if at all possible and I hope later this year to come back with good news. ●

World first clamp-on ultrasonic gas flowmeter

Panametrics of Cheam, Surrey has unveiled its DigitalFlow GC868 clamp-on gas flowmeter, claimed to be the first of its kind on the world market. The ultrasonic meter has been designed to accurately measure the non-custody transfer flow of any gas, at high or low pressure, in metal and plastics pipes, offering wide 100:1 rangeability.

'Historically, clamp-on metering has been limited to liquids only; existing methods were unable to work on metal pipes containing gases,' Arthur Berry, General Manager of Panametrics told *Petroleum Review*. Product Manager Steve Milford explained that the new GC868 had been developed to fill this niche, and its patented technology has been successfully field tested on 3-inch to 36-inch pipelines carrying air, hydrogen and natural gas – at pressures as low as 6 bar in steel pipe. He also stated that the meter is capable of monitoring the flow of any clean, dry gas in pipes of virtually any material, and that in plastic pipes flow can be monitored down to atmospheric pressure.

High accuracy of ±2% of reading and a repeatability of ±0.5% are reported to have been demonstrated by the unit's patented Correlation Transit-Time™ detection techniques. The operating temperature range is –40°C to 149°C for the transducers and –10°C to 55°C for the electronics.

At work

The clamp-on gas flowmeter comprises electronics, coaxial cables, a pre-amplifier, two clamp-on ultrasonic gas transducers and a clamping fixture for mounting the transducers to the pipe. An integral keypad-programmable flow computer calculates velocity and other flow parameters in real time, simultaneously handling other activities such as logging data output and diagnostics. The datalogging memory is 43,000 data points in linear or circular format, with keypad programming of log units, interval, start and stop times.

Available in a standard single channel unit, the flowmeter is also offered in a dual channel version for measuring gas flow on two separate pipes or two paths on a single line. Both models have two independent software configurable LCD graphic displays.

Ultrasonic transducers of stainless steel and plastics are acoustically coupled to the outside of the pipe to be monitored – no penetration of the pipe wall is necessary and no plant shutdown required. This method is particularly useful for metering erosive, corrosive, toxic, high-purity and sterile gases, reports Berry, or wherever it is undesirable to break the pipe wall boundary. Bi-directional flow can also be monitored.

Since no tapping or cutting of pipe is required, permanent installation costs are claimed to be 'significantly reduced,' while the absence of moving or wetted parts means that no regular maintenance is required and there is no pressure drop in the system.

Future development

Hazardous area certification for the clamp-on transducers is pending and a higher temperature version is in development.

For further information, please contact Panametrics on Tel: +44 (0)20 8643 5150; Fax: +44 (0)20 8643 4225.
www.panametrics.com

Eliminating HF acid analysis delays

ABB reports that its new FT-IR based analyser – HF Alkylir – removes the traditional delays in hydrofluoric acid analysis during hydrocarbon processing.

'With alkylate being a premium blending fuel stock – clean burning, with exceptional anti-knock properties – analysis of the circulating acid stream in the process is vital,' explains the company. 'The traditional off-line laboratory analysis of hydrofluoric samples has inherent problems: the inevitable delays and analysing samples only once or twice daily gives insufficient information, too infrequently, for control purposes.' In contrast HF Alkylir performs online analysis every two minutes to give the circulating acid composition: HF acid, water content and acid-soluble oil (ASO). The latter measurement is said to be particularly important as ASO is produced mainly as a result of feed impurities that need to be purged from the process.

The unit is reported to offer a repeatability error of ±0.14% with ASO, compared with a typical laboratory rate of ±5.5%. According to ABB, this is because the analyser reports both light and heavy components; the former said to escape unreported in laboratory testing. The unit requires only a 20 cm/minute flow rate, enabling a low sample inventory in the system.

Tel: +44 (0)1952 670477
Fax: +44 (0)1952 603065

Thumbs up for corrosion management system

A new service to tackle the problem of corrosion management in the offshore industry is reported to have been given the stamp of approval by BP. Aberdeen-based Metacor has developed a computerised system to plan the maintenance of platforms and other metal structures prone to external corrosion. Following extensive tests on BP's Cleeton wellhead platform – with reported savings of 75%, over £100,000, on maintenance costs – the oil company has included Metacor in its 2001 maintenance programme for the North Sea.

