# Petroleum December 2001

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- Interest growing in New Zealand exploration
- E&P developments down under
- Reorganising the South Korean gas industry

### Shipping

- Shipping sector on the slide
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kW = kilowatts (103)

MW = megawatts (106)

sq km = square kilometres

GW = gigawatts (109)

kWh = kilowatt hour

km = kilometre

b/d = barrels/day

#### ABBREVIATIONS

The following are used throughout Petroleum Review:

- $mn = million (10^6)$
- bn = billion  $(10^9)$
- tn = trillion (10<sup>12</sup>)
- cf = cubic feet cm = cubic metres
- boe = barrels of oil
- equivalent
- t/v = tonnes/vear
  - nes/year t/d = tonnes/day

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

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Front cover: The Ocean Legend production platform, located over the Legendre oilfields 100km off the coast of Dampier in Western Australia.

Photo courtesy: Woodside Energy

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# **ROUNFrom the Editor**

### Opec has a problem

In fact, Opec has two problems – the future price of oil and likely demand for its oil. The aftermath of 11 September and the developing economic slow-down have hit global oil demand hard. The IEA (International Energy Agency) in its latest monthly report (November 2001) estimates that global oil demand contracted by 750,000 b/d in the third quarter. According to the same source, demand in the industrialised OECD countries fell by 2.5% in September.

At its mid-November meeting Opec agreed to cut a further 1.5mn b/d from January 2002, but only if key non-Opec members also cut production. At the time of writing Mexico had offered a 100,000 b/d cut, Russia a 30,000 b/d cut in export allocations, and Norway nothing. It seems unlikely that Opec will achieve further cuts so prices are likely to slide unless a major producer, such as Iraq, ceased exporting.

For the moment, the IEA's projections are for a small – 100,000 b/d – growth in oil demand in 2001 over 2000, and for a 600,000 b/d expansion of demand in 2002. This compares with growth of 400,000 b/d in 1998, 1.3mn b/d in 1999 and 800,000 b/d in 2000. In its November 2000 issue, the IEA had been anticipating 2mn b/d of demand growth in 2001.

Virtually all of this 'missing' growth has manifested itself as 'missing' demand for Opec crude. (See Table.) Opec – with a current production of 27mn b/d – is 'losing' \$27mn/d or just under \$10bn/y for every \$1/b the price is under its target level.

Now Opec countries won't necessarily attract great sympathy for not achieving their target prices, but it should be remembered that the 'targets' were set at levels that ensured the key Opec producers were solvent and could service and repay their debts. At current prices and output, Opec will be unable to invest in developing its oil and gas resources – and without investment its production capacity will shrink. If low prices persist or worsen some of of Opec's members may have difficulty in financing their administrations.

Low prices, although attractive to consumers, also impact on the oil and gas industry's ability to finance new investment. High cost areas such as the North Sea are particularly vulnerable.

History provides a rather startling guide. In the early 1980s oil prices were drifting down from the 1980 peak of \$36.83/b (for Brent) to around \$28 in 1985. That year Saudi Arabia, which had been repeatedly cutting production to support prices effectively ran out of swing and had to change policy from 'target price' to 'market share'. The effect was immediate - prices fell, but Saudi recovered its market share and its oil revenues. Prices for Brent in 1986 averaged \$14.38/b, or little more than half its level two years earlier. Investment in the North Sea virtually ground to a halt.

Demand responded. In 1984/85 high prices had slowed global demand growth to 100,000 b/d, but in 1985/86 it leapt to 1.66mn b/d on the stimulus of lower prices. This was sustained in 1986/87 with demand growth of 1.11mn b/d.

This time the problem is more intractable. The IEA expects non-Opec capacity to grow by 900,000 b/d in 2002 over 2001, predominantly from the FSU and North America. More than enough to meet likely demand growth. The implication is very clear – weaker prices and no room for incremental Opec production.

Chris Skrebowski

Country	Oct 2001 prod'n (mn b/d)	Sustainable prod'n capacity (mn b/d)	Spare capacity	
Algeria	0.81	0.95	0.14	
Indonesia	1.18	1.25	0.07	
Iran	3.56	3.90	0.34	
Kuwait	1.95	2.50	0.55	
Libya	1.31	1.45	0.14	
Nigeria	2.17	2.20	0.03	
Qatar	0.64	0.75	0.11	
Saudi Arabia	7.67	10.50	2.83	
UAE	2.04	2.50	0.46	
Venezuela	2.79	3.15	0.36	
Sub-total	24.12	29.15	5.03	
Iraq	2.85	2.80		
TOTAL	26.96	31.95	5.03	

Aveva Consulting recently conducted a survey looking at the impact of the Internet on the engineering industry. The main findings were:

- 81% of study participants saw the engineering industry as a 'laggard' in its adoption of Internet technology compared with other sectors;
- 90% of respondents believed that Internet technology has the power to revolutionise the engineering industry; and
- 90% agreed that engineering companies who fail to implement Internet technology over the next five years will fall behind their competitors.

Aberdeen-based IT company BW Scotnet (www.bwscotnet.com) has launched a web hosting initiative aimed at helping small and mediumsized business enterprises (SMEs) establish a presence on the Internet, easily and cost effectively. Web hosting allows organisations to create and run a website on servers housed in a secure, high-end data centre. It effectively enables companies to outsource the servers that run their sites but retain full ownership of information and content.

The UK Department of Trade and Industry (DTI) and Rolls-Royce management have agreed to facilitate an exchange of information on vacancies in the oil and gas sector which are relevant to the skills held by Rolls-Royce employees. This is to be backed up by a new website at www.oilcareers.com

The UK Health and Safety Commission's recently published Health and Safety Statistics 2000/2001. A full breakdown of the statistics can be found at www.hse.gov.uk/statistics/hss0001.pdf

The UK Health & Safety Executive (HSE) has published its latest offshore statistics report, containing provisional injury and incident figures for the year 1 April 2000 to 31 March 2001, plus confirmed data for 1999/2000. For a free copy of the report, contact Tel:+44 (0)151 951 3099; Fax: +44 (0)151 951 4980. Alternatively, the report will be published on the HSE website in late November at www.hse.gov.uk/hid/ osd/HSR2000-001.htm

Sibneft of Russia has unveiled a number of additions and improvements to its site at www.sibneft.ru New additions include pages covering trading, credit history and dividends; updated information covering reservoir management and Sibneft's retail business; a new service allowing users to direct questions to the investor relations department; and a presentation of the company's investment strategy by Chief Operating Officer Alexander Korsik.

# In Brief

# **NEW**<sub>Stream</sub>

UK

Kerr-McGee is reported to have commenced production from the Global Producer III FPSO on the \$650mn Greater Leadon field in block 9/14 of the northern North Sea. Initial production of 10,000 b/d is to be ramped up to 45,000 b/d in 2Q2002.

**BG** and its project partners are reported to have been given the goahead by the UK Department of Trade and Industry to commence with the £60mn second phase of development on the North Sea Armada gas field. Phase two development will boost Armada's current production plateau of 450mn cf/d of gas and extend field life to 2010.

BG has successfully tested an extension to its North Sea Blake oil field. Two appraisal wells flowed at 2,450 b/d and 3,000 b/d on the flank structure of the field. The company is reported to be planning fast-track development via Talisman Energy's Ross field facilities.

Wood Group Engineering has been contracted to undertake the next stage of development for the £650mn BP Clair field, west of Shetland. The 'execute phase' includes the detailed design, procurement and construction management for the deck and jacket.

Enterprise Oil is to sell a package of southern North Sea assets to Consort Resources for £28mn. The assets include interests in the Johnston and Anglia producing fields and the Orca/Beta potential gas development.

**BP is reported to be planning to invest** £400mn in redeveloping its Forties field next year in a bid to reduce operating costs and to recover a further 400mn barrels of oil from the 26-year old North Sea field.



ABB has won two orders worth \$95mn from Bergesen Offshore of Norway to build and operate the oil processing systems on two FPSO units – the Berge Hus due to be ready for operation in January 2002 and the Berge Helene for delivery in summer 2002.

The Norwegian authorities are understood to have given BP the go-ahead for the NKr4.2bn Valhall extension project.

# Sakhalin 1 project declared commercial

The Sakhalin 1 project has been declared commercial, becoming the largest direct foreign investment in Russia to date, reports UFG. Located in three fields – Odoptu, Chayvo and Arkutun-Dagi – offshore the east coast of Sakhalin Island, reserves are put at 2.3bn barrels of oil and 485bn cm of gas. First oil is slated for 2005, with an eventual production target of 250,000 b/d. Gas production will form part of phase two development, and will involve the construction of a gas pipeline to markets such as Japan.

'The project has had its production sharing agreement (PSA) status "grandfathered" under existing legislation and is not therefore directly affected by the failure of Russia and the western oil industry to reach agreement on an acceptable production sharing framework for future developments,' comments the analyst. 'Nevertheless, the declaration of commerciality is an important step forward in the process of attracting significant foreign investment to Russia, whether in the oil and gas sector or elsewhere. Total investment in Sakhalin is likely to total \$12bn (\$4bn in the first phase).

Partners in the Sakhalin 1 project are: ExxonMobil (operator, 30%), Sakhalin Oil & Gas Development Company of Japan (30%), ONGC Videsh of India (20%) and Russian companies

### Murdoch modifications

Kellogg Brown & Root has been awarded a \$45mn, two-year contract by Conoco for the provision of brownfield modifications to the Murdoch complex on the UKCS. The contract scope covers engineering, procurement, fabrication, construction and commissioning works related to the installation of two new risers and associated equipment. The modifications will enable gas processing to be undertaken from the five new Caister-Murdoch System (CMS) subsea field developments – Hawksley, McAdam, Murdoch K, Boulton H and Watt – in the southern North Sea.

The contract also covers the procurement of a new compressor and the hook-up and commissioning of a 1,000-tonnes compression module and a 34-man accommodation platform, as well as minor modifications to the Theddlethorpe gas terminal in Lincolnshire. Sakhalinmorneftegaz-Shelf (11.5%) and RN-Astra (8.5%).

The Sakhalin 2 project is already in production, producing some 90,000 b/d for six months of the year; loading is suspended for the other six months as the production facilities are often icebound. The field is primarily a gas field and the gas reserves are to be developed at a later date. Gas will be sent to a new LNG export terminal to be built on Sakhalin Island and then sold to the Asia-Pacific market.

There are four other Sakhalin projects, all at earlier stages of development. UFG reports that PSA discussions on them have yet to start in earnest. 'Bearing in mind the current buoyant economic situation of Russia, negotiations do not look as if they will be easy,' comments the analyst. 'Only when projects such as Sakhalin 1 and 2 are in production and the benefits to the regional and national economies are obvious is the Russian Government and its bureaucracy likely to understand that investment is not a zero-sum game and that concessions and incentives offered in one area can translate into greater benefits in others. That realisation is still a few years away - albeit closer now that one of the first major oil projects has passed the milestone of commerciality."

Snøhvit gas sales

The licensees in the Snøhvit field in the Barents Sea have signed separate contracts for the sale of LNG corresponding to the design capacity of the LNG plant that is to be built in the north Norwegian county of Finnmark. The sales agreements cover a period of 17 to 20 years from the planned production start-up in 2006.

Norsk Hydro (10%) has sales agreements with US-based El Paso Global LNG Company and Iberdrola of Spain, covering annual deliveries of 500mn cm of gas (equivalent to 10,000 boe/d).

Statoil (22.29%), RWE-DEA (2.81%), Amerada Hess (3.26%) and Svenska Petroleum (1.24%) have signed separate contracts with the same buyers, corresponding to the share each company holds in Snøhvit.

Gaz de France (12%) and TotalFinaElf (18.4%) are to lift their own gas from the field.



## First crude through CPC pipeline

The Caspian Pipeline Consortium (CPC) has reported its first shipment of crude from the newly-built Novorossiysk terminal, according to UFG. The 600,000 b/d project will primarily deliver Kazakh oil (at least until Transneft builds an interconnector pipeline).

Lukoil holds a 6.8% stake in the pipeline, and plans to ship its equity share in production from Tengiz and

**BHP** boosts acreage

Trinidad and Tobago's Ministry of Energy and Energy Industries has awarded offshore exploration block 3(a) to a consortium that includes BHP Billiton (30%, operator), Talisman Energy (30%), BG International (30%) and TotalFinaElf (10%)

The award substantially enhances BHP Billiton's acreage position and is located adjacent to blocks 2(ab) and 2(c) where the company has participated in five exploration wells and announced three hydrocarbon discoveries in the past two years. The Angostura gas discovery in block 2(c) in 1999 tested at 30mn cf/d. The Aripo gas discovery in block 2(c) flowed 21.6mn cf/d while an exploration well in block 2(c), Kairi-1, encountered both oil and gas and tested 3,000 b/d of oil. The company is currently drilling its Canteen-1 well on block 2(c), just north of Kiari-1. Karachaganak, as well as from its Kumkol operation.

In the first eight months of 2001, producers of Kazakh crude shipped 280,000 b/d of oil through the Transneft pipeline system. The diversion of some or all of this volume to the new CPC pipeline would provide much needed export capacity to Russian producers, comments UFG.

Argentinian gas

TotalFinaElf has begun the development of the Carina and Aries gas fields offshore Tierra del Feugo in Argentina. Development will include the installation of a platform on each field and the drilling of seven extended-reach wells. The platforms are to be connected via a multiphase subsea pipeline system. The main 80-km long pipeline will link Carina to the Rio Cullen plant where existing facilities will be expanded to accommodate the new output. Gas separated from the liquids will be sent to the Canadon Alfa plant for treatment before transport to the Argentinian market via the San Martin gas pipeline.

Carina and Aries are due onstream in 2H2003. Production is forecast to plateau at 12mn cm/d.

Field partners are: Total Austral (37.5%), Wintershall Energia (37.5%) and Pan American Energy (25%).

### Clair development gets green light

The UK Government has given BP the go-ahead for its £650mn phase one development of its West of Shetland Clair oil and gas field. First production is slated for late 2004 and is expected to plateau at 60,000 b/d of oil and 15mn cf/d of gas.

The first phase of development, incorporating a single steel jacket and associated topside and integrated drilling facilities, is to focus on the central area of the field. Estimated oil in place in the central area is put at 1.75bn barrels, of which some 250mn barrels (14%) are assessed as being recoverable. Plans are to drill 15 producing wells, eight water injectors and one drill cuttings injection well. If phase one proves successful, future satellites could be used to tap the outlying areas. In place reserves for the whole Clair field are put at 4bn barrels.

Oil production is to be exported via pipeline to the Sullom Voe terminal on Shetland. Gas is to either be exported to the Magnus enhanced oil recovery western gas pipeline or re-injected into the reservoir through a well.

Field partners are: BP (28.6%), Conoco (24%), Chevron (19.4%), Enterprise Oil (18.7%) and Amerada Hess (9.3%).

### Burlington to invest in East Irish Sea fields

US independent Burlington Resources is reported to be planning to invest \$262mn on developing the Rivers gas fields in the East Irish Sea. Field reserves are put at between 350bn and 400bn cf of gas, with first production slated for 2004.

Development will be via an unmanned offshore platform on the Calder field, with subsea tie-backs to the other fields in the complex. A new pipeline will connect the fields to the Centrica-operated gas receiving terminal at Barrow-in-Furness. Centrica will also operate the new fields on behalf of Burlington. Output is forecast to peak at 120mn cf/d.

# In Brief

TotalFinaElf is understood to be planning to bring onstream its North Sea Byggve and Skirne fields via subsea tie-backs to Norsk Hydro's Heimdal platform in August 2003. Reserves for Byggve and Skirne are put at 6.6bn cm of gas and 1.6mn cm of condensate.

**Conoco subsidiary Clyde Petroleum** Exploratie has made what it claims is a 'significant' new gas discovery that extends over two blocks, Q4 and Q1, in the Dutch sector of the North Sea.

UK independent Melrose Resources is understood to have agreed to sell to Bulgargaz some 14.1bn cf/y of gas over two years from its Galata field offshore Bulgaria in the Black Sea. First production is slated for 1 July 2003. Proven field reserves are put at 49bn cf of gas.

Clyde Petroleum has commenced production from the P6-D gas field offshore the Netherlands. Initial production is 21mn cf/d. It is Clyde's third field start-up in the last 10 months – its Castricum-Zee field came onstream in July 2001 and the Q4-9 gas discovery in December 2000.

Statoil is reported to be considering drilling an appraisal well on its Morvin oil discovery in the Norwegian sector of the North Sea next year. The field, with reserves put at between 30mn and 95mn barrels of oil by the Norwegian Petroleum Directorate, could be developed as a subsea tieback to the Kristin field or the Åsgard FPS vessel.



**BP is understood to have unveiled** plans to construct the Cleopatra gas gathering system in the Gulf of Mexico, the second part of its Mardi Gras transportation system. The new system will gather gas from the company's Mad Dog, Atlantis and Holstein fields in the Southern Green Canyon area, delivering it to Ship Shoal block 332 in shallower water.

Enterprise Products is understood to be planning to double the capacity of its Neptune gas processing facilities in the Gulf of Mexico, adding a further 300mn cf/d of capacity.

**BP's Northstar field on Alaska's North** Slope is reported to have come onstream and is expected to reach peak production of 65,000 b/d of oil in 1Q2002. Field reserves are put at 175mn barrels.

# In Brief

Gulf Island Fabricators is reported to have secured the contract to build the topsides for Kerr-McGee's Gunnison field in Garden Banks block 668 in the Gulf of Mexico. Delivery is slated for 2003; first oil is expected in 2004. Recoverable reserves are put at between 150mn and 250mn boe.

Shell is reported to have brought onstream the Oregano field in Gulf of Mexico Garden Banks block 559 via two subsea tie-backs to the Auger tension leg platform. Producing at an initial rate of 11,000 b/d, field output is expected to peak at 20,000 b/d by end-2001. Recoverable reserves are put at 50mn boe.

**BP is reported to have awarded** Daewoo Shipbuilding & Marine Engineering the \$380mn contract to fabricate a semisubmersible production and drilling platform – claimed to be the largest of its kind in the world – for the Crazy Horse field in the Gulf of Mexico. Installation is slated for 2004, with first production in 2005. Field reserves are put at 1.5bn boe.

Marathon is understood to have made an oil discovery on its Ozona Deep prospect on Garden Banks block 515 in the Gulf of Mexico. Its well encountered 345 ft of net pay in two primary intervals. The find is to be appraised in 2002.

Anadarko is reported to have agreed a farm-in deal with BP to explore on 95 of BP's deepwater blocks in the Garden Banks and Keathley Canyon areas of the Gulf of Mexico.

US independent Pioneer Natural Resources and partner Mariner Energy are reported to have approved development of the Falcon field in East Breaks blocks 579 and 623 in the Gulf of Mexico. Due onstream in 1Q2003, the field is to be developed via subsea tie-backs to a deepwater host platform. Gas reserves are put at between 175bn and 240bn cf.

Kerr-McGee is reported to have discovered gas condensate at its Red Hawk prospect in Garden Banks block 877 in the Gulf of Mexico. Reserves are estimated to be between 300bn and 500bn cf of gas.

Halliburton and Norwegian offshore contractor DSND are reported to be planning to merge their subsea operations.

Husky Oil is reported to have awarded Coflexip Stena Offshore the front-end engineering and design (FEED) con-

# **NEW**<sub>Stream</sub>

## PGS looking to become NCS operator

Petroleum Geo-Services (PGS) is seeking approval from the Norwegian Government to become a qualified license holder and operator on the Norwegian Continental Shelf (NCS). The company currently provides exploration, production and reservoir services to the oil industry and is a significant service provider on the NCS.

### Russian output

Recently released October production figures for Russia show mixed results, reports UFG. Oil production continued to perform strongly, rising in the first ten months by 7.5% year-on-year, with October rising by 8.1%. Gas production fell by 0.4%, despite the coming onstream of the Zapolyarnoye field.

Gazprom's output fell by 2%, with gas production from oil companies rising by 3.9% over the year as increased oil volumes led to higher volumes of gas being produced in association. Surgut remained the largest producer, outputting nearly three times as much as Lukoil which has expressed its intention of becoming Russia's second-largest gas producer once the market is liberalised. It already produces, through its subsidiary PGS Production, the Varg and Glitne fields on behalf of Norsk Hydro and Statoil.

If qualified as a license holder and operator on the NCS, PGS states that it 'will not engage in license acquisitions that compete with clients' pursuit of acreage on the NCS.'

## Alaskan pipeline

ASL Environmental Sciences of Canada is preparing the physical environmental portions of the environmental impact documents for the proposed marinebased gas pipeline from Prudhoe Bay, Alaska, to a landfall site on the Canadian coast of the Beaufort Sea. The project is being carried out under subcontract to LGL of Ontario for the Alaskan Natural Gas Producer Association.

ASL is responsible for the sections of the environmental summaries on the physical oceanography (currents, waves, water masses, ocean acoustics), sea ice evaluations (distributions, thicknesses and potential for bottom scouring), marine permafrost issues and related aspects involving meteorology and chemical water properties. For further information, visit www.aslenv.com

### **PSA problems at Russian fields**

Gazprom and Rosneft have agreed to jointly explore for oil and gas in the \$1bn Prirazlomnoye offshore Arctic field, writes *Stella Zenkovich*. The field has estimated reserves of 76.4mn tonnes of oil and 3.6tn cm of gas. Wintershall of Germany earlier pulled out of the project after failing to win Russian agreement to a production sharing agreement (PSA) providing a stable tax regime. Shell is also understood to have been forced to withdraw from exploration on the Verkhne-Salymsk oil field in the Khanty-Mansyisk autonomous region for a similar reason. Foreign operators are expected to pull out of other PSA deals after having been marooned in unresolved wrangles or tied up in red tape.

The Russian Government has stated that it wants PSA production to reach 600,000 b/d by 2005/2007 – analysts, however, believe this is not achievable as PSA production so far has only reached 44,000 b/d compared with total Russian oil production of 6.5mn b/d.

## Phase 1C production from Kuito field

ChevronTexaco, operator of block 14 offshore Angola, reports that oil production has begun from the Phase 1C development of the deepwater Kuito field. This latest phase adds more than 30,000 b/d, bringing current daily output from the field to 85,000 b/d. Average daily production from Kuito in 2002 is expected to be 66,000 b/d. The field has yielded over 39mn barrels of oil to date. The Kuito field is one of a number of projects in which the company is involved offshore Angola. The company reports that engineering, procurement, construction and installation bid packages are currently being finalised for the Benguela and Belize fields, and detailed reservoir and development studies are underway for the recently discovered Lobito and Tombua oil fields.

# **NEW**<sub>upstream</sub>

## Curlew A and C join North Sea initiative

Two further discoveries – the Shell Expro-operated Curlew A and Curlew C fields in North Sea block 29/7 – are to be offered to the market place under the UK Government's Satellite Accelerator initiative.

