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ABBREVIATIONS

The following are used throughout *Petroleum Review*:

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

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

Front cover: Temple of the Emerald Buddha, Bangkok, Thailand. Clear signs are now emerging of economic recovery with energy requirements increasingly being met by the country's plentiful offshore gas reserves. Photo by David Hayes

CONTENTS

NEWS

SPECIAL FEATURES

FEATURES

REGULARS

ROUNDUP From the Editor

Counting chickens before they are hatched?

The rapid rise in oil prices following the surprise announcement of an agreed 1.72mn b/d of Opec production cuts, with a further 300,000 b/d of less defined non-Opec cuts must be welcomed. The cutbacks are to take effect from 1 April and some Opec members have already started notifying customers. Markets have reacted very positively with prices gaining up to $1.50/b.

That stockbrokers, analysts and market traders should suspend disbelief is hardly surprising – they can profit by talking the market up. Others in the industry would be well advised to heed the folk wisdom of not counting chickens until they are hatched. Threats to sustained higer prices include:

- Opec has not yet clarified what happens to the original 2.6mn b/d cutback when it expires in June.
- Opec treasuries are largely empty. Even an 80% compliance (very high by recent standards) would mean 4mn b/d of unused capacity overhanging the market. The Centre for Global Energy Studies has estimated that 100% compliance would mean that 7mn b/d, or 21% of Opec capacity, would be idle.
- According to the latest IEA report, their demand projections are still being revised down and oil stocks rose in January.
- Current oil stock levels are estimated to be in the 500mn to 530mn barrel range.
- The momentum of development means that additional capacity is coming onstream in many oil producing countries.
- Logistical problems in North America as the result of shut-ins of marginal US and Canadian production has distorted market prices. Higher prices have, however, brought some regional production back on again.
- Current forward prices for December Brent are still under $14/b. Forward Brent prices are virtually flat and the contango has disappeared, reducing the incentive to hold stocks. For WTI, prices are now in backwardation giving little incentive to hold stocks.
- In February 1999 Opec production including Iraq was 27.55mn b/d, only 1.5mn b/d below the February 1998 peak on which the notional 2.6mn b/d of cuts agreed in June 1998 are based.
- The IEA anticipates a 25.9mn b/d call on Opec crude in the 2Q1999 or 1.65mn b/d below current Opec output.

The truth remains that until there is a sustained and broad-based recovery in demand, any oil price recovery will remain fragile and dependent on producers acting against their own inclinations.

Green muddle

Initial reactions to the UK budget were generally favourable. Closer examination has produced a somewhat less positive analysis for energy producers and energy consumers. The energy tax (which aims to reduce emissions to comply with the Kyoto protocol) is designed to be fiscally neutral with lower national insurance costs offsetting the tax. However, companies are either energy intensive or people intensive which means winners and losers. The chemicals and metals industries have begun to draw attention to the new burden they will suffer. It is not clear that in its 'green' enthusiasm the current UK government has fully thought through the implications.

Nowhere is this lack of clarity more obvious than in motor fuels taxation. The latest budget continued the policy (introduced by the previous administration) of raising fuel taxes by 6% over inflation. As a result the UK now has the most expensive petrol and diesel in the world (see p10).

At the time of writing central London was brought to a halt by a major road haulage protest. A particular complaint is that the duty on diesel in the UK has doubled since 1992.

Across southern England, road hauliers now routinely fit their vehicles with extra fuel tanks. The purpose is to make regular runs to the continent to fill up with fuel which can cost as little as half that in the UK.

Risking the economic health of great swathes of UK industry and commerce seems an odd sort of policy. Particularly as there are few vehicles travelling the roads 'just for the fun of it'. The UK refining industry has worked hard to improve the quality and cleanliness of fuels, often ahead of the mandatory requirements. These higher fuel qualities, combined with tough policies on access to areas with significant pollution problems, could solve most air quality problems.

There is little or no evidence that raising fuel costs reduces the number of vehicles on the road. Being far ahead of your competitors may solve immediate revenue problems but risks the future health of the economy.

Chris Skrebowski

Web World

The World Wide Web (www) can be used as a desktop reference library – if you know where to look. Regular surfers will be aware that about 90% of web pages seem to be full of broken links and photos of pets. This month Web World brings you direct links from our site to the best of the web.

UK Online (**www.ukonline.co.uk**) allows you to find business telephone numbers using *Thomsons*, *Yellow Pages* and *Scoot*. It is also possible to search by business type. In addition, some residential numbers are available. There are links to similar services worldwide.

There is now no excuse for not using the postcode. Royal Mail (**www.royalmail.co.uk**) offers an excellent facility where you can enter the road and house number to locate the postcode. Conversely, the database will return the full address if you enter the postcode. There is also a postal rates calculator.

Online Dictionaries (**www.facstaff.bucknell.edu/rbeard/diction.html**) contains links to 800 dictionaries in 160 languages, together with a grammar section. A search of the word 'pulchritudinous' brought up within seconds a full definition, along with pronounciation, etymology and date of origin.

If you battle with the ever-increasing use of acronyms, then the Acronyms and Abbreviations (**www.ucc.ie/cgi-bin/acronym**) site is for you. Searching is fast and there is a facility to make additions. The more philanthropic of readers may want to add to the oil and gas terms which are woefully deficient at the moment.

Britannica Online (**www.eb.com**) is the online version of all those leather-bound volumes that are gathering dust in your attic. Some of the information is free, but for the full content you need to subscribe on a monthly or annual basis. The 'Britannica Guide to the Best Websites' is easy to use and will help you track down the elusive answers to many questions.

To find out how you will fare financially from 1 April, point your browser at Money World (**www.moneyworld.co.uk**). Here you will find the Personal Tax Calculator, along with various other useful utilities, interest rates and share prices.

Just as a reminder, the IP is currently developing a Members Only area which is to contain valuable data and other features. Please e-mail Catherine Pope (**cpope@petroleum.co.uk**), quoting your Membership number, to obtain a username and password if you would like to gain access to this area when available. You may also contact her with any questions or suggestions regarding the IP website or the Internet in general.

NEWS Upstream

German first for North Sea gas project

Deutsches Nordseekonsortium (a joint venture between BASF, BEB Erdgas, Erdol, RWE-DEA and Wintershall) and Nederlandse Gasunie have signed a contract for the supply of natural gas from the North Sea A6/B4 field from 2000.

The consortium intends to invest up to Dm400mn on development of the field, which is said to be the first offshore gas project in the German continental shelf of the North Sea. The gas field is to be developed with one platform and two to three production wells. Reserves are put at 13.4bn cm of gas. Production is expected to average 3.3mn cm/d (1.2bn cm/y).

The steel platform design incorporates a final abandonment concept. Once gas reserves have been exhausted, the platform will be completely dismantled and the construction material disposed of on land.

The project also involves the construction of one condensate and one natural gas pipeline, linking the field to an existing platform in the Dutch sector of the North Sea. Condensate will then be transported via tanker, while the gas will be fed into the existing Nogat pipeline system for export to the Dutch mainland.

Ivory Coast takes on gas-fired power generation

The Ivory Coast has chosen a home-grown solution for tackling its increasing power deficit, albeit relying on US independents Ocean and Apache, writes *Stella Zenkovich*. Its existing Ciprel gas-fired power station already receives gas from Ocean's CI-11 offshore block which comprises the Lion oil field and Panthere non-associated gas field. A second gas-fired thermal plant has started taking Apache's first gas from the Foxtrot offshore field while undergoing commissioning tests at Azito, a village near Abidjan, the capital.

The $220mn funding is already assured for Azito via the Cinergy joint venture of ABB, EdF and an affiliate of the Aga Khan Fund for Economic Development, plus the World Bank and European export credit agencies. The plant's first 144-MW unit recently became operational and the second is due to follow in 2000.

Azito will get 50mn cf/d of gas both from Ocean and Apache from 2001. The government buys the gas from the two companies and supplies it free to the thermal plants which buy the current net of the supply cost and deliver it to customers via a private distributor.

Low oil prices impact GoM licensing round

The depressed state of the oil industry was very evident at the 17 March US Minerals and Mining Service (MMS) auction of Gulf of Mexico offshore blocks, writes *Judith Gurney*. Only 41 companies submitted bids, compared with 87 in the 1998 auction for the same area, and 103 in 1997.

High bids made for 207 of the 3,806 blocks offered totalled $171.8mn, compared with $810.4mn in 1998 for 794 blocks and $824.1mn in 1997 for 1,001 blocks.

The traditional Gulf deepwater players – Shell, BP, Conoco, Texaco, Marathon and Unocal – were very restrained and Exxon didn't bid at all. This was expected, as these companies have large inventories of unexplored blocks which they acquired in the booming sales after 1995 when royalty obligations on deepwater projects were reduced. They are focusing their curtailed exploration budgets on existing holdings.

There were, however, several surprises. The company which offered the highest amount in bonuses – $21.4mn for nine blocks – was Elf Exploration, despite the fact that its Chief Executive Officer, Philippe Jaffre, recently announced plans to cut exploration and production operations. Other big spenders included Kerr-McGee which offered $19.1mn, Vastar which offered $14.8mn, Unocal which offered $11.8mn and Marathon which offered $9.5mn. Mariner, BHP, CNG, Murphy and Spinnaker also made bids totaling more than $7.5mn. Sonat, with 22 successful high bids, acquired the most blocks. Vastar came next with 18, followed by Kerr-McGee and BHP, both with 17, and Murphy, Spinnaker and Samedan, all with 13.

Another surprise was what the bidders wanted. Of the 207 high bids, 113 were for blocks in water depths up to 400 metres and 94 were for blocks in water depths greater than 400 metres, with almost all of these for blocks in ultra-deep waters. Bids for deepwater blocks were only 45% of the total, compared with 72% in 1998. Given the dramatic reduction in drilling and production in shallow waters with the collapse in oil prices, the interest in blocks in these waters astonished many observers.

Deepwater interest was concentrated on the Walker Ridge area, where no discoveries have been made, with the auction's highest bid by Marathon and Kerr-McGee for a block adjacent to a site where the maritime boundary between the US and Mexico is currently under negotiation.

In Brief

United Kingdom

Phillips Petroleum has commenced *front-end engineering and design contractor selection for development of the Jade field. Located in North Sea block 30/2c, the field is to be developed via a normally unattended installation with a 16-inch multiphase pipeline to the Phillips-operated Judy platform. First production is expected in 4Q2001.*

Elf Exploration UK reports that its *gas/condensate discovery on a prospect in North Sea block 29/4d tested at 660,000 cm/d of gas and 2,100 barrels of condensate. The well is located less than 5 km from the Elf-operated Elgin and Franklin high temperature and high pressure gas condensate fields which are due onstream in 2000.*

Premier Oil is understood to have put *development of its North Sea Chestnut field on hold due to continued low oil prices.*

The Shell-operated Egret field, part of *the central North Sea ETAP project has come onstream. Production is expected to peak at 20,000 b/d of oil.*

The UK government has given *Talisman Energy the green light to develop the small Orion field in block 30/18e of the central North Sea via a subsea satellite to the company's nearby Clyde platform. First production is expected in 4Q1999 – at an initial rate of 15mn cf/d of gas and 8,000 b/d of oil.*

Europe

Kvaerner has secured a NKr700–900mn *contract covering the construction of topsides for Statoil's North Sea Huldra gas and condensate platform. The field, which has estimated reserves of 20bn to 30bn cm of gas, is due onstream in 2001.*

Statoil's Siri oil field in the Danish sector *of the North Sea has come onstream. Output from the field's six planned wells is expected to peak at nearly 50,000 b/d. At present, only one well is producing.*

North America

KeySpan Energy of the US is understood *to be planning to invest $300mn over three years in drilling for natural gas in Gulf of Mexico fields owned by Houston Exploration, in which KeySpan holds a 64% interest.*

NEWS Upstream

Crine aims to cut North Sea E&P costs further

The Crine Network has put together a programme of ideas and initiatives aimed at reducing the cost base of North Sea E&P from $13/b to $10/b by the end of 1999, and to $8/b by 2002. The programme is to be outlined at its annual conference in Aberdeen on 10 March 1999.

Among the initiatives is a plan to reduce the cost of producing oil and gas by $1.4/b by lowering the cost of wells. The plan involves:

- Focusing on internal relationships within oil companies (ie between those who specify the need for wells and those who design and deliver them).
- Closely informing exploration personnel of the costs and practicalities of drilling wells. This new disciplined approach could result in a 30% reduction in the cost of exploration, according to Crine Network.
- Working with the DTI to reconsider the geological data requirements.
- Evolving ultimately integrated teams to specify and deliver wells.
- Promoting low cost 'finder wells' both as a design and business.

Crine Network has also been looking at reducing supply chain costs, proposing a supply chain methodology (SCM) which is underpinned by over 30 tools that can be used for various activities. A series of training modules have also been developed which explain the role and benefits of SCM, how to apply the tools and implement the methodology. A number of workshops are proposed for summer 1999.

North Sea operators tackle Millennium Bug

The UK Offshore Operators Association (UKOOA) recently reported on the progress of its Year 2000 (Y2K) Task Force which was set up mid-1997 in a bid to help eliminate the chances of an interruption in oil and gas supplies at the turn of the century as a result of Millennium Bug-induced computer system failures.