The Metacor corrosion management system consists of three distinct, but interrelated, stages. First of all, information on asset required life, constraints such as manning levels, and the name and technical specification of each item part, is gathered from the work site – usually a distinct asset such as a rig or platform. This information is then passed through the risk assessment, condition survey and standing data modules as follows:

- Risk is calculated according to the item part's purpose, the consequences and likelihood of its failure before decommissioning. It is then converted into a criticality rating through a simple probability/consequence matrix.
- The condition survey records information on the condition of each item. The coating type is noted and matched with a comprehensive library of coating systems. The current condition of both the coating and the substrate is recorded, including data on corrosion loss and remaining thickness.
- The standing data module contains a library of reference data for coating systems, environmental factors for different locations, substrate conditions and difficulty ratings.

Finally, the planning module intakes the data processed during the second stage, and predicts when each item part will require maintenance, and also the critical corrosion loss. It then prioritises future maintenance needs for each work area, based on criticality, for the required life of the asset. Based upon this information, alternative maintenance scenarios (with detailed comparisons and costings) can be developed to meet operational and budgetary constraints. The chosen scenario is then further developed into a detailed work plan and work scope. Clients are then given a fabric maintenance manual which fully informs them and puts them in control of their coatings maintenance.

Tel: +44 (0)1493 660230
Fax: +44 (0)1493 660239

New product supplier for oil and gas industry

A new company – Pipetex of Halstead, Essex – has been set up to supply a wide range of products to the oil, gas and petrochemical industries in the UK and Ireland. Initially, the company will be handling the following products, with support from their principals: Jordan electric actuators and modulating control systems; PCI gas/hydraulic actuators and controls; Plidco pipeline repair and maintenance equipment; and Samia flares and combustion equipment. Additional product lines also available include mechanical valve operating systems and stainless steel clamps.

Pipetex is also looking after the interests of Aquatech International, a US supplier of water treatment plant for large projects on power stations and petrochemical plant.

Tel: +44 (0)1787 473380
Fax: +44 (0)1787 474262
www.pipetex.com

Predictive modelling for forecourts

GMAP Consulting has launched its new market planning product – **MICRO**VISION *Forecourt* – in the forecourt sector. The market analysis tool offers customised products to incorporate sector relevant data and reflect key variables within a single desktop application.

'Bringing together transactional data with intelligence in geodemographics, market demand, travel patterns and competitive activity, **MICRO**VISION will enable a company to calculate what is actually happening within its market; what might happen given certain scenarios; and what should happen in an optimal situation,' explains the company.

The product will also help forecourt operators plan their investment programmes; predict the revenues of a shop/restaurant/car wash; and measure performance of forecourt operations.

Tel: +44 (0)113 229 4444
Fax: +44 (0)113 229 4455

Breath of fresh air

Sabre has unveiled a new model of its 20-year established ELSA escape set, specifically upgraded to meet the needs of the oil and gas industry.

'While the ELSA range of 10 and 15-minute escape sets has been continuously upgraded since its first launch, the new ELSA Muster incorporates an auxiliary air-in supply connection to provide the highest level of protection possible in an escape set,' states the company.

The set is reported to be simple to don and suitable for the most arduous escape routes. The unit is automatically activated when the bag is opened and air is delivered to the user on demand. It can be specified with a facemask or a positive pressure hood and is contained in an anti-static bag with high visibility reflective strips.

The auxiliary air-in attachment is designed so that escapees, gathered in a safe area or muster station, can connect into a cascade or airline supply. This facility can be lifesaving if the hazard has not cleared and the escape set cylinder air is running out, states the manufacturer.

The air-in connection exits the bag at the front, allowing it to be found easily in conditions of low visibility. The unit is CE marked in accordance with EN402.