The fields have an estimated ultimate recovery in the order of 20mn boe. Further details can be found at www.logic-oil.com

Six other North Sea projects have been offered through the initiative since its set up in June 2000:

- Development of BP's Wood discovery was awarded to the *nisus* group, comprising GMIS, Stolt Offshore, Wood Group and RML.
- Shell's Kestrel field is ongoing with existing contracts.
  - tract for the subsea production system for the White Rose oil field offshore Newfoundland.



**Production from the phase 2 and 3** development of Iran's South Pars offshore gas field is expected by the end of 1Q2002, according to TotalFinaElf.

Non-Opec member Oman's proven oil reserves increased last year by 104mn barrels to 5.848bn barrels, reports Stella Zenkovich.

### Russia & Central Asia

The Russian Government is reported to have finally approved the transfer of a 20% stake in the Kharyaga oil field from TotalFinaElf and Norsk Hydro to Lukoil. TotalFinaElf and Norsk Hydro hold 50% and 40% stakes in the project and agreed to sell 10% each to the Russian company. The project has reserves in the region of 700mn barrels. The field is currently producing 10,000 b/d.

The Turkmen Government recently announced its latest licensing round.

Kazakh President Nursultan Nazarbayev is reported to have stated that oil fields in Kazakhstan in the future will be developed by local companies or joint ventures only. Foreign investors will be encouraged, however, to help establish a 'modern engineering industry' to aid development.

- Amerada Hess selected Brovig/RDs in mid-2001 to undertake further subsurface studies on its Solan/Strathmore fields.
- BP awarded the Well Design Team contract for its Kessog discovery to Halliburton, Schlumberger and Baker Hughes.
- Proposals from five teams for the development of Phillips Petroleum's Jill and Julia fields were due in mid-October for selection.
- BP's Don and Don West fields were added to the initiative in May 2001.

The Satellite Accelerator initiative aims to unlock the value of undeveloped fields in the North Sea using flexible and collaborative approaches by oil companies, contractors and service companies.

TotalFinaElf, a partner in the Agipoperated North Caspian PSA, has announced that the Kashagan East-2 well has tested at 7,400 b/d of oil. Appraisal drilling continues to fully assess the potential of the Kashagan reservoir.

Gazprom has just brought onstream its Zapolyarnoye field in Western Siberia. The field is currently producing 22.8bn cmly of gas and reserves are put at 3.3tn cm.

### Asia-Pacific

**CNOOC is reported to have brought** onstream the final platform (platform H) in its phase two development of the Suizhong 36-1 oil field in China's northern Bohai Bay, bringing the final total to six platforms. Phase two is expected to add some 60,000 bld of oil at peak production.

Woodside Energy reports that production tests have indicated potential gas reserves in the Blacktip discovery offshore Western Australia could be in the region of 1tn cf.

**Cairn Energy has announced that** delivery of gas from the Lakshmi field is likely to be delayed beyond 1 July 2002; first gas is currently anticipated in 3Q2002.

PetroChina is reported to have discovered gas in the Yekeyawuru structure in the Qaidam Basin in northwest China. Its exploration

# In Brief

well, drilled in the currently producing Sebei gas field, tested 34,900 cm/d of gas.

**CNOOC is reported to have brought** onstream the Qinhuangao 32-6 oil field in China's Bohai Bay. Field reserves are put at 103mn barrels. Production is expected to peak at over 65,000 bld.



The Brazilian authorities are understood to be planning to offer 55 blocks in the country's 2002 licensing round planned for June 2002. For further information, visit www.brasilrounds.gov.br

Pemex is reported to be planning to develop six fields offshore Mexico in a bid to offset the country's declining light oil production.



Apache's JG-1X discovery well in the northeast Abu Gharadig concession in Egypt's Western Desert is reported to have flowed 4,190 b/d of oil and 5mn cf/d of gas. The find is expected to be brought onstream soon via nearby Shell joint venture facilities.

Marathon Oil is understood to have acquired CMS Energy's interests offshore Equatorial Guinea, including its stake in the offshore producing Alba field, for nearly \$1bn.

Amec and Fluor Daniel have secured an engineering design and project management contract for offshore Angola's \$3bn Kizomba A FPSO.

The Nigerian Government has received 40 lease applications for 24 blocks in its latest licensing round, reports Stella Zenkovich.

**Transglobe Energy is reported to be** planning to bring onstream its Harmel oil field on block S-1 in Yeman via a six-month pilot project. Once the company has determined reservoir performance, it will go to full production involving 200 wells. The field is estimated to hold up to 600mn barrels of oil.

Triton Energy is understood to be planning the fast-track development of the Okume field in block G in Equatorial Guinea using the Sendje Berge FPSO if appraisal drilling proves successful.

6

# In Brief

UK

Shell is reported to have posted a 17% fall in 3Q2001 profits to \$2.69bn.

Stolt-Nielsen has posted a 3Q2001 net income of \$29.7mn on net operating revenue of \$735.4mn, compared with a new loss of \$0.3mn on \$607.8mn in 3Q2000.

**P&O Trans European and Q8 Aviation** have formed a strategic alliance to serve the UK aircraft refuelling market.

Paladin has announced a £19mn placing and open offer at 45 plshare. It plans to use some of the funds raised to expand its E&P portfolio with the acquisition of assets in the proposed auction of the Norwegian state oil and gas interests.

#### Europe

FMC Corporation has posted a 3Q2001 sales and after-tax income before onetime items of \$956.8mn and \$35.2mn respectively compared with \$958.6mn and \$56.5mn in 3Q2000.

**Kvaerner has posted its results for** the nine months to 30 September 2001, including an operating loss of NKr182mn.

The Board of Kvaerner has approved the agreement in principle to sell Kvaerner Hydrocarbons and Kvaerner Process Technology to Russian oil company Yukos for \$100mn.

#### North America

Dynegy is reported to have acquired Enron via a stock-swap and capital injection of \$2.5bn for Enron from ChevronTexaco, which holds a 27% stake in Dynegy. The deal has been valued at \$9bn.

Calpine Corporation is understood to have acquired Bechtel Enterprise's 50% holding in the Capline/Bechtel joint development energy centre projects for \$154mn and the assumption of \$141mn in debt.

**ChevronTexaco has posted a 3Q2001** net income of \$1.168bn for the former operations of Chevron, compared with 3Q2000 net income of \$1.531bn.

Amerada Hess has posted a 35% fall in 3Q2001 earnings to \$167mn; Conoco's

# **NEW**<sub>industry</sub>

# Fuel sector job losses are 'imminent'

Over 7,300 job losses are imminent in the UK fuels sector in 2002, according to a recent report from Plimsoll. The analysis found far more fundamental 'business' reasons than short-term pressures for these job losses that went back long before the last few months of economic uncertainty. The findings revealed that for the last three years the cost of employing people has been increasing at a greater rate than the industry has been able to afford. by 10% in the same period. The cost of salaries as a function of sales is shown to have increased 8%, with a third of companies polled already loss making. Further pressure for job cuts is expected to be brought on by next year's forecast salary increases averaging 3.4%. 'A staggering 42% of the companies included in the analysis could not absorb next year's salary increases as they simply cannot afford to pay,' states the report. The analysis indicates that at least 81% of the industry will need to shed jobs over the next 12 months.

The cost of salaries is reported to have risen by 18%, yet sales have only risen

### **Russian and Central Asia update**

Stella Zenkovich reports on recent industry developments in Russia and Central Asia.

- Anglo-Siberian's losses grew to \$179,085 in 1H2001, up from \$52,059 in the same period a year earlier, due to \$70,609 being invested in blocking a hostile takeover bid from Sibir Energy. The company spent \$1.6mn in 1H2001 on developing the Vankor field in Russia, estimated to hold 906mn barrels of reserves.
- Slovakian gas storage company Nafta Gbely grossed SKr407mn profit in 1H2001, on a turnover of SKr1.5bn.
- Lukoil will not be participating in the privatisation of a 19.6% tranche in the Russo-Belarus joint venture Slavneft, First Vice President Leonid Fedun has stated. However, Vagit Alekperov of Lukoil has indicated an intent to invest \$1bn in the Belarus, including investment in the Naftan refinery and a polymer factory.
- Slavneft is aiming to solidify its position in the Ukrainian fuel retail

market by increasing its franchised forecourt network to 45 outlets in 2002, and to between 75 and 100 by the end of 2003, reports Vice President Andrey Shtorkh. Fuel will be supplied by the local Mozyrsky refinery.

- OMV of Austria is planning to open an additional nine service stations in Bulgaria by the end of 2001. Its eventual aim is to gain a 10% share in both Bulgaria's fuel retail market and that of southeast Europe. At present, the company operates 41 sites in Bulgaria, including 25 recently acquired from Petrol Holding, which itself operates some 435 forecourts in the country.
- Mol is not closing its Tisza or Zala refineries as rumoured, but is reducing excess distillation capacities at the two in order to save costs and boost refinery capacity utilisation from 65% to 80%.
- The Ukraine has signed an agreement to take 40bn cm of Turkmen gas, paying 50:50 for it in cash and in barter.

### **Pipeline Technology Awards**

The UK Pipeline Industries Guild is inviting any companies in the pipeline industry, in whatever capacity or field, to enter for one of their Pipeline Technology Awards. The awards are made annually in recognition of significant contributions either to subsea or land-based pipeline engineering.

Further details and application forms are available from Richard Glenister, Tel: +44 (0)20 7235 7938; Fax: +44 (0)20 7235 0074; e: glenister@pipeguild.co.uk

The closing date for entries is 31 December 2001.

# NEWindustry

## E-tailing sector set for strong growth

The rise of online retailing has so far failed to meet the great expectations of the many investors who jumped on the e-bandwagon 18 months ago, according to a recent report from Datamonitor. However, the sector has nonetheless demonstrated prolific growth in western Europe, totalling \$8.7bn in 2000 - almost three times the 1999 value. With 99% of the overall retailing market still untapped, and household Internet penetration increasing rapidly, the analyst expects the e-tailing sector to maintain strong growth rates and reach a value of \$169bn by 2005 - an increase of 1,850% on 2000.

However, Datamonitor believes that this future growth is threatened by the problems related to the physical delivery of ordered goods - busy consumers finding the convenience of anytime, anywhere online shopping compromised by the need to accept home deliveries during the working week. At present it takes an industry average of 2.2 trips per successful delivery. The report suggests that collection points - where goods are delivered to customers' local retail outlets, such as forecourts/c-stores, for them to pick up at a suitable time - offers the strongest solution to the problem, effectively reducing the number of delivery trips per order to just one trip. Service station operators could benefit to the tune of \$200mn in commissions expected to be paid to such collection points; with the added benefit of increased 'footfall' onsite.

### New man on Cantarell project

Petroleos Mexicanos (Pemex), Mexico's state-owned oil monopoly, has appointed a new Executive Director for the Cantarell oil field, which currently provides some 42% of the nation's crude, writes Simeon Tegel. Chemical engineer Federico Alberto Martínez Salas, who has worked since 1965 for two Mexican construction companies – ICA and Gutsa – took over at Cantarell on 31 October 2001.

His appointment fits with Pemex Chief Executive Officer (CEO) Raul Muñoz Leos's strategy of bringing in senior executives from the private sector and sidelining Pemex careerists. Muñoz Leos, former DuPont Mexico CEO, was himself made Head of Pemex in January by new President Vicente Fox and given a mandate to modernise and commercialise the ailing giant.

'This definitely follows a pattern of bringing in people from outside,' said George Baker of Houston-based consultants Mexico Energy Intelligence. 'It may also follow the trend to have professional managers running operations rather than technicians.'

Since December, Cantarell has also been home to the world's largest nitrogen injection plant, owned and run by Bechtel, to maintain reservoir pressure. Despite doubts, the project has been going to schedule since commissioning.

Martínez Salas's predecessor at Cantarell, Antonio Acuña Rosado, will remain in his office until January 2002 to help his successor in his new post. Whether Acuña Rosado will then stay with Pemex has yet to be announced.

### Sibneft signs outsourcing agreement

Sibneft has signed a three-year outsourcing deal with Schlumberger under which the latter will take over a 'substantial portion' of the Russian company's well workover division. Schlumberger is to lease heavy workover rigs from Sibneft's whollyowned Sibneft-Service subsidiary, and most of the unit's workforce will join the Schlumberger payroll.

Sibneft plans to increase spending on services delivered by international oilfield service providers from \$85mn in 2001 to \$115mn in 2002, in a bid to improve the company's profitability and to enable it to deliver better services at lower cost.

## Working time

Night work limits under the European Union Working Time Directive must be set at a minimum of 10 hours MEPs were told by representatives of the UK Freight Transport Association (FTA) and Road Haulage Association (RHA) at a meeting on 7 November. The provisions of the Directive remain deadlocked between European Transport Ministers and the European Parliament. A conciliation process to resolve these issues was scheduled for late November. One of the key issues is whether night work should be limited to 10 hours or reduced to eight hours as the Parliament has proposed.

According to the FTA and RHA more than 25% of lorry activity in the UK now takes place at night.

# In Brief

3Q2001 earnings dropped by 48% to \$257mn, with Marathon posting a 10%

2257mn, with Marathon posting a 10% drop to \$319mn for the period. Unocal's 3Q2001 post-tax earnings fell to \$127mn against \$228mn 3Q2000; Phillips Petroleum reported a 15% drop in net income for the period to \$364mn.



Sibneft became the first Russian company to receive a foreign currency credit rating higher than that of the Russian Government when Moody's assigned a B1 rating to the company on Tuesday 6 November, reports UFG.

Yukos has announced that it will not participate in the planned rights issue of Kvaerner after all and that it is only acting as an arranger of a \$150mn consortium to rescue the company, reports UFG. As a result, its stake in the company is likely to be diluted from 22% to 6%.

Lukoil has prepared its 1H2001 financial results in accordance with US GAAP. Consolidated net income was \$1,421mn, with a sales revenue of \$6,273mn.

The sale of 6% government-held stake in Lukoil is reported to have been postponed until 2002 due to the current unfavourable western market situation.

Sibneft has posted a 1H2001 net income of \$613mn under unaudited US GAAP financial results.



TotalFinaElf is reported to have unveiled plans to set up 15 additional subsidiary companies in China, focusing in particular on the country's rapidly developing gas market and service station sector.



The World Bank and the European Investment Bank are to lend \$183mn and euro 55mn respectively to Tanzania, where the money will establish Songas, a privately owned and managed natural gas and power utility, reports Keith Nuthall. The company will develop Tanzania's natural gas field on Songo Songo Island and construct a 230-km pipeline to bring the gas to a power plant.

# In Brief

# **NEV**Swnstream

UK

**Partners in the UK to Belgium** Interconnector gas pipeline project are reported to be applying for planning permission to raise UK import capacity from 8.5bn cm to 20bn cm by October 2005 at a cost of £115mn.



German fuel retailer Aral is to use Aspen Technology's Aspen RetailTM solution to schedule the distribution of some 10bn I/y of fuel to its 2,500-strong service station network in Germany.

BP reports that the first commercial unit to use the company's innovative OATSR gasoline desulfurisation technology has begun production of ultralow sulfur gasoline. The new unit at the Bayernoil refinery in Bavaria, Germany, is reported to be capable of producing 15,000 bld of ultra-low sulfur gasoline for the German market.

Eni of Italy and the Institut Francais du Petrole (IFP) are understood to have inaugurated a pilot gas-to-liquids (GTL) plant at Eni's Sannazzaro de Burgondi refinery in north Italy. A feasibility study is planned after the pilot programme completes in 2002.

Gaz de France is reported to be targetting a doubling of its share in the European gas market to 20% as well as increasing international sales to account for 20% of company sales by 2003. The company is also reported to be seeking to double its self-owned production to 8% by 2003, and 25% in the 'medium term', through acquiring additional European and Mediterranean gas reserves.

Fortum is to acquire the City of Stockholm's 50% stake in Swedish district heating company Birka Energi for euro 1.5bn.

Italenergia, a holding company controlled by vehicle manufacturer Fiat and EdF of France, is reported to have unveiled plans to merge its electricity and gas units, centred on Italian power company Edison; to sell off its nonenergy businesses held by these units; and invest \$4.5bn on expanding its presence in the Italian power and gas markets, targetting a doubling of generation capacity and four-fold increase in gas sales by 2006.

The Spanish Government is reported to be planning to sell off 65% of gas

# Dimethyl ether production and sales collaboration

A consortium of eight companies has unveiled plans to jointly establish a dimethyl ether (DME) production and sales commercialisation research company. The consortium partners are: NKK Corporation (34%), Toyota Tsusho Corporation (17%), Hitachi (17%), TotalFinaElf (7%), Marubeni Corporation (7%), Idemitsu Kosan Company (7%), Inpex Corporation (7%) and Nippon Sanso Corporation (4%). The new company – DME International – will study DME production using direct synthesis techniques.

DME is a clean energy source that can be manufactured from a wide variety of hydrocarbon materials. It is reported to produce no sulfur oxides or particulate matter during combustion. DME is nontoxic and easy to handle, reports the consortium, allowing it to be used in a wide range of applications currently serviced by commercial home fuels (as an alternative to LPG), transportation fuels (as an alternative to diesel automotive fuels and as a fuel for fuel cells), and also applications as a generator fuel (in thermal power plants and as a fuel for fuel cells) and as a source of hydrogen energy. The latent market in Asia-Pacific alone as a replacement for LPG and as a generator fuel is estimated at 100mn t/y by 2010 according to a recent NKK survey.

NKK, backed by the Agency of Natural Resources and Energy under the Japanese Ministry of Economy, Trade and Industry (METI), has led an ongoing collaborative effort to establish direct synthesis technology for the low-cost mass production of DME. It is reported that the technique will make it possible to effectively utilise the untapped reserves of low-grade coal and the smaller gas fields that are scattered throughout the Asia-Pacific region.

DME International is targeting 2006 for the start-up of DME supplies. It expects to produce between 800,000 and 1.5mn t/y.

## Highlands and Islands fuel pricing report

The UK Office of Fair Trading (OFT) has reported its findings into the sale of petrol and diesel on the islands of Lewis and Harris. In its July 2000 Petrol and **Diesel Pricing in the Highlands and** Islands, OFG reported that the higher prices in this region were explained by a combination of factors such as higher costs of delivery and low volumes sold by petrol retailers in the area. However, the OFT could not at that time account for the even higher prices charged by Stornoway petrol stations than the rest of the Highlands and Islands. The three petrol retailers under question account for between 70% and 75% of the petrol and diesel sold in Lewis and Harris. Each is independent, two with a tie to supply BP fuel, and one tied to Esso.

This latest report on fuel pricing in Lewis and Harris found that 'pump prices were not excessive' when the additional costs faced by the island's three main petrol stations were taken into account. Lack of competition from supermarkets was another factor explaining the relatively high prices on the island, it stated.

The OFT study also looked at the effect of the use of fuel cards on the island, principally the BP Agency Card, which allow some customers to purchase fuel at a considerably lower price than local pump prices. The operation of such cards was not found to infringe competition law, nor to be one of the causes of relatively high local pump prices. BP makes less profit per litre on its Agency Card sales in Lewis and Harris than it does in the rest of the UK, and the card sales do not mean higher prices for other customers, reported OFT.

### Sibneft produces first high octane A-90 gasoline

Sibneft has brought onstream a new alkylation unit at its Omsk refinery that will allow it to launch the first commercial production of high octane A-98 gasoline in Russia at the beginning of next year, with output expected to peak at 12,000 t/month. The \$79mn unit enables the refinery to increase the share of light products in its output slate, and will also lead to a cut in atmospheric emissions, states the company, as it allows the refinery to process a higher proportion of the gases generated in the refining process.

Sibneft plans to hike output from the refinery in 2001 to 267,000 b/d, from 247,000 b/d in 2000. A new catalytic reforming unit is due onstream in 2003.

# **NEW**<sub>Swnstream</sub>

# **EU pushes alternative fuels**

One in five vehicles in Europe could be running on alternative fuels instead of gasoline or diesel by 2020 under a plan to promote renewable energy recently put forward by the European Union. The European Commission aims to use regulations and tax breaks to promote the use of alternative fuels, notably biofuels made from agricultural products such as vegetable oils, sugar beat, corn or animal waste.

In a statement the Commission said that its plan would help the EU meet commitments to reduce emissions of greenhouse gases under the Kyoto protocol on global warming. The EU is supposed to cut emissions by 8% by 2010 under the Kyoto agreement. The plan will also reduce Europe's dependence on oil imports and help the Continent's farmers, stated the Commission.

The proposals – which must be approved by the 15 EU Member Nations – would require governments to ensure biofuels represent 2% of all vehicle fuel sales by 2005, and 5.75% by 2010. To achieve the 20% target by 2020, the EU plan would also promote the use of other alternative fuels, such as natural gas and fuel-cell powered vehicles.

### European downstream developments

Keith Nuthall rounds up some of the latest downstream developments in Europe:

- Eastern Europe's vast district heating systems could be converted from dirty solid fuels to cleaner oil and gas in future following a euro 100mn investment in the region's energy efficiency by the European Bank for Reconstruction and Development. It is funding Dalkia, the energy services arm of Vivendi Environment, which has been creating energy service companies operating district heating networks for municipalities. It is introducing efficiency measures, typically by replacing coal-fired boilers with modern light-oil or natural-gas fired boilers
- The European Court of Justice has ruled that a Greek practice under which petroleum marketing companies transfer their legal obligation to store fuel equalling 90 days national consumption to refineries also based in Greece, breaks EU freedom of trade laws. Judges have

ruled that by asking Greek refineries to act on their behalf, they are effectively beholden to purchase their regular supplies from them, to the competitive disadvantage of refineries in other EU Member States. The court ruled that Greece could find a less restrictive way of guaranteeing emergency supplies.

- EU Environment Ministers have backed the European Parliament in the rejection of an 'averaging and banking' system within a proposed directive limiting emissions from outdoors mobile equipment, such as lawnmowers, which would have allowed manufacturers to sell dirty machines, if they made improvements to other models.
- A report by the European Parliament industry committee on the European Commission green paper on energy supply has advised that the EU must curb demand for oil through creating incentives for the production of a new efficient 1-litre engine.

### Grangemouth refinery restructuring plans

BP has announced that it is to restructure operations at its Grangemouth refining and petrochemical complex in Scotland. The move is part of a series of initiatives and investments aimed at 'radically' improving the plant's ability to compete in an increasingly difficult international refining and chemicals environment. The restructuring programme is expected to result in the loss of up to 1,000 jobs.

The restructuring will 'streamline

Grangemouth's three main businesses – refining, petrochemicals and the Forties pipeline terminal – into a single organisation, designed to simplify site operations while increasing reliability and efficiency,' states BP. As part of the plan, the company will also shut down an older polyethylene production unit, Rigidex 2, within the chemicals plant, and the oldest and smallest of the three crude distillation units, CDUI, in the refinery.