The Task Force comprises not only offshore operators, but other industry trade associations, the HSE and DTI, and provides a focal point for collaboration and sharing of best practices. It is also working to promote awareness of Y2K issues within the supply chain.

In line with other industrial sectors, the group established that for every 20,000 business and plant systems examined, around 36% (7,200) warrant further investigation for potential risk of material disruption to business continuity. Of these, around 5% have been found to be in the medium to high risk categories, requiring remedial action. The bulk of the problems within the 5% were found in scheduling and hydrocarbon accounting systems.

The group reports that no safety issues have been identified – safety critical systems offshore are either hard-wired or, where they use computers, are designed to be fail-safe.

The UK offshore oil and gas industry is now nearing completion of the 'correction phase'. However, although much of the remedial work was completed in 1998, certain tasks remain to be done and are scheduled to be carried out during the annual summer shut-down of operations. Contingency planning is said to be well underway, with members working closely with operators of pipeline and onshore infrastructure, such as the utility companies, to ensure continuity of supply.

The Task Force has organised a series of seminars and workshops addressing the Y2K issue and has developed a member website to share information. It has also put together a joint supplier assessment based on a UKOOA 'health check' questionnaire which targets industry supply companies and feeds into a UKOOA database shared by all members. Information recorded on 1,000 companies demonstrates suppliers' progress in their programmes towards Y2K compliance. Two videos have also been produced – one to raise awareness of Y2K issues for use at workshops, seminars and internally within UKOOA member companies, the second to provide guidance on contingency planning.

In addition, at the request of the UK Department of Trade and Industry, each UKOOA member company is currently undertaking an independent audit or is the subject of a 'peer assessment' by a second UKOOA member company. These reports will be submitted to the DTI for further review by an independent assessor who will consolidate the findings in a public statement to the National Infrastructure Forum at the end of April 1999.

UKOOA reports that the estimated total cost to the offshore oil and gas industry (across all sectors) will be between £500mn and £1bn.

In Brief

US company Tom Brown is reported to *be planning to acquire the bulk of Unocal's Rocky Mountain oil and gas assets for $5mn in cash and 5.8mn shares of common stock.*

Middle East

'Tight market conditions' are reported *to have led the Qatari authorities to shelve plans for a $4bn natural gas project with US company Enron Corporation. The project was to have tapped the North Field, with 5mn t/y of LNG production destined for the Mediterranean and Indian markets.*

The Iranian authorities are reported to *be planning to put up development phases four and five of the South Pars gas project in the Gulf to international tender. The project, which includes the drilling of ten wells and the construction of two offshore platforms and two pipelines, will be offered on a buy-back basis. South Pars is expected to produce 2bn cf/d of gas and 80,000 b/d of condensate.*

Russia & Central Asia

Surgutneftegaz is reported to be planning *to begin development of the Vittemskoye, Tromyaganskoye and East Tromyaganskoye oil fields in West Siberia this year. The Vittemskoye field is expected to produce 30,000 tonnes of oil in 1999.*

BP Amoco is understood to have *announced plans to leave the North Aspheron consortium which was expected to begin oil production in the Azeri sector of the Caspian Sea. It has been reported that drill tests in the Ashrafi and Dan-Ulduzu oil fields indicated far less oil than expected.*

American International Petroleum *Corporation (AIPC) is reported to have successfully bid for the Kazakh Shagyryl-Shomyshy gas field in the North Usturt Basin. Reserves are put at more than 1tn cf of gas.*

Chevron has reaffirmed its commitment *to the Tengiz field by promising to invest $450mn in Russia, reports the United Financial Group's* Russia Morning Comment. *However, the US company has asked for a 30% reduction in the transport tariff which it pays to move the oil to western markets.*

NEWS Upstream

UK oil revenues rise for first time in five months

UK oil revenues rose in January 1999 for the first time in five months, despite a 1.6% fall in output, according to the latest Royal Bank of Scotland *Oil and Gas Index*. The rise in revenues was due to a 14% rise in the price of oil – Brent crude averaged $11.16/b in January compared with $9.81 in December 1998.

However, according to Stephen Boyle, Head of Business Economics at the Royal Bank: 'There remains little prospect of a substantial recovery in prices in the short term because supplies are still plentiful and demand is weak, but December 1998 may have been the trough in this cycle.'

Oil output fell by 44,000 b/d to 2,671,190 b/d compared with the previous month – the first fall since August 1998. But, compared with January 1998, output was up by over 72,000 b/d.

Gas output showed a fall of 51mn cf/d in January to 11,011mn cf/d compared with December 1998. Compared with January last year, combined output was up by 1.6%, driven by the increase in oil production.

Year Month	Oil production (av. b/d)	Gas production (av. mn cf/d)	Av. oil price ($/b)
Jan 1998	2,598,757	11,012	15.20
Feb	2,582,700	10,305	14.07
Mar	2,595,594	9,803	13.17
Apr	2,571,241	8,844	13.53
May	2,433,059	6,381	14.40
Jun	2,406,521	6,069	12.12
Jul	2,432,040	5,733	12.06
Aug	2,379,644	5,640	12.05
Sep	2,573,882	6,394	13.28
Oct	2,600,813	8,828	12.60
Nov	2,612,843	10,678	11.07
Dec	2,715,056	11,062	9.81
Jan 1999	2,671,190	11,011	11.16

Source: The Royal Bank of Scotland Oil and Gas Index

North Sea oil and gas production

Renee field onstream

First oil flowed from the Phillips Petroleum-operated Renee field in the R-block area of the North Sea on 17 February. The field is flowing at 15,000 b/d of oil.

The R-block area comprises two fields – Renee and Rubie. The development plan comprises two production wells and one water injection well on Renee and one Rubie production well tied back to the AH-001 floating production facility which produces oil from the Amerada Hess-operated Ivanhoe, Rob Roy and Hamish fields. Production from the R-block area is expected to peak at 26,000 b/d.

Downturn in UK drilling

UKCS exploration and appraisal drilling (E&A) in 1999 is forecast to fall by almost 50% compared to last year's activity, according to a recent report from Wood Mackenzie. It is the third year in succession that drilling activity in the region has fallen. Between 30 and 40 E&A wells are expected to be drilled this year, with most activity expected to focus on the central North Sea, in particular in the Moray Firth Basin. Surprisingly, the report indicates that drilling activity in the Atlantic Margin, a high cost region, will increase with between 5 and 10 wells expected to be spudded in 1999.

In Brief

Asia-Pacific

***A Shell/Cairn Energy joint venture has** been awarded block 10 in Bangladesh. The two companies already have rights to block 5.*

***The Timor Sea Bayu-Undan gas field** development is reported to have been temporarily put on ice following the project partners' failure to agree on how best to proceed.*

***US company Unocal is reported to be** planning to invest $700mn on an integrated energy project in Bangladesh, beginning before the end of 1999. The Western Region Integrated Project will involve the development of the 350bn cf Shahabajpur gas field in south Bhola and the construction of a 150-km pipeline linking the field to a 350-MW power plant in south Khulan to the southwest.*

***UK company GTL Resources is reported** to have signed an agreement with Single Buoy Moorings covering the provision of a floating methanol plant for a gas-to-liquids production project offshore Vietnam. The floating plant will initially be located in the Rang Dong oil field.*

***Petronas Carigali is reported to be** planning to give up its 72.85% interest in Vietnam's Dai Hung oil field before the end of the 1Q1999. It is understood that the company considers the field to be 'no longer commercially viable'.*

***Woodside Petroleum is understood to** have acquired from Esso and BHP a 10% stake of the Kipper gas field and a 23.5% interest in the Basker/Manta/Gummy gas fields in the Bass Strait for $18mn.*

Latin America

***China National Petroleum Company** (CNPC) and Statoil are reported to be planning to sign an agreement under which the Norwegian oil company will take a 50% stake in the Intercamp Norte field in Venezuela's Lake Maracaibo.*

NEWS Upstream

UKOOA working with fishing industry

The UK Offshore Operators Association (UKOOA) recently unveiled new initiatives by its Fisheries Liaison Committee and Seismic Acquisition Sub-Committee aimed at further improving safety and relations between the fishing and oil and gas industries in the waters surrounding the UK.

There are two distinct areas which call for close liaison between the two industries if serious disruption to the operators of either sector is to be avoided: seismic surveying activities and the potential risk to fishing vessel navigation due to subsea installations.

A CD-Rom outlining 'How to plan seismic acquisition on the UKCS', has been developed by Hydrosearch Associates, jointly funded by UKOOA and the International Association of Geophysical Contractors. Due to be available from April 1999, it is designed for use by seismic contractors and operators to ensure that all statutory requirements regarding the planning and execution of seismic surveys are fully met. It will provide checklists covering statutory notification procedures as well as guidance on consultation. It will also hold a database of all licences issued on the UKCS which have restrictions and conditions relating to fisheries activity. A one-day training course for Fisheries Liaison Officers, sponsored by UKOOA, is scheduled for later this year.

UKOOA has also been working on revisions to the warnings on marine charts to stress the potential hazards from pipelines and subsea installations to fishing vessels. A study of pipeline spans (areas where the pipeline does not lie flush with the seabed) has been commissioned to identify areas where spanning is most likely to occur and evaluate the interaction of fishing gear with sizes of spanning. A safety information campaign targeting fishermen to draw attention to the dangers of trawlboards being caught under pipelines and the actions to be taken if snagging occurs was launched at the end of March 1999. Revisions are also being made to UKOOA's 'Fisheries Liaison Guidelines' to incorporate new procedures for dealing with vessels coming fast on to subsea equipment and for the consideration of subsequent claims for compensation.

As part of a drive to reduce the risks of fishermen snagging nets on suspended wellhead, the oil and gas industry recently established a programme of abandonment to reduce the number of suspended wells. Around 100 are expected to have been removed within two years, with further reductions forecast by the end of 2006. There were approximately 400 suspended wellheads on the UKCS in 1997. About 30 installations have been removed in the past six months. UKOOA also reports that the industry is reviewing the possibilities of operators sharing vessels and rigs to pursue common well abandonment programmes.

UKOOA is also contributing funding towards a Seabed Information Service which aims to improve navigational safety for fishermen. Developed and managed by the Seafish Industry Authority of the UK through Seafish Technology (Kingfisher), the service provides information to augment existing navigation charts covering the UKCS. Provided in digital format, the information can be electronically overlaid on fishing charts. Together with regular bulletin amendments, the system defines the position and nature of permanent offshore installations which may be a potential hazard to fishing vessels or their gear.

Subsea riser support first for CSOL

Coflexip Stena Offshore Ltd (CSOL) has installed a new mid-water arch design to support the risers and umbilicals for shallow water subsea developments on Kerr-McGee's North Sea Janice field linking to the 'A' platform. It is said to be the first time that this design has been used.

Typically, mid-water arches supporting a number of risers are used below 90 metres water depth and are normally much deeper because they are affected by the swell if they are too shallow and there is a risk of the risers and umbilicals clashing. In such circumstances, the normal solution is for individual risers to be used with steep or Pliant Wave™ formation which could mean that the wells have to be positioned separately to allow for this.

However, the configuration of the subsea installation and future wells on Janice required the cost-effective solution of two mid-water arches taking up to 14 risers and umbilicals. In addition, the arches need to last for a minimum of 15 years without damaging the risers and umbilicals. Such a challenge had never been attempted before, states CSOL.

The successful solution was to devise a new riser configuration, the Pliant S™. A feature of the design is the use of a riser bend limiter and hold back clamp tethered to a gravity base which maintains the riser and umbilical configuration while securing it against wave action in a 100-year storm. This design should allow similar, more cost-effective subsea well developments in shallow water which were previously

In Brief

***TOTAL reports that a new well on the** San Alberto permit in Gran Chaco province in southern Bolivia has confirmed the block's potential natural gas reserves. Production tests on the SAL X-9 well indicate a yield of more than 650,000 cm/d of gas and 65 cm/d of condensate in normal operating conditions, says the company.*

It is understood that seven shallow-water blocks offshore Trinidad are to be opened to bidding before the end of 1999. The areas are: blocks 3a and 3b to the northeast, modified U(b) and lower reverse L in the southeast, blocks 1a and 1b in the western part of the Gulf of Paria, and block S11(a) to the south. Most of the blocks have already been drilled, but it is hoped that modern seismic will locate new potential finds.

***Noble Affiliates' subsidiary EDC** Ecuador is reported to have announced plans to develop the Amistad gas field in the Gulf of Guayaquil offshore Ecuador at a cost of $78mn. Field reserves are put at 345mn cf of gas. First gas is expected in 2001.*

Africa

***BP Amoco has signed a new concession** agreement with the Egyptian government under which it will invest $450mn over the next six years to maintain production and prolong the life of the country's mature Gulf of Suez oil fields.*

***Algeria's government has awarded a** licence for developing the Oughroud oil field located in Ouargla province, 550 km southeast of Algiers. Potential field production has been put at 230,000 b/d.*

***Statoil and Texaco are reported to** have made an oil discovery with the Nnwa-1 well on OPL block 218 in the Niger delta. Preliminary data indicate reserves of up to several hundred million barrels of recoverable oil.*

***Elf is reported to have announced** that start-up of the Dalia field in block 17 offshore Angola is to be delayed by up to a year. First oil is now expected mid-2003. The company is also reported to have announced that first production from the Girassol oil field offshore Angola will be delayed until 1H2001 in a bid to 'optimise technical costs'.*

NEWS Industry

European derogations on excise duties

The European Commission has proposed that France, Italy and the Netherlands are to be allowed to reduce their rates of excise duties on certain mineral oils at least until the end of 1999, writes *Alan Osborn*. The decision has yet to be approved by the EU Council of Ministers, but no opposition is expected by Brussels officials.