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Fax: +44 (0)1695 50819

IP
THE INSTITUTE OF PETROLEUM

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18–21 February 2002
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For more information or to obtain a copy of the IP Week 2002 brochure, please email: **events@petroleum.co.uk** or visit the IP website **www.petroleum.co.uk**

IP Discussion Groups & Events

Energy, Economics, Environment

'Oil and Gas in Angola: Turning Potential into Production'

by **Joseph Bryant,** President, Angola Business Unit, BP Exploration Operating Company

11 October 2001, 17.00 for 17.30 at the IP.

'Riding the Curve: Can companies make returns for shareholders through acquisitions'

by **Martin Lovegrove,**
Harrison Lovegrove & Co. Ltd

30 October 2001, 17.00 for 17.30 at the IP.

Contact: Laura Viscione Tel: +44 (0)20 7467 7100
e: **lviscione@petroleum.co.uk**

IFEG

INFORMATION FOR ENERGY GROUP

Handling Energy Information

Afternoon Seminar, 1.30pm – 5pm (12.30pm buffet lunch)
Thursday 4 October 2001
Institute of Petroleum, 61 New Cavendish Street, W1G 7AR

The seminar will give you ideas on how to solve a problem; where to find information and how to present your results. Please tell all personnel within your organisation about the seminar - everybody is welcome to attend.

Attendance FREE for IFEG members, £25 to non-IFEG members

Seminar Programme

12.30 – 13.30	Buffet Lunch
13.30 – 15.00	John Green, ROYGBIV (UK), Management Consultants – specialising in Project Management Tools for Entrepreneurial Managers. **www.roygbiv.co.uk** Giving an alternative on how to start solving complex projects.
15.00 – 15.20	Tea Break
15.20 – 16.00	John Burgess, Managing Director / Managing Consultant of Grant Sinclair & Energy Web **www.energyweb.co.uk** The paper will give an overview of the existing availability of information on the energy sector via the Internet.
16.05 – 16.45 **www.dw-1.com**	John Westwood, Douglas-Westwood Associates Discussing Douglas-Westwood Associates' methodology of producing a document from the blank screen through to the finished report. The talk will be based on the new edition of Douglas-Westwood's study 'The World Deepwater Report'.
16.45	Close Sally Ball, IFEG Secretary, will chair the seminar

The Halliburton Company will be sponsoring this event:
www.halliburton.com

Please contact Sally Ball e:sball@petroleum.co.uk
Payment arrangements can be made on the day.
T: +44 (0) 20 7467 7115; F: +44 (0) 20 7255 1472

IP THE INSTITUTE OF PETROLEUM

Branch Activities

Midlands
Contact: *Margaret Ward Tel: +44 (0)1299 896654*
17 Oct: Two papers jointly with British Lubricants Federation: Current and Future Demands for Hydraulic Fluids, and Distance Learning

Southern
Contact: *Veronica Cloke Browne Tel: +44 (0)1962 715399*
23 Oct: The Distribution of Petroleum Products by Pipeline by Mike Longman
13 Nov: Wine tasting

Energy, Economics, Environment

'Risks in Financing Oil and Gas Projects'

by **Peter Buchanan,**
Royal Bank of Scotland

15 November 2001, 17.00 for 17.30 at the IP.

Contact: Laura Viscione Tel: +44 (0)20 7467 7100
e: **lviscione@petroleum.co.uk**

IP THE INSTITUTE OF PETROLEUM *presents* Date: 22 November 2001 Place: The Savoy Hotel, London W1, UK

ip://awards/2001

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➤ INTERNATIONAL PLATINUM
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SHORTLISTED ENTRIES

COMMUNICATION AWARD

Company: Conoco
Project title: Jet Safety Award

Company: Alberta Energy and Utilities Board
Project title: Public Safety and Sour Gas

Company: The Data Room
Project title: Petroleum Data Manager

COMMUNITY INITIATIVE AWARD

Company: Metrogas Buenos Aires
Project title: Outreach Programme in Promoting HS&E Issues within Workforce and Community

Company: Nexen Inc.
Project title: Community Partnership in Yemen

Company: Chevron
Project title: Small and Medium Enterprise (SME) Programme

ENVIRONMENT AWARD

Alan Costain
Company: Minton Treharne and Davies
Project title: Cypermark

Company: Chevron Overseas Petroleum
Project title: Chevron Niugini Ltd., Papua New Guinea

Company: BG Egypt
Project title: Reducing Drilling Emissions

INFORMATION TECHNOLOGY AWARD

Company: British Geological Survey
Project title: DEAL Digital Energy Atlas and Library

INFORMATION TECHNOLOGY AWARD

Company: SAIC
Project title: An Extranet Based Virtual Tour of Petrojarl Foinaven FPSO for BP West of Shetland