# In Brief

grid operator Enagas in early 2002. Gas Natural will retain its 35% shareholding in the company.

German power exchanges EEX European Energy Exchange and LPX Leipzig Power Exchange are to merge.

Italian energy group Snam Rete Gas is understood to have signed a contract with a number of Norwegian oil and gas companies for the supply of between 4bn and 6bn cmly of gas over the next 24 years. Statoil is to supply 70% of the contracted gas, Norsk Hydro 10% and Shell Norge 5%. TotalFinaElf is to supply a further 6% and ExxonMobil the remaining 9%.

#### North America

A vegetable-based biofuel is being tested in vehicles used by the Toronto Hydro Company electricity utility, the first such large-scale trial in Ontario, reports Monica Dobie. The fuel is a mixture of 20% corn oil and 80% lowsulfur diesel, and will be tested throughout the winter.



Turkey is expecting to receive gas from Iran from mid-December via a new pipeline entering the country at Bazargan, according to Botgas. Under a 25-year deal signed in 1996 in the face of strong US opposition, Turkey is to buy 106bn cf/y of gas until 2007, and 353bn cf/d thereafter, writes Stella Zenkovich.

Russia & Central Asia

Shell is reported to be planning to open 50 service stations in Croatia.

Ilkham Aliyev, Vice President of Azeri state oil company Socar, has indicated a willingness to return to the negotiating table with Turkmenistan over the long-shelved Transcapsian Gas Pipeline (TGP) project.

Eni of Italy is reported to have acquired from Socar a 5% interest in the 1mn b/d Baku–Tiblisi–Ceyhan pipeline project. The deal reduces Socar's stake in the BPled project to 45%.



Pertamina of Indonesia and the BPoperated Tangguh LNG project are reported to have signed a Letter of



Intent covering the supply of 1.3mn t/y of LNG to GNPower of the Philippines.

BP is reported to be planning to sell its 21-strong network of service stations in Japan. The company is understood to be withdrawing from the Japanese retail market.



Foster Wheeler has signed a Letter of Intent with Chilean state-run oil company Empresa Nacional de Petroleo (ENAP) for the development of a \$300mn delayed coker project at the company's Concon refinery in Chile.

Africa

Foster Wheeler has secured a \$20mn front-end engineering and design (FEED) contract from Chevron for a 34,000 bld gas-to-liquids (GTL) plant to be built in Escravos, Nigeria. The plant will be the first of its kind to utilise the Sasol Slurry Phase Distillate process.

Governor Mohammed Alabi Laval has unveiled a plan to build a new refinery in Nigeria's Kwara State to address the long-standing problem of fuel scarcity, reports Stella Zenkovich.

Technip-Coflexip of France, together with Kellog Brown & Root, Snamprogetti and JGC Corporation, is understood to have secured an EPC contract for a two-train expansion of Nigeria's LNG plant. The new trains are to be commissioned by summer 2005, raising capacity to 17mn t/y of LNG, 2.5mn t/y of LPG and 1mn t/y of condensate.

# **NEV**Swnstream

### Speeding gasoline-fed fuel cell vehicles to market

ChevronTexaco and General Motors have unveiled a multi-year research collaboration designed to speed up the pace at which gasoline-fed fuel cell vehicles move into the market. According to Byron McCormick, Executive Director for GM's development of gasoline-fed fuel cell vehicles, vehicle emissions are dramatically reduced and fuel economy improved by more than 50% as a result of gasoline-fed fuel cells replacing conventional gasoline-fed engines.

In a fuel cell system running on gasoline, a fuel processor converts gasoline into hydrogen. This is typically done by reacting the gasoline with air and water using a series of reactors, which contain catalysts to promote these reactions. The hydrogen then mixes with oxygen from air to generate electricity in a fuel cell stack. Sulfur in gasoline would poison the fuel cell system, so onboard removal of sulfur from gasoline is one important goal of the collaboration.

This summer, GM unveiled what it claimed was the world's first gasoline fuel processor for fuel cell propulsion packaged in a Chevrolet S-10 pick-up truck. Demonstration ride and drives are planned for 2002.

### UK hauliers are 'missing out'

UK hauliers are 'missing out on the effects of falling world oil prices' reports the Freight Transport Association (FTA). 'While unleaded petrol prices have been falling steadily since June, diesel prices have remained broadly unchanged, despite crude oil prices falling from \$29/b to \$21/b,' states the Association. According to the FTA, contract bulk diesel prices stood at 61.70 p/l in October 2001 compared to 62.30 p/l in early June.

Simon Chapman, FTA Chief Economist said: 'Petrol purchasers are benefiting from a double whammy. Refineries are producing as much gas oil as they can at the moment, to meet higher northern hemisphere demand for heating fuel as winter approaches. As refineries crack more crude to meet this demand, they produce more gasoline as a result. With lower demand for gasoline in winter, there is much more unleaded fuel available than the market is using. The combination of gasoline oversupply and lower crude oil prices has meant unleaded prices are now falling sharply. Because diesel is a similar product to gas oil, their prices are closely linked. Strong demand for gas oil as heating fuel has meant diesel prices have not responded to the same extend to crude oil price falls.'

'Seasonal fluctuations in the relative price of diesel and unleaded petrol are nothing new. Indeed, during the 2Q2001 it was diesel purchasers who were buying the cheaper fuel, as refineries struggled to produce enough gasoline to meet US demand over the summer. But the scale of the current price differential between the two products is bigger than previous years. Industry has purposely kept stocks low to reduce the costs of fuel inventories when the price of crude was hovering at around \$30/b. Now that consumption is starting to pick up, there is little in the way of reserves to cushion the effect of increasing demand for heating oil and consequently diesel."

### UK Deliveries into Consumption (tonnes)

and the second	and the second				
Products	†Sep 2000	Sep 2001	†Jan-Sep 2000	Jan-Sep 2001	% Change
Naphtha/LDF	180,274	59,983	1.623.372	1,248,930	-23
ATF – Kerosene	995,463	1,013,956	7,711,792	8,454,417	10
Petrol	1,685,759	1,838,203	15,643,620	15,662,607	0
of which unleaded	1,542,945	1,770,957	14,378,393	14,379,505	0
of which Super unleaded	37,888	36,942	303,558	318,933	5
of which Premium unleaded	1,505,057	21,935	14,074,835	6,099,468	-57
ULSP (ultra low sulfur petrol)	-	1,712,080	-	8,400,679	-
Lead Replacement Petrol (LRP)	142,814	67,246	1,265,227	773,642	-39
Burning Oil	267,716	349,014	2,658,590	2,975,112	12
Automotive Diesel	1,300,460	1,315,208	11,522,145	11,979,549	4
Gas/Diesel Oil	566,875	500,892	5,149,242	4,634,315	-10
Fuel Oil	135,068	114,048	1,159,186	1,386,976	20
Lubricating Oil	72,334	69,830	610,947	638,143	4
Other Products	681,075	601,955	6,160,828	5,989,106	-3
Total above	5,885,024	5,863,089	52,239,722	52,969,155	. 1
Refinery Consumption	434,156	391,117	3,939,754	3,451,307	-12
Total all products	6,319,180	6,254,206	56,179,476	56,420,462	0
† Revised with adjustments			All figures provided by the U	K Department of Trade a	nd Industry (DTI)

# autumn lunch



*Euan Baird*, Chairman and Chief Executive Officer, Schlumberger, spoke of the importance of lifetime learning and increased collaboration between industry and academia at the IP Autumn Lunch, held at the Park Lane Sheraton in London on 2 October 2001. His presentation, entitled 'The Oil Industry and the Knowledge Age', follows in its entirety.

Above: Euan Baird, Chairman and CEO, Schlumberger, presenting the IP Autumn Lunch lecture.

s some of you know I was born and brought up in Scotland. At that time the country was gradually recovering from a World War and the main concerns were very basic issues like housing and food. Today, nearly 50 years later, it is health and education that seem to dominate the UK political agenda. Both are being dramatically impacted by technology in a way that is making it impossible for either the National Health Service (NHS) or our state-run educational system to meet the needs of society or our personal expectations.

Although I am the only member of

my family who is not a doctor I do not intend to embark on the perilous task of analysing the solutions to the NHS. Instead I will talk about some of the educational issues facing society and the way new technology and partnerships are offering some exciting solutions.

Let me start by giving you three recent examples of the sort of educational problems we face. At this year's Offshore Europe conference a great deal of time was devoted to what was called the 'talent squeeze'. The facts emerged that the average age of the knowledge workers in the North Sea oil industry was 47 years and that 60% of them would leave the industry in the next few years. Second, the CEO of Electronics Scotland, who represents an industry that is an important technology support to North Sea oil development, estimates that the demand for engineers in Scotland exceeds supply by 1,000 engineers per year. Third, Sun Systems in Scotland reckon that they have completely retrained their workforce four times in the last 10 years.

These examples point to the need for continuous learning, not only on the part of the individual but also the company. We need to create systems whereby individual learning takes place when and where it is required. We also need to create companies that learn quickly and do not forget; companies that can manage knowledge, keep skills and practices up to date and are constantly encouraging innovation. In short, a cultural change needs to emerge in the way the learning process is managed.

### Knowledge age culture

To achieve this 'knowledge age culture' companies and educational organisa-

tions can no longer work in isolation to one another. The technology of the Internet now means that learning can be on demand – it can happen anywhere, anytime. Lifelong learning, centered on our individual needs, will allow us to handle effectively the depth of choices being produced by the accelerating rate of change. And just as we can choose from among 300 mutual investment funds, the choice in education is growing as well.

The conventional educational system, like the NHS of Lord Beveridge, is not capable of fulfilling everyone's needs. Without major changes, our educational system will remain elitist, expensive and increasingly unable to meet the standards required by the knowledge age.

However, in marked contrast to medicine, the net effect of technology on education will be to lower costs while improving availability and quality. IT has the potential to do for education what Edison claimed he would do for electric light when he said 'I will make electricity so convenient and cheap that only the rich will burn candles.' I believe that good quality, personalised education will become so available and cost effective that only the rich will continue to depend entirely on the traditional higher educational system of today. Only rich companies will be able to afford the inefficiencies of their existing knowledge management and training systems and, in my opinion, if they don't adapt they won't remain rich very long.

### Enabling a revolution

Technology is enabling a revolution in education and in what constitutes an educated person. These issues are stirring discomfort both inside academia and the corporate boardroom. The model where we are first educated and then we are employed will disappear. Education and employment will merge into a single activity.

I'm sure that these ideas and trends are quite familiar to most of you. However, we need to understand that they are in the process of becoming a reality. They did not get blown away when the 'dot.com' bubble burst, but are starting to have a real impact on the competitiveness of some companies.

I am reminded of a film I saw recently about card playing called *Rounders*, with Matt Damon playing the young hero. At the beginning of the film, he offered a pearl of wisdom about card playing that he had learnt from his father. This was that: 'If you can't spot the sucker in the first thirty minutes of the card game, then you are the sucker.' This unassuming realism applied to the business world says that IT and connectivity on demand have changed the rules of the game, and that if you are not already making some fundamental changes in your business processes because of IT, you will not be the beneficiary of this new technology but one of its victims.

To illustrate my view I will talk about four different initiatives with which I am involved. In each case the nature of the partnership between business and academia is somewhat different, but they are good examples of where the learning process is headed.

These models are:

In Touch – an internal, interactive training Schlumberger system.

NExT – an initiative between various universities and Schlumberger.

Scottish Knowledge – a distance learning start-up with universities.

 SEED – a Schlumberger initiative to provide connectivity and content to schools around the world that would otherwise be left behind.

### In touch

To understand the changes brought about by the In Touch approach to professional training at Schlumberger, it is useful to have a little background on who we are and what we do.

Schlumberger was founded in 1927 by two French brothers – one a theoretical physicist, the other a practical engineer. They developed revolutionary techniques to help detect and evaluate underground oil and gas deposits.

The nature of the oil business and our role in it caused us to operate globally before 'globalisation' became a cliché, to value new technology as the basis for our competitive advantage, and to be nimble and fast before there were management consultants to promote such ideas. From the start, our company culture recognised that learning never stops - whether it is learning a new language in a new land, or organising a new way to deliver service, or adapting to what we call 'borderless career' moves when one is transferred from a job in marketing, for example, to one in personnel. Above all, we have a business imperative for learning - because we work at the shifting interface of what companies do themselves and what they outsource, we need high-speed learning to keep our products and services ahead of the needs and expectations of our customers.

Clearly, no university can deliver 'the Schlumberger engineer' to our doorstep. We have always directed a sizeable portion of our resources to the training and development of our employees. For decades, our training was conducted in seven Learning Centers around the world in combination with residential courses provided by third parties. However, the accelerating pace of new technology introductions, and the need to turn young graduates into productive employees as



IP President, Charles Henderson, hosting the IP Autumn Lunch.

quickly as possible, turned this classic 'campus' style system into an expensive bottleneck.

In 1985 we had BBN deploy for us what was the first Internet protocol (IP)-based global network outside the US military. Six years ago we switched to full IP architecture and now serve 60,000 users with an intranet which deploys 1,200 Cisco routers in 80 countries. This network is now one of the most extensive commercial intranets in the world and has enabled us to revolutionise the quality of our global communications. Over the last five years most of our training and continuing education has migrated to the network in the form of online classes or as individual training that an engineer can follow in accordance with his or her schedule.

The laptop is replacing the classroom and the fixed schedule. Static textbooks give way to online, interactive, multimedia courses, which can be easily and cheaply updated.

The Schlumberger engineer can choose from more than 500 training modules, many of which are supplied by third parties. Anytime and anywhere there is a connection to the network. Otherwise he or she can order an interactive CD-ROM training module for study on a plane or at the beach.

Last year, we began implementing 'just-in-time' distance training using web-based interactive software. Instead of flying 100 engineers from around the world to a training centre, they each log in and join a conference class. We call it 'just-in-time' because we can time training for the moment when it will be most useful and when it will stick best – such as just before new equipment arrives in the field locations. Since introducing synchronous training over the network last year, more than 10,000 man-hours of training have been conducted in this mode.

In Touch goes one step further by putting people who need answers directly 'in touch' with those who have them, via a user-friendly knowledge management system. It includes a searchable, interactive knowledge base that connects our 9,000 engineers in the field with 24-by-7 helpdesks at our 15 technology centres around the world. It means that an engineer in Sharjah can discover that someone in Kuala Lumpur or Prudhoe Bay encountered the same problem and developed or discovered a solution. It is the onestop knowledge interchange - where the technology centres can deliver their validated information and where the service delivery groups find their answers.

These new modes of training underscore that what matters is what you know, not where and how you come to know it. It is our ambition to create a company that learns and does not forget, and where validated knowledge is accessible and forever refreshed. It is changing our company into one that shares and reuses knowledge anywhere, anytime – the key to global service excellence.

The global connectivity and knowledge management systems of In Touch have allowed us to improve service while cutting dramatically support costs and it is typical of the experiences of other companies. In our industry having knowledge available anytime, anywhere will change the way oil companies manage their assets; whether it is their producing fields, their downstream distribution systems or the training and development of their people.

Our recent acquisition of SEMA is a further indication of our conviction

that the e-transformation of the oil industry is at hand. A transformation in the way the industry works and the financial performance it is capable of achieving.

### NExT

In Touch provides online, learner-tolearner and teacher-to-learner mentoring. My second example, called 'Network of Excellence in Training' or 'NExT', is dedicated to delivering more structured training for the petroleum industry. NExT provides accredited degree studies as well as a continuing education through distance learning. It is a unique mix of the best industry expertise with the most up-to-date university teaching methods, delivered when, where and how a young petroleum engineer needs them.

NExT was established in February 2000 as a for-profit company by four partners: Heriot-Watt University, Texas A&M University, The University of Oklahoma and Schlumberger. The universities are establishing Centres of Excellence for various disciplines while Schlumberger brings its industrial expertise, training facilities and global IT network.

NExT offers more than 131 courses, covering many disciplines including geoscience, petroleum engineering and well engineering. So far this year, 130 classes have been taught to a total of 2,100 students. By combining the complementary strengths of academia and industry NExT offers a richer education than any of the partners could provide on their own.

### Scottish knowledge

My third example of 'Partnership in Action' is 'Scottish Knowledge'. Like NExT, Scottish Knowledge is a for-profit company that markets distance education at undergraduate and graduate levels. Started in 1997 to leverage the reputation of a Scottish education it has 21 Scottish universities and colleges and 45 corporations as shareholders. Scottish Knowledge has about 20,000 students from 35 countries enrolled and offers 50 accredited distancelearning courses in six major disciplines. It now has offices in Edinburgh, the US, Canada, Malaysia and Abu Dhabi.

Scottish Knowledge does more than aggregate university courses into the virtual classroom. It also provides its corporate shareholders with customised curricula. For example, it will set up a global e-university for Shell, and deliver education and training programmes to 10,000 Shell employees worldwide. Again in April, Scottish Knowledge signed a contract to project-manage the design and construction of a Petroleum Institute building in



Guests socialising after the IP lunch.

Abu Dhabi, which will link the Emirate's 11 colleges with five universities in Scotland.

The Petroleum Institute will offer Master's and PhD degrees in many disciplines relevant to the petroleum industry, including reservoir engineering, legal studies, risk management and safety and environmental studies.

Scottish Knowledge helps Scotland's universities to be leading players in what observers around the world are calling e-universities. Traditional campus-based universities will be supplemented by a variety of new media delivery techniques that will allow the universities to focus more on the individual needs of the students in terms of content and convenience. It embraces the idea of a broader educational community.

An example of this type of global thinking is a new product developed by Scottish Knowledge called the SCHOLAR foundation programme. To be launched in Edinburgh by one of Scotland's leading universities, it has a potential worldwide market of 500,000 students.

### SEED

So far, I've talked about educational partnerships in the professional setting, for those privileged enough to have access to higher education. My fourth example concerns another kind of partnership, namely using the Internet to help the underprivileged gain access to knowledge.

The diversity of our people is fundamental to the success of Schlumberger – a diversity of knowledge, culture, experience and perspective. Four years ago, this diversity prompted us to consider how we might contribute to the education of young people in the communities around the world where we live and work.

In 1998, we launched a non-profit programme called 'Schlumberger Excellence in Educational Development', 'SEED' for short. SEED has two components, a connectivity grant programme, and an educational website.

In the connectivity grant programme we form partnerships with underprivileged educational organisations to provide information technology knowhow, project management skills and help finance connectivity to the Internet. However, rather than just handing over a cheque, we co-manage the project to ensure proper implementation, and then sustain the relationship through technical support and training. By the end of this year SEED will be providing Internet connections to 60 schools in 19 countries involving 100,000 children. Our target over the next three years is to connect 15 to 20



Euan Baird and IP Past President Chris Moorhouse in debate over lunch.

schools per year.

The second part of the SEED programme is its educational website, a science and technology forum that enables Schlumberger people, many of whom are scientists and engineers, to share their knowledge and experience with learners anywhere who can access the web. Volunteers who are Schlumberger employees or their families support the programme. Through these volunteers, the website provides a stream of new articles, experiments and educational activities targeted at children of secondary school age and their teachers.

By putting the connectivity programme together with the educational website we are able to bring the perspective of 'real world, real people' to the teachers and their students.

The SEED programme is our way to give back something to the communities in which we live and work by focussing our efforts where the need is greatest. It is one way in which the science and technology knowledge gap has been narrowed by bridging the so-called digital divide and giving those who are behind a chance to catch up and participate in the economic and social advantages afforded by the knowledge available over the Internet.

### Staying competitive

In conclusion let me say that the speed and success with which a company adapts its internal and external processes to the arrival of broad bandwidth connectivity is rapidly becoming a determining factor in competitiveness. Much of what needs to be done involves knowledge management systems that allow learning to take place when and where it is most needed. These systems can be most effectively developed and sustained by a partnership between the business community and academia.

Business brings not only needs and resources but also method. Success in business depends on market responsiveness – on one's ability to shorten the learning curve, to anticipate changing needs of customers, to be first with best ideas and to correct quickly the inevitable mistakes. At their best, corporations work with a sense of urgency and learn to make the best possible decisions with the minimum of information. The life of a corporation depends on doing all of the above well, but its future depends on continuously relearning how to do it better than anyone else.

Academia, on the other hand, is a place of reflection, where ideas and minds can develop in a free yet sheltered environment. Intelligent risktaking, openness to ideas and 'creative destruction' - those are the centrepieces of academia which business needs to absorb. Academia has survived in its present form for thousands of years because it has been able to constantly renew itself. Students come and students go, bringing with them their refreshing ability to challenge the status guo of their elders. It is the steady stream of new people and new ideas that makes the university a vital place. With the advent of limitless bandwidth it is time for academia to turn that creative questioning back on itself.

My hope is that if academia investigated academia, it would discover the following - just as television did not make radio disappear, or photography replace painting, digital learning can revitalise, not displace, the traditional forms of teaching. A new blend of electronic and face-to-face interaction will be a very powerful way to improve quality while reducing costs. The ease with which 'real people, real life' from the community at large can play a role in education will not compromise intellectual integrity, but help to provide better focus and relevance. Business and education need to recognise they are after the same goal - original, critical thinkers who have the ability and responsibility to put ideas into action and the sooner we can join forces, the sooner we will be on the way to achieving this goal.

Photos courtesy of Jim Four

## overview



Last month's *Petroleum Review* looked at recent E&P developments in the Asia-Pacific region where foreign interest continues to focus on exploiting gas reserves. In Part 2, *Kim Jackson* reviews recent developments in Australia.

The Cossack Pioneer floating production storage and offloading facility produces oil for the North West Shelf Venture. Photo courtesy of Woodside Energy.

s elsewhere in the Asia-Pacific region, the exploitation of gas reserves is a key driver for the Australian oil and gas industry, in particular offshore the north and northwest coasts. However, the country's success in exploration in recent years has not been converted into a comparable high level of development activity.

Asia-Pacific

International competition for investment in the oil and gas sector continues to intensify and only the most profitable projects are getting the goahead. In addition, attention continues to focus on shallower water projects, as the competitiveness of Australia's current tax regime does not compare favourably for deepwater developments. Recent changes to project bylaw provisions (see Petroleum Review, July 2001), however, may help toward redressing this balance when implemented in 2002. That said, the country offers foreign investors relatively low levels of taxation as well as political and regulatory stability.

One of the biggest challenges for players in the Australian arena is securing markets for the gas produced as the local domestic market is not large enough to support the ever growing number of projects waiting to be developed.