In the case of France, the Commission has approved reductions in excise duties for mineral oils consumed on the island of Corsica, but only down to the level of the minimum EU rates. It has also agreed to a differential diesel rate for commercial vehicles, again subject to the EU minimum, and approval has been given for an exemption for heavy fuel oil used for the production of alumina in the Gardanne region. France has also informed the Commission that it wishes to apply a differentiated diesel rate for commercial vehicles from the start of 1999, but this proposal has not yet been formalised.

For Italy, Brussels is proposing a reduction on excise duty for petrol consumed on the territory of Friuli-Venezia Giulia and a reduction for mineral oils consumed in the Udine and Trieste areas – in both cases subject to the EU minimum being respected. There is also to be an exemption from excise duties for mineral oils used as fuel for alumina production in Sardinia and a reduction in fuel oil duties for the production of steam and gas oil used in ovens for drying and activating molecular sieves in Reggio Calabria.

The Netherlands will be allowed to introduce a differentiated diesel rate for commercial vehicles provided the EU minimum is observed.

All these reductions are permitted under a provision of the EU's Directive 92/81/EEC which defines mineral oils and specifies the uses that make them liable to tax. Member countries can seek derogations for 'specific policy reasons' – usually involving environmental protection, transport policy or regional development. The Commission has not specified a rate for the duties – it merely permits the member country to exempt certain mineral oils completely or to reduce taxes either to zero or to the EU minimum.

At present all EU member states apply excise duty rates above the EU minima which are set at: euro 337 (£240) per 1,000 litres of leaded petrol; euro 287 (£200) for unleaded petrol; euro 245 (£171) for diesel; and euro 13 (£9) for heavy fuel oil.

All change at Unipetrol

Unipetrol's full board and the majority of its supervisory board were fired by the Czech government at an extraordinary GSM it had convened on 5 February, writes *Ivan Berenyi*. The board members were replaced by supporters of the Social Democrats which have been in power since July 1998.

Four government officials received supervisory board seats: Deputy Trade and Industry Minister Milada Vlasakova, Deputy Finance Minister Miloslav Hejnak and two Deputy Chairmen of state property fund FNM, Jan Steiss and Karel Zemann.

The changes had been decided in advance, according to the Prague press, by Trade and Industry Minister Miroslav Gregr and Finance Minister Ivo Svoboda.

It is reported that the shake-out is designed to strengthen the government's influence at the oil, products and petrochemical company which is 63% owned by FNM and is considered pivotal to the restructuring and privatisation of the oil and petrochem sectors. Given the government's stance, this is universally taken to mean a slowing down of the privatisation programme.

Heerema cuts costs

Heerema Marine Contractors (HMC) is reorganising its operations in the light of persistently low oil prices. Its Oslo and London-based operations are to be closed as part of the cost-cutting programme, and activities at its Houston and Leiden offices are to be reduced.

The company says that the deep-rooted financial crisis in such countries as Malaysia, Thailand and Indonesia will also result in it having to suspend crane ship activities in the region in coming years. HMC has already closed its Malaysian office and plans to cease trading from its Singapore office in spring 1999. Up to 600 job losses are expected, primarily from the company's Dutch operations.

In Brief

United Kingdom

***UK independent Enterprise Oil has** posted a £7.8mn post tax profit for 1998 despite continued low oil prices. The company, which is still in talks regarding a potential merger with Lasmo, also reported that it reduced the cost of sales by 12% to £5.63/boe (£6.39/boe in 1997).*

***UK gas and electricity industry watchdogs** Ofgas and Offer are reported to be planning to merge into a central office in London within the next 12 months.*

***Amec Process and Energy has restructured** its oil, gas and petrochemical businesses into two strategic business groups – one covering its offshore operations, the other onshore – in a bid to eliminate duplication of services and cuts costs while delivering a 'more efficient business solution'.*

***Lubricants and chemicals company** Burmah Castrol is understood to have unveiled plans for a £280mn capital repayment to its shareholders despite reporting flat pre-tax profits of £246mn (after excluding currency losses). The company is also reported to be embarking on a £110mn restructuring which aims to cut costs by £30mnly by the end of the three-year programme.*

***Kerr-McGee and Oryx Energy shareholders** are understood to have approved the merger of the two companies. The deal will create what is said to be the fourth-largest independent oil and gas exploration company in the UK. It is reported that the merger will result in a 40% reduction in the combined workforce.*

***Ranger Oil is reported to have** announced plans to cut its debt by up to $300mn over the next year. The bulk of funds are expected to be raised through the sale of gas properties in the North Sea and Canada. The company reported an $84mn pre-tax loss for 1998, compared with a $54mn profit a year earlier.*

***Centrica has posted a £7,481mn** turnover for 1998. Earnings before exceptionals were up from £44mn in 1997 to £174mn. After exceptional charges, 1998 earnings were £89mn, compared with a loss of £791mn in 1997. The company has proposed a £530mn special distribution to shareholders.*

NEWS Industry In Brief

Gas bucks the trend in Europe

Remarkably large increases in natural gas consumption occurred in several European countries last year, according to estimates just released by Eurogas (European Union of the Natural Gas Industry), writes *Fred Thackeray*. The biggest increases in volume terms were in three of the four largest gas consuming countries – Italy (up 3.3bn cm), the UK (up 3.1bn cm) and France (up 2.8bn cm).

In Germany, however, demand was static. This bears out the prognostications of the industry's leading gas companies, Ruhrgas and BEB, that the lack of an expanding power generation market for gas implies only slow growth of gas demand for some years to come. Now that Germany's Red-Green coalition government is backing off from rapid closure of nuclear power, the prospect of continuing slow gas growth is confirmed.

In the EU as a whole, Eurogas's estimates show that gas consumption increased in 1998 by a healthy 3.9%. This contrasted sharply with an uncharacteristic drop of about 1% in 1997, which was due to unusually warm winter weather. The total in 1998 included some big percentage increases of consumption in Finland, Spain and, surprisingly, in Belgium. The market in Portugal began to take off with growing, though still small deliveries, by the MEG (Maghreb–Europe Gas) line from Algeria, which also met the rapidly expanding requirements in Spain.

If Europe escapes the threatened international economic slump, continuing good growth of gas demand is in prospect this year under the spur of approaching liberalisation of the markets and growing competition. The accompaniment of volume growth, unfortunately, will be that the prices to producers, mostly linked to downstream prices of petroleum products, will remain weak.

Country	1997 (~ bn cm*)	1998 (~ bn cm*)	% change
Austria	7.8	8.0	+2.5%
Belgium	13.4	14.8	+10.4%
Denmark	4.1	4.5	+9.8%
Finland	3.5	4.0	+14.3%
France	37.2	40.0	+7.5%
Germany	82.5	82.8	–
Greece	0.2	0.8	–
Ireland	3.3	3.3	–
Italy	56.5	59.8	+5.8%
Luxembourg	0.7	0.75	–
Netherlands	41.8	41.4	–1.7%
Portugal	0.1	0.8	–
Spain	13.2	14.1	+6.8%
Sweden	1.0	0.95	–0.5%
UK	85.1	88.2	+3.6%
Total	**350.4**	**364.2**	**+3.9%**

*Note: *Converted from data originally given in PJ*

***UK electricity generator National** Power is understood to have acquired the Calortex domestic gas retailer – a Texaco and Calor Gas joint venture.*

***BG plc is understood to have unveiled** plans to merge its international E&P and downstream businesses into a new international division in a bid to accelerate growth and competitiveness of the company's global operations.*

Europe

***Latvijas Gaze has unveiled plans to sell** 2% of its equity (720,000 shares) at a minimum asking price of $3.10/share.*

***Mol is to acquire BP Amoco's 100%** owned, Hungarian LPG trading subsidiary BP Gas Magyarorszag for an undisclosed sum. The gas company currently accounts for 2% of the total LPG retail market in Hungary.*

***Romania, Bulgaria and the former** Soviet Caspian and Caucasian republics signed an agreement in Bucharest in mid-February, under the aegis of the EU's three-year old INOGATE programme, to coordinate the optimisation of their oil and gas networks.*

***Castrol Hungary increased its market** share by 17% in 1998 in auto-related oil products while Magyar Asvanyolaj Szovetseg (MASz), a group of 11 vendors in the auto-related oil products sector, has reported that domestic consumption of products has shrunk from 58,200 tonnes in 1994 to 43,680 tonnes in 1998.*

North America

***Canadian oil producer Alberta Energy** is reported to have made a $491mn (C$748mn) takeover bid for Pacalta Resources which has production interests in the Oriente Basin in Ecuador.*

***US companies Aviva Petroleum and** Sharpe Resources, both of which have operating assets in the shallow waters of the Gulf of Mexico, are reported to be merging their businesses. Aviva also has operations in Colombia and Papua New Guinea, while Sharpe has a number of assets onshore the US.*

***Dominion Resources is to buy** Consolidated Natural Gas for $6.3bn, to create what is claimed to be the fourth-largest US utility.*

***Apache Corporation has reported a** net loss for 1998 of $131.4mn.*

Russia & Central Asia

***Tyumen Oil Company plans to invest** $400mn rehabilitating the Samotlor oil field and a further $240mn at the Ryazan refinery, according to United Financial Group's* Russia Morning Comment. *The oil company is currently seeking a US Export–Import Bank loan to cover the investment programme.*

Latin America

***Perez Companc is understood to have** sold 80% of its holding in YPF of Argentina for $163.1mn.*

General

***Saudi Arabia, Mexico, Iran, Algeria and** Venezuela have announced plans to cut oil production by a further 2mn b/d from 1 April 1999. The cuts are in addition to the 2.6mn b/d reduction agreed last year. The market responded positively to the news, with Brent oil prices rising to about $13/b. Norway has followed suit, and is to reduce production by 200,000 b/d from April 1999, until December. The cut replaces the current 100,000 b/d reduction agreed last year which is due to expire in June.*

NEWS Downstream

Caspian cross-border pipeline agreement

Former Soviet republics in the Caucasus and Central Asia have agreed to set up cross-border organisations to operate pipelines carrying oil and gas to Western Europe in order to minimise financial and political risks and encourage investment, writes *Keith Nuthall*.

The deal aims to create a secure financial environment for potential financiers for pipeline projects, lured by the possible rewards of helping to ferry oil and gas from the Caspian region, Uzbekistan and Turkmenistan. Single state departments in the Soviet Union were responsible for running energy networks. However, since the break up of the Communist bloc and the establishment of independent republics in the region, there have been difficulties in establishing who would be responsible for investment risks for pipelines which cross international borders.

Under an umbrella agreement initialled in Brussels in February, 11 ex-USSR republics and Romania have 'accepted the obligation to cooperate when establishing one or more interstate oil and gas transportation systems crossing their territories'. This means that a 'common operator' would be set up for a particular pipeline, with countries whose territory would be crossed 'agreeing by separate protocol, the rules and procedures according to which a Common Operation Entity is to be established or selected'.

The agreement adds: 'Such a Common Operation Entity then establishes a Common Operation Agreement with each of the states concerned. The Common Operation Entity may not combine the transportation function with buying and selling energy, although it may, if it wishes, combine construction, project management and common operation.'

The European Commission staged the conference where the agreement was signed and has been funding infrastructure investment in the region. Commissioner Hans van den Broek said: 'I am delighted that it has been possible to initial this landmark umbrella agreement. One of the hardest tasks we face is to secure financing for the oil and gas networks of the future. No financial institution will invest in a network if it is not totally clear who is managing it, and under whose jurisdiction. The agreement provides an agreed framework within which the transit countries can themselves determine these matters. I expect it to unlock a wide range of investment projects in the region.'

UK aviation fuel first for TDG

Scottish bulk distributor TDG McPherson has taken delivery of what is claimed to be the UK's first single compartment aviation jet fuel tanker. Traditionally such tankers have had two compartments, both of which require sampling to check fuel quality and water content. Having just one compartment halves sampling requirements, saving time and resources.

The £51,000 THOMAS (tanker having optimum mass and stability) tanker was manufactured by Hockney in Australia. It has a 34,625-litre payload and a discharge time of 10 minutes, aided by two foot valves that are said to reduce discharge resistance by 50%. The unit features front and rear crash zones, and aluminium extrusions, to protect the entire tank shell in the unlikely event of a roll-over.

The tanker will operate on a three-year contract to distribute jet fuel to Glasgow and Edinburgh airports on behalf of Statoil.