Company: theoilsite.com
Project title: theoilsite.com

INNOVATION AWARD

Company: Hamilton Safety Enhanced Tools Ltd
Project title: HSE Tools

Company: UWG
Project title: Diverless Intervention System for Subsea Well Abandonment from a Vessel

Company: Chevron
Project title: An OHGP Successfully Completed Using Synthetic OBM Technology

INTERNATIONAL PLATINUM AWARD

Company: US Geological Survey
Project title: World Petroleum Assessment 2000

Company: ERG Petroli SpA
Project title: Change a Threat into an Opportunity

Company: Chevron UK Ltd
Project title: A OHGP Successfully Completed Using Synthetic OBM Technology

SAFETY AWARD

Company: Oleoducto Cenral S.A
Project title: Vissa 2000

Company: TotalFinaElf
Project title: Alert

Company: Hamilton Safety Enhanced Tools Ltd
Project title: Remote Release System

For Luncheon tickets please contact:

IP Conference Department, Tel: +44 (0)207467 7100 Fax: +44 (0)20 7255 1472
e: *events@petroleum.co.uk*

FOR MORE INFORMATION ABOUT IP AWARDS
www.ipawards.com

EVENTS

OCTOBER 2001

8–9 **Bergamo, Italy**
International Conference on Tankers: Evaluating the Current and Future Fundamental Issues
Details: Sarnico Studies and Training Centre, Italy
Tel: +39 035 9242 11
Fax: +39 035 9242 60
e: **info@sarnicomanagement.it**

8–9 **London**
Gas Hydrates
Details: SMI Energy Conferences
Tel: +44 (0)20 7252 2272
Fax: +44 (0)20 7252 2222
e: **customer_services@smi-online.co.uk**
www.smi-online.co.uk

8–9 **Kuala Lumpur**
Asia Pacific Improved Oil Recovery Conference
Details: Society of Petroleum Engineers SPE
Tel: +1 972 952 9393
Fax: +1 972 952 9435
e: **web@spe.org**
www.spe.org

8–9 **London**
Valuating and Exploiting the Potential of Gas Hydrates
Details: SMI Energy Conferences
Tel: +44 (0)20 7252 2272
Fax: +44 (0)20 7252 2222
e: customer_services@smi-online.co.uk
www.smi-online.co.uk

8–9 **Athens**
New Investment Opportunies in Greece
Details: IBC Global Conferences Ltd
Tel: +44 020 7453 5495
Fax: +44 (0)1932 893893
e: **smith@ibcuklon.ccmail.compuserve.com**
www.ibcenergy.com
www.ibcenergy.com/greece

8–11 **Woking, UK**
The Fundamentals of the Natural Gas Industry
Details: Petroleum Economist
Tel: +44 (0)20 7831 5588
Fax: +44 (0)20 7831 4567 / 5313
e: **jones@petroleum-economist.com**
www.petroleum-economist.com

8–13 **Johannesburg**
3rd African Petroleum Management Institute 2001
Details: Global Pacific and Partners PTY Ltd
Tel: 612 9460 6771
Fax: 612 9460 6778
e: **global.pacific@pixie.co.za**

9–11 **Hanover**
International Trade Fair for Biotechnology
Details: Deutsche Bank AG
Tel: +49 2120 1084
www.public.deutsche-bank.de/global/index.htm

9–11 **Texas**
Minimal Offshore Facilities forum
Details: PennWell Conferences and Exhibitions
Fax: +1 713 963 6284
e: **michelle@pennwell.com**
www.pennwell.com

10–11 **The Netherlands**
4th Conference on Re-use: The Re-Use of Offshore Oil and Gas Facilities - Making it Happen
Details: Sjoerd Schuyleman
e: sfs@petroleum.co.uk

10–11 **Manila**
Impact of the New Electric Power Industry Reform Act - Power Relations in the Philippines
Details: Centre for Management Technology
Tel: (65) 345 7322
Fax: (65) 345 5928
e: **jolene@cmtsp.co.sg**
www.cmtevents.com

11–14 **Cairo**
PROGAS 2001
Details: Trade Partners UK
Tel: +44 01564 784499
Fax: +44 020 7215 4273
e: **events@cocex.co.uk**