By any measure, the country remains under-explored. At the end of 1999, according to the Australian Geological Survey Organisation (AGSO), nearly 8,000 exploration and development wells had been drilled onshore and offshore. In comparison, over 60,000 wells had been drilled in the Gulf of Mexico – an area smaller than the Carnarvon Basin offshore northwestern Australia.

### Licensing and permit awards

A total of 42 areas were released in Australia's 2001 licensing round earlier this year, covering the full range of exploration provinces from frontier to mature and offering opportunities to exploration companies of all sizes. The areas included the Money Shoal Basin, offshore the Northern Territory; Petrel Sub-basin, offshore Northern Territory and Western Australia; Vulcan Subbasin, adjacent to Cartier and Ashmore Islands; Browse Basin, Dampier Subbasin, Barrow Sub-basin and Houtman-Abtrolhos Sub-basins – all offshore Western Australia; Sorrel and Otway Basins offshore Victoria and Tasmania, and the Gippsland Basin offshore Victoria (see **Figure 1**). Bidding for areas in the first round closed on 11 October 2001; second round areas remain open until 11 April 2002.

In addition to this, in October the Government of Western Australia put out to tender three offshore petroleum exploration blocks in the North West Shelf region – all regarded as 'highly prospective' and located close to existing discoveries and infrastructure. Two of the blocks are located offshore the northwest town of Dampier, the third is near the Barrow Island oil field. Bids, based on exploration work programmes, are to close on 28 February 2002.

### Starting on a high

Chevron started the year on a high note with its fifth 'significant' gas discovery in the WA-267-P exploration permit offshore northwestern Australia and located west of the Gorgon field. While the size of the discovery had not been determined at the time of the announcement in late January, it was reported to 'significantly add' to the substantial reserves of the greater Gorgon gas fields (see **Table 1**). The Greater Gorgon gas fields project is one of the larger developments in Australia, comprising the Gorgon, Chrysaor, Dionysus, West Tyral Rocks and Spar fields offshore the Burrup Peninsular, Western Australia. Proven reserves are put at 13.8tn cf of gas, with proven and probable reserves exceeding 17.6tn cf. First production on a standalone basis is anticipated no sooner than 2012, although it could come onstream earlier as an addition to the North West Shelf gas project.

### North West Shelf gas project

One of the most important recent developments has been the go-ahead for the planned expansion of the Woodside-operated A\$2.4bn North West Shelf gas project. A fourth LNG train with a 4.2mn t/y capacity is to be built at the project's gas plant located on the Burrup Peninsula at a cost of A\$1.6bn. The train is scheduled to be completed in time to permit first deliveries of LNG to be made in mid-2004. A fifth train is planned in late 2005/early 2006 as well as an additional jetty and storage facilities.

An additional LNG ship with a capacity of 135,000 cm has also been ordered from the Daewoo Shipbuilding and Marine Engineering Company to deliver volume associated with the expansion project. The vessel is scheduled for delivery in early 2004. In principle support has also given for the construction of a second gas pipeline to shore at a cost of A\$800mn.

By the end of 1H2001, the venture partners (all with equal 16.67% stakes) Woodside Energy, BHP Billiton, BP Developments Australia, Chevron Australia, Japan Australia LNG and Shell Development (Australia) - had signed Letters of Intent with five customers for the supply of a total 2.9mn t/y of LNG, with contract periods ranging between 15 and 30 years. They also signed Key Terms Agreements with Shell Gas and Power on 15 May 2001 for up to 3.7mn tonnes of LNG over five years, and with Chubu Electric Power on 3 August 2001 for 0.6mn t/y, starting in 2009. More recently the partners have signed sales and purchase agreements with Tokyo Gas and Toho Gas of Japan for the purchase and supply of 1.37mn t/y of LNG, beginning in 2004.

Some of the North West Shelf gas is also intended to be used as feedstock for domestic projects, including Syntroleum's Sweetwater gas-to-liquids plant. Clough Engineering along with Aberdeen-based joint venture partner PGS Production Services secured a 13year contract in April 2001 to operate and provide maintenance services for the GTL plant.

At the time of writing, the North West Shelf project partners have also announced the signing of a Memorandum of Understanding with Methanex Australia for the supply of 200 TJ/d of gas to a proposed methanol plant on the Burrup Peninsula over a 25-year period from 2005.

Earlier in the year, the venture partners reached agreement with ExxonMobil and Phillips Petroleum to develop the Perseus and Athena gas fields as part of the North West Shelf project.

Another important project is the proposed Queensland–Papua New Guinea (PNG) gas pipeline project. Negotiations are ongoing with prospective gas customers (see November issue for more details).

### **Projects developments**

Approval was given in May 2001 for the A\$130mn phase 2 development of the Laminaria field offshore northwestern Australia. The development comprises two horizontal in-fill wells in the Laminaria field tied back to the Northern Endeavour FPSO. Drilling was slated to commence in late 2001 and initial production of an additional 65,000 b/d from both incremental reserves and accelerated oil volumes is expected to commence in mid-2002. The two wells are forecast to contribute an additional 21mn barrels of oil production in the period mid-2002 to the end of 2003. Current gross output from the Laminaria/Corallina fields is 130,000 b/d.

OMV has approved the development of its Patricia Baleen gas field offshore Victoria. It is the first Australian project in which the Austrian company will act as operator. The company, which bought out Australian independent Cultus Petroleum in 1999, already holds interests in the Challis and Jabiru oil fields in the Timor Sea.

More recently, the green light was given for development of Woodside's Echo-Yodel gas condensate field, due onstream in 2002. The development consists of two subsea production wells tied back to the Goodwyn platform for processing, with production being exported to the onshore gas plant via the existing subsea pipeline. Production from Echo-Yodel is expected to mitigate the effects of declining condensate production due to depletion of the Goodwyn reserves, states the operator. The Echo-Yodel field is forecast to produce 37mn barrels of condensate and 0.4tn cf of gas over a four to five-year period.

Projects to have come onstream over the past year include Woodside's A\$110mn Legendre oil field in mid-May following the completion of the first four planned development wells. Production in 1H2001 was limited to an average of 21,000 b/d as commissioning activities were progressively completed; this is set to rise to 50,000 b/d once the gas reinjection facilities are commissioned. Field life is put at between three and eight years.



The Goodwyn A offshore gas production platform on the North West Shelf of Western Australia. *Photo courtesy of Woodside Energy*.

Santos was due to be bringing its Wellington gas field in Queensland's Cooper Basin onstream as *Petroleum Review* went to press. The field will be tied-in to the Ballera gas processing plant.

Asia-Pacific

### **Future potential**

Likely future developments include the (30.7mn barrels), Laverda Enfield (56.3mn barrels) and Vincent (117.4mn barrels) oil fields in permit WA-271-P. A range of development options are being studied, consisting of Enfield stand alone or combined with Laverda and Vincent. The concept selection for Enfield is expected to be completed by mid-2002, with the final investment decision expected by end-2002, and first production slated for mid-2005. The preferred development concept is likely to be an FPSO. Commercial studies continue on Vincent, while pre-stack migration processing was initiated earlier this year to further delineate the Laverda structure and is to be followed by an appraisal well in 1H2002.

Other currently undeveloped fields include Greater Sunrise (see *Petroleum Review*, November 2001), Yolla (due onstream in 2005 and expected to produce 49mn cf/d of gas and 5,000 b/d of liquids), Kipper (onstream 2004) and Minerva (onstream 2004).

overview

In March 2001 Santos reported what is claimed to be its largest gas field find yet discovered in the onshore Otway Basin, Victoria. The Tregony exploration well in block PEP 153 found 42 metres of net gas pay and could be brought onstream at between 10mn and 15mn cf/d. In April, the company was also reported to have discovered gas in Queensland, its Quasar South well flowing at 6.1mn cf/d. The find is to be connected to the Cooper Basin gas gathering network.

More recently, Australian junior Worldwide Exploration was reported in August to have announced that its recent Beharra Springs North-1 gas discovery in the northern Perth Basin could be developed via the under-utilised facilities at the Beharra Springs gas fields to enter production in 1Q2002.

### New gas province

Woodside made further progress towards its stated objective of becoming a major gas supplier to eastern Australia with its recent Thylacine and Geographe discoveries in the Otway Basin, offshore Victoria earlier this year. Preliminary estimates of gas in place volumes range from 0.6tn to 1tn cf for Thylacine and 0.4tn to 0.6tn cf for Geographe. Woodside's stakes in the two projects are 50% and 55% respectively and the company is targeting a 2006 start-up.

The Basin also holds the undeveloped La Bella and Minerva gas fields and some analysts are forecasting that Otway could become a major new gas producing province for southeast Australia.

### **Gippsland find**

The first significant gas find in the Gippsland Basin, offshore Victoria, was announced by Esso BHP in October. The East Pilchard-1 well encountered more than 100 metres of gas-bearing sand in several intervals. The news came as the companies reported that they had approved funding for a \$200mn, 51-km pipeline from the Bream A platform to shore near the Longford gas processing plant. This project will be the fourth gas pipeline in Bass Strait and will allow the production of gas reserves currently being reinjected into the Bream reser-



Figure 1: Offshore Australia – exploration maturity. Map compiled by A E Stephenson, AGSO – Geoscience Australia, supplied courtesy of the Australian Department of Industry, Science and Resources.



The North West Shelf Venture's onshore gas plant, with LNG storage domes in the foreground. *Photo courtesy of Woodside Energy*.

voir. It will also access and accelerate the production of around 30mn barrels of hydrocarbon liquids over a 10-year period. First gas/liquids is expected to flow by mid-2003 (see **Figure 2**).

The two companies also announced that they have commenced what they claim is the largest 3D seismic survey undertaken in Bass Strait to date. The 3,900 sq km survey will cover all of BHP Billiton/Esso Australia's northern oil and gas fields in Bass Strait, and is designed to identify hydrocarbon targets over a range of geological horizons. The A\$55mn survey is expected to result in a new round of drilling activities in the Basin that could add materially to the joint venture's proven reserves.

Earlier in the year, the companies signed a long-term supply agreement with Duke Energy International that will enable the introduction of natural gas to Tasmania, beginning in 2002. The supply agreement came shortly after Bass Strait gas began flowing from Gippsland into New South Wales through Duke Energy's Eastern Gas Pipeline.



Figure 2: Australia's gas pipeline infrastructure. Map supplied courtesy of the Australian Gas Association.

### **Hitting the headlines**

Shell was very much in the headlines in early 2001 with a series of bids to increase its 34.27% shareholding to a controlling majority stake in Woodside. However, the company was unsuccessful, finally blocked by the Australian Federal Treasurer prohibiting the merger under Section 18 of the Foreign Acquisition and Takeovers Act in April 2001. In addition, the Phillips Petroleum-operated Bayu-Undan project in the Timor Sea also hit the headlines as did the long-awaited signing of the new Timor Gap Treaty (see November issue of *Petroleum Review* for more details on these projects as well as the associated development of the Greater Sunrise fields in the Timor Sea).

This review draws heavily on recent reports and information supplied by the Australian Department of Industry, Science and Resources (ISR) and the Australian Petroleum Production Exploration Association (APPEA), as well as Edinburgh-based consultancy Wood Mackenzie, among others. Petroleum Review would like to thank all involved for their help and assistance.

Country/Field	Operator	Oil or Gas output	Start-up date	Oil res. (mn b)	Gas res. (bn cf)	Capex (Smn)	Production system
AUSTRALIA	100 March 100						
Angel	Woodside	gas/cond	2010	-	1,800	1. C	platform
Baleen (Bass Strait)	OMV	gas	2002/3	-	100	-	
Bambra	Apache	gas/cond	2004	0.7	30	-	wellhead plat via Harriet
Brecknock/Scott Reef	Woodside	gas/cond	2005+	228	18,400		poss LNG development
Chrysaor*	Wapet	gas	2012*	40	2,600	150	*part of A\$10 bn project
Dionysus*	Wapet	gas	2012	-	350	-	poss LNG development
Dixon-Castor	Woodside	gas/cond	2005/10	-	-	-	FPSO, gas to Echo-Yodel
Dockerell/Keast	Woodside	oil/gas/cond	2005/10	-	-	÷	to Echo-Yodel or Goodwyn
Echo-Yodel	Woodside	gas/cond	mid 2002	37 (cond)	400	200	2 subsea via Goodwyn A
Enfield (WA-271-P)	Woodside	oil/gas	mid 2005	30.7	-	-	FPSO most likely
Evans Shoal	Shell Australia	gas	2005/9	-	10,500	-	Darwin LNG, 7.5 mn t/y?
Gypsy/Rose/Lee	Apache	oil/gas	2002/3	7	150	÷ .	wellh'd plat to Varanus Is
Golden Beach	Santos	gas	2004	41	50	-	
Gorgon*	Chevron/Texaco	gas	2012*	14 oil,50 cond	9,600	-	poss 6mn t/y LNG plat
John Brookes	ExxonMobil	gas/cond	under eval	-	-	2	1
Keast	Woodside	gas/cond	2005/10	2	-	-	to Goodwyn or Echo-Yodel
Kipper (Gippsl'nd Basin)	ExxonMobil	oil/gas	2004	13	575	263	
Laminaria Phase 2	BHP	oil	2002	21	-	130	2 horiz wells. 65kb/d peak
Laverda	Woodside	oil	2005	56.3	-	200	via Enfield facils
Legendre North and South	Woodside	oil	May 2001	60	-	110	jack-up plat.offshore load
Loxton Shoals/Sr/Trb	Woodside	qas	2005/09	-	5,000	-	Darwin LNG, 7.5 mn t/v?
Macedon/Pyrenees	BHP	gas	under eval	-	-	-	-
Manta/Basker/Gummy	Shell Australia	oil/gas	2003/6	26	260	÷ .	FPO and subsea
Minerva/La Bella (Otway)	BHP	qas	2004	1	360	-	subsea or monotower
Nappamerri Trough	Santos	gas	end 2003	2	-	-	-
Nasutus	Apache	oil	under eval	8	-	-	-
Perseus/Athena	Woodside	gas/cond	1999 on	2	7.600	2	North Rankin and subsea
Petrel/Tern	Santos	gas	under eval	2.	2,700	_	-
Ramillies	BHP	oil	2002+	2	-	-	-
Rankin-Sculptor	Woodside	gas/cond	2005-10	2	-	-	subsea to Echo-Yodel
Reindeer	Apache	gas	under eval	-	350	-	-
Scarborough	ExxonMobil	gas	2005+	-	8.000	4,700	supply proposed LNG?
Searipple	Woodside	gas/cond	2005+	2	50	-	with Perseus via N Rankin
Spar*	Chev/Tex/Ampol/Shell	gas	2012	-	2	2	-
Tenacious	OMV	oil	under eval	5	2	42	tie-back to Jabiru
Tern/Petrol B'nap'te Glf	Santos	gas	2005	-	3.000	-	platform or FPS
Tidepole	Woodside	gas	2013	14 (cond)	420	-	-
Vincent (WA-271-P)	Woodside	oil	2005	117.4	<u></u>	-	via Enfield facils
West Tyral Rocks*	Wapet	gas	2012	19 oil.21 cond	1.600	2	
Wilcox	Woodside	gas/cond	2010	-	300	2	to Goodwyn or Echo-Yodel
Woolybutt	British-Borneo	oil	end 2001	25	-	70	FPS
Yolla (Bass Basin)	Origin Energy (ex Boral)	oil/gas/cond	2005	45 cond	300	240	platform 49mn cf/d.5kb/d
KEY DISCOVERIES	origin chergy (choordiy	onguscona	2005	is cond	300	2.10	pationinatini ciapitala
IvnxVega	Woodside	0.35	-	-	-	-	-
Comea WA-241-P	Shell	oil	-	5007	-	-	
Bellerphon	Apache	oil	-	2007	2	-	2
Jacaranda Otway Basin	Boral Energy	oil		_	2	2	and the second se
Blacktin	Woodside	Clas	-	-	1.000		notential 2 53mn cm/d
Tregony (PEP 153)	Santos	gas	-	-	-	-	potential 10-15 mp cf/d
Thylacine	Woodside	gas	2006	0	600-1 000	-	-
Geographe	Woodside	gas	2006	G	400-600		
East Pilchard	Esso Australia/BHP	gas	mid-2003	201	-	200	
Sub Total	cuo Australia in	905	Tha Loos	1,533	76,459-77,095	5,905	
TIMOR CAR TOCA					and the second second	-Mark	
Rayu//ladap	Philling	cond/one	2004	101		1 605	2 platforms Dht liquide
Bayu/Undan Bayu/Undan	Phillips	conu/gas	2004	404	3 400	1,090	s plations, Phi liquids
Greater Suprisett	Shall	gasting	2005/6	200	0 160	-	with Pave Under fleet INC
labal	BUD	gascond	-	300	5,100	3	with Bayu Undan/float LNG
Jaridi Laminaria East	PLD	oil	-	S	D	3	close to Buffala field
Sub Total	PHF	OII	-	704	13 560	1 606	close to Buffalo field
Sub lotal				704	12,500	1,696	
GRAND TOTAL				1,863.7	77,750	7,716	

\*Greater Gorgon comprises Gorgon, Chrysoar, Dionysus, West Tyral Rocks and Spar fields \*\*Greater Sunrise comprises Sunrise, Sunset and Troubadour fields

Table 1: Current and planned field developments in the Asia-Pacific region

#### Note: See November issue for Part 1 of the table

# Western Australia – land of opportunity

Speaking at an evening seminar at this year's Offshore Europe, the Honorable Dr Geoff Gallop, Premier of Western Australia, provided an overview of E&P successes in 2000 and outlined future oil and gas business opportunities in the State.

r Gallop reported that following the election of the new Western Australian Government in February 2001, a new Department of Mineral and Petroleum Resources had been established; an amalgamation of two departments and part of a reform of the State's public sector which saw a halving of the number of departments. Headed by the Honorable Clive Brown, the department has been actively involved in discussions with leading figures in the Asia-Pacific oil and gas market, and elsewhere, in a bid to secure markets for the State's natural resources. A primary focus, according to Gallop, has been Western Australia's bid for the emerging LNG market in China.

### **Exploration success**

Gallop reported that in 2000, Western Australia attracted 70% - A\$531mn (£193mn) - of Australia's petroleum exploration expenditure, an increase from 50% at the start of the decade. Exploration offshore the State has continued to increase and although there had been a long-term decline onshore, this trend now appears to be turning. He stated that there had been a large increase in seismic acquisition - with a noticeable shift from 2D to the more technologically advanced 3D surveys and a huge increase in multi-client surveys. Exploration drilling was reported to have increased, with an average of 44 exploration wells drilled annually over the past three years - world-class discoveries of gas reserves being found as well as some significant oil finds.

A total of 50 exploration wells were drilled in 2000 with a discovery rate of 44%, up from 24% in 1999. Success stories included:

- Apache achieving 16 discoveries out of 33 wells drilled.
- Chevron's 100% success rate with all four wells drilled in the deepwater play west of Gorgon, and in a fifth in 2001.
- Three successes out of four wells drilled for Woodside, and one

out of two for BHP Petroleum, in the heavy oil plays in the Carnarvon Basin.

- Inpex commencing operating in Australia with three successes out of three in the Browse Basin.
- Kerr-McGee being successful with its first two wells in the Bonaparte Basin.

'The short-term exploration outlook for Western Australia is good,' Gallop stated. The time cycle from identifying new exploration concepts to award of tenure and drilling is typically three years offshore and five years onshore.

### Looking longer term

In the longer term, the Western Australian Government has funded a five-year, A\$17mn (£6mn) programme of petroleum exploration initiatives that has gathered pre-competitive geoscience information in the more frontier onshore sedimentary basins. Gallop reported that the State's Department of Mineral and Petroleum Resources was in the process of making this petroleum data more accessible, with a pilot programme currently under way that allows the interrogation of such data through a 'spatial web-based system.' Subject to the successful completion of the pilot project, it is intended to apply the programme to all petroleum exploration data gathered in Western Australia.

Gallop reported that since the mid-1980s Western Australia 'has evolved as a significant supplier of LNG, both on a worldscale and particularly in the Asia-Pacific region.' The State currently produces 9% of the world's LNG from the North West Shelf project on the Burrup Peninsula, underpinned by production from the North Rankin field for the past 20 years. He stated that although the North West Shelf 'may be starting to become a mature exploration province,' significant new plays were discovered in 2000 and opportunities remain.

He also reported that the rest of the State, both onshore and offshore,

remains underexplored in spite of reasonably high levels of exploration during the 1990s and encouraged delegates to look more closely at prospects in the region, such as the untapped Scott Reef and Brecknock [20tn cf] gas condensate fields. To date, only 365 exploration wells have been drilled in over 2.5mn sq km of the mainland, with only a total of 490 wells drilled offshore and on islands.

### Downstream developments

Gallop stressed the importance of a good infrastructure network in order to transport the State's natural resources to 'centres of demand.' He reported that the government was currently expanding the pipeline easement from Dampier in the north to beyond Perth in the south 'in order to facilitate the opportunity to duplicate the existing Dampier to Bunbury pipeline to meet growing industrial demand,' and stated that the government was 'keen to explore the potential for connecting the vast gas reserves off the western Australian coast to the key demand centres in eastern Australia.' Indeed, he stated that the recent indefinite deferral of the proposed pipeline to bring gas onshore in Darwin in the Northern Territory (see November issue) provided the opportunity to 'renew discussion' regarding a pipeline from northwestern Australia to service the eastern states' gas market.

'Growing in parallel with our oil and gas resource wealth is a world class oil and gas equipment and services industry,' stated Gallop in his closing remarks. 'With A\$20bn (£7bn) worth of resource projects scheduled to come onstream over the next 10 years, Western Australia is developing a marine industrial complex at Jervoise Bay south of Perth. When operational in mid-2002, this facility will provide a world-class venue for fabrication, assembly and maintenance of such large-scale equipment as modularised integrated deck structures, LNG trains, pressure vessels, jacket structures, major subsea components and large ship outfits.'

# New Zealand

# **E&P** interest growing in New Zealand

New Zealand is attracting increased petroleum exploration investment as the country's resource potential begins to be recognised internationally. *Lindsay Clark*, Editor of *New Zealand Petroleum News*, published by the New Zealand Ministry of Economic Development's Crown Minerals Group, reports on recent developments.

This year for the first time New Zealand has moved into the world's top 20 most attractive countries for petroleum exploration investment, according to the latest IHS Energy Group's PEPS ranking. The South Pacific country is ranked 19th out of 103 countries – a 43 place improvement in the past two years, mainly because of an increase in exploration activity.

Asia-Pacific

New discoveries of both oil and gas over the past three years have considerably brightened the exploration outlook. The finding of the 1tn cf Pohokura gas condensate field right at the centre of New Zealand's only producing area – the Taranaki Basin – has helped raise explorers' hopes, while substantial new oil discoveries have been made both offshore and onshore in Taranaki.