In Brief

United Kingdom

Independent assessments show that *the UK electricity and gas industries are on course to beat the Millennium Bug. PB Merz & McLellan report that preparations in the electricity sector are 71% complete with most compliance activities expected to finish by the end of June 1999. On the gas side, BG Transco and Siemens Metering Services' preparations are 95% and 80% complete, respectively, with work expected to finish by September 1999.*

Calor Gas is understood to be *extending storage facilities at its Canvey Island LPG terminal in order to support increased sales to Europe.*

The Automobile Association (AA) and *UK Petroleum Industry Association (UKPIA) recently joined forces in a bid to help UK motorists better understand the amount of tax that they are paying for automotive fuels. Some 15mn cards with the message 'In every £10 spent on fuel £8 is tax' have been produced and circulated to forecourts, accompanied by an advertising campaign in the press.*

Saladin has added two new sources of *UK natural gas price data – the* British Spot Gas Markets Report (The Heron Report) *and Petroleum Argus's* European Natural Gas Report *– to its Saladin Information Service (SIS).* Platt's European Natural Gas Report *is also available on Saladin systems. These sources cover the period from the day ahead to three gas years ahead with historical data from 1994 for Bacton, St Fergus and the National Balancing Point.*

Phillips Petroleum reports that its subsidiary *Imperial Petroleum (PIP) has begun manufacturing environmentally-friendly ultra-low sulfur diesel (ULSD) fuel as its core product at its Teesside refinery. ULSD is now available through the Phillips Petroleum Products supply network.*

Europe

Mol has beaten rival bidders UNI *Baltic and Fortus to secure the fuel tender of Budapest municipal transport company BKV. The Hungarian oil and gas company is to supply 15mn litres of diesel for HF1.51bn.*

UK Budget boosts fuel costs again

The UK Chancellor of the Exchequer Gordon Brown once again raised the tax (duty plus VAT) on gasoline and diesel in his latest budget (9 March) in line with the government's commitment to raise road fuel duty rates by at least 6% above inflation each year.

Tax on leaded gasoline was increased by 4.25 p/l, bringing the total excise tax to 52.88 p/l, and on unleaded by 3.79 p/l (total excise tax 47.21 p/l).

Tax on diesel rose by 6.14 p/l to 50.21 p/l, although that on ultra-low sulfur diesel (ULSD) was increased by only 4.96 p/l to 47.21 p/l, increasing the price differential between the two fuels by 1 pence to 3 p/l in a bid to encourage motorists to switch to cleaner burning diesel and provide a financial incentive for the oil companies to produce ULSD. The rate of VAT on road fuels remained unchanged at 17.5%.

The duty on higher octane super unleaded gasoline was increased by 3.57 p/l to 52.33 p/l. However, from 1 October 1999, the duty will be reduced to 2 pence above the rate set for unleaded gasoline, reflecting the anticipated use of this grade as the basis for lead replacement gasoline (LRG).

According to the Automobile Association (AA), these latest price increases will result in motorists paying £8.50 to the UK government for every £10 spent on fuel. It is also reported that less than 20% of revenues raised are fed back into roads and improvements to public transport. The change in road fuel taxes is forecast to boost government coffers by £1.7bn this year.

The duty rate on autogas fuel (LPG) was cut by 29% in a bid to encourage conversion to the 'greener' fuel. Duty rates for gas oil and fuel oil are to increase by at least 6% in real terms over the next two years, although there is expected to be a larger percentage increase on fuel oil in order to bring the rate in line with that levied on gas oil.

Vehicle excise duty (VED/road tax) for cars and light goods vehicles was increased by £5 to £155/y. However, road tax for cars below 1,100cc is to be cut by £55 to £100 from 1 June 1999. From autumn 2000, road tax will be based on carbon dioxide emission rates.

VED is to be frozen, however, for 98% of lorries and cut by up to £1,000 for those trucks and buses powered by 'clean' engines. Tax breaks for business miles by company car users are to be abolished in April 2002.

It was also announced that a business energy tax is to be introduced from April 2001 in a bid to help reduce greenhouse gas emissions. The exact levies have yet to be decided but it has been reported that the tax is expected to raise £1.75bn in its first full year, and is predicted to save around 1.5mn t/y of carbon emissions by 2010.

For the upstream sectors, measures aimed at protecting revenue raised from petroleum revenue tax (PRT) and North Sea corporation tax (CT) were also announced. The finance bill has been amended to close loopholes and now incorporates legislation designed to ensure that companies cannot minimise PRT and North Sea CT liabilities by selling and then leasing back North Sea assets.

February UK fuel prices

	Pence per litre
Diesel	
Lowest: Halifax	62.57
Highest: Oban	67.90
National average	64.59
Unleaded petrol	
Lowest: Bradford	61.14
Highest: Aberystwyth	66.84
National average	63.64
Four-star petrol	
Lowest: London	66.45
Highest: Oban	75.90
National average	69.51

Source: *PHH Allstar Fuel Report*

Elf promotion on the cards

Elf recently selected 50 of its UK service stations for a special local promotion aimed at increasing sales of ultra-low sulfur diesel (ULSD) and further developing the company's account card sales.

Timed to coincide with the company's renewed push on ULSD in the press and on TV and radio, the promotion involved Elf business managers and area controllers being on site at peak periods to welcome customers and hand out free ULSD pens.

Customers were also invited to send in a questionnaire requesting details about the Elf account card.

New card customers are entitled to a 1 p/l discount on fuel purchased in the first three months of the card's use.

In Brief

Slovnaft is understood to be planning *to open 18 service stations in Poland by the end of 2001, most of which will be located in the south of the country. The Slovakian oil company opened its first two Polish sites in January 1999 and plans to open four more before the end of the year.*

Logistics service provider Stolt-Nielsen *Transportation Group of London has acquired a 5.08% interest in the share capital of bulk storage operator Van Ommeren.*

Lithuania's Butinge oil terminal is due *to start shipping Russian oil in April 1999 at a rate of 400,000 tonnes per month.*

A Ukrainian–Polish joint commission is *to be set up for the realisation of the Odessa–Brody–Gdansk crude oil pipeline which is to carry Azeri Caspian oil to Poland.*

OMV of Austria is bidding as part of a *consortium for a 51% controlling interest in Petrol, operator of a nationwide network of filling stations in Bulgaria. Aiming for a 10% retail market share, the company is also planning to invest $100mn via its subsidiary OMV Bulgaria in the construction of 80 new forecourts in the country.*

A subsidiary of US company Reliant *Energy is to acquire a 40% interest in Dutch power generation company UNA for $900mn. UNA is one of four large Dutch generators with approximately 3,400 MW of generating capacity, representing nearly 20% of the Dutch market. It operates a mix of gas, coal and cogeneration plants in the Amsterdam and Utrecht areas.*

Kuwait Petroleum GB (Q8) has *unveiled plans to increase its network of UK sites providing an International Diesel Service (IDS) from 75 to 86 by summer 1999. The ISD is a fully automated refuelling service for truck drivers in both the UK and Europe. In Europe, the company is to launch what it claims is the industry's first euro invoicing and information service as well as the first European assistance helpline for truckers.*

EuroGas has signed a Memorandum *of Understanding with Erdol-Erdgas Gommern to construct a gas gathering, processing and transmission system in Western Poland. The*

NEWS Downstream

UK Deliveries into Consumption (tonnes)

Products	†Jan 1998	*Jan 1999	% Change
Naphtha/LDF	316,176	252,574	–20
ATF – Kerosene	644,279	717,065	11
Petrol	1,740,132	1,638,832	–6
of which unleaded	1,312,220	1,351,713	3
of which Super unleaded	34,037	26,135	–23
Premium unleaded	1,278,183	1,325,578	4
Burning Oil	359,508	387,146	8
Automotive Diesel	1,211,429	1,187,734	–2
Gas/Diesel Oil	651,768	592,921	–9
Fuel Oil	314,995	258,902	–18
Lubricating Oil	71,764	57,590	–20
Other Products	691,212	692,922	0
Total above	6,001,263	5,785,686	–4
Refinery Consumption	570,321	535,924	–6
Total all products	6,571,584	6,321,610	–4

† Revised with adjustments *preliminary

system will connect four gas fields currently owned by Polish Oil and Gas Company.

***Petrom of Romania, the state oil** company and fuel retailer, has opened its first forecourt on foreign soil at Szeged, 50 km from the border in neighbouring Hungary. Two further service stations are to be built this year by subsidiary Petrom Hungaria at Bekescsaba and close to the Nagylak border crossing. Long-term plans include the construction of ten outlets in the country and expansion of the network to Yugoslavia, Slovenia, Bulgaria and Moldova, according to spokesman Gabriel Nastase.*

North America

***US integrated supply chain management** (SCM) system supplier Petrolsoft Corporation reports that Exxon has selected its technology to manage its domestic supply of retail motor fuel. Petrolsoft's 'Supply' SCM solution provides automatic stock-replenishment and truck-scheduling systems for the bulk supply and distribution of fuel.*

Middle East

***The United Arab Emirates Offset** Group (UOG) has signed an agreement with the Qatar General Petroleum Corporation covering the supply of Qatari gas to the UAE and Oman. The deal forms part of the Dolphin programme which aims to stimulate investments in a number of activities along the gas value chain, including gas field development, gas transportation, distribution and storage, petrochemicals and power plants. Dolphin's initial capacity will be 3,000mn cf/d. UOG expects between $8bn and $10bn to be invested in the programme over the next six to seven years.*

Russia & Central Asia

***Turkey is understood to have signed a** preliminary agreement to import Turkmen gas via a new pipeline to be constructed under the Caspian Sea and through neighbouring Georgia and Azerbaijan. The agreement is expected to be finalised by the end of May 1999.*

Asia-Pacific

***Boral and Envestra (in which** the former holds a 20% interest) have acquired Stratus Networks/ Energy 21 – a Victoria state (Australia) gas pipeline operator and retailer – for A$1.67bn.*

***Australia's Victoria state government** is reported to have sold its Multinet/Ikon gas distribution and retail business to Energy Partnership – a joint venture between US company UtiliCorp and AMP Asset Management – for A$1.97bn.*

***Caltex and BP are reported to** have abandoned their plans for the merger of their Australian refining operations.*

In Brief

Africa

***It is reported that tender documents** are to be made available in June 1999 for a controlling interest in Ghana's 45,000 b/d Tema refinery.*

***Benin's government is awaiting** decision on a proposal submitted to the Abu Dhabi Chamber of Commerce & Industry for support with building a refinery according to First VicePresident Saeed bin Jabr al-Suweidi.*

***Ghana plans to import substantial** supplies of Nigerian gas through what is envisaged as West Africa's first gas export pipeline from 2002, stated Finance Minister Kwame Peprah in the country's first 'US-styled budget' for 1999–2001.*

***Nigeria LNG has awarded a turnkey** engineering and construction contract for a major expansion of its LNG complex at Bonny Island to a joint venture of Technip, Snamprogetti, Kellogg Brown & Root and JGC Corporation affiliates. Work includes the construction of a third train and associated facilities to process associated gas feedstock which will help reduce gas flaring in Nigeria.*

***Shell Renewables has reported** that President Nelson Mandela recently launched the company's first Powerhouse system, in what is said to be the world's largest commercial solar rural electrification project, in South Africa's Eastern Cape region. The project will supply 50,000 homes with electricity.*

***Shell reports that over 70% of the** additional 3.7bn cm/y of LNG to be produced at Nigeria LNG's Bonny Island gas processing plant following installation of a third train has been sold to Enagas of Spain. The LNG sales contract is for a period of 21 years.*

General

***Snam and Agip Gas of Italy** are reported to have agreed to take delivery of 8bn cm/y of gas from the Western Libya Gas Project from 2001. The project, which is a joint venture between Agip and Libya's National Oil Corporation, will also supply 2bn cm/y of gas to the Libyan domestic market.*

A not-so-rosy outlook for Russian oil and gas

The past year has been a more than usually turbulent one – even for Russia. With three governments, a declining oil price, a collapse in the rouble and a debt default, confidence in Russia evaporated as the year progressed. *Stephen O'Sullivan*, Head of Research, United Financial Group, Moscow, looks at events during 1998 and assesses future prospects.

The year had started with the omens in the oil sector looking good. Shell had reached agreement with Gazprom on a major joint venture while BP acquired a stake in Sidanco and staked its claim to being a global energy company by investing in the Kovykta gas field in Eastern Siberia with a view to supplying China. Oil prices, while not scaling the peaks seen earlier, were reasonably firm and there were no obvious signs that this was going to change. Finally, Viktor Chernomyrdin was in charge, leading a government of 'pragmatic reformers' as it was viewed in the west; accepting of reform although not committed to it, and viewing it as necessary while being unconvinced about its place in Russia.

More broadly, Russia appeared to have achieved a semblance of stability in 1998 and actually some wealth, with one ill-timed television documentary even showing a Russian boasting that while the west had once thought to buy Russia, now it would be the turn of Russians to buy the west.

Well, not just yet it would seem. Within a few months it had become clear that there were serious structural problems within the economy, principally a complete reluctance to address the issue of tax collection and control of the budget deficit. Many, if not most, enterprises in the economy were unreformed and unrestructured, corruption – ignored by investors while markets were rising – remained endemic and the perceived stability of the Chernomyrdin administration was actually stagnation, although few realised it, or admitted it, at the time.