11–12 **London**
Exploring the oil and gas developments and opportunities in West and Central Africa
Details: IBC Global Conferences Ltd
Tel: +44 020 7453 5495
Fax: +44 (0)1932 893893
e: **smith@ibcuklon.ccmail.compuserve.com**
www.ibcenergy.com

14–16 **Dublin**
Forecourt 2001
Details: Key Events Management
Tel: +353 1 490 1790
Fax: +353 1 490 1792
e: **info@keyevents.ie**

15–17 **Vienna**
Oil and Gas Transportation in the CIS & Caspian Region - Major Pipeline & Distribution Projects
Details: Energy Exchange Ltd
Tel: +44 01242 529090
Fax: +44 01242 529060
e: **wra@theenergyexchange.co.uk**
www.theenergyexchange.co.uk

15–16 **London**
Corporate Social Responsibility from Words to Action
Details: The Royal Institute of International Affairs
Tel: +44 (0)20 7 957 5700
Fax: +44 (0)20 7 321 2045
e: **conferences@riia.org**
www.riia.org

16-18 **Ashgabat**
TIOGE 2001: 6th Turkmenistan oil and Gas Conference and Exhibition
Details: ITE Group plc
Tel: +44 (0)20 7596 5000
Fax: +44 (0)20 7596 5111
e: **enquiries@ite-exhibitions.com**
www.ite-exhibitions.com

16-18 **Warsaw**
Power Bridge 2001
Details: Econ Trade Deutschland GmbH
Tel: +49351 871 83 44
Fax: +49351 871 84 48
www.econtrade.com

17-19 **Rio de Janiero**
13th Deep Offshore Technology Conference: Pathways to Ultra Deepwater Opportunities
Details: PennWell
Tel: +44 (0)1992 656 653
Fax: +44 (0)1992 656 735
www.deepoffshoretechnology.com

17-18 **London**
11th Annual LSM Ship Management Conference
Details: Informa
Tel: +44 (0)20 7453 2222
www.informa.co.uk

17 **London**
Controlling Remote Assets
Details: ERA Technology Ltd
Tel: +44 (0)1372 367117
Fax: +44 (0)1372 377927
e: info@era.co.uk www.era.co.uk

18-19 **Paris**
6th Gas Summit
Details: ENSPM Formation Industrie
Tel: +33 1 47 52 72 93
Fax: +33 1 47 52 71 09
e: josee.foucault@enspmfi.com
www.ifp.fr/enspmfi

18-19 **Barcelona**
1st Annual European Energy and Transport Conference
Details: European Commission
Fax: +34 93 301 12 55
e: **christine.cordie@cec.ew.int**

Membership News

NEW MEMBERS

Mr M R Ab Ghani, Drilldata Solutions
Mr E O Akerele, Bamik Group of Companies
Ms J Allanson, Science Systems (Utilities) Limited
Mr R D Archer, ITS Caleb Brett
Mr A Avwunufe, City Express Bank Limited
Ms V Blei, New York Mercantile Exchange
Mr P Bogomolov, London
Dr E T R Dean, Soil Models Limited
Mr T Dean, Dawlish
Ms E Dougherty-Marriott, London
Mr A R Drewery, Conoco Limited
Mr L A Dyba, London
Mr S F Dymond, Laindon
Mr N J Grazier, OSS Group Limited
Mrs J Harrison, London
Mr K N Jewers, Tewkesbury
Mr C R Knight, UK Sampling Gauges Limited
Ms A M Larsen, Vision in Business
Dr M Mahjoub, Petropars
Mr M Mannering, Schlumberger
Mr S Mault, Portland Port Limited
Ms M Mould, Design & Build Services (Winchester) Limited
Mr C J Pickin, Wirral
Mr P A J Russell, Poulton-le-Fylde
Mr G G M Shand, Highland Fuels Limited
Dr I Snellgrove, Wintershall Erdgas Handelshaus GmbH
Mr B Spitz, Crown Resources AG
Mr R Spreadbury, Marsh Limited
Mr D Sutch, Manchester
Mr C Tchanga, New Malden
Mr D O J Tonwe, Nigeria
Mr T Wolstenholme, Billericay