These recent discoveries have reversed a decline in New Zealand's oil and gas reserves. Liquid hydrocarbon reserves have doubled to over 200mn barrels and gas reserves extended by 50% to about 3tn cf. Further appraisals could lift these figures again. However, while reserves have increased, New Zealand is still only 36% self sufficient in liquid hydrocarbons and more exploration is needed.

Over the past two decades the Maui 3.8tn cf gas condensate field offshore Taranaki has dominated the New Zealand energy scene providing lowcost gas to the more populous North Island while condensate and oil from Maui also produces a large share of domestic liquid fuel production. With Maui gas production due to decline over the next decade, there is added stimulus to explorers to find replacement gas for the future New Zealand market as well as searching for oil.

### **European interest**

European-based companies have been prominent in searching for oil and gas offshore. Shell this year gave a strong indication of its desire to have a bigger presence in New Zealand with its takeover of the largest New Zealand explorer, Fletcher Challenge Energy. The takeover leaves Shell with the largest stake in the New Zealand offshore, with majority ownership of the established Maui field and the new Pohokura field now undergoing appraisal.

German energy company Preussag Energie has a one-third interest in the Pohokura field, which will be one of its largest gas investments. Austrian energy company OMV has a 30% stake in the Maari oil discovery, also in the Taranaki offshore, which is about to undergo further appraisal. Shell and New Zealand's largest exploration company, Todd Energy, hold the remaining interests in Maari.

North American independents have been particularly attracted to New Zealand, with 15 companies from the US and Canada now involved in exploration in the country – mostly in onshore permits. For a number of the smaller independents, New Zealand has been their first step outside of North America. Recently there has been further interest from Australian explorers with some seven companies now holding interests in New Zealand.

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### **Exploration potential**

The continental shelf around New Zealand is huge – the area of the shelf within its exclusive economic zone is about 25 times the size of the country's land area. Within this region there are eight sedimentary basins with known or potential hydrocarbons, as well as several deepwater basins. All basins have an offshore component.

Total New Zealand petroleum production so far has been from the Taranaki Basin, the most explored province. However, even Taranaki is only moderately explored compared to similar sized basins worldwide. The rest of New Zealand is under-explored. Many untested structural closures are potentially bigger than the large Maui field.

### **Current developments**

Development planning for the Pohokura gas condensate field discovered in 2000 in offshore Taranaki is well advanced. Two more appraisal wells are planned for 2002 – one will be drilled at the northern end of the field, about 12 km from shore; the other will be an onshore well which will be drilled by extended reach up to 2 km offshore. Depending on results, part of the field may be operated from shore. However, the largest gas condensate flows were recorded from the furthest offshore of the two wells drilled so far.

Reserves are currently estimated at almost 1tn cf of gas and 53mn barrels of condensate. According to a report by the Pohokura project team, the Pohokura discovery may prove to be New Zealand's second largest hydrocarbon field. This would make it bigger than the 30-yearold Kapuni onshore Taranaki gas field, which had original reserves of 1.3tn cf. Interpretation of recent 3D marine seismic data will fully define the structural configuration of Pohokura.

Based on current project planning the field is due onstream in 2005 at a cost of between \$170mn and \$300mn. Because Pohokura is close to shore, the processing plant is likely to be onshore with minimal platform facilities offshore. The field is sited about 5 km offshore from Methanex's large methanol plants from which the world's biggest methanol producer currently supplies most of its Asia-Pacific market. Methanex's main contract for Maui gas runs out in 2005. It is likely that Pohokura gas will help extend the life of the methanol plants, which consume about 40% of natural gas produced in New Zealand.

Development feasibility studies are continuing on the Maari offshore oil field, discovered in 1998 almost 40 km south of Maui. Maari reserves are currently estimated at over 25mn barrels, although similar structures close to the Maari discovery may boost this figure. Operators Shell Todd Oil Services are planning a further drilling programme in 2002 of one appraisal well and possibly one exploration well. Shell estimates Maari development will cost between \$170mn and \$300mn. The company holds a 49% interest in Maari, OMV 30% and Todd 21%.

A significant onshore discovery, the Rimu oil and gas condensate field in southern Taranaki, was first made in 1999 by Texas-based company Swift Energy. The field, expected to be in production by early 2002, has an early estimated reserve of 27mn boe. The main oil-bearing formation found to date has been the Oligocene Tariki Sandstone, although a feature of the field so far has been the location of multiple zones of oil and gas.

The 100bn cf Mangahewa gas field onshore Taranaki was brought onstream in September 2001. It is one of the ex-Fletcher Challenge Energy assets that has to be sold by Shell, although Shell has negotiated the right to any future deep finds in the permit.

Oil has also been found by Swift Energy in its neighbouring Kauri field within the same permit area. Drilling at Kauri began in mid-2001 so appraisal is at a very early stage. Some of the same formations that occur at Rimu have been found, but already the first appraisal well has located a shallow oil zone 1,100 metres deep, with oil of much lower wax content than most New Zealand oil. A number of wells are planned at Kauri.

The onshore area of the Taranaki Basin has been the main area of exploration in 2001 with oil found at Goldie-1 and a new gas field Mangahewa coming onstream. In the East Coast Basin of the North Island, a number of onshore wells have been drilled this year. Follow-up is continuing for the first two wells found with potentially significant volumes of natural gas, Kauhauroa and Tuhara – the first such discoveries made outside Taranaki.

Shell has indicated it is now keen to explore in selected frontier areas outside of Taranaki. The recently appointed Chairman of Shell in New Zealand, Dr Lloyd Taylor, the former Head of Fletcher Challenge Energy, says that Shell now has an exploration and production focused business in New Zealand, and so needs to do more exploration than in the past. Dr Taylor also says Shell would welcome more players into the New Zealand exploration scene.

### Investment opportunities

Opportunities at the moment for new investment in the New Zealand petroleum industry are greater than they have been for many years.

- In November 2001 Crown Minerals, which manages the New Zealand petroleum estate, launched the largest permitting round in a decade with the release of 20 onshore and six nearshore permit blocks in the Taranaki Basin. The staged work programme bidding round which closes on 30 April next year calls for competitive work programme bids within a five-year exploration term. Many of the blocks on offer lie close to existing infrastructure, producing fields and recent discoveries. Further information on the permitting rounds can be obtained from the Crown Minerals website at www.crownminerals.govt.nz
- Next year, another bidding round over a 60,000 sq km of the unexplored Deepwater Taranaki Basin is scheduled to be released. The area was seismically surveyed on a systematic basis for the first time in mid-2001.
- Another bidding round for the offshore Canterbury Basin, off the east coast of the South Island, is also scheduled for later next year.
- Exploration permits can also be issued under the Acceptable Frontier Offer method that allows explorers to submit bids at any time over virtually any unpermitted area of their choice.
- Shell is currently selling off a number of former Fletcher Challenge assets in both on and offshore Taranaki, which the Commerce Commission, New Zealand's competition watchdog, required Shell to do before 31 March 2002. Many of the assets are onshore oil and gas fields, although 10% of the Maui field and 3% of Pohokura are also included in the asset sale.

The recent discoveries, the exploration potential, the excellent fiscal regime and the safe and stable political system all add up to New Zealand now being a sought-after place to explore.

	Operator	Oil or Gas output	Start-up date	Oil res. (mn b)	Gas res. (bn cf)	Capex (Smn)	Production system	
Maari	Shell Todd Oil Services	oil	2002	25	-	170-300	-	
Pohokura	Shell	gas/cond	2005	53 (cond)	1,000	170-300	-	
Rimu	Swift Energy	oil/cond	1Q2002	27 (boe)	2	-	-	
Total				48	1,285	463		

# Asia-Pacific South Korea

# **Government to reorganise** natural gas industry

Following the recent reorganisation of Korea Electric Power Corporation early in 2001 the Ministry of Commerce, Industry and Energy is working on plans to reform South Korea's natural gas industry, reports *David Hayes*.



**Traffic in Seoul** 

ntended to improve the gas industry's efficiency and promote low gas prices by bringing competition to the piped gas sector for the first time, plans to restructure the gas supply industry are also intended to help South Korea prepare for the import of piped natural gas in 2008 as part of a cooperation programme with Russia and China to develop a northeast Asia gas transmission grid.

Gas sector reform will involve the break up of Korea Gas Corporation (KOGAS), the state-run LNG import monopoly. However, the question of who will want to buy a shareholding in KOGAS is one that few energy analysts have an answer for at present as the economic reasons for breaking up the corporation are less compelling than for Korea Electric Power Corporation (KEPCO), which has been reorganised to attract private capital and build up South Korea's power generation capacity.

KOGAS was established in 1983 as a subsidiary of KEPCO and placed in charge of the importation, transport and wholesale supply of natural gas to power stations and city gas companies. The decision to import gas for power generation was made for environmental and supply security reasons – sulfur oxide  $(SO_x)$  emissions from fuel oil use for heating in major cities have been growing, coupled with the effect of two oil price shocks in the 1970s that raised concern about South Korea's high reliance on Middle Eastern oil imports.

Natural gas consumption has grown quickly since the first LNG shipments arrived in 1986. KOGAS initially contracted for 2mn tonnes, rising to 2.3mn tonnes in 1990. Consumption tripled to reach 6.9mn tonnes in 1995, before doubling during the next five years to reach 14.2mn tonnes in 2000.

### **Major LNG importer**

Today South Korea is the second largest LNG importer in Asia after Japan and is likely to maintain this position in the future. According to the government's long-term energy forecasts, natural gas imports will grow by almost 50%, or 6.7mn tonnes, to reach 21.5mn tonnes in 2010 when piped gas from Russia is expected to account for one-third of total gas imports.

Although KOGAS has organised the LNG import programme the corporation has been heavily influenced by KEPCO, which is South Korea's largest gas consumer using LNG for peak load electric power generation. The first LNG shipments were supplied to KEPCO's Pyongtaek and Inchon power plants and provided base load gas demand to ensure the viability of the LNG import programme. Since then a number of gas-fired power plants have been built in the important Seoul-Incheon region, while city gas companies have converted from LPG to use natural gas feedstocks supplied through the growing KOGAS national gas transmission pipeline grid.

### **Energy sector reforms**

The government originally announced plans in 1999 to reorganise the gas industry as part of a wider package of energy sector reforms agreed with the International Monetary Fund (IMF) to revive the economy following South Korea's severe financial crisis in 1997. A proposal to reorganise KOGAS was announced at the same time as plans were published to increase power station construction by deregulating the electricity industry.

Early in 2001, following delays caused by opposition from labour unions, KEPCO was broken up into six competing electricity generating companies. KEPCO itself continues to own and operate South Korea's nuclear and hydro power plants and remains in charge of the electricity transmission grid and power distribution to end users. Plans now call for the establishment of a power pool system in future and the eventual separation and deregulation of the electricity distribution business.

Although KEPCO has been broken up, full details of the electricity industry reorganisation are still awaited. For the moment the Ministry of Commerce, Industry and Energy is in charge of regulatory issues. However, an independent electricity sector regulator is due to be established in future.

### **KOGAS** restructuring

Delays to KEPCO's reorganisation caused by labour union protests have also held up KOGAS' restructuring schedule. The Ministry of Commerce, Industry and Energy currently is in charge of gas industry regulatory issues, although an independent gas sector regulator is expected to be appointed in the future.

Under the original timetable the government planned to split KOGAS into two business groupings in 2001 – this move now is not expected until 2002. One group will be responsible for importing and wholesale marketing of LNG. The other will be placed in charge of the construction, operation and maintenance of all natural gas supply facilities including LNG receiving terminals, storage tanks and transmission pipelines, but not distribution pipelines which are owned and operated by city gas companies.

The company taking over the natural gas supply facilities will retain the name KOGAS, while to establish competition in the natural gas wholesale market three new companies will be formed in charge of LNG importing and wholesale marketing.

Two of the LNG import and wholesale companies are due to be sold to the private sector by the end of 2002, although the deadline could slip back to 2003 following delays to the KOGAS privatisation and the reorganisation process. The government has yet to announce how it will sell the first two LNG import and wholesale companies. An auction is one possible solution.

The third LNG import and wholesale company will be established as a subsidiary of KOGAS initially, but also will eventually be sold to the private sector.

### **Terminal construction**

Work is currently under way constructing KOGAS' third LNG receiving terminal at Tongyoung in the south of the Korean peninsular. The location has been chosen to ensure security of supply and to feed into the southern section of the national gas transmission grid after the two existing LNG terminals were built at Pyongtaek and Incheon, west of Seoul.

Completion of Tongyoung terminal with a storage capacity of 420mn litres will expand KOGAS' total storage capacity to 3.1bn litres. Plans call for storage capacity to be added at the three terminals to expand South Korea's total LNG storage capacity to 4.88bn litres in 2005, rising to 5.6bn litres in 2010.

Meanwhile, work continues to expand the KOGAS transmission grid. At the end of 2000 the high pressure pipeline network totalled 2,230 km in length. Transmission line extensions totalling 210 km are being constructed in the west, south and northeast of the country for completion by the end of 2002.

### **Open competition**

Following the break up of KOGAS, the next phase of the government's plan involves establishing open competition in the natural gas wholesale market. Mandatory open access to the KOGAS national transmission grid will be established. Consequently the first two LNG wholesalers that compete with the new KOGAS LNG import and wholesale subsidiary will pay tolling fees to KOGAS to transmit their gas.

The LNG import and wholesale companies will compete to supply power stations and city gas companies with natural gas. Gas purchase contracts will need to be structured to provide some degree of security as almost all gas is imported through long-term gas supply agreements.

Competition in the piped gas distribution retail market is due to be implemented at a later date. The government's plan is similar to that drawn up for the electricity sector which involves open access to the existing gas distribution network.

Apart from using open competition to make the gas sector more efficient, government plans to introduce free competition to the gas industry are intended to provide gas companies with the opportunity to diversify their businesses. Whether these opportunities include construction of gas-fired power stations or opportunities to acquire shareholdings in city gas companies remains to be seen.

### Lack of investor interest?

Although gas consumption has strong growth potential in South Korea, energy analysts are not convinced that many investors will be interested in buying KOGAS. Limited business opportunities following privatisation is one factor. 'KOGAS is a monopoly so either you have to heavily regulate or break up and start competition. KOGAS is just a wholesaler,' commented Michael Moon, Electricity Analyst at UBS Warburg in Seoul. 'If the government allows another LNG importer then no one will want to buy KOGAS so the situation is difficult. KOGAS' biggest value added activity is in transporting gas and its gas inventory, but it is not providing any additional value.'

Establishing competition in South Korea's electricity and gas markets is being undertaken for different reasons and using different market mechanisms. The use of an electricity pool for electricity generating using different fuels is unlike wholesaling natural gas.

The result is that the market deregulation issues surrounding KOGAS and KEPCO are totally different even though both utilities were established as government owned energy monopolies. KEPCO's deregulation, for example, involves the generation market at first and then power distribution at a much later stage.

'The idea is that the generating companies will sell to the power pool and KEPCO will buy the electricity. Later distribution utilities will buy electricity direct from the pool and use KEPCO to transmit it,' Moon said. 'There has been no official comment on distribution but the government is expected to want as many distribution utilities as possible. At least two distribution companies are expected in each area; but that is 10 to 15 years away. Maybe there will be British-type utility platforms selling electricity, gas and other services.'

Reorganising KOGAS does not involve gas distribution as city gas companies existed prior to KOGAS' formation. Deregulating gas distribution consequently is an issue for existing city gas companies that supply different geographical areas. Details of distribution deregulation along with a timetable have yet to be announced.

While deregulation of the electricity industry is needed to raise investment for South Korea's power plant construction programme, investment is not a major issue for the gas industry. The actual benefits of breaking up KOGAS are not as clear as with KEPCO. 'There were compelling reasons for privatisa-



Natural gas distribution in Seoul and Incheon, Korea Gas Corporation.

# Asia-Pacific South Korea

tion and deregulation for KEPCO. Efficiency was not a reason as KEPCO is one of the most efficient electricity generators and distributors in the world. The problem is there is not enough electricity generation,' Moon explains. 'The economic arguments are compelling for electricity deregulation. But I am not sure if there are any real reasons for reorganising KOGAS. The government's programme is about shrinking government activity and involvement, and KOGAS is a part of that apparatus. Given all the electricity and energy privatisations in South Korea and Asia, KOGAS is pretty low value. But at the end of the day everything has its price. If the price is right KOGAS can be sold.'

### Reshaping the domestic market

Plans to restructure the gas industry will reshape the domestic market to encourage growth in gas use and future diversification of gas supply sources. Government plans envisage gas demand being met by imported LNG until 2008 when South Korea expects to begin importing piped natural gas from Irkutsk in Russia.

KOGAS presently imports LNG from five countries under long-term contracts. Indonesia was the largest supplier in 2000 providing 5.3mn tonnes of South Korea's total 14mn tonnes of imports, followed by Qatar which supplied 4mn tonnes, Malaysia 2mn tonnes, Oman 2mn tonnes, and Brunei with 700,000 tonnes.

Qatar and Oman will supply South Korea with additional LNG requirements for the next four years. In 2005 KOGAS is expected to import 16.86mn tonnes of LNG. Qatar will supply 4.8mn tonnes and Oman 4.06mn tonnes. The other suppliers will be Indonesia with 5.3mn tonnes, Malaysia 2mn tonnes and Brunei with 700,000 tonnes.

Under present plans South Korea's LNG imports actually will decrease from 2008 with the arrival of piped natural gas from Russia. By 2010, when South Korea is forecast to consume 21.56mn tonnes of natural gas, LNG imports from Indonesia will drop to 3mn t/y following termination of the first long-term contract. Russian piped gas imports expected to total 7mn tonnes will make up the 2mn tonnes plus 300,000 tonnes in rolling short-term contracts lost under the first Indonesian contract and will provide the additional 4.7mn tonnes of gas that South Korea will use in 2010. Imports from Qatar, Oman, Malaysia and Brunei will remain unchanged from 2005.

### **Pipeline plans**

Meanwhile, planning is underway to build a pipeline to transport gas from Irkutsk in Russia to South Korea. Located about 450 km north of Irkutsk, the gas field in Kovyktskoye is reported to have potential reserves of 1.2bn tonnes. Recoverable reserves totalling 840mn tonnes will be sufficient to supply Russia, China and South Korea with about 20mn tonnes of gas annually over several decades.

South Korea's participation in the project was confirmed by Russia and China in September 2000 after the two original partners had planned to develop the Kovyktskoye gas field to supply only the Chinese domestic market. KOGAS has formed a consortium of nine South Korean companies, including the LG Group, to participate in the gas pipeline project. Although the total project cost to import Russian gas is estimated at about \$11bn, KOGAS has calculated that Russian piped gas imports will be 20% to 30% cheaper than importing the equivalent volume of gas as LNG.

South Korea's entry to the project has had an influence on the gas field development plans and the pipeline route planning. Initially, KOGAS considered transporting gas from Russia via Mongolia from where the pipeline route would pass Beijing and China's Shandong Peninsula. From Shandong a submarine pipeline would be built to land near KOGAS' Incheon LNG terminal on the west coast of South Korea.

Recently, however, KOGAS has started negotiations with North Korea about the possibility of building a gas pipeline from China across North Korea to the border with South Korea. Instead of running through Shandong Province in China, the new proposed pipeline route would travel northeast from Beijing through Hebei and Liaoning Provinces to the North Korean border. 'If we can use the North Korean land route, as opposed to building underwater pipelines from Shandong to Inchon to carry gas, we'll both save time and money,' a KOGAS official was reported in the South Korean press as saying.

Following approval from the Ministry of Commerce, Industry and Energy, KOGAS sent a proposal to the North Korean Government in February 2001 on the possibility of conducting feasibility studies on the pipeline route. More recently in September a sixmember delegation headed by KOGAS Vice President Kim Jong Sool visited Pyongyang to discuss the proposal with the North Korean Government.

No details of the discussions have been revealed. However, KOGAS officials were known to be optimistic that an agreement can be reached as North Korea would stand to gain a large profit from tax and passage fee payments South Korea would make to use the pipeline. In addition, there is a possibility that North Korea could gain access to some of the gas supply itself as economic cooperation progresses between South and North Korea.

Photos courtesy of David Hayes.

### Supply and demand

Petroleum will probably account for less than half of all energy consumption in South Korea from next year, according to the Korea Energy Economic Institute (KEEI), while LNG use will continue to grow. The South Korean Government has been trying to lower the portion of petroleum consumed by the country. Petroleum accounted for 63% of all energy consumption in 1994, an all-time high, but its share fell to 52% in 2000.

According to KEEI, natural gas for industrial use had risen from the equivalent of 1.8% of all energy consumption in 1990 to 16.8% in 2000. By 2006 its share is expected to surge to 31% as natural gas will continue to replace petroleum as an alternative energy source in future. The portion of natural gas out of total energy consumption reached 38.6% in 2000 according to KEEI, more than triple the 11.5% recorded in 1990. The Institute said natural gas would account for 52.6% of total energy consumption in 2006. Consumption of primary energy, including crude oil, coal and uranium, will increase 3.9% annually between 2001 to 2006, down compared to the 7.5% average annual increase between 1990 and 2000. Primary energy consumption is projected to grow 3% in 2001, rising to 5.4% in 2002 and easing to 4.4% in 2003. Forecast primary energy consumption growth rates for 2004 and 2005 are 3.8% and 3.5%.

By energy resource, demand for LNG is expected to rise by 10.9% annually while coal use for electric power generation will grow 3.6% and nuclear power 4.6%. According to KEEI, natural gas will account for 14.5% of total energy consumption in 2006, while petroleum will represent 46.5%, coal 22.1% and nuclear power 14.7%.

The Institute has also predicted that consumption of end-use final energy also will remain sluggish, registering an average annual growth rate of 3.5% between 2001 to 2006 compared with 7.2% in the 1990s.



# <u>AH, THE THRILL OF YET ANOTHER</u> TERRITORY TO EXPLORE.

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# **On the slide**

The terrorist attacks on the US have impacted the oil industry and its service suppliers in many ways and the tanker sector, following an unprecedented boom in 2000, is no exception.

ccording to Intertanko, the association that represents the interests of independent tanker owners worldwide, 2000 was the best year in terms of freight rates for all sectors of the business for nearly 30 years. The continued recovery of the Asian economies after the economic tribulations of 1997, combined with steady energy demand growth in the other developed economies, boosted tanker demand at a time when fleet growth was constrained, leading to better earnings for all concerned. Owners had to contend with high bunker fuel costs, but these could be accommodated by higher levels of income.

Shipping

The first clouds began to appear in the northern hemisphere summer this year, with intimations of economic slowdown, particularly in the US. Then came the devastating effects of the 11 September attacks in the US and, like many other industries, the tanker business has since then had to contend with faltering economic performance and a general slump in business confidence. Demand growth has simply disappeared – at a time when the orderbook has grown once more in the wake of last year's optimistic outlook. And, while fuel prices have fallen, owners are facing significant increases in insurance costs.