A sudden change of government in March ultimately did little to improve the situation, although it appeared for a while that the reformist administration of Sergei Kiriyenko might push through some reforms. In the end, however, lacking any political mandate save that of being Yeltsin's appointee and opposed by the oligarchs whose business empires were being threatened, the Kiriyenko administration was itself dismissed after losing both the rouble and the country's creditworthiness within one week.

The situation is entirely different as we proceed through 1999. Foreign investment interest is very limited, both at the portfolio and the strategic level. Russian companies are in many cases massively indebted as a result of the rouble's collapse and earnings are under pressure across the board as the oil price slide takes it to a 12-year low. Political stagnation has set in, with Yeltsin unable to perform his duties as President but unwilling to give up the position, while in Moscow and Krasnoyarsk the pretenders to the throne prepare their campaigns for the election which must take place within 18 months, but which may come sooner than anyone expects.

The economic crisis

In the past it has been relatively straightforward to identify the major fundamental factors underlying the Russian oil and gas industry. However, to these we must now add the deep and abiding financial crisis now afflicting Russia. Factors contributing to this were:

- The emerging markets crisis, which started 21 months ago in Thailand and spread with frightening rapidity around Asia and to Latin America, reached Russia in August 1998 and contributed to the position in which the country now finds itself.
- The oil price decline which gathered pace in 1998 has damaged Russia's balance of trade, the government's tax revenues and corporate profits, thoroughly undermining Russia's ability to finance itself.
- The Russian government's default on its domestic debt obligations in August has damaged every Russian company's credit worthiness, with otherwise sound companies having their credit ratings downgraded because a corporate's rating cannot exceed the sovereign rating of the country in which it is domiciled.
- The dismissal of the Chernomyrdin administration – welcome though it might have appeared at the time in terms of injecting some urgency into the reform process – reintroduced political risk into the Russian equation. This was borne out five months later when Yeltsin dismissed the Kiriyenko administration and attempted to reinstate Chernomyrdin. The one saving grace of the entire episode might be that Russia has now moved a step down the road from a purely presidential democracy to a parliamentary democracy, which may bode well for the future.

The major impact of the Russian crisis as far as the oil and gas industry is concerned is that for the foreseeable future international capital markets are closed to even the best companies. Good or bad, Russian oil companies will not be unsecured borrowers on capital markets in the first half of the year. There is the prospect of some borrowing in the second half – or so a number of companies are planning for – but much depends on the political situation in Russia, the rouble exchange rate and the oil price, all of which have conspired this year to bring the industry to its present parlous state.

Production

Production has resumed its downward path after stabilising last year, with most companies – except Surgut and Lukoil – showing a decline last year (see

Figure 1). The decline of 0.7% was caused by a number of factors, chief among them a shortage of cash for capital expenditure, meaning that well workovers and rehabilitations are simply not taking place with the current oil price. Exploration drilling fell by 16% and development drilling by 34% against 1997 levels, while capex in dollar terms is down by 56%. One benefit of the crisis is the more effective targeting of capital expenditure and the more rigorous approach being adopted.

The decline will continue into 1999 as the drilling figures confirm. Investment in the future has slumped as companies preserve current production for its cashflow when the need is greatest. While this is understandable, it stores up problems for the future which will come back to haunt the industry in years to come.

Gas production too will decline, constrained not by the availability of capital expenditure but by the lack of 'solvent demand' as non-payment rises and Gazprom's losses mount. Capex in 1998 was already insufficient in my view to maintain the Unified Gas Supply System in a steady state; 1999 will be no better, although there are signs of creative financing on the part of Gazprom with the ENI joint venture to raise finance for the Blue Stream pipeline to Turkey and the potential issue of domestic debt (see *Petroleum Review*, March 1999).

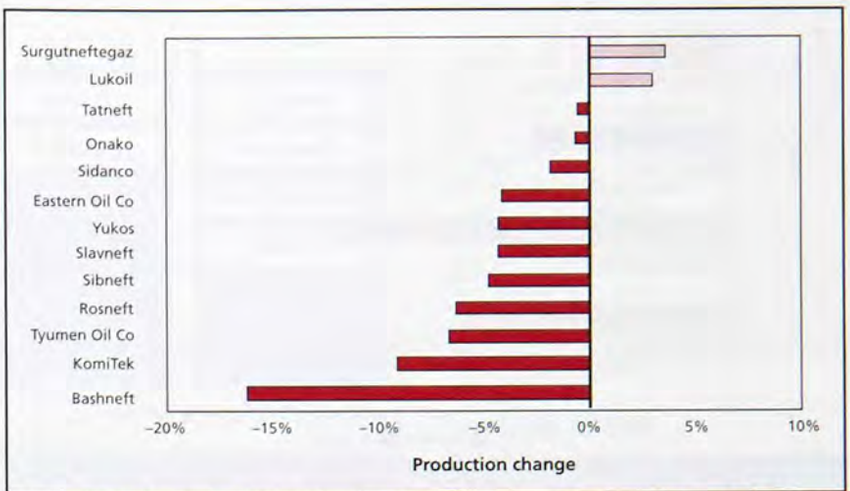


Figure 1: Russian production by company – percentage change between 1997 and 1998

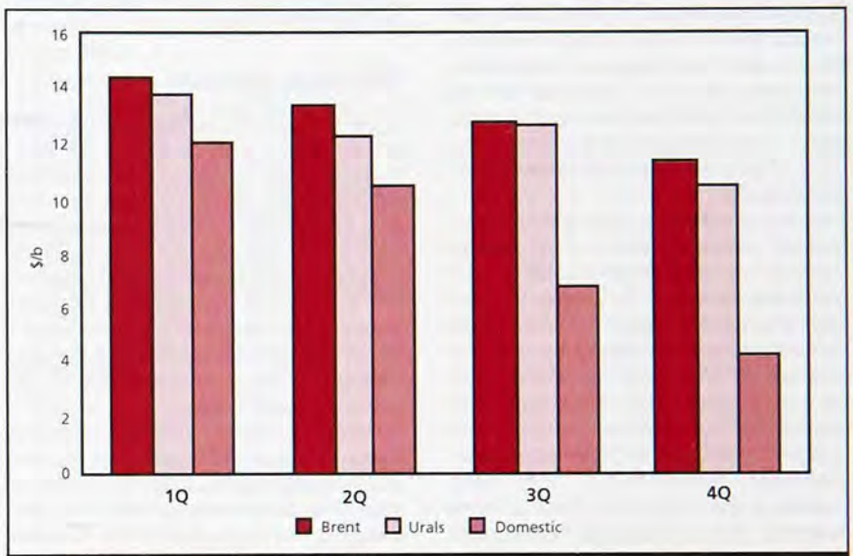


Figure 2: Comparison of oil prices in 1998

Prices

Low oil prices undermined the economics of both the industry and the country. One of the consequences of this was the devaluation of the rouble, which has itself led to a collapse in prices in dollar terms on the domestic market, thereby further undermining the economics of the domestic oil business. (See **Figure 2**).

Oil prices will remain lower than in 1998. Opec discipline appears absent and non-Opec's willingness to cooperate with a squabbling cartel may not last much longer. Russian export prices benefit marginally more than others because of the Iraqi situation, since they compete against each other in the key Mediterranean market. However, domestic prices are now below $4/b, having failed to rise at all post-devaluation.

Gas prices too have been under pressure, both as a result of their lagged link to the price of competing fuels such as oil products, but also through increasing levels of gas-to-gas competition as additional supplies seek to find a home in the European market. Border prices fell by 13% in 1998 and early indications for 1999 are that they may decline a further 19%.

Export boom

Exports have boomed as companies seek the high-priced, secure payment option of sales to the European market – so much so that the Fuel and Energy Minister was forced to remind companies of their obligation to keep domestic refineries supplied with crude. It is clear that, if there were no constraints on export capacity, much greater volumes would be going abroad.

Exports increased by 9% in 1998 over 1997, as companies squeezed every drop of capacity they could out of the system – and this despite Russia's offer to cut exports by 81,000 b/d as part of the Opec/non-Opec agreement. This year is unlikely to show a similar increase because the capacity is not there to allow it. The only additional capacity which may become available is a small improvement on the Druzhba pipeline to Central Europe through the reversal of the Adria line from Hungary to the Adriatic.

Gas exports rose by 3.3% in 1998 and are set to rise further in 1999 according to Gazprom. Turkey will be a major growth market and the recent announcement of the joint financing company for the Blue Stream pipeline with ENI is a crucial building block in Gazprom's strategy to be the baseload supplier of gas to that country.

Collection

Cash collection and the effect of barter transactions and non-payment on the economy are probably the single most important domestic factor affecting the Russian oil industry. There were some signs that the picture was improving earlier in 1998 as the government began enforcing the payment of taxes

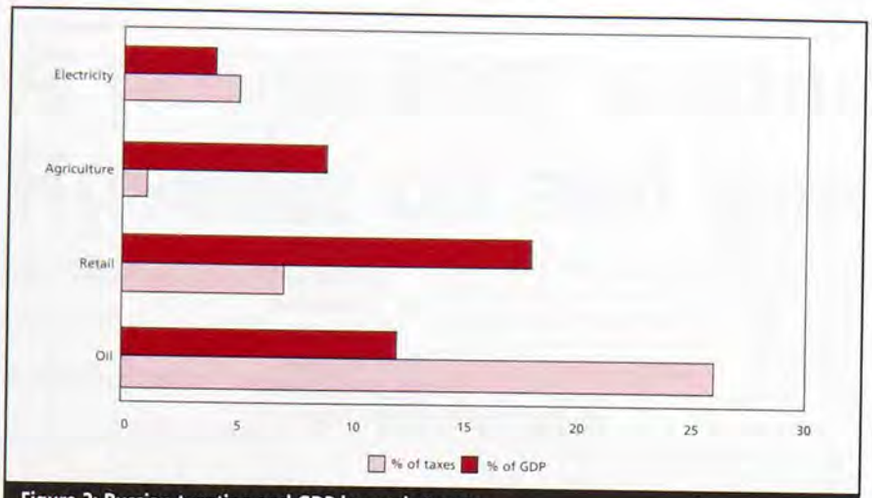


Figure 3: Russian taxation and GDP by market sector

in cash from major companies, including Gazprom, which in turn forced them to take a harder line with their own non-paying customers. However, with the dismissal of the Kiriyenko administration and the collapse of the rouble, the remonetisation of the economy has taken a step backwards.

Non-payment is crippling many companies' domestic operations. Tatneft collects around 50% of its sales in cash, with the rest coming in the form of barter and promissory notes. Surgut has an exceptional record of cash collection, 94% in the first nine months of 1998 with the remaining 6% accounted for by an exchange of gas for electricity with Tyumenenergo. Gazprom suffers badly from non-payment, particularly in the industrial market, which accounts for around 90% of its sales.

However, in Russia, non-payment is a political issue rather than simply an economic issue. Gazprom, for example, has typically failed to disconnect non-paying customers from its supplies, partly as a holdover from its socialist background and partly because it has been encouraged not to by a government keen to retain social cohesion in a country facing so many other problems.

Nevertheless, payment does ultimately need to be enforced, not on any ideological grounds of economic efficiency in terms of bankrupting useless enterprises, but simply to ensure that viable enterprises in the oil and gas sector are not themselves destroyed by the inefficiencies of a post-central planning economy which has signally failed to come to grips with the changing economic reality of the last decade. The enforcement of payment will have a radical impact on demand (defined as paid for consumption) for oil and gas in the economy – which will shrink as enterprises unable to pay close down.

Taxation burden

Taxation is clearly a significant burden on the country's oil and gas industry, more so than in many other countries. Nevertheless, we must bear in mind that the situation is not necessarily as bad as it looks at first sight. Many observers have suggested that taxation represents half of a Russian oil company's gross revenues. I believe this to be an exaggeration, arrived at by combining just the 'headline' rates of tax across a range of categories.

In reality, a more detailed examination of the tax situation in the Russian oil industry shows that the effective rate of taxation is often 35% of a company's gross revenues. This is because there are exemptions for timely tax payments (admittedly earned by only a few companies) and allowances for the payment of some taxes and other expenditure, which taken together reduce the overall rate of tax below the headline rate. (See **Figure 3**.)

More significantly, post-devaluation the industry has benefited from a *de facto* reduction in its tax burden as a result of the nature of Russian oil taxation. For many years this system has been roundly criticised for being too heavily biased towards revenue-based taxation – often of a fixed monetary amount – and insufficiently focused on profit taxes. However, for once this situation has benefited the industry.

Taxes which are fixed in rouble terms (such as the Rb55/t excise duty) have fallen sharply in dollar terms because of the devaluation. In August this represented $1.23/b; today it represents just $0.33/b, a reduction of 73%. Similarly taxes based on the value of assets, which remain constant in rouble terms, have declined sharply.

This is not a secret, even from the government, and there was pressure from parts of the government to claw back some of what they see as a windfall gain on the part of the oil companies. Finance Minister Zadornov finally succeeded in imposing a levy of ECU2.50/t when the Urals oil price is between $9.80/b and $12.30/b (and nothing when it is beneath this range), although not without some surprisingly vigorous lobbying by the Fuel and Energy Minister.