STUDENTS

Mr A G Barango-Tariah, Teeside Training Enterprise
Mr T A Brown, Teeside Training Enterprise
Mr I L Comson, Teeside Training Enterprise
Mr I Ekpu, Teeside Training Enterprise
Mr C U Esonwune, Teeside Training Enterprise
Mr A A Georgewill, Teeside Training Enterprise
Mr L Imuh, Teeside Training Enterprise
Mr O N Isiguzo, Dundee
Mr A N Mirilla, Teeside Training Enterprise
Mr K Momah, Teeside Training Enterprise
Mr E Omerah, Teeside Training Enterprise
Mr E Owurre, Teeside Training Enterprise
Mr S S Rehman, London
Mr N D Wey, Teeside Training Enterprise
Mr S J Young-Harry, Teeside Training Enterprise

NEW CORPORATE

Baldwins Industrial Services Plc, Churchill House, 1 London Road, Slough, Berkshire, SL3 7RL, UK
Tel: +44 (0)1753 512100 Fax: +44 (0)1753 822554
e: **kevin.martin.read@baldwins-cranes.co.uk**
www.baldwinsplc.co.uk

Representative: Kevin Martin-Read, Business Development Manager

Heavy lift engineering, shutdown contracts, crane hire.

OCTOBER 2001

21-25 Buenos Aires
18th World Energy Congress
Details: World Energy Council
Tel: 54 11 4342 3216/3283/3408
Fax: 54 11 4331 0223
e: **registration@congnesosint.com.ar**

22-23 Nigeria
2nd Annual Conference on Strategies for Oil and Gas in Nigeria
Details: Ogilvie Publishing Ltd
Tel: +44 (0)1932 230 323
Fax: +44 (0)1932 230 423
e: **conferences@ogilviepub.com**
www.ogilviepub.com

22-25 London
Risk Assessment and Portfolio Management for Oil and Gas
Details: IQPC
Tel: +44 020 7638 9300
e: **oilrisk@iqpc.co.uk**
www.iqpc.co.uk

22-23 Texas
OPT USA 2001
Details: IBC Global Conferences Ltd
Tel: +44 020 7453 5495
Fax: +44 (0)1932 893893
www.ibcenergy.com

22-23 Johannesburg
5th Annual Africa Downstream 2001
Details: Global Pacific and Partners PTY Ltd
Tel: 612 9460 6771
Fax: 612 9460 6778
e: **global.pacific@pixie.co.za**

23-24 Calgary
CADE/CAODE Drilling Conference
Details: Canadian Association of Oilwell Drilling Contractors
Tel: +1 403 264-4311
Fax: +1 403 263-3796
e: **info@caodc.ca www.caodc.ca**

23-24 Budapest
4th Central and East European Refining and Petrochemicals Roundtable
Details: World Refining Association
Tel: +44 (0)1242 529 090
Fax: +44 (0)1242 529 060
www.wraconferences.com/

23-24 London
Emissions Trading
Details: IIR Exhibitions
Tel: +44 (0)20 7453 5309
Fax: +44 (0)20 7453 5306
e: **helenwhalley@compuserve.com**
www.iir-conferences.co.uk/

23 London
E-Communications in Geophysics
Details: International Association of Geophysical Contractors
Tel: +44 (0)1732 743025
Fax: +44 (0)1732 740623
e: **events1@iagcuk.org**
www.iagc.org

24-25 London
B2B and Supply Chain Management
Details: Economist Conferences
Tel: +44 (0)20 7830 1000
Fax: +44 (0)20 7931 0228
www.economistconferences.com

24-25 Czech Republic
CEEnergy 2001
Details: Adam Smith Institute
Tel: +44 (0)20 7490 3774
Fax: +44 (0)20 7505 0079
e: **info@asi-conferences.com**
www.asi-conferences.com

24 Houston
Latest Developments in Design, Analysis and Installation of Deep and Ultra Deepwater Risers
Details: IBC Global Conferences Ltd
Tel: +44 (0)1932 893857
Fax: +44 (0)1932 893893
www.ibcenergy.com

25 London
Environmental Legislation Update
Details: Croner Training
Tel: +44 (0)20 7824 8257
Fax: +44 (0)20 7730 4293
e: **info@hawksmere.co.uk**

MOVES People

Iraqi state oil marketing company SOMO has appointed **Rafid al-Dubuni** to replace **Saddam Hassan** as Executive Director. The appointment is not expected to alter Baghdad's oil marketing strategy which will continue to be run by Iraq's Oil Minister.