### **Confidence** is key

The issue of confidence is an important one when dealing with the tanker market. London broker Clarkson notes that there is normally a very close correlation between Opec crude oil output and the level of freight rates for very large crude carriers (VLCCs). Daily timecharter rates peaked in June 1997 at \$50,000 but slumped to little over \$21,000 over the following two years as Asian demand declined. Since then Opec output has increased sharply, peaking in 4Q2000. VLCC rates followed suit, reaching as much as \$91,000 in November 2000. Agreed production cutbacks and arguments over Iraq's oilfor-food exports then reduced output with tanker rates falling to \$30,000 by the middle of 2001. August saw some recovery but, since 11 September, freight rates have fallen below \$30,000 while Opec exports have remained stable.



The Bergesen fleet includes the Berge Tokyo (above) and Berge Fuji (top right, opposite page) oil tankers.

Another broker, Simpson Spence & Young (SSY), predicts that tanker rates will continue to slide, at least to the end of the year. Given the alarming drop in the price of crude oil since 11 September, there is every possibility that Opec output will be cut back to try and support prices, which will only serve to reduce even further the level of tanker demand and confidence in the sector. Lurking on the horizon is another problem - next year will see one of the largest annual increases in the size of the VLCC fleet ever recorded, with some 4.5mn dwt scheduled for delivery. One of the factors behind the strong recovery in the market in 1999 was the willingness of owners to scrap their older ships and it seems likely that similar measures will have to be taken over the next two years if the market is not to collapse altogether.

The recent dramatic decline in VLCC earnings has not been reflected to quite the same extent in the smaller size sectors, but here again there are problems coming – the Suezmax and Aframax orderbooks are also at high levels and this is impacting the level of confidence. Daily timecharter rates for Suezmax tonnage fell from around \$43,000 in 4Q2000 to an average of \$28,500 for 1H2001 and there has been no sign of recovery in the second half. SSY is predicting Aframax rates of \$21,000 for the final quarter of this year, as against \$33,000 for the first quarter.

In these size sectors there is some optimism, however, from growing levels of crude exports from non-Opec sources, particularly from the Caspian basin via the Black Sea. This is especially important for the Aframax sector, which has a comparatively young age profile with little potential for fleet deletions.

### Ups and downs

Given this uncertain outlook, it may then come as some surprise that investment analysts – as opposed to tanker analysts – remain bullish about the prospects for shipping stocks. In a report issued last month, investment bank Jefferies maintained a 'buy' rating on a number of major tanker owners, including Frontline, General Maritime, OMI, Teekay and Stelmar, notwithstanding a sharp slide in share prices during October and November.

Jefferies' opinion was that most negative factors had already been factored in and that further downside risk was limited. By November, Jefferies said, tanker stocks were trading at a 23% discount to net asset value, even taking account of likely poor earnings throughout 2002.

Such considerations are probably of little import to many in the tanker business, chief executives aside, compared to the immense array of regulatory and technical problems that will have to be faced in coming years. This year the International Maritime Organisation (IMO) has made amendments to the International Convention for the Prevention of Pollution by Ships (MARPOL), which will require the earlier retirement of single-hull tankers; and has also agreed a ban on the application of certain tin-based anti-fouling coatings.

The revision to MARPOL was not as drastic as had been demanded by a number of European countries, led by France, in the wake of the sinking of the tanker Erika in 1999 and a number of other high-profile casualties in northern Europe since then. Most single-hull tankers will be allowed to trade to 25 years of age but the compromise has a cost in that such ships will be subject to a stricter regime of inspection, documentation and reporting procedures in the form of the Condition Assessment Scheme (CAS). While this will undoubtedly result in additional costs to owners, they will at least be relieved that IMO has managed to maintain a unified international approach and has headed off the possibility that various regional or national authorities would impose piecemeal requirements.

The new timetable for retiring singlehull tankers comes into effect on 1 September 2002, requiring an orderly phase-out of tonnage between 2003 and 2015. A limited number of modern single-hull tankers will be allowed to continue to trade until 2017, although states have been given the option of dismissing this exemption; the European Union has said it will exercise this option in 2015, as have Cyprus and Malta.

The ban on organotin anti-fouling paints comes into effect in 2003 but existing anti-foulings may be retained until 2008. This measure has been in the offing for some years, as part of what can be termed a 'new generation' of environmental issues that have been brought before IMO. Anti-foulings are designed to prevent the build-up of crustaceans on a ship's hull, which affects its performance and fuel efficiency, by leaching a small quantity of material, commonly tributyl tin, which kills those organisms trying to gain a foothold. Concern has been growing



for some time that this practice results in the pollution of the aquatic environment and paint manufacturers have been looking around for alternatives. The use of less dangerous substances will soon be mandatory but owners have at least been granted the option of covering existing coatings rather than having to strip them off, a much more difficult and costly exercise.

### **Changing attitudes**

The *Erika* incident is having a fall-out in a number of other areas. IMO is, for instance, currently looking at the protection of bunker fuel tanks and this could become subject to mandatory regulation. IMO has already drafted an amendment to the International Convention for the Safety of Life at Sea (SOLAS) which will improve inspection access on both tankers and bulk carriers. This will apply to new ships only, with recommendations for alterations to existing vessels.

In addition to these design issues, over the coming year IMO's main committees, the Marine Environment Protection Committee (MEPC) and Maritime Safety Committee (MSC), will undertake a comprehensive review of operational measures, particularly regarding management and training. The review will examine what IMO can do in this area to improve safety and the level of environmental protection.

One concrete advance in this area will become mandatory from July next year; all new cargo ships of 3,000 gross tonnes (gt) or more, including tankers, will have to be equipped with a voyage data recorder (VDR) or 'black box'. Intertanko supports the use of VDRs, which will prove useful both in terms of casualty investigation and crew training. However, the Association feels that the cost-effectiveness of retrofitting VDRs to existing ships is dubious. IMO is still deliberating whether to require existing vessels to be so equipped and is expected to report in 2004. Intertanko has proposed that existing ships should be able to fit a reduced VDR costing around \$20,000 rather than \$100,000 for the full system.

Intertanko itself is pressing its members to be more open about their operations. At its Council meeting in Sydney in April 2001, the Association endorsed the principle of transparency and called on classification societies to make available information regarding transfers, changes, suspensions and withdrawal of class to interested parties, including port state control authorities, flag states and charterers. Tanker owners are urged to be more proactive, in the event of an incident involving one of their ships, and make data available to investigators and other interested parties.

What all these initiatives have in common – and there are many more in the pipeline, particularly in the field of environmental protection – is that they require tanker operators to take a more professional attitude to their activities. The industry has come a long way in the past decade, even if it sometimes had to be led unwillingly by regulations.

Although they will complain, tanker owners have shown themselves ready to comply with the requirements that regulators and charterers impose upon them. Where they have a perhaps justifiable complaint is that charterers appear unwilling to support them with better freight rates to pay for the improvements that have been put in place. If freight rates continue to be subdued, this complaint will take on greater justification. Forecourts UK

# **Staying competitive despite tough times**

*Kim Jackson* recently met with *Brian Stanley*, Managing Director, International Operations, Kuwait Petroleum International and Managing Director of Kuwait Petroleum (GB), and with *Ian Rose*, Marketing Manager, Retail, Kuwait Petroleum (GB), to find out how a smaller player has survived and remained competitive through some of the toughest trading conditions the UK service station sector has seen.



Improving the customer interface led KPGB to develop a new C-store initiative as part of its established partnership with Budgens. Photo courtesy of Q8.

uwait Petroleum entered the UK market in 1986 and is now supplying over 300 petrol stations throughout the country. Its parent company – Kuwait Petroleum International (KPI) – is responsible for all downstream refining and marketing activities for Kuwait Petroleum Corporation, operating over 5,000 outlets in Europe and elsewhere, primarily in the Far East. KPI relocated its headquarters from London to Kuwait in the summer of 2000 as part of a major restructuring exercise aimed at streamlining its activities and making it more efficient.

### **Company restructuring**

According to Brian Stanley, the HQ relocation and company restructuring programme has provided a number of benefits. 'It has allowed the main country operations to be closer to the senior corporate management, and now provides a better understanding of the downstream business, facilitating a quicker decision-making process. It has effectively taken out a whole layer of management, such that all the operations around Europe now report directly to the President of KPI, whereas previously there was a head office structure and in effect dual reporting lines. We have also adopted a Balanced Scorecard approach to performance reporting – an "all embracing" measurement tool that offers the benefit of simplified yet comprehensive performance reporting, covering a broad array of non-financial targets.'

The company has also created what it calls 'Centres of Excellence' covering the different business activities in which it is involved, in order to disseminate best practice throughout its operations and to set benchmarks and standards aimed at improving business performance. These centres have been set up within Q8's various operating units around Europe. As an example, the centre based within KPGB in the UK acts as the champion for Q8's supply and logistics operations. Other centres are responsible for shops, e-commerce, brand and communications, service station design and construction, and forecourt automation. KPI is also moving towards standardised IT systems covering the requirements of all its operating units throughout Europe through a centralised 'shared services' project management team.

According to Stanley, the changes over the past 12 months have been Q8's response to the mega-merger trend that has been a key market development in recent years. 'We needed to make our business more efficient and that is what we embarked on last summer.'

### Growing the business

That said, the company has grown over the years through the acquisition of various companies and assets, and the setting up of partnerships and joint ventures – the main thrust throughout being to improve overall company efficiency. Established in 1983, Q8 started off by acquiring the operations of Gulf Oil in most countries in Europe, later followed by the operations of BP in a number of countries, Mobil in Italy and Aral in Belgium.

Most recently, in July 2001, KPGB acquired BP's direct fuels business in central and southern England, doubling its business in this area and increasing the company's overall business in the UK by 25%. The move is part of KPGB's continuing expansion of Fuelcare - its fully owned distributor network. This summer's deal with BP involved the acquisition of four BP fuel distributor Cambridge, Banbury. depots at Evesham and Braintree, as well as its Heating Services division. In total this added about 50,000 household, agricultural and commercial customers and retail service stations to the Q8 Fuelcare customer portfolio.

The takeover of the Heating Services business marked a new departure for KPGB, allowing it to service and maintain customers' heating appliances in addition to providing heating oil – creating a 'one-stop-shop' for all customers' heating needs. Although a new move for KPGB, Q8 has experience of such operations in Europe. For example, it is currently assessing the success of a new computer system installed to support the group's heating services activities in Denmark, focusing in particular on efficiencies in cross-selling and marketing incentives and campaigns.

Key to the continued development of KPGB's direct fuels and heating services business is the decentralisation of services and the deployment of staff in the field and local depots in order to provide the personal local service that customers want. Comments Stanley: 'Customers wanting home heat and fuel deliveries to farms can talk to Fuelcare staff who actually live in and know the area, and who understand the local needs and problems. Indeed, many customers will find themselves dealing on a first-name basis with the same person every time they call - fostering a much stronger customercompany relationship.' He also claims that such a structure makes for a 'flexible operation, that is efficient and keeps costs down.'

### **C-store** initiative

Continuing the focus on KPGB's operations, Stanley stated that: 'The UK market is in a dire state – especially on the retail marketing side. You only need to look at the UKPIA aggregated figures for the downstream industry to see that return on capital employed (ROCE) averaged over the past five years has been less than 3%. In fact, this figure is impacted by the last two years being good ones for refining; in the two to three years prior to that, the ROCE was virtually zero.'

'You need to be efficient and pretty lean to operate in the UK market. You need to focus on getting things right at the interface with the customer.'

Indeed, improving the customer interface led to KPGB developing a new C-store initiative as part of its established partnership with the supermarket chain Budgens. Five new-look Xpress Budgens supermarkets are to be opened in the UK over the next 12 months, bringing the total Xpress Budgens chain to a total of 23 outlets. The first of these new sites recently opened at Windlesham in Surrey (see p30) and incorporates brand changes that are to be rolled out in future developments.

In a new departure, the Xpress Budgens store is separated from the forecourt instead of being linked by the canopy and has its own green awning to further emphasis the split. Inside, specialist sections such as the bakery and fruit and vegetables are visually divided off from the rest of the store by use of colour to create a 'shop within a shop' feel.

'Separating the Xpress Budgens from the forecourt not only dissociates it from any perceived forecourt negative such as smells,' comments lan Rose, 'but also it gives the store more presence as a supermarket in its own right. The green awning brings out the Budgens branding and emphasises our commitment to fresh produce – meat, bread, fruit and vegetables – traditionally not found in forecourt shops.'

According to Stanley, the setting up of a Budgens shop has been instrumental in improving site turnover, reporting a double-digit rise in fuel and non-fuel sales in most cases. Indeed, the recently completed redevelopment at Windlesham is reported to have achieved the company's end of first year targets within the first few months of operation.

### Market squeeze

If the UK remains as competitive as it is today, Stanley and Rose expect to see more small service stations disappear. 'To be sustainable, you need sufficient fuel sales and also a credible shop offer. This means having a shop of not less than 100 sq metres, ideally 200 sq metres,' comments Stanley. 'The squeeze will be particularly strong on smaller sites that do not have the space to develop in that direction, as well as those that do not have the market to justify it.'

Q8 has renewed its focus on the dealer sector and has picked up a significant number of new dealers as a result, signing 48 new dealers in the past 16 months. Its current dealer network stands at well over 200, and plans are to increase this further. 'We tailor our offering specifically to what the dealer wants and we cater for both big and small dealers,' adds Stanley. 'A recent *Forecourt Trader* survey of UK dealers put us in a very good light; our dealers had a high level of trust in Q8 – in our integrity and our service.'

He stressed how crucial this level of trust was during last year's fuel crisis when protesters picketed various refineries and fuel supply depots in protest against high fuel prices, and fuel ran short at many forecourts as customers panic-bought. 'We ensured our dealers were not compromised at all during the crisis. We kept them fully informed at all times and ensured that they received fuel just as quickly as our company-operated sites.'

### Customer demand

Forecourt operators globally are having to look increasingly at what the customer wants and meet this demand in order to remain competitive. Stanley believes that it is both 'speed and convenience' that customers want the most, and in response the company is planning to expand and develop its automat service stations in the UK. There are currently five such sites in the UK, that will be doubled over the next year. In Europe, KPI operates well over 500 automats. This is yet another example of how expertise elsewhere within KPI is being shared - in this case to develop new formats within existing markets.

KPGB is also keen to expand the range of services offered to its customers and plans to increase the number of ATMs at its forecourts, most recently signing a partnership deal with the Alliance & Leicester building society. These are proving increasingly popular with customers - according to Rose, some of KPGB's more successful ATMs are currently dispensing well over £11,000 per day. The company is also trialling a mail order pick-up scheme at two sites in Yorkshire. Other services include in-store bakeries and hot drinks; all developed in direct response to local demand.

Stanley reports that KPI is also 'looking at e-commerce in all forms.' He sees that the greatest benefit here is in improving internal business processes rather than interacting directly with the consumer. 'The Internet and e-business/ continued on p33...



KPGB recently acquired BP's direct fuels business in central and southern England. Photo courtesy of Q8.

# **Improving Internet collaboration**

With increasing business pressure to obtain greater efficiencies across all their operations, the IT departments of many oil and gas companies are being asked to improve online collaboration with employees and external service providers. *Tim Claxton*, Senior Product Marketing Manager, Aventail Corporation, explains how a managed service provider can help companies to achieve this goal.

lobally distributed cross-functional project teams and recent mergers and acquisitions typically found in the oil and gas industry present some serious challenges in improving levels of online collaboration between company employees and external service providers. For instance, project teams are created from a wide variety of different service providers, vendors, or suppliers. They work across global locations and in challenging geography such as the North Slope of Alaska or the Middle East. These teams are built up and torn down with almost repetitive regularity. In this environment it is very difficult for employees, customers and business partners to get access to the applications such as e-mail, research reports and project plans, etc, that they need to be productive.

So, how does IT hope to provide remote access to applications in this challenging situation? And why would major companies such as BP Exploration (Alaska) and Amerada Hess turn to a managed service provider such as Aventail for help with their remote access and extranet challenges?

While the many benefits of providing a means of secure anywhere access for remote employees and partners are clear, the time and unpredictable costs involved in having an in-house IT department put such an infrastructure together can be immense. On the other hand, by working with an experienced managed VPN (virtual private network) and extranet vendor, oil and gas companies can overcome the challenges of providing secure access from remote locations, increase efficiencies, and save money – without causing additional burden to their IT staff.

Right now, the Aventail.Net managed

services is helping companies like BP Alaska and Amerada Hess to address these issues. Aventail's managed VPN and extranet services use encrypted Internet traffic to deliver applications to partners, contractors, and employees. Users with dial-up, broadband, satellite, or wireless Internet access can securely reach client/server or web-based applications that reside within the enterprise boundary. For example, BP Alaska has employees and business partners that could be in Anchorage, the North Slope, or anywhere within North America. Regardless of where they are, the Aventail.Net<sup>™</sup> managed service gives them the ability to use a local Internet Service Provider for seamless, secure communication and collaboration with their resources.

### Secure access anywhere

In the past, when users needed remote access to their specialist software applications, these oil and gas companies either had to install PCs on remote sites or set up dedicated leased lines between remote users and the company's internal network. This was an expensive and time-consuming proposition, and IT departments found it difficult to support these remote users.

There are three fundamental pieces to fully solving the secure access problem:

- VPN and web authorisation technology that can provide secure 'anywhere' access to client server and web-based applications.
- An identity management system that can enroll and administer user privileges – identifying 'who they are' and 'what do they have access to' at a very granular level.
- Operational support for systems and users that is available around the clock to resolve issues.

Aventail provides these capabilities on a single platform known as the Aventail.Net<sup>™</sup> managed service. The platform consists of a customer premises based 'appliance' with proprietary access control software that provides a point of enforcement for users that need to gain access to an application. Users are prompted for a username/password or certificate and, if accepted, they are provided with access to their allowed resources. Aventail manages and monitors this appliance



Aventail.Net managed services provide authorised access from the Internet to applications on oil and gas company corporate networks. remotely from the Aventail Network Operations Centre.

The Aventail.Net managed service also includes a hosted set of web-based administration applications that provide IT and business unit administrators with the ability to enroll, change, or remove users and their access rights in real-time. The delegated structure of this system enables these tasks to be performed by a business unit manager, or even a partner relationship manager at the local refinery or exploration site. Some tasks, such as changing profile information can be completed by the employee or partner.

### The bottom line

Aventail can significantly reduce the cost of providing a VPN or extranet to remote users. The international oil and gas supplier Amerada Hess is piloting a managed virtual private network project that is expected to reduce the cost of deploying IT applications by 40%.

According to Gordon McCaw, Project Manager at Amerada Hess: 'The old method [install PCs on remote sites or set up dedicated leased lines] proved costly and required a lengthy lead time to install, and our IT department found it difficult to support distant users. This new system won't solve that problem completely, but it does help."

In addition, there are significant time-to-market and productivity benefits. Because with the Aventail service, the technology, process and support come as a pre-integrated package, the service can be activated in 10 weeks. That's a 70% reduction compared to the 10 to 12 months our customers have found in building previous secure access infrastructure. Amerada Hess, who is involved with the exploration and distribution of natural oil and gas at over a dozen sites across the world, found that with the Aventail.Net service its IT department could grant users access to the application suite in less than a day, compared to a wait of up to a month with the old method.

As Aventail delivers the secure network as a service, these companies' IT departments can focus on their core application initiatives, instead of being distracted with network maintenance. For BP Alaska, Aventail's ongoing user and directory management has meant that although its IT department has control and final accountability for its extranet, the team is no longer mired in the day-to-day operations and can instead focus on adding value to the business.

### Meeting demand

While we have solved many of today's secure access challenges, we realise that oil and gas companies will continue to demand the flexibility for their employees and partners to work anywhere they are located, from any device, and at any time. At Aventail our mission is to enable users to access applications even in the most challenging locations, so that our customers can stay competitive and increase efficiency.

Version 2.0, the recently released version of the Aventail.Net managed services, continues to meet these secure access goals. The services include new cost-saving features that simplify user and directory administration. They also include features that provide secure kiosk access, so users can confidently access applications from public terminals without having to carry a laptop while on the road.

As the need for true anywhere access continues to expand, Aventail will continue to provide highly scaleable services that solve the complex security, user management, and directory challenges associated with building and managing remote access and extranet VPNs.

#### ... continued from p31



Q8 recently launched the latest phase of its Q8GO customer loyalty scheme – third party offers. Photo courtesy of Q8.

e-commerce provides the opportunity to improve communications and information flow between the different parts of our operation, making sure they are all linked into standardised and integrated systems across Europe.' 'Demand for customer Internet access at the forecourt is not there, most people will do it at home or work. However, we have been testing the concept in some European countries and have not totally rejected the idea. We are looking at ways it can be used most effectively. For example, we are evaluating using the Internet as part of a promotion programme in Italy and we use it in a B2B capacity in Denmark where customers can order home heat services over the Web.'

'The Internet is effectively a technology looking for applications,' comments Rose. 'We work the other way round, developing its use in response to demand from the customer.'

### **Customer** loyalty

Fostering customer loyalty is key to Q8's success, says Rose, and the company launched its Q8GO customer loyalty scheme in August 1999. Based on re-writeable thermochromatic card technology, this ingenious system allows Q8 to communicate on a one-toone basis with customers by printing new messages and images on their Q8GO cards every time they are used. It also allows Q8 to tailor promotions on a site by site basis.

More than 150,000 customers have

joined the loyalty scheme to date and Rose stresses that there is much more to come with the company continuing to refine and develop the scheme. Indeed, the recent fuel crisis led the company to change the message it was giving to the consumer earlier this year. 'We had previously offered customers fuel discounts in terms of a straight monetary amount,' explains Rose. 'However, following the fuel crisis, the consumer became even more aware of prices in terms of pence per litre so we introduced a p/l discount reward for Q8GO points collected, making it much easier for customers to understand the reward for their loyalty."

In early November, the company launched the latest phase of Q8GO third party offers. Until then, customers had to redeem points for discounts at a O8 petrol station, be it in terms of fuel, at the forecourt shop or car wash. Q8 is now offering shopping vouchers for stores within the Kingfisher Group, including Woolworths, Comet, Superdrug, B&Q and MVC. Rose expects the new development to prove very popular with customers. 'This is a major enhancement of the Q8GO scheme,' he reports, 'and opens the door to a wider range of new third-party opportunities."