There is some merit in both sides' arguments. The industry has certainly benefited from the devaluation and attempts by their apologists to suggest otherwise is nonsense. However, before imposing new taxes on the industry the government needs to consider the entire picture, not just the export market. Some two-thirds of the industry's production remains within Russia and the FSU and here the picture remains unattractive, with domestic prices remaining essentially unchanged post-devaluation and inflationary pressures building on the production cost side.

Industry response

The industry has responded in a number of ways to the change in these fundamentals. **Figure 4** shows the current ownership structure of the Russian oil industry. The companies shown in red are owned by the Financial Industrial Groups created during the privatisation phase of post-Soviet Russia. These groups – usually centred around a bank – generally acquired stakes in Russian oil companies at very low prices with the aim, not of developing the oil business, but of using the cashflow from those oil companies to fund the rest of their industrial empires.

The decline in oil prices and the rouble collapse has meant that these companies no longer generate the cash that they used to. At the same time the FIGs' own capital base has often been destroyed by the debt default and equity market collapse and they are unable to finance their oil companies, which are now in serious trouble – notably Sidanco and Yukos.

Individual subsidiaries may be detached from the existing holding companies, through bankruptcy or otherwise, while some of the more powerful companies (Lukoil, Surgut) may acquire some of these subsidiaries or other companies.

Overall, what we are seeing is a refocusing of FIG strategies, from the extreme of asset acquisition above all else (practiced in 1996 and 1997) to one of survival. The pendulum has swung from one extreme to the other with no

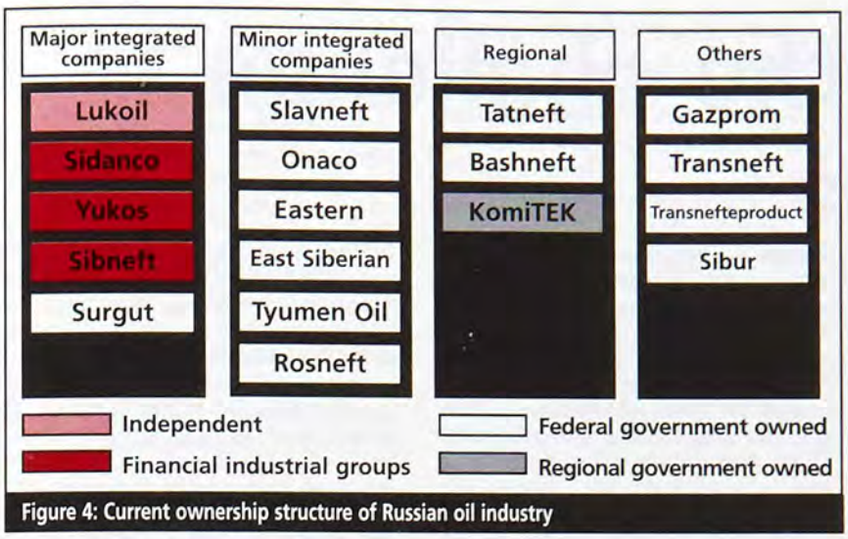


Figure 4: Current ownership structure of Russian oil industry

stop in between. Ultimately, for the best companies, this refocused strategy will settle on keeping the most appropriate assets and managing them most effectively. The winners will be those companies which spot this the earliest and adjust their portfolios appropriately.

Nationalisation

This is an unlikely response, and one which could only come from the government. However, it is controversial and therefore unlikely to be implemented by the current administration. If it were to be considered, I believe it would only be applied to a small group of companies: those which were acquired cheaply during the privatisation process and which are perceived to have been consistently badly managed since. Sidanco and Yukos stand out in this category, although BP's involvement with the former might protect it from any government action.

End of vertical integration

The post-Soviet oil industry adopted what appeared to be the western industrial model for its own structure: that of the vertically integrated oil company. However, by virtue of the history of the western oil industry, vertical integration was a means to an end, not an end in itself. Russia's gas business, on the other hand, maintained its monolithic structure, which appeared to deliver what was required of it.

The asset integration and logistics of the Russian industry are often poor. Refineries and production companies are located far apart, often without direct connections by pipeline, thus raising distribution costs. When 'integrated companies have been put together by industry insiders, logic does not appear to have dictated the assets which were acquired, since many of the combinations fail to maximise logistical synergies or take advantage of political integration.

The western industrial model is itself changing, with previously integrated companies realising that they no longer need to be active in all parts of the industry, or at least not on their own. The Russian industry's desire to emulate the west may have left it stranded with a model which is no longer appropriate – and may never have been appropriate – for the country.

Alliances

Alliances have been a much-discussed and occasionally practiced form of industrial activity in Russia. They provide access to capital, technology and management. In the great rush to lend to even unbankable Russian companies in 1996 and 1997, capital was the least of their worries. Now, however, alliances can provide capital for activities which are otherwise unfinanciable, such as ENI's deal with Gazprom to finance the Blue Stream pipeline to Turkey.

In many cases, it seems that a realisation that access to knowledge and managerial skills is important has only just begun to dawn on Russian companies as they contemplate the difficulties of life ahead, absent – as they will surely be – from western banks falling over themselves to lend to sub-creditworthy companies.

Most of the alliances are single-project deals with the potential to develop into a strategic alliance if the fit is right and the first project is judged a success.

Performance improvement

One of the positive impacts of the crisis – perhaps the only positive impact – has been the very real pressure to address some of the issues which have been ignored in recent years. Staff reductions are taking place in companies which have been grossly overmanned for years. Companies are being much more aggressive in transferring social liabilities to local authorities. Rational economic analysis is being carried out – often for the first time.

The downside is that cash constraints have reduced capital expenditure and this will have an impact on production. It is this effect, lower levels of capex – not better economic analysis of that capex – which will lead to a decline in production in 1999.

Looking ahead

The first point I would make is that there will be no external salvation. The solution to the problems of the Russian oil industry lies within Russia, and in many cases within the oil industry itself.

External financing will be rare – although it will exist on occasion. Oil prices will remain low. Western investment will be negligible in the absence of production sharing legislation being completed in Russia.

Capex will remain under pressure, impacting production. Tax rates will remain high, although in the medium term it is collection rates which must reach high levels if Russia is to have any chance of developing a normal economy.

We may see some ownership changes. Bad ones would be through nationalisation; good ones would be through the acquisition of weak companies by stronger ones. Bankruptcies may take place, although there have been precious few of these in Russia – effective ones at least.

There will be three things that will separate the good companies from the bad ones in 1999 and they can best be encapsulated by the phrase 'focus and efficiency':

- reducing costs and maintaining the pressure on them during the year;
- maintaining – or in most cases improving – the cash collection rate; and
- investing efficiently.

However, during 1999 it appears as if political and economic uncertainty will continue to dog the market. There may be a considerable period of drift as we await the changing of the guard in the Kremlin. Economically the country appears to be in a poor state, although there are signs that the Primakov administration is able to deliver on some areas where its predecessors were not.

Nevertheless, even for optimists on the Russian industry, I must conclude that, faced with these difficulties, 1999 – or much of it at least – may well be a lost year for the country's oil industry. ●

Meeting the challenge of low prices

If there is one thing certain about the global energy market it is that nothing is certain, writes *Michael Lynch-Bell*, Energy Services Partner, Ernst & Young. Two years ago, when Ernst & Young commissioned a major study of oil company chief executives on how they viewed the marketplace developing, few predicted that 1998 would be the year when oil prices would hit historical lows, producers would be forced to cut output and some of the major players in the business would have merged with each other or were in the process of merging.

But it is not all doom and gloom, for the rapid slide in prices has been matched by the industry's ability to quickly rise to the challenges of a low-price environment and realign itself within the constraints not only of an industry-wide downturn but also global economic uncertainty. The ongoing challenge is to maintain this momentum with the focus on rationalisation, cost reduction, technology, and the inevitable creation of a global energy market.

There are few signs that the pain of last year will quickly be forgotten as many of the fundamental uncertainties overhanging the industry remain in place. The unfortunate collision of so many factors, including Opec's increased output in late November 1997, increased Iraqi exports, and the severity of the downturn in Asian demand, as well as a mild northern hemisphere winter and burgeoning inventories, caught most industry players on the hop. Many of these bearish fundamentals remain in place and, as a result, prices are unlikely to improve dramatically before the new century.

It is therefore unsurprising that against this background of a poor economic outlook and global economic uncertainty, so many major mergers were announced last year and can be expected to continue into 1999. To give some indication, merger and acquisitions (M&A) activity in the oil and gas sector was just short of $90bn in the first 10 months of 1998. The scale and speed of these unions took many by surprise and the full implications of the new multinationals that will be created by these entities will change the industry for many years to come.

BP Amoco set the ball rolling in August last year when it announced its hook-up, and this was followed at the beginning of December by the Exxon/Mobil announcement. Despite some regulatory hurdles, the deal is expected to become reality. These mergers, together with that between TOTAL and Petrofina, means it is almost certain that smaller companies will also be looking to merge in order to be able to compete against the might of the unified majors. Speculation about a possible partner for Royal Dutch/Shell continues but it has taken appropriate steps to rationalise its operations for the current economic climate through the writing down of a good part of its chemical portfolio as well as other measures including staff reductions.

Increased pressure

This will only increase the pressure on smaller industry operators to adopt similar measures. These may fall short of full-blown mergers but a series of marketing and strategic alliances will almost certainly be announced over the next 12 months. The new big three – BP Amoco, Exxon/Mobil and Shell – will now tower above Chevron, Texaco and Arco and it would be naïve to assume that some form of rationalisation by the latter three is unlikely.

Among smaller operators, particularly in exploration and production, one can expect asset realignments, increased partnerships, joint ventures and output swaps as well as cost reduction programmes. But at the same time, companies should be aware that too much rationalisation now could lead to excessive upward price pressure over the next five years once the inevitable recovery in prices begins. A lack of investment now runs the risk of insufficient supply to offset a recovery in demand and the reverse scenario where stocks and supplies remain low and demand strong. An oil shock such as that in the early 1970s is in no-one's interest.

The focus therefore appears to be on stronger management, increased awareness of cost levels but also with an eye beyond the current gloom toward the future to ensure adequate supply when the demand profile changes. With an oil price likely to remain flat or fall further, there are three key responses executives should consider, to ensure they ride out the storm:

- Manage asset portfolios more efficiently.
- Identify and focus more intently on core functions.
- Improve supply chain management.

Asset portfolio management

All companies will have to manage their asset portfolios more effectively on a global basis.

- Companies must apply performance indicators objectively, so that any assets failing to meet prescribed limits may be identified for sale.
- Merged companies will need to pull together their complementary assets, and offload those that don't add value to the business.
- High cost operators will need to plan for exiting from areas such as the North Sea as decommissioning approaches.
- Companies need to identify tools for reviewing asset portfolios. They should aim to produce prioritised

implementation plans to ensure that the company's portfolio is in line with corporate strategy. Pricing the assets will highlight those that do not add value, potentially flagging up sale options to increase shareholder value, or merger and acquisition possibilities.

Focus on core functions

Concentrating on core operations is likely to continue as a major success strategy for energy companies facing an increasingly competitive environment.

- Energy companies need to continue focusing and narrowing down their definition of core functions.
- Non-core functions could be outsourced.
- Energy companies could consider joint ventures with specialist service providers, as Shell International has done with Ernst & Young through Tasco Europe, a 50:50 joint venture offering specialist accounting services across Europe.
- New possibilities for sharing services could be considered, such as research and development functions or even exploration departments.

Supply chain management

Improving supply chain management, essentially reducing the costs of developing oil fields and the resulting production, is a key element of any future success strategy.

- Corporate focus on reducing procurement costs must continue.
- Industry-wide cost-saving initiatives should continue to draw in specialist expertise. For example, Ernst & Young is participating in Crine, the UK initiative to drive down the operating and capital costs of developing UK oil and gas fields by around another 30% on top of savings already achieved.

In order to implement these fundamental changes, executives must have a clear understanding of not only their business environment, but the structure of the business – and how the two are allied to each other. With a company operating on a global basis, and with day-to-day management decisions to take as well, it is easy to see how executives can lose sight of the goals they should be aiming for.

Ernst & Young's Energy Insight, in partnership with Hannon Westwood Associates, JFA Global and IPE Consulting, is a vehicle for allowing energy companies to 'drive out' the strategic direction their business should be taking, from a global to local scale. Looking at the whole of the business, from financing to analytics, Energy Insight identifies problem areas – for example where assets are underperforming or are not in line with the company's core business. Once problem areas have been identified, it is then able to identify solutions, providing a complete alignment of strategy with assets, for example, that will maximise a company's potential in an uncertain future.

This year should prove to be as dramatic for the industry as last year and rationalisation, globalisation and technology are the key factors the sector must embrace to guarantee survival while, of course, keeping a close eye on the implications of increased environmental legislation. As the oil industry heads into a new century the uncertainties appear great, but closer examination shows that all these issues represent a great challenge for the sector. If these are accepted then we will see a more dynamic, even greater market-focused industry better able to withstand the vagaries of the move toward a single global commodity market. ●

Going green with Shell

It has been predicted that half a million cars will convert to liquefied petroleum gas (LPG) autofuel over the next five years, with a total of 1mn running on the fuel in the longer-term. As part of a drive to introduce this 'greener' alternative to gasoline and diesel, Shell has embarked on a £10mn programme to install 200 LPG sites on its UK forecourts over the next three years. *Gordon Cope* reports.