Oil service company, the UWG Group, has appointed **Scott Gauld** as Regional Manager responsible for the Middle East region. Gauld brings with him over 14 year's experience in the oil and gas industry, including seven years spent with international service company, Cooper Cameron.

Jeffrey K Skilling has unexpectedly resigned as Enron Corp's President and Chief Executive citing family reasons. Chairman **Kenneth Lay** is to take over.

Martin Hockley has been appointed Business Development Manager for Northern NDT Services. He will also be responsible for the operations of the company's Ellesmere Port offices, where he will be based.

Tony Walker has joined Murco Petroleum Ltd as a Company Station Specialist. Walker will be responsible for the area between London and the Midlands. Before joining Murco, he spent three years at Somerfield as a store manager and prior to that ran his own grocery business.

UK Science Minister, **Lord Sainsbury** has announced the appointment of **Professor Julia Goodfellow** as Chief Executive for the Biotechnology and Biological Sciences Research Council (BBSRC). Professor Goodfellow will succeed **Professor Ray Baker** FRS on 1 January 2002 for a four-year appointment.

CGG has announced key changes in Data Processing & Reservoir Services. **Guillaume Cambois**, previously Vice President of Technology, has been appointed Executive Vice President of CGG Data Processing and Reservoir Services and becomes a member of CGG's Management Committee. **Pascal Rosset**, previously Vice President of the EAME region, is appointed Vice President of Resources and Industrialisation and Deputy to the Executive Vice President. **Steve Bishop**, previously Manager of CGG processing centres in the UK and Nigeria, has been appointed Vice President of Data Processing and Reservoir Services covering the EAME region. **Luc Schlumberger** has been confirmed Vice President of Data Processing and Reservoir Services for the Americas region and **Romain Soubeyran**, who was previously E-Business Project Manager, has been appointed Vice President of Research & Technology.

Winston M Talbert has been appointed Vice President and Treasurer of Ocean Energy. Talbert joined Ocean Energy in 1999 as Assistant Treasurer responsible for managing all areas of corporate finance for the company.

Norsk Hydro has appointed **Michael Schwenzer** to take over as President of Hydro Automotive Structures. Schwenzer was formerly Managing Director for Valeo Klimasysteme. **Arvid Moss**, currently Head of Hydro Automotive Structures has been appointed Senior Vice President, Strategy and Business Development for Light Metals and will be a member of the Light Metals Business Area Management Group.

Kathleen Kono has been appointed ASTM Vice President, Global Cooperation. In this position, Kono is responsible for leading ASTM's international outreach efforts and coordinating ASTM/US Government relations.

Michael Mannering, formerly the Managing Director of Schlumberger Oilfield Services UK, has been appointed Chairman and Chief Executive of Schlumberger in London. The appointment follows the retirement of the former non-Executive Chairman, **Alan Plumpton**.

KCA Drilling has announced the appointment of *Chris Rose* as its new Commercial Director based in Aberdeen. Rose replaces Neil Stevenson who has taken up the position of Vice President, KCA Drilling Inc in the US.

Ramco Energy has expanded its oil and gas team with the appointment of **Ian C Phillips**, to the post of Vice President of Project Development. Phillips, who is a Director on the Board of the Society of Petroleum Engineers (SPE), joins Ramco from Halliburton, where he was Director of Strategic Business Development for Well Dynamics International.

Philip Nash has joined Atco Power as Project Development Manager. He was previously Director and Project Director for Grangemouth CHP – a large combined hat and power plant built at BP's Grangemouth complex.

Sir Peter Job KBE has been appointed a non-Executive Director of the Shell Transport and Trading Company with immediate effect. Sir Peter recently retired as Chief Executive of Reuters and is also non-Executive Director of Schroders, GlaxoSmithKline, TIBCO Software and Instinet Group.

Trading and Risk management systems supplier KWI has appointed **Jim Monteith** as its new Chief Financial Officer. Monteith was formerly Financial Director at Dudley Jenkins Group.

Tariq Kirmani has taken over the role of Acting Managing Director of Pakistan State Oil following the murder in July of former Managing Director **Shaukat Mirza**.