# **Further terminal VOC emission curbs unlikely**

A long awaited and overdue report – Measures to Reduce Emissions of VOCs during Loading and Unloading of Ships in the EU – has been published by the European Commission (EC). It includes analysis of emissions of volatile organic compound (VOC) vapour emitted from gasoline and crude oil loading from Member States; the technologies for their recovery or destruction; and cost estimates for abating the emissions. Brian Warshaw reports.

n estimated 9,000 tonnes of VOC emissions are discharged annually from the 36mn to 50mn tonnes of gasoline loaded at terminals and ports of European Union (EU) Member States. The report suggests that it would only be cost effective to adopt additional VOC emission controls at terminals shipping in excess of 1mn tonnes each year, of which there are ten. According to the report, only 0.07% of VOC emissions within the EU currently come from terminal operations.

### **Calculating the cost**

The cost of adapting the estimated 600 gasoline tankers that call at EU ports, together with the capital costs of installing shore-based recovery systems has been put at between euro 3,300 and euro 19,000 per tonne of VOC vapour abated.

The economic argument for the adoption of VOC emission controls for crude oil transhipments appears to be no stronger. The loading of 114mn tonnes of crude oil creating an estimated 114,000 tonnes of VOC vapours, represents 0.8% of all such vapours from EU countries. Total estimated costs for shore-based loading systems are given as between euro 300 and euro 2,000 per tonne abated, with an additional tonnage cost of euro 2,000 for modification to the tankers. However,

apart from the UK and Norway (a non-EU Member State), no other Member State is a significant exporter of crude oil.

Recovered VOC emissions offshore during the loading of shuttle tankers from floating production, storage and offloading vessels is calculated at between euro 700 and euro 5,000. This indicates that abatement at this point could be financially beneficial for the UK, whose marginal cost is euro 4,265 per tonne under the Commission's Original Proposal. Of the UK's crude oil, 30% is loaded offshore; the figure is 70% in Norway. However, on page 40 of the report it states: 'If production carries on at current rates, the UK reserves would last another five years and Norwegian reserves would last seven years.' It goes on to say that production rates may fall as reserves are depleted; enhanced recovery may yield more, and that this is an absolute minimum lifetime. From figures in the current 'Brown Book', published by the UK DTI, the absolute minimum is eight years.

A good exposition of the methods available for recovering or disposing of VOC emissions is provided in the report. Of the five methods cited – combustion, absorption in chilled liquid, adsorption on carbon beds, membrane separation, and cryogenic condensation – the most practical are adsorption for gasoline and absorption for crude oil. On shuttle tankers absorption and cryogenic condensation are possible. Combustion is the least expensive method, but on land, many local authorities and citizens' groups may seek to discourage this method.

Table 1 shows the estimated costs for abating VOC emissions against standard cost comparisons prepared by the EC. There are two measures - one based on the marginal cost of the last measure to achieve national VOC emission ceilings (the Commission's Original Proposal) and the other for a Common Position on a less stringent set of emission ceilings. At euro 60 and euro 4,300 per tonne VOCs abated for the Original Proposal, the table indicates a poor financial return for most Member States, with only the UK and Belgium coming close to the maximum cost. Against the Common Position cost of euro 18 to euro 1,746 per tonne abated VOC, no country exceeds the maximum, and only three are above euro 900.

### **Report conclusion**

The conclusions offered in the report are that not even the largest gasoline terminal in the EU would attain cost effectiveness in reducing emissions, and although some crude oil terminals might, all are in areas of good air quality remote from other VOC emission sources. Costs for offshore crude oil loading are outside the range of the Common Position and at the upper end of the Original Proposal.

The EC is not asking industry or environmental groups for their views and it is reasonable to conclude that it will be left to Member States to decide whether to implement VOC emission controls at ports and terminals after a National Emissions Ceiling Directive has been issued.

A copy of the report can be downloaded from the DG ENV website at www.europa.eu.int/comm/ environment/air/background.htm

Location	Cost of VOC abated per tonne		EC Original Proposal of the marginal cost of the last measure to abate VOC/t	EC Common Position of the marginal cost of the last measure to abate VOC/t	
	Low	High	euro 60 to euro 4,300	euro 18 to euro 1,746	
Gasoline – onshore	euro 3,300	euro 19,000			
Crude oil – onshore	euro 2,300	euro 4,000			
Crude oil – offshore	euro 700	euro 5,000			
Table 1: Estimated rosts fo	r abating VOC en	nissions against stand	lard cost comparisons prepared by the F	C	



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# Marine fuels quality – determination of lubricant additive elements

The introduction of the first British Standards specification for marine fuel oils – BS MA 100 – in 1983 resulted in an improvement in their quality. Indeed, the success of this UK initiative brought the world's attention to the need for an international specification for these products. As a result, the first edition of ISO 8217 Petroleum Products – Fuels (class F) – Specifications of marine fuels was published in 1987; the current, second edition, was published in 1996.

Bunker fuel quality is vital to ship safety, as pointed out in the Report of Lord Donaldon's inquiry into the prevention of pollution from merchant shipping which stated that the quality of bunker fuels was of 'great importance' and that quality control systems must be put into place that identify substandard fuels before they are sold to ships.

### **Contamination cases**

However, in spite of the quality requirements specified in ISO 8217 the marine industry is, from time to time, still experiencing cases of contamination that can lead to poor performance and/or engine damage and potential failure.

One source of contamination is the practice of disposing of used lubricating products by mixing them into marine fuels – this being a cost-effective and easy way of disposing of these potentially environmentally harmful materials.

### **Taking the initiative**

On behalf of the marine industry, the Institute of Petroleum has taken the initiative to develop standard test methods to determine trace quantities of calcium, zinc and phosphorous in fuel oils. The presence of such elements in fuel oils indicate the presence of lubricant additives and, hence, used lubricants in the fuel.

Work is being done using four techniques:

- atomic absorption spectroscopy,
- inductively coupled plasma emission spectroscopy,
- wavelength dispersive x-ray fluorescence spectroscopy, and
- ultra violet-visible spectrophotometry.

A total of 24 laboratories are involved in testing a wide range of samples to obtain data to calculate precision statements for each of these techniques. Such precision statements are important when setting specification limits. The results of this work are expected to be available early in 2002.

For further information, please contact John Phipps, IP Technical Manager–Standards on Tel: +44 (0)20 7467 7130; Fax: +44 (0)20 7467 7156; e: jp@petroleum.co.uk

### Our website can be found @ www.petroleum.co.uk/tech/stds

# **IP and IGEM Joint Seminar**

### **Prospects for the Gas Markets**

Tuesday 19 February 2002 08.30–12.00 One Great George Street, London

As part of IP Week 2002, this half-day seminar provides a unique opportunity to gain awareness of the current issues and the prospective developments in the gas industry. The Keynote Speaker is Richard Giordano KBE, Chairman of BG Group, with other sessions from Gary Cardone, President, Dynergie Europe and Dr Wilfred Czernie, Senior General Manager, Ruhrgas. IGEM President Stuart Anderson will Chair the seminar.



Information for Energy Group

### Annual IFEG AGM and Wine and Cheese Party

Thursday 10 January 2002 Institute of Petroleum 61 New Cavendish Street London W1G 7AR

Prior to the AGM there will be a short one-hour seminar, starting at 4pm, where the DTI, Infield Systems and the Institute of Petroleum will demonstrate their websites. The AGM will begin at 5.30pm followed by the party.

This popular event is FREE to IFEG Members and prospective Members. If you would like to come along or find out more, please contact Sally Ball by Monday 7 January.

Tel: +44 (0)20 7467 7115 Fax: +44 (0)20 7255 1472 e: sball@petroleum.co.uk

This event is sponsored by: Sheila Pantry Associates www.hspublishing.com/hsworld/

Sheila Pantry Associates is a safety, health and information consultancy and electronic publisher with over 25 years' experience internationally.

# **PETROLEUM REVIEW CHRISTMAS QUIZ**

Petroleum Review is pleased to present its first Annual Christmas Quiz. The three lucky prizewinners will receive complimentary tickets to either the Institute of Petroleum's Annual Lunch on 19 February 2002 at the prestigious Dorchester Hotel, London, or the Annual Dinner held on 20 February 2002 at the Grosvenor,\* both key events during IP Week 2002. So, get your thinking caps on and Good Luck! (No telephoning the IP Library and Information Services for the answers is allowed... you are on your own!)

- 1. Who were referred to as 'mud sniffers'?
- 2. Ida Tarbell was a 'muckraker'. What was she famous for?
- 3. Who were the Seven Sisters?
- 4. In Russia they are known as 'fountains' what are they called in the US?
- 5. A 'pood' was a measure of oil used in Russia. What quantity does it represent?
- 6. 26 The Broadway, New York City is famous as home to whom?
- 7. What effect did the 'Law of Capture' have on an oil field?
- 8. A barrel of oil is 35 imperial gallons, or 42 US gallons. Between 1860 and 1870, Pennsylvania had its own measure for the barrel how many US gallons did it contain?
- John Cadman, President of the Institute of Petroleum 1916–1917, subsequently became Chairman of a British oil company – which one?
- 10. Where was Britain's first commercial oil field located?
- 11. In what year was Opec founded?
- 12. Which 11 states are members of Opec?
- 13. What was the name of the first purpose-built oil tanker to pass through the Suez Canal?
- 14. Sir Marcus Samuel was the founder of which oil company?
- **15.** Which was the UK's first offshore oil field to land oil?
- 16. January 2001 was the centenary of what major US oil event?
- 17. Who holds the post of Minister of State for Industry and Energy in the British Government?



- 19. In which year did the Exxon Valdez run aground in Alaskan waters?
- 20. The then Prime Minister Mohammed Mossadegh nationalised which company in 1951?

Please send your completed entry form to The Editor, *Petroleum Review*, Institute of Petroleum, 61 New Cavendish Street, London W1G 7AR, UK or Fax: +44 (0)20 7467 7118. Alternatively, an online link to the quiz can be found on the *Petroleum Review* home page, part of the IP website at **www.petroleum.co.uk** – just fill in the details and hit return.

All entries need to be received by 5 January 2002. Those with the most correct answers will be placed in the prize draw. The three lucky winners will be announced on the IP website in mid-January. Their names will be printed in the February issue of Petroleum Review, together with the answers.

\*If the winner is unable to attend, a suitable alternative prize will be awarded.

Please provide contact details, including your name, membership number, tel/fax numbers and e-mail address.

# **Joining forces**

The following is a joint message from the Presidents of the Institute of Petroleum (IP) and Institution of Gas Engineers & Managers (IGEM)\* regarding the proposed merger of the two organisations.

he Councils of the IP and IGEM approved in September 2001 the detailed investigation of the possibility of merging the two organisations. They did so on the grounds that a merged organisation encompassing the activities of both existing organisations would make both stronger. The benefits would be seen in terms of the greater membership of a new combined organisation; the scope of its activities (covering both oil and gas); the geographic 'reach' of the combined organisation; efficiency improvements and overhead savings in running the two in parallel. Preliminary indications are that efficiency savings and synergies could benefit the two organisations by more than £200,000 per year, while allowing a wider range of membership services to be offered. There would also be increased access to development capital.

The Councils supported a detailed investigation into the feasibility because such a merger will need the approval of the Charity Commissioners, Privy Council, Engineering Council and the blessing of the UK DTI. Preliminary discussions with each of these organisations indicate that they, too, believe that this is the correct way for the two organisations to face future challenges. However, there is still a great deal of detailed work to be undertaken to ensure that the benefits perceived by the our management and Councils are real and that the legal and fiscal barriers to creating a merged organisation are not insurmountable.

There would be no justification for embarking on these merger discussions if it did not have the support of the membership of both IP and IGEM. The last thing that we would wish is to create an entity that did not add significantly to the benefits available to members and did not serve the public interest even more effectively than we currently do separately.

We are now jointly investigating the possible structures of a new organisation and expect to be able to present them to Councils by early February. Following both Councils' approvals there will be a further detailed communication to all members of both organisations, and the opportunity to vote for or against the merger.

We, as Presidents, support the work that Jeff Pym (IP Director General) and Chris Bleach (CEO of IGEM) are currently undertaking, but we would like to gauge broader membership opinion. To this end we would ask members to forward any constructive comments or ideas that they may have to Jeff and Chris as appropriate.

Yours sincerely



STUART ANDERSON President IGEM



CHARLES HENDERSON President IP

\* In recognition of the wider range of non-engineering professionals involved in the industry, the former Institution of Gas Engineers widened its horizons to become the Institution of Gas Engineering and Managers (IGEM) in October 2001.

# **IP** benevolent fund

The Institute of Petroleum's present Benevolent Fund was established in 1958. The trust deed states that the annual income of the fund 'shall be applied by the Management Trustees for the relief of poverty particularly by the provision of financial and other relief or assistance to necessitous persons who are or have been Members of the Institute and to the necessitous wives widows families and dependent relatives of such persons as the Management Trustees in their absolute discretion think fit.'

The deed is quite specific in limiting the granting of financial assistance only to Full Members of the Institute, or their families and dependants. This means the Trustees of the Fund are not empowered to consider applications from people who have relied on their employer's Corporate Membership for a link with the Institute or have just worked in the oil industry. Given these very precise parameters within which they are obliged to work, the Trustees are anxious that all persons in need that satisfy the qualification criteria do seek assistance. They would like to hear of any Member, or Former Member, that needs support over and above that provided by the statutory authorities in meeting the basic costs of providing accommodation, mobility and health. The spouses, partners and family will also be considered, even if the Member is no longer alive.

There seems to have been a prevailing view that support for a Member's family would be limited to those of the same or later generations. But there is no bar to support being given to help older generations within a Member's family where the Member is unable to contribute financially. The following is an example of the circumstances in which the Fund would be able to offer support:

Jim was born in Scotland where he spent his childhood. He now lives in the Portsmouth area working for a small company manufacturing equipment for the oil industry. As part of his interest in the business he has been a Member of the Institute for several years. Following a serious illness, his wife Elaine requires daily medical assistance in the home and further help in looking after their two children. Although Jim receives medical benefit to cover the costs of looking after his wife, he has to meet most of the additional expenditure out of his income. His father, Bill, is now a widower living on his own on a state old age pension. He is able to look after himself on his very limited means but there is no money left over for 'extras'. Jim is in regular contact with his father but feels concerned that he is unable to see him occasionally. The distance between them rules out car travel and the complications of interchanges makes public transport costly – an expenditure neither can afford in the present circumstances. Provided the Trustees were satisfied that neither Jim or his father were in a position to pay for the travel costs involved in a visit, they would offer assistance.

The purpose of this example is to show through one instance the extent of help available to Members, or their dependants, in needy circumstances. The grants made are usually not more than a few hundred pounds, but they can make a significant contribution to an improvement in the quality of life enjoyed by the recipient. If you know of a Member, or the dependant of a deceased Member, who might qualify for assistance, please draw their attention to the facility of assistance offered by the Fund and, if it is appropriate, encourage them to make an application.

If you would like to enquire further about how the Fund can help Members in need, please contact:

Secretary of the Benevolent Fund c/o Jenny Sandrock Institute of Petroleum 61 New Cavendish Street London W1G 7AR



THE INSTITUTE OF PETROLEUM



## Advance warning of process problems

The new mobile online ViPA MZ2 particle analysis system from Jorin has been developed to provide early warning of malfunctions in process components. The system uses a video microscope to capture images of particles in a process flow, which are automatically analysed to generate a reliable real-time profile of any particles such as oil or sand in the process liquid.

The ViPA units are capable of measuring up to 17 particle parameters, categorising particles by their size and shape. 'For example, solid particles have a very different shape from liquid droplets – the system can use this difference to provide comprehensive data on up to eight types of particles,' explains Jorin. Alarms can be set to trigger if any of the parameters fall outside pre-set limits. A video image of the particles is shown on screen, enabling operators to see



immediate confirmation of any changes in particle type, size, concentration, etc.

According to the manufacturer, a major advantage of the system is that by operating online it monitors the water at process temperatures and pressures – even a slight change in one of these parameters can drastically alter the composition and character of the water.

Featuring a hazardous area casing, the unit can be moved around a site from one sample point to another. Once the points needing continuous monitoring are established, permanent ViPA units or other measuring equipment can be installed.

The system is suitable for a wide range of applications, including the oil industry. For example, increasing levels of solids and process scale are a problem on many platforms, causing blocked vessels and eroding cyclone liners and pipe elbows. The ViPA MZ2 units can determine the size range and concentration of these solids, profiling the exact extent of the problem and allowing precise process solutions to be drawn up. The system can also be used to troubleshoot - where dramatic changes occur in process equilibrium, the unit allows the problem area to be quickly tracked down and potential solutions to be identified.

Tel: +44 (0)1252 861221 Fax: +44 (0)1252 861551 e: info@jorin.co.uk www.jorin.co.uk

## ACE titration system for Shell Expro

GR Scientific reports that Shell Expro recently took delivery of a Cou-Lo Select titrator for measuring the water content of crude oil and other petroleum products, for use on one of its North Sea platforms. Featuring a low drift cell, the compact and portable unit can be powered from mains electricity, its own internal battery or from a vehicle cigar lighter socket. A range of sample volumes, densities and weights can be accessed by means of intuitive arrow cursor controls and hard copies of the results are available from a built-in printer.

At the heart of the system is an ACE (automatically compensated errors) control system, developed by GR Scientific and on which a patent is pending. The system is claimed to guarantee that the electrolysis current produced and the count rate displayed are always synchronised correctly, regardless of changes to the electrolysis cell resistance.

Tel: +44 (0)1525 404747 Fax: +44 (0)1525 404848



# Vertical sump resists aggressive media



A new range of robust, vertical sump pumps designed to withstand aggressive and abrasive media has been unveiled by Pump Engineering. The ASV ET sealless pumps are of single-stage modular centrifugal design, with standard models constructed from either polypropylene (PP) for operating temperatures of 5°C to 80°C, or polyvinylidene fluoride (PVDF) for more demanding application temperatures of -20°C to 100°C.

The pumps are reported to operate at submersion depths ranging from 500 mm to 2,000 mm, in steps of 250 mm. However, a special suction extension feature enables submersion depths to be increased by a further 2,000 mm, depending on pump size.

Features include a stainless steel pump shaft with corrosion resistant protection sleeve guided by slide bearings of carbon/PTFE or silicon carbide, and an integrated patented relief system designed to prevent flushing of solids into the slide bearings. Further options are available to adapt the pump to specific application requirements. These include mounting plates, pressure pipe branches, suction shoe extensions, strainers, external bearing lubrication and dry running capable sleeve bearings.

Tel: +44 (0)1903 730900 Fax: +44 (0)1903 730234 e: sales@pumpeng.co.uk

# **NEW**Schnology

## Next generation accountancy for forecourt operators

CV Retail has launched a new generation accountancy product for retailers, including those in the forecourt sector. Called CounterBooks, the Internetbased software is supported by accounting firm Chantrey Vellacott DFK.

Claimed to be the first full ledger Internet accounting system in the UK, CounterBooks provides immediate information on cash reconciliation, outstanding lodgements, category margin analysis and calculations of book stock.

The starting point is the daily data input at the point of sale (POS). Reports can then be produced at the level of individual outlets or for groups of outlets, depending on the management requirements of individual clients. Key features include:

- Review of all data entry to ensure accuracy of consolidated information.
- Access to a wide range of standardised reports for management – using a standard web browser – from any location.
- Reporting on user specified time periods.

The system is said to provide 'all the advantages available from traditional accountancy software, combined with the simplicity of data access provided by the Internet.' It is claimed to deliver better management information, faster production, reduced bookkeeping time and lower accountancy fees, as well as virtually eliminating the flow of paper.

The user needs only a PC and a normal telephone line to use the service via an Internet Service Provider (ISP). Not only does client management at all levels (site, area, region and head office) have access to the site and consolidated data and reports, CV Retail staff have access to the same data and can provide periodic reviews and accountancy advice through the helpdesk as well as a management accounting support service as and when needed. Unlike electronic point of sale (EPOS) and back office systems which look after product-specific aspects of pricing, sales and stock counts, CounterBooks looks after cash and category management, recording takings by sales category and focusing on category margins.

A joint venture with Speedwing World Network Services allows data processing and reviewing to be handled offshore. 'Internet technology enables data to be transferred securely, efficiently and cheaply to offshore centres resulting in significant benefits for clients in both speed of delivery and cost,' states CV



Retail. 'We can also deliver these services internationally throughout the DFK group of accountancy firms in over 70 countries worldwide. This facilitates customisation to local taxation and language requirements.'

For further information or a free trial, please contact: Tel: +44 (0)20 7509 9102 Fax: +44 (0)20 7509 9124 www.cvretail.com

# World's largest rough terrain crane

Grove recently introduced its 115-tonne capacity RT9000E crane – claimed to be the largest regular production model rough terrain (RT) crane currently available on the world market. The company expects the new crane to 'compete strongly with conventional crawler cranes'... offering 'high capacity together with exceptional mobility, manoeuvrability, and pickand-carry capabilities not previously available on the job site.'

The crane features a five-section, full power 12.8-48.7 metre Megaform™ (U-shaped) boom which provides 52 metres maximum tip length on the main boom and 1.71-tonne lift capacity at 36.6 metres maximum radius. A standard 11–18 metre lattice bi-fold extension is off-settable at 0°, 20° and 40°, and stows alongside the base boom section. An optional 0° to 40° hydraulically offsettable bi-fold swingaway with the same dimensions is also available. In addition, two 8-metre lattice extension inserts are available, providing a maximum tip height of 85 metres.

The crane cab provides 20° tilt and is a full-vision design with tinted safety glass throughout. Grove armrestmounted, single-axis controllers pro-



vide precise operational control. A comprehensive graphic display loadmoment indicator is supplied as standard, and a work area definition system allows the operator to preselect and define safety working areas – if the crane approaches the pre-set limits, audio-visual warnings aid the operator in avoiding job site obstructions. Other features include a hot water heater, cab circulating air fan, sliding side and rear windows, sliding skylight with electric wiper and adjustable sun screen. Air conditioning is also available.

The crane is covered by Grove's worldwide 10-year structural warranty, and backed by the company's parts and service support team.

Tel: +44 (0)191 515 7282 Fax: +44 (0)191 564 0442



### Meteorological monitoring on the move | VSP while drilling

Casella CEL has unveiled Nomad, a new solar-powered, fully portable monitoring station for the petrochemical industry to record wind speed and direction, temperature, humidity, pressure, solar radiation and rainfall conditions, as well as a diverse range of additional parameters.

Supplied in customised carry bags and featuring an easy to assemble tripodbased, anodised aluminium and stainless frame, the system is claimed to be deployable in under five minutes. The heart of the system is a new Sensus data logger with 512K of internal memory and 32 channels, of which 11 are used in Nomad memory may be expanded using Compact Flash technology. Nomad is supplied complete with Online Pro PC user-friendly software gives real-time environmental conditions in a variety of presentation formats for archival historical data.