Although there are only a limited number of LPG sites (see table opposite) the UK government is keen to promote its use and prices at the forecourt declined by 29% in the latest budget (see p10).

When Eric McNicoll, Automotive General Manager of Shell Gas, pulls into town in his Ford Mondeo estate wagon, it isn't just the bright red paint job that attracts attention. Written across the side of the car in big white letters is the message: THIS VEHICLE RUNS ON ENVIRONMENTALLY FRIENDLY LPG.

McNicoll is spearheading Shell Gas's plan to install 200 LPG sites on its UK forecourts in the next three years. 'Our eventual target is 600 sites, situated in urban areas and major roads and junctions convenient to fleet operators.' The £10mn programme is part of the vanguard of company initiatives that will introduce this clean, inexpensive fuel to the UK. 'We are looking at around half a million cars converting to LPG within the next five years,' says McNicoll.

The push to put LPG into UK vehicles arose from the need to improve air quality in Britain. One of the main causes of air pollution in urban areas is traffic and with over 20mn cars, vans, buses and lorries on the road, the UK has some of the most crowded roads in Europe. In the first month and a half of 1998 alone, urban traffic generated pollution contributed to 39 'bad air days' (where air quality exceeds minimum safety standards) in various regions throughout the nation.

Taking up the challenge

The UK government wants to cut back air pollution caused by vehicles. 'One way we can achieve better air quality is by supporting development of the market for cleaner road fuels,' John Battle, Minister of State for Energy, said recently. Shell responded to the challenge. 'We looked at all the alternatives, but solutions such as electricity, fuel cells and compressed natural gas are either too costly, impractical or not sufficiently developed,' says McNicoll. 'Shell takes the view that where there is a need to replace diesel in the urban environment, then LPG is the best alternative.'

Liquid petroleum gas is normally a mixture of propane and butane, two components of the raw gas that is extracted from Shell's North Sea fields. LPG fits the bill for the European Commission's emission standards for heavy-duty transport, which call for significant reductions in admissible levels of nitrogen oxides, carbon monoxide, hydrocarbons and particulate matter by the year 2005. 'The use of LPG can reduce exhaust emissions by up to 80%,' comments McNicoll.

Pushing for change

One major problem with the use of LPG as an autofuel in the UK is the lack of users. While there are 200,000 French, 500,000 Dutch and over 1mn Italian vehicles using LPG, only 4,000 cars and vans currently run on the environmentally-friendly fuel in Britain.

In order to establish LPG as a viable fuel source, three factors needed to be in place:

- incentives to switch over to the fuel,
- vehicles that could run on it, and
- outlets to dispense it.

The UK government started the ball rolling in 1998 by reducing the duty on LPG to 10.56 p/l, about 25 p/l less than petrol. It also committed itself to increasing the gap by at least 6% annually over the next few years. In addition, it set up a programme with the Department of the Environment, Transport & the Regions (DETR), called Powershift, to contribute 50% of the cost of converting fleet and commercial vehicles to LPG, a subsidy that will rise to up to 75%. Finally, the government is reducing vehicle excise duty from £50 for light cars, to up to £500 for large lorries.

Vehicle manufacturers were pleased with the government initiatives and drew up plans to build LPG cars in the UK at competitive prices. Vauxhall, Daihatsu, Rover and Ford have launched several car and van models capable of running on LPG or petrol. After-market suppliers have also sought accreditation from the LP-Gas Association for LPG conversion kits that can be installed in older cars.

But the biggest drawback has been the lack of filling stations – at the time there were only about 120 depots for the whole of Britain, most of them in inconvenient locations. Shell decided to solve the problem by spending £10mn to establish a country-wide LPG dispensing network. 'We intend to demonstrate publicly that Shell is committed to alternative fuels,' says McNicoll.

Responding to the initiative

Fleet operators responded to Shell's initiative. The Humberside Police Authority wanted to take advantage of cheaper

Brand	Number
BP	2
Shell	8
Jet	5
Fina	1
Save	1
Total	**17**

**As at end of 1998*

Current total of UK forecourts retailing AutoLPG*

operating costs associated with LPG. 'Even with the cost of conversion, a fleet car can save almost £1,500 over four years (running at 30,000 miles per year), and a fleet van up to £2,400,' says Alan Hocking, Fleet and Supplies Manager.

Humberside test-drove two Vauxhall Astras for six months. The police force was so pleased by the savings that it has scheduled to convert its 460-vehicle fleet to LPG over the next four years. (Humberside asked Shell Gas to supply the fuel, and the company has responded by installing six LPG outlets in the Grimsby/Hull area, with more planned). 'The cost of the fuel versus petrol and diesel makes auto-LP Gas a very attractive proposition, particularly in the last budget,' says Hocking. 'The investment is not purely financial, however. Looking to the future, it is anticipated that all vehicles, certainly those operating in city centres, will have to comply to increasingly stringent pollution levels.'

Fleet opportunities

Lorries and buses also offer tremendous opportunities for LPG. There are over 70,000 buses in the UK, most of which run on diesel in heavily polluted, urban areas.

'Fine particulates and nitrogen oxides are big issues for fleet operators running diesel vehicles,' says McNicoll. Most London buses rely on ultra-low sulfur fuel in order to reduce emissions as much as possible, but LPG is said to offer even greater reductions. London Transport operator Arriva North London ran a Shell Gas bus on a three-month trial on the city's busiest route. Arriva engineers noted that the combination of new engines and Shell's auto-LPG offered the cleanest, single-deck bus solution to improving urban air quality. Plans are underway to add LPG buses to several urban areas in the UK.

A Royal example

As for individual owners, surveys show that the vast majority of private drivers in the UK want more environmentally friendly fuels. In May 1998, the Queen took the plunge and converted her Rolls Royce Phantom VI, a Daimler Limousine, a Rover 400 and a Metrocab Series 3 Taxi to LPG.

However, most consumers still want more information before making the jump. They want to know where to fill-up, how much will conversion cost, will it affect the warranty, and how much will it save in the long run?

Costs of conversion

Conversion of a petrol car costs between £1,100 to £1,500, and takes less than one day. The LPG tank is fitted into the spare-wheel well in the boot. A nozzle runs out of the tank to the side of the vehicle or under the rear bumper. In addition, a switch is installed on the front control panel to allow the driver to switch from petrol to LPG. 'There are no visible changes under the bonnet,' says McNicoll. 'There's no difference in how the car looks and there's no difference in acceleration performance.' A full tank of LPG will last between 200 and 250 miles.

While the caloric equivalent for LPG is slightly less than petrol – a car that gets 28 mpg on petrol would get about 24 mpg on LPG – most of the savings come through cheaper fuel costs. At current fuel price differentials, an individual user's cost of conversion can be recouped after approximately 60,000 miles.

As for the car's warranty, most car manufacturers work in conjunction with approved, after-market conversion companies to en-sure that all parts are guaranteed. 'Look for the LP-Gas Association's Approval Certificate,' recommends McNicoll.

Filling up

A trip to the service station with an LPG car is no different than a petrol or diesel vehicle. 'The LPG dispensers look and operate just like a normal petrol pump,' says Brian Madderson, Managing Director for Dover South Service, Shell's first LPG-equipped facility in the UK. 'The only difference is in the nozzle.' According to Madderson, the motorist simply attaches the bayonet-type connection to the tank nozzle and locks on, then squeezes the trigger. 'It's very easy to use, and very safe.'

Holiday visitors to the UK are quite pleased to discover that Shell has started building an LPG network. 'I met with one Dutch family that came over for their two-weeks' holiday this summer,' says Madderson. 'Even though their car was equipped with dual fuel capability, they came back regularly to fill up with LPG because it was so much more economical.'

In the long run, however, it will be fleet operators and leasing companies that will operate most of the one million-plus cars that Shell predicts will eventually run on LPG in the UK. 'We hope it will make a big difference in the quality of air in urban areas,' says McNicoll.

This article originally appeared in Shell UK *Focus*.

On the right path to drill the depths

When the world's economy returns to its long-term growth trend, rising oil demand will need to be met. Anticipating the need to replace depleted fields, the offshore industry has been forced to explore in ever deeper water. The *Deepwater Pathfinder* is a newly completed drillship which will take the quest for oil into water depths of up to 10,000 feet – an unimaginable feat only a few years ago. *Jeff Crook* reports.

In February one of the most sophisticated drilling vessels ever built started an exploration well for Conoco on Grand Banks 783 in the deepwater Gulf of Mexico. The *Deepwater Pathfinder*, built and operated as a 50:50 joint venture between Conoco and R&B Falcon, extends drilling capabilities to 10,000 feet and is equipped to handle extended well tests and could be converted to an FPSO if required.

In order to drill at water depths of up to 10,000 feet it is necessary for the *Deepwater Pathfinder* to deploy a drilling riser – a string of large diameter steel pipes – down to a blow-out preventer (BOP) on the seabed nearly two miles below the surface. But, in addition to its drilling capability, the drillship also has storage and offloading facilities for around 100,000 barrels of crude oil which may be produced during an extended well test.

The *Deepwater Pathfinder* was conceived after Conoco acquired a number of high potential blocks in the Gulf of Mexico with water depths ranging from 2,000 to 9,000 feet. The company decided it needed a drillship solely dedicated to its deepwater operations and, in 1996, it formed a 50:50 joint venture with R&B Falcon (known then as Reading and Bates) for this purpose.

The outline design was developed by R&B Falcon with assistance from Conoco's marine department. Samsung Heavy Industries of South Korea was subsequently awarded a contract to construct the $200mn vessel which was delivered late 1998. The ship is currently outfitted to drill in 7,500 feet of water and is capable of drilling up to 25,000 feet beneath the seafloor. It could be converted for the full 10,000 feet water depth capability in the future.

The vessel maintains position during drilling operations by means of a dynamic positioning system (DPS), so it does not need anchors or anchor handling vessels during deepwater operations. The 721-foot long double hull has sufficient load capacity to transport all the heavy drilling equipment, including the 21-inch diameter drilling riser and the 15,000 psi subsea BOP, without help from support vessels. There is also adequate storage for drilling mud, fuel oil and other consumables.

The six electrically powered thrusters used for dynamic positioning also give the vessel a transit speed of around 10 knots when sailing under her own power. The thrusters are said to have sufficient power to keep the vessel

exactly on station even in a ten-year Gulf of Mexico storm. The thrusters are computer controlled, with onboard computers fed with position systems from seabed and satellite systems.

Positioning first

The reliability of the dynamic positioning system is of crucial importance and Conoco claims that *Deepwater Pathfinder* is the first vessel to incorporate triple-redundant power and operating functions allowing it to qualify for the American Bureau of Shipping's DP3 classification. The diesel generators are located in three machinery spaces.

The drilling derrick is designed for a £2 million static load and incorporates a state-of-the-art draw-works which, with its advanced computer control, will perform heave compensation without the need for the usual top-mounted components. (Heave compensation compensates between the motion of the vessel and the drill string.) The active heave compensation system was supplied by Hitec of Norway.

The drillship also incorporates extensive drill floor mechanisation, with computer control and monitoring of drilling operations. Conoco says these systems virtually eliminate the human element from operating much of the traditional drilling equipment, thereby reducing the risk of injury and increasing efficiency.

'The *Deepwater Pathfinder* is a cost-effective, strategic investment that will provide Conoco with the capability to explore and develop its huge deep-water portfolio', says Conoco's President and Chief Executive Officer, Archie Dunham. 'Several factors allowed Conoco and R&B Falcon to build this high-tech drillship economically and on schedule. First, the team designed the vessel before negotiating the construction contract. That means we were able to describe exactly what we wanted and price the contract accordingly.

'We assembled an integrated team from both companies and from Samsung, with expertise in drilling, marine, construction and project management. The team built and installed both topsides and the vessel at the same yard, which saved time and money.'

The *Deepwater Pathfinder* started a $400mn, five-year drilling programme for Conoco in the Gulf of Mexico in February 1999. It is currently working on an exploration well in Garden Banks block 783. A sister ship is due for delivery later this year. The second vessel will operate in Conoco's deep-water tracts in other parts of the world, such as the Atlantic Margin, Norway, New Zealand and Nigeria. ●

Facts and figures

- Construction – Samsung Shipyard, South Korea
- Delivered – October 1998
- Water depth capacity – 10,000 feet
- Derrick – 170 feet high; 2,000,000 lb static load.
- Draw-works – 7,000 HP with integrated active compensation
- Top drive – Varco TDS-8S
- Pipe handling system – Varco PHM-31
- Hull – 221.5 metres long) 42 metres wide, 20 metres deep
- Power – 47,000 HP (35,100 kW)
- Transit speed – 10 knots
- Variable load – 20,000 tonnes
- Dynamic positioning system – Simrad (to ABS DP3 class)
- Thrusters – three bow, three stern
- Quarters – 130 persons with heliport
- Crude oil storage – 97,400 barrels

Climate change and emissions trading

_Paul Haley_* examines the oil industry as it attempts to tackle the problems of climate change. He focuses in particular on BP Amoco's internal emissions trading scheme as a mechanism for meeting greenhouse gas reduction targets. This topic is to be addressed in more detail at an IP Conference later this month.**

The oil and gas industry is seen as a major contributor to the problems of climate change and is directly and indirectly responsible for a large proportion of the greenhouse gases (GHG) that are emitted into the atmosphere. This view was reinforced by the position that many oil companies took at the climate change talks which took place in Kyoto in December 1997, where there was opposition to the issues of climate change and heavy criticism of the scientific research upon which it was based. At the forefront of the anti climate change campaign was the US-based organisation 'Global Climate Coalition' which enjoyed substantial financial and political support from a number of major international oil companies. The Kyoto Protocol was claimed to be a landmark in environmental progress and marked a turning point in the battle to combat global warming. It was signed by over 160 nations and set legally binding targets for greenhouse gas reductions and included a variety of 'flexible mechanisms' which could be used to meet these targets.