ERA Technology appointed **Fred Cahill** as Managing Director and Chief Executive Officer with effect from 1 August 2001. Cahill was previously with Thales having joined Racal Communications in May 1999.

The International Petroleum Exchange (IPE) has announced a number of senior and distinguished independent legal appointments to its Disciplinary and Appeals Panels. **Ms Elizabeth Appleby QC**, **Mr Peter Gross QC** and **Mr Andrew Moran QC** have been appointed to chair the IPE's Disciplinary Panel hearings. The **Rt Hon Lord Mustill** has agreed to act as the Chair of Appeals Panel.

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IP THE INSTITUTE OF PETROLEUM

Annual Dinner 2002
Grosvenor House, Park Lane, London W1

Wednesday 20 February 2002 at 18.45 for 19.30

- The Institute of Petroleum is pleased to announce its 88th Annual Dinner.
- Tickets can only be purchased by Individual Members and Corporate Members of the Institute of Petroleum (IP), and by purchasers of the IP Week Pass. Details of the IP Week Pass will be available in the IP Week 2002 brochure.
- This year all tickets are the same price, whether or not your guests are IP Members. The cost of one ticket is £185 plus VAT £32.38 (VAT is payable by all UK and overseas purchasers). Full payment must be received before tickets can be guaranteed.
- Individual Members may apply for a maximum of five tickets. Corporate Members may apply for single tickets, or for one or more complete tables of 10 places.
- Applications should be made by completing the form below and sending it to The Institute of Petroleum, with the full remittance, by Friday 26 October 2001. Applications received after 26 October 2001 will be considered separately.
- Companies or individuals wishing to share tables must state this when completing the application form as changes cannot be made after tickets have been allocated.
- Tickets will be allocated and mailed during the week of the 12 November. Please note that the IP may be unable to meet requirements in full, and we suggest therefore that you do not invite guests until you have received your tickets. In the event that the Dinner is oversubscribed, allocation of tickets will depend on the degree of the applicant's involvement in IP affairs, and a waiting list will operate. Full refunds will be made as appropriate.

- Successful applicants should submit their guests' names in writing to the IP by Friday 21 December 2001 at the latest. Details submitted after this date cannot be included in the printed guest list. Further information regarding the guest list will be sent with the tickets.
- If you cancel your order, a refund less a 20% administration charge of the total monies paid, will be made provided that notice of cancellation is received in writing on or before 7 January 2002. No refunds will be paid or invoices cancelled after this date.
- Dress is black tie with decorations.
- For bookings requiring additional administration, or if payment is not received before 4 January 2002, an extra charge of £20.00 per ticket will be incurred. Upon IP receiving your booking form (by fax, post or e-mail) you become liable for full payment of the fee and you undertake to adhere to the terms and conditions as specified.

The Institute of Petroleum, 61 New Cavendish Street, London W1G 7AR, UK.
Tel +44 (0)207 467 7100 Fax +44 (0)207 255 1472 e: events@petroleum.co.uk

TICKET APPLICATION FORM

IP THE INSTITUTE OF PETROLEUM

Annual Dinner 2002
Grosvenor House, Park Lane, London W1
Wednesday 20 February 2002

To: Conference Department, The Institute of Petroleum, 61 New Cavendish Street, London W1G 7AR, UK. Fax: +44 (0)207 255 1472

I wish to order _____ ticket(s) and enclose my remittance*, made payable to *The Institute of Petroleum*.
My application is made as an Individual Member / a Corporate Member (delete as appropriate).

Application for _____ ticket(s) @ £185 each = £ _____

+ 17.5% VAT @ £32.38 = £ _____ Total= £ _____

Name _____ IP Membership No.** _____
BLOCK CAPITALS

Company _____ Address _____

_____

Postcode _____ Email _____

Tel _____ Fax _____

Please note, application for tickets indicates your acceptance of the terms and conditions as specified above

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* Payment should be made by sterling cheque or draft drawn on a UK bank, or by any major credit card. Please note all payments made by credit card will be subject to a surcharge. Visa/Mastercard/Eurocard/Diners Club: 2% of the total amount charged. American Express: 3% of the total amount charged.
** Please telephone the IP Membership Department if unknown.
This is not a tax invoice.