Tel: +44 (0)1234 844100 Fax: +44 (0)1234 841490



CGG Borehole, in association with Geoservices, recently unveiled their VSPwhile-drilling service that can be used to record VSP data without the need for wireline, thereby requiring little additional rig time. Using a conventional surface energy source, seismic data is recorded in a downhole multi-component geophone incorporated into the drillstring. The data is recorded in nonvolatile memory, and downloaded during the trip to surface.

The presence of the downhole assembly is said to have little effect on the drilling operations, as recordings are made during the pauses in drilling. According to CGG Divisional Manager Rodney Bligh, the system can be used at any well deviation, including horizontal, and thus avoids all the risks and costs associated with conventional wireline or TLC logging.

Tel: +44 (0)1689 882954 Fax: +44 (0)1689 861900

### If you would like your new product releases to be considered for our Technology News pages, please send the relevant information and pictures to: Kim Jackson Associate Editor, Petroleum Review 61 New Cavendish Street, London W1G 7AR, UK

## Letter to the Editor

#### Dear Sir.

I am writing to comment on Ms Mojgan Djamarani's article on China in the November 2001 issue of Petroleum Review. The paper is very informative. Unfortunately, the Russian section was somewhat misleading.

I would like to draw attention to what I believe are two major mistakes in the paper:

- 'One advantage of this option... on the Russian side a pipeline infrastructure exists and this helps to reduce its costs' (p34). This is partially correct. If Yukos is delivering the crude oil from the Tomsk region, then it uses the oil pipeline up to Angarsk. However, if the crude oil is produced from the Krasnoyarsk or Irktusk regions, there is no infrastructure at all.
- China also has an agreement with Russia for the supply of gas from the Kovyktinskoye gas field ... to Daqing. The pipeline was planned to begin deliveries in 2006 of 20bn cm/y of gas by 2010' (p36). The author appears to be confused between the oil and gas pipeline project. Kovyktinskoye gas project covers around 4,000 km. The project's feasibility study was officially signed in Beijing in November 2000 by Rusia Petroleum, CNPC and Kogas. The

work is going to be finalised in June 2002. If the result of the study is positive and the Chinese Government gives the green light for the project, the pipeline construction could start in 2003. Currently, the work is studying all possible routes for the gas pipeline. The proposed pipeline capacity is 20bn cm/y. China will get 10bn cm/y of gas, while South Korea expects to import 10bn cm/y of gas starting from the 2008-2010 period.

Unlike this gas pipeline project, a crude pipeline between Angarsk and Daging will be developed much faster. The feasibility study is being done and the real construction will start in 2003, due to complete in 2005. The initial delivery capacity of this crude oil pipeline is 20mn t/y between 2005-2009 and will reach 30mn t/y in 2010. The development cost of this 2,450-km pipeline, of which 1,600 km transits Russia and 850 km China, is projected to be \$1.7bn. Regardless of the west-east gas pipeline project, a top priority has been given to the Irkutsk-Daging crude oil pipeline project by the Chinese Government.

I hope this clarifies the current status of the pipeline proposals.

Best wishes,

Dr Keun-Wook Paik Associate Fellow **Energy and Environment Programme** Royal Institute of International Affairs

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# **Membership News**

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### Southern Branch Activities

### 'When Things Go Bang'

by Bob McMican, ExxonMobil Engineering, Europe

Contact: Veronica Cloke Browne +44 (0)1962 715399

## STUDENTS

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Norton Rose is one of the leading international law firms in the field of energy law. Its multi-disciplinary team, comprising over 20 partners and 30 associates, advises on all aspects of energy law, including:

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The company's experience in advising energy companies, contractors, governments and government agencies, commercial and institutional lenders and export credit agencies, means that it offers a fully rounded perspective.

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# EVENTS

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### **DECEMBER 2001**

#### 3-4

Nigeria Oil and Gas Summit Details: IBC Global Conferences, UK Tel: +44 (0)1932 893851 Fax: +44 (0)1932 893893 e: cust.serv@informa.com www.ibcenergy.com/nigeria

#### 3-4

London Floating Production Systems 2001 Details: IBC Global Conferences, UK Tel: +44 (0)1932 893851 Fax: +44 (0)1932 893893 e: cust.serv@informa.com www.ibcfps.com

#### 4-5

Edinburgh

Managing the Resources of the Atlantic – A Sustainable Future Details: UKOOA, UK Tel: +44 (0)20 7802 2422/2400 Fax: +44 (0)20 7802 2401 e: toreilley@ukooa.co.uk www.oilandgas.org.uk

#### 4-5

London Chemical Tanker and Trade Conference Details: Lloyds Shipping Economist, UK Tel: +44 (0)20 7553 1820 Fax: +44 (0)1932 893 860 e: cust.serv@informa.com www.hazardouscargo.com

#### 5-6

London Mergers & Acquisitions in the Oil & Gas Industry Details: Global Business Network, UK Tel: +44 (0)20 7291 1030 Fax: +44 (0)20 7291 1001 e: info@gbnuk.com www.gbnuk.com

### 5-6

Loughborough New Developments in Land Pipelines Details: Pipelines Industries Guild, UK Fax: +44 (0)20 7235 7938 Fax: +44 (0)20 7235 0074 e: hqsec@pipeguild.co.uk

10-11 Amsterdam **Onshore Pipelines Conference** Details: IBC Global Conferences, UK Tel: +44 (0)1932 893851 Fax: +44 (0)1932 893893 e: cust.serv@informa.com

### 10-12

Durham The Negotiation of International **Boundaries** Details: University of Durham, UK

Tel: +44 (0)191 374 7705 Fax: +44 (0)191 374 7702 e: ibru-events@durham.ac.uk www.ibru.dur.ac.uk/conf.html

#### 10-11

Production Separation Systems Conference Details: IBC Global Conferences, UK Tel: +44 (0)1932 893851 Fax: +44 (0)1932 893893 e: cust.serv@informa.com www.ibcenergy.com/

### **JANUARY 2002**

### Stanlow

London

Tailoring Fuels for the Future **Details: IP Stanlow Branch** e: peter@cause19.fsnet.co.uk

### 16-18

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Singapore Land Tank and Shipboard Measurement Details: Abacus International, UK Tel: +44 (0)1953 497099 Fax: +44 (0)1953 497098 e: information@abacus-int.com www.abacus-int.com

#### 21-22 Singapore Bulk Liquid Metering and Meter Proving Details: Abacus International, UK Tel: +44 (0)1953 497099 Fax: +44 (0)1953 497098 e: information@abacus-int.com

www.abacus-int.com 28-30 London

Integrating Functional Genomics and Proteomics with Drug Discovery and Development Details: IQPC, UK Tel: 0800 652 2363 or +44 (0)20 7368 9300 Fax: +44 (0)20 7368 9301 e: genomics2002@igpc.co.uk www.iqpc.com/1721a

### **FEBRUARY 2002**

4-7 Saudi Arabia 5th Saudi International Oil, Gas, Petrochemical & Power Exhibition Details: ITE Group plc, UK Tel: +44 (0)20 7596 5233 Fax: +44 (0)20 7596 5106 e: oilgas@ite-exhibitions.com www.ite-exhibitions.com/og

#### 6-7 Houston Analysing Price and Capacity Developments for the US LNG Market

Details: IBC UK Conferences, UK Tel: +44 (0)20 7017 4048 Fax: +44 (0)20 7436 8377 e: karen.bligh@informa.com www.ibcenergy.com

-	
6	Paris
13	Lyon
18	Brussels
Panorama 2002	
<b>Details: Institut Fran</b>	nçais du Pétrole,
France	

Tel: +33 (0).1.47.52.71.60 e: benedicte.reverdy@ifp.fr

### 13-14

Shrewsbury

Amsterdam

Groundwater Risk Assessment and Remedial Targets for Contaminated Land Details: ESI, UK Tel: +44 (0)1743 280020 Fax: +44 (0)1743 248600 e: info@esinternational.com

www.groundwatermodels.com

### 20-22

ERTC Petrochemical Conference Details: Global Technology Forum, UK Tel: +44 (0)1737 365100 Fax: +44 (0)1737 365101 e: events@gtforum.com www.gtforum.com

21-22

Moscow

2nd Annual International Russian Gas Forum Details: IBC UK Conferences, UK Tel: +44 (0)20 7017 4048 Fax: +44 (0)20 7436 8377 e: karen.bligh@informa.com www.ibcenergy.com

International Conference on Floating Production Systems • Thursday 21 February 2002 • 08.30-16.45 • One Great George Street, London •

As part of IP Week 2002, this half-day seminar provides a unique opportunity to gain awareness of the current issues and the prospective developments in the gas industry. The Keynote Speaker is Richard Giordano KBE, Chairman of BG Group, with sessions from Gary Cardone, President, Dynergie Europe, and Dr Wilfred Czernie, Senior General Manager, Ruhrgas. Stuart Anderson, President IGEM, will Chair the seminar.



# **IP Week 2002**

### 18-21 February 2002 London, UK

### PROGRAMME OF EVENTS

Monday 18 February	Tuesday 19 February		Wedn 20 Fel	Thursday 21 February	
09.00 - 17.00	08.30 - 12.00	09.00 - 12.00	08.30 - 16.00	09.00 - 12.15	08.30 - 16.45
International Conference: Meeting Growing Expectations - Challenges and Opportunities for the Energy Industries	Seminar: Prospects for the World Gas Markets in association with IGEM WEWEWEWEWEWE EVENT	Seminar: The Majors: Is Scale and Integration the Real Answer to Sustained Shareholder Value in the 21st Century? sponsored by Andersen, HSBC, OIES ANDERSEN HSBC AN ANDERSEN The Dorchester Hotel	Seminar: European Downstream Oil Industry Seminar: Challenges of Working in the EU Business Environment in association with	15th Oil Price Seminar: The Changing Face of the Energy Market: Implications for the Industry Seminar and Lunch sponsored by NYMEX	International Conference on Floating Production Systems in association with OGP
1 Great George Street	12.30 - 14.45         I Great George Street         I P ANNUAL LUNCH Guest of Honour and Speaker: THIERRY DESMAREST Chairman and Chief Executive Officer, TotalFinaElf The Dorchester Hotel         15.00 - 18.30         14.45 - 17.40         Seminar: Transporting Gas: Capitalising on the         Colspan="2">Seminar: European Refining - Addressing the Key		EUROPIA europia	New York Mercantile Exchange	International Ascolation of Di & Gas Productori
			Street	Street	Street
17.00 - 18.30	FSU Pipeline Potential in association with ITE	Issues, Challenges and Opportunities sponsored by Wood Mackenzie	IP ANNUA	L DINNER	
Dide Baretice 8	1 Great George Street	The Dorchester Hotel	IF		-
Exhibition Viewing 1 Great George Street	18.45 IP London Branch Discussion Meeting The Institute of Petroleum	sponsored by	The Grosveno	r House Hotel	
There will be ar	n oil industry related EXHIBITI maximise on the business and The foll	ON taking place at 1 Great Geo promotional opportunities at IP owing companies have confirme	rge Street. It will enable orga Week 2002. All delegates and d their participation in the ex	nisations involved in the oil c re invited to view the exhibiti chibition:	and gas industry to on.

• Bloomberg • CGES • Commodities Now • Energy Day • IGEM • OGP • Platts • PetroVantage • PH Energy • SAP (UK) • World Petroleum Congress

IP Week 2002 will bring together an impressive panel of speakers including:



**Richard V Giordano** Chairman **BG** Group



Dr. Ria Kemper Secretary General Energy Charter Secretariat



**Thierry Desmarest** Chairman and Chief Executive Officer **TotalFinaElf** 



Loyola de Palacio Vice-President Commission of the EU and Commissioner for Energy & Transport



**Dr. Pierre Jungels** Enterprise Oil Plc



Linda Cook Former Chief Executive CEO, Gas and Power Shell

# **NE** Publications

### The Technology of Catalytic Oxidations: Volumes 1 & 2\*

Phillippe Arpentinier, Fabrizio Cavani, Ferrucio Trifiro (Editions Technip, 27 rue Ginoux, 75737 Paris Cedex, France). ISBN 2 7108 0777 7 (complete edition). 368 pages – Vol 1; 480 pages – Vol 2. Price (Volumes 1 & 2): FFr840; \$125; euro 128.06.

The first book in this two-volume series covers the most important technological aspects of the use of molecular oxygen for catalytic oxidation reactions. It looks at the chemical and chemical-physical characteristics of the activation of molecular oxygen, engineering concerns in the design of reactors for monophase and multiphase catalytic reactions and the technical criteria for choosing the best operating conditions for catalytic oxidation reactions. It also reviews the various industrial processes currently in use in this sector. Volume 2 addresses the safety issues associated with the use of oxygen in catalytic oxidation reactions and presents preventive and protective measures to ensure the safety of chemical processes.

### Living in One World\*

(Available for free\*\*from World Energy Council, 5th Floor, Regency House, 1–4 Warwick Street, London W1B 5LT, UK. \*\*Plus postage.)

Written for the general public as well as those involved in the energy sector, this latest publication from the World Energy Council examines links between human activity and the world around us. It looks at the role of energy in development and progress, examines the indicators that are often used to measure sustainability, and contrasts the threat of an 'unliveable' world with the hope of a 'liveable' one.

### **Automotive Engine Valve Recession**

R Lewis and R S Dwyer-Joyce (Professional Engineering Publishing, Northgate Avenue, Bury St Edmunds, Suffolk IP32 6BW, UK.) ISBN 1 86058 358 X. 160 pages. Price (hardback): £69 (plus 10% delivery outside UK).

This book aims to provide a complete understanding of valve recession. The fundamental nature of contact and wear between valves and valve seats is considered, followed by an outline of the essential features of valve operation and the potentially serious problems associated with wear and valve recession in vehicle engines. An overview is given of an experimental study of valve wear and the development of special apparatus for the simulation of engine operating conditions carried out in the School of Mechanical Engineering, University of Sheffield, UK.

\* Held in IP Library

### A Blinding Duty\*

Stewart Harris. (Pentland Books, 1 Hutton close, South Church, Bishop Auckland, Durham DL14 6XG, UK). 1st ed. ISBN 1858219213.177 pages. Price £11.50 (softback).

Former IP London Branch Chairman and Member of IP Council, Stewart Harris, has written a fascinating and readable autobiography. Harris served as a Navigator in Lancaster bombers during WWII, was shot down over Belgium and evaded capture for five weeks. Accused by the Gestapo of being a collaborator he was tortured and kept in solitary confinement for nine weeks before being sent to Stalag Luft III. He made the decision to stay in the RAF after the war, but a medical found that due to the malnutrition and other bad treatment he suffered during his internment, he was likely to go blind within ten years. After the war he moved with his wife and daughter to South Africa where he found work with Shell. Then followed a variety of oil industry related jobs in the UK until he set up Trident Oil, the first cutprice petrol retailer in the UK. This enterprise was successful until the oil crisis of the early 1970s put him out of business. However, never daunted, he continued in a variety of oil industry posts before eventually retiring at the age of 70.



### YOUR OFFICE AWAY FROM HOME

### **New Editions to Library Stock**

Many of the publications below have been acquired on the basis of recommendations from IP Members. Please contact Catherine Cosgrove with any suggestions for further additions to the IP Library.

Remember – the list below shows only a few of the 60 new items added to the Library in the past month.

- 2nd GCC-EU Advanced Oil and Gas Technology Conference Proceedings. European Commission, DG for Energy and Transport; Energie Programme; Cooperation Council for the Arab States of the Gulf – Secretariat General. EU, Abu Dhabi, 2001.
- Energy Map of the Middle East & Caspian. 2nd Edition, Petroleum Economist; Arthur Andersen, London, UK, September 2001.
- Hydrocarbon Release Reduction: Raising Awareness (video). Shell; UKOOA, Aberdeen, Scotland, October 2001.
- International Petroleum Encyclopedia 2000. Editor: Bob Tippee. PennWell, Tulsa, US, 2001.
- Natural Gas Vocabulary. 1st Edition. BS ISO 14532: 2001. British Standards Institution (BSI), London, UK, August 2001.
- Oil Information 2001 IEA Statistics. International Energy Agency (IEA); Organisation for Economic Cooperation and Development (OECD), Paris, France, 2001.
- Petroleum and Natural Gas Industries Life Cycle Costing: Part 3: Implementation Guidelines. 1st Edition. BS ISO 15663-3: 2001. British Standards Institution (BSI), London, UK, September 2001.
- Statistical Review of Global LP Gas 2001. MCH Oil & Gas Consultancy; World LP Gas Association, SARL, Paris, France, 2001.
- Taliban: Islam, Oil and the New Great Game in Central Asia.
   1st Edition. Ahmed Rashid. I B Tauris, London, UK, 2001.

### **Contact Details**

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- Careers and educational literature queries to: Damian Cullen, +44 (0)20 7467 7116
- LIS management queries to: Catherine Cosgrove, Head of LIS, +44 (0)20 7467 7111
- IFEG queries to: Sally Ball, IFEG Secretary, +44 (0)20 7467 7115

Fax any of the above on +44 (0)20 7255 1472 or e-mail: **lis@petroleum.co.uk** Visit our website at **www.petroleum.co.uk** 



Nick Graham, General Manager of Gases at Wincanton, has been appointed Chairman of the new Freight Transport Association (FTA) Council. He has in-depth industry knowledge and has made significant changes to ensure the continued success of Wincanton's UK logistics service.



Expro International Group has appointed **Nigel Avern** as Area Manager for Norway. He will manage ongoing activities out of Bergen and Stavanger and will play an instrumental role in the growth and long-term strategic direction of the Group within the region.

Grant Prideco has announced several executive appointments. **Dan M Latham** has been appointed President, Grand Prideco Drill Stem Products Division; **Marshall E Danby** has become President, Grant Prideco Premium Connections and Tubular Products Division; and **Curtis O Burton** is the new President, Grant Prideco Marine Products and Services Division.

**Ian Stevenson** has been appointed Managing Director of Coflexip Stena Offshore. He replaces previous Managing Director, **Dave Cassie**, who is moving to the position of Executive Vice President for the North Sea, Canada and Caspian regions.

President and CEO **Kjell E Almskog** has resigned. He has also left his position as Director of the Board, although he will act as an advisor to the company for some time to come.

**Einar Steensnaes** has been appointed the new Norwegian Minister of Petroleum and Energy. He was named in the new Cabinet chosen in October by incoming Prime Minister **Kjell Magne Bondevik**.

The Board of Directors of Brazil's federal oil company Petrobras have appointed **Antonio Luiz de Menezes** as the new Energy Director, replacing Delcidio Gomez Amaral.

**Neil Milne** is the new Recruitment Adviser for Keltec People, a division of Keltec Petroleum Services.

Cabot Oil & Gas Corporation's Board of Directors has elected **R Scott Butler** to the position of Vice President, Regional Manager, Western Region, and **A F (Tony) Pelletier** to the position of Vice President, Regional Manager, Gulf Coast Region.

Premier Oil has announced the appointment of J Barclay Collins II and Christopher Chaloner to the Board.

Ralph Alexander, BP's First Vice President, has been elected Chairman of the Russian Sidanco oil corporation.

Foster Wheeler has announced that its Board of Directors has named **Raymond J Milchovich** President, Chief Executive Officer and Chairman of the Board of Directors of the company. Milchovich was Chairman, President and Chief Executive Officer of Kaiser Aluminum Corporation.

ChevronTexaco Vice Chairman **Richard Matzke** will retire early next year after more than 40 years of service. He will be succeeded by **Peter Robertson**, currently Vice President of ChevronTexaco and President of ChevronTexaco Overseas Petroleum (CTOP).

**Michael Laven**, former Chief Executive of Infinity, has been appointed as KWI's Chief Operating Officer. At the same time, **David Pitt**, former European President of Convergent, joins KWI as European Vice President of Field Operations. **George Kirkland**, currently Vice President of ChevronTexaco and President of ChevronTexaco North America Exploration and Production (CTNAEP) is to succeed Robertson as President of CTOP.

**Paul D Miller** has joined Paragon Engineering Services as Manager of Subsea Engineering, responsible for enhancing the company's subsea development expertise in the deepwater market.

**Mpumelelo Tshume**, former Chief Executive of Engen, has been appointed Chief Executive of Petrosa, formed earlier in the year following the merger of Mossgas and Soekor.

**Maurice White** has been appointed Chief Executive of the enlarged drilling division of Abbot Group following its recent merger with Deutag.

IntercontinentalExchange has appointed **John Harding** Vice President of Market Development and **Jim Falvey** Vice President, General Counsel & Corporate Secretary. The company has also promoted **Edwin Marcial** from Vice President, Technology, to Senior Vice President and Chief Technology Officer (CTO).

CNOOC has announced its new International Advisory Board, which includes top political figures and corporate leaders from around the world as members. The Boards includes former US Secretary of State, **Dr Henry Kissinger**; **Simon Murray**, former Managing Director of Hutchinson Whampoa; **Professor Edward Steinfeld**, a political economist at Massachusetts Institute of Technology; former Ambassador of Switzerland to China **Dr Erwin Schurtenberger**; and Kenneth S Courtis, an economist at Goldman Sachs and Vice Chairman of Goldman Sachs Asia.

Abbot Group has announced the appointment of **Maurice White** as a Director of its Board.

The Peak Group has named **John Sands** as its new Managing Director for subsidiary company, Peak Well Management.

**Dr Linda von dem Bussche-Hünnefeld** has succeeded Klaus Karl Kaster as Head of the Communications Division at Wintershall/Wingas, based in Kassel, Germany.

Kvaerner has named Kristian Siem as President and CEO.

Jacques Leost is to succeed Herve Le Bouc as Chief Executive of Bouygues Offshore. Herve Le Bouc will remain Chairman.

Chief Executive of Australian Pipeline Trust **Jim McDonald** has been elected as the new President of the Australian Pipeline Industry Association. Shape uncertainty the way **you** want it!

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# Synthetic rubber

High octane gasoline (1930s)

# First motor oil additive

Refinery fluid catalytic cracking

Desulphurisation technology

> Hoover – Diana: world's deepest drilling & production platform

Synthetic motor oil

# Digital reservoir simulation computer programs

# 3-D seismic imaging

Arctic technology firsts: artificial exploration island & iceberg resistant platform

# Natural gas-to-liquids conversion

High-strength steel for gas pipelines

# Designer catalysts

ExxonMobil knows a lot about innovation, as our track record shows. Our ability to develop proprietary ideas and implement them quickly sets us apart from our competitors. We spend some \$600m a year on R & D, the largest research programme in our industry.

As demands change, innovation will continue to open up fresh opportunities. Finding energy supplies, lowering costs, addressing environmental concerns, developing new energy systems. Today we're looking to the future. For example, we're working with car manufacturers on cutting edge research into fuel cell powered vehicles, petrol-electric hybrids and advanced, cleaner engines and fuels.

But we won't stop there. Our customers and partners expect us to deliver. We don't plan to let them down.



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