Collective cut-backs

Collectively, developed countries agreed to cut back their emissions by an average of 5.2% between 2008 and 2012 from 1990 levels. The European Union agreed to reduce its emissions by 8% below 1990 levels, the US signed on to a 7% reduction and Japan agreed to a 6% cut. Some countries, including Russia and Ukraine, were not bound to make any reductions while countries with smaller economies such as Iceland, Norway and New Zealand were allowed to actually increase their emissions. Australia was also allowed to increase greenhouse gas emissions. Developing countries, which include China and India, were given no formal binding targets, but had the option to set voluntary reduction targets – something that became a contentious issue at COP-4 in Buenos Aires last November when Argentina broke from the G-77 delegation and offered 'voluntary cuts' to reduce its greenhouse gas levels.

Kyoto included a range of mechanisms which could be used to help countries meet their GHG targets. One of these economic instruments is 'emissions trading' which is a market-based alternative to the traditional command-and-control regulation methods currently used and normally takes the form of taxation.

In an emissions trading market, GHG polluters are allocated a number of permits which entitle them to release emissions up to their allowance. Market participants may keep the permits and emit up to their allocated allowance, or reduce their emissions and sell the surplus permits in the market to other polluters who have exceeded their permit allowance. The market creates an economic incentive for polluters to reduce their emissions as they can sell their surplus permits for a profit to others who are in excess of their targets. The overall effect is that emissions are reduced at lowest cost. Emissions trading is more than mere gaming theory and has been successfully developed in the US where a market in sulfur dioxide (SO_2) was created to tackle the problem of acid rain and has led to a significant reduction in SO_2 emissions.

Breaking rank

However, since the signing of the Kyoto Protocol, a number of oil and gas companies have begun to reassess their position. Leading the way is BP Amoco, who broke rank from the oil industry after Sir John Browne, Group Chief Executive, in a historic speech, addressed the problem of climate change and admitted that the oil and gas industry had an important role to play in combating the problem. The result of this announcement sent shockwaves throughout the oil industry and has forced other oil companies to reassess their position and follow suit.

Since then BP Amoco has continued to promote its role in the battle against climate change, setting GHG reduction targets for its subsidiaries and announcing a partnership with the Environmental Defence Fund (EDF) to develop an internal emissions trading programme. The scheme will play a pivotal role in helping BP Amoco meet its demanding self-imposed GHG reduction target of a 10% cut emissions between 1990 and 2010.

BP Amoco has its reasons for developing an internal emissions trading system, which include developing a cost-effective mechanism for reducing GHG gases within BP Amoco and gaining essential experience and expertise for any future international emissions trading market. The company is also keen to contribute to the development of an emissions market and hopes that it can provide practical input into the design of any future national and international trading systems of which it will be a part. It is also keen to gather information on the pricing of the trades, something that could well prove advantageous in future external trades.

Design and implementation

BP Amoco has initially selected 12 of its business units (BUs), out of a total of 90 worldwide, to participate in its trial emissions trading programme. They are geographically and sectorally diverse with eight units in Europe, three in the US and one unit in Australia. The units represent a selection of the company's exploration, refining and chemicals businesses and together account for about 25% of BP's total carbon dioxide (CO_2) emissions before its merger with Amoco. There are also two 'observer' BUs located in developing countries that will watch and learn as the scheme develops.

Each BU has received a basic allocation of declining emissions rights for

the period 1999 to 2003 which are consistent with the company's overall target for CO_2 emissions. Each unit will have to ensure that emissions are within allowable limits in each annual compliance period, plus or minus purchase or sale of rights. Any BU which fails to comply with this will be fined for non-compliance.

The BUs are allowed to bank unused allowances at the end of each year for future use but cannot borrow from future allocations. The trading is conducted through a 'central' bank with BP's oil traders responsible for brokering and registering trades. Each BU will be externally audited each year to check compliance.

CO_2 reduction targets

The company has set an overall target of at least a 3% reduction in CO_2 emissions by the year 2003 from a 1995 baseline. This compares with an overall 10% CO_2 emissions reduction for the company as a whole requested by Sir John Browne. BP Amoco's task is considerable – in 1990 total CO_2 emissions totalled 40mn tonnes, a figure that was virtually unchanged last year. With emissions set to grow to 58mn tonnes by the year 2010, BP Amoco will have to reduce its emissions by a demanding 22mn tonnes if it is to remain on target. (Note: These figures are based on CO_2 emissions pre merger).

It is hoped that internal emissions trading will offer the incentive to implement increased energy efficiency improvements and incorporate new technologies.

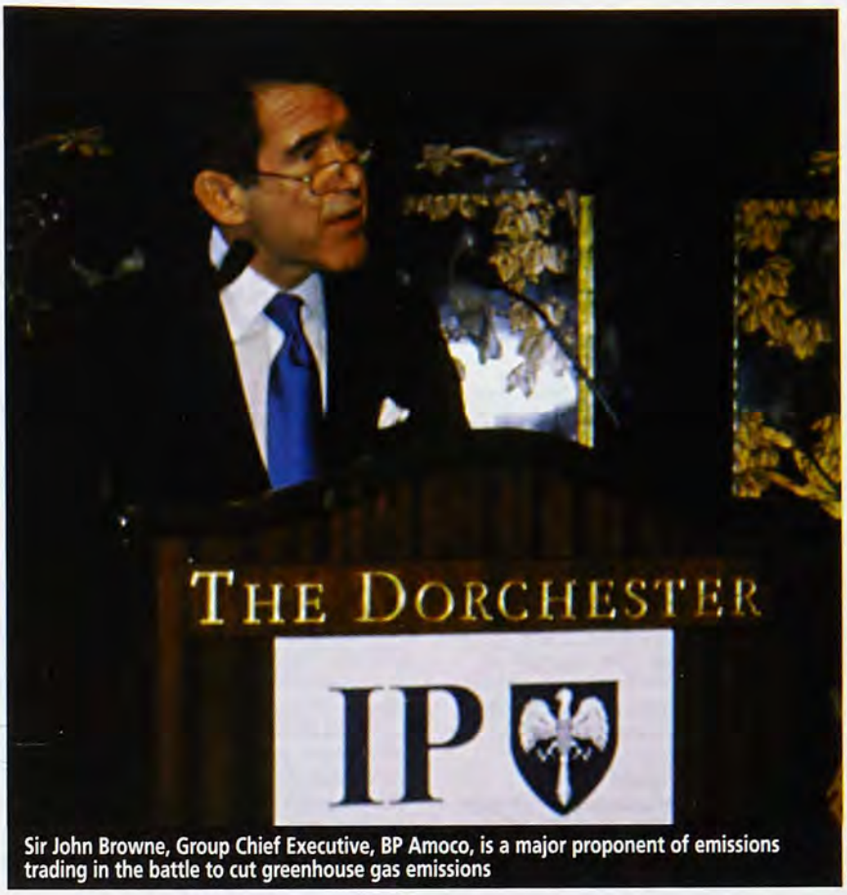
The framework for the trading programme is now firmly established with CO_2 emissions data on each BU collected. Each BU has compiled abatement options for GHGs and allocations have been announced. The programme is being closely watched and any results eagerly anticipated, especially by other oil companies.

Charlotte Grezo, Manager, Climate Change at BP Amoco has revealed that the permit trading price is in the range of \$17–22/t of CO_2 but warns that this figure could rapidly change as more trades take place.

Others to follow

The environmental position taken by BP Amoco has forced other oil companies to follow suit and announce GHG reduction targets and emissions trading schemes.

Shell has announced its intention to introduce an emissions trading scheme similar to BP Amoco when it revealed in October 1998 that it aimed to cut GHG emissions by at least 10% between 1990 and 2002. In 1990 Shell's total emissions amounted to 140mn tonnes and by 1997 the figure had only decreased by 5% in real terms to 133mn tonnes. But it should be noted that Shell has refused to set a longer term target, unlike BP Amoco whose target extends to 2010, stating that it hopes to beat the average target of 5.2% set at Kyoto comfortably, implying that Shell might allow emission levels to rise after 2002. Shell hopes that its internal emissions trading programme will be underway by the end of this year.



Sir John Browne, Group Chief Executive, BP Amoco, is a major proponent of emissions trading in the battle to cut greenhouse gas emissions

Other oil companies that have announced targets include the French group, Elf Aquitaine, which intends to cut its emissions of CO_2, methane and nitrous oxide by 15% between 1990 and 2010. It aims to cut its CO_2 emissions from 42mn to 36mn tonnes, mainly by reinjecting flared gases back into the ground of its main African operations.

The road ahead

A consensus is now developing within the oil and gas industry with regard to the problems presented by climate change. The acknowledgement of the environmental problems that oil and gas can cause is leading some oil companies to look at alternative sources of energy for future development. BP Amoco and Shell are actively developing their solar power divisions and view solar as an area with great potential, especially in the developing world. The Kyoto Protocol could prove to be a significant milestone for the oil and gas industry as it offers them the incentive to develop cleaner forms of energy.

The concept of emissions trading is fast becoming a reality in this country, and with the recent announcement from the International Petroleum Exchange (IPE) that it intends to launch a pilot emissions trading scheme by the end of this year, London could soon find itself at the centre of an international GHG emissions market which some predict will be worth up to \$40bn by the year 2010.

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'The Second International Conference on Emerging Markets for Emissions Trading', which is endorsed by the Institute of Petroleum, takes place in London from 26–27 April 1999. For further details contact Global Village Conferences Tel: +44 (0)171 538 1700; Fax: +44 (0)171 538 4244; e-mail: **info@emissions.co.uk

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Vibrant

The concept is the brainchild of 34-year-old Scottish entrepreneur Calum Maclean, who recognised the need for an industry-specific service on the web over two years ago. "The Internet is the communications medium of today," said Maclean from the hustle and bustle of the company offices in Belfast. "It's new, it's vibrant, but most importantly, it's immediate, allowing us to provide those involved in the oil and gas business with news virtually as it happens.

"Our strategy is to give the industry what it needs in a single, easy to use, comprehensive web-site.

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A consultation program involving several major operators and some of the industry's leading contracting companies supported a $2.2 million backing from investors in Oslo, Hamburg and Dublin as well as Maclean himself.

IINoil was launched officially on the Internet just a few months ago, but already it is at the leading edge of the corporate and news information field.

Unique

The Belfast headquarters is operational 24-hours-a-day, 364-days-a-year. Here, information from around the IINoil global network is gathered, sorted, presented and monitored by the main editorial, projects and administrative teams supported by the very best in information technology systems.

The company has an exclusive team of energy correspondents who provide news and analysis from the world's energy centres in Aberdeen, The Middle East, Beijing, Jakarta, Calgary, Caracas, Houston, Perth, Stavanger and Quito.

In addition, the editorial team monitors every source of oil and gas coverage available and has up-to-the-minute direct feeds from the world's leading news service agencies, including the BBC World-wide, Reuters, Asia Pulse, Agence France Presse and Business News America.

This unique combination of resources results in a constant tick-over of real time information.

Intelligence

In addition to a round-the-clock industry news service, IINoil also has an experienced multi-lingual research team gathering and collating information on contracts and projects - both current and potential - within the industry

Project intelligence is a considerable weapon in any company's armoury and the IINoil project database holds detailed information on thousands of projects world-wide. The research team monitors the progress of each contract from initiation through to completion providing data on scope, duration and value as well as details on contractors and important contact names.

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Dynamism

Nowhere is the dynamism of the industry more apparent than in the employment sector. The oil and gas field is recognised as the most active employment group in the world. Each working day, up to 100,000 people are on the move, project to project, company to company and the IINoil Employment Exchange is designed to meet the particular manpower needs of this fluid environment.

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Confident

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For a foretaste of this exclusive web-site and for details of the array of services available, IINoil is currently offering a free seven-day trial on its web-site at **http://www.iinoil.com**

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The news service provides up-to-the-minute global and regional coverage of news and current affairs, projects and business. It is supported by an extensive and growing archive library as well as invaluable information on exchange rates, world indices, rig counts and oil prices.

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NB: Access to the Company Directory, worth $149.00, comes FREE with the Projects Database. Both are available as a quarterly up-dated CD-ROM (see below).

The eIINXmail Service

Two services on offer: Executive/Syndicate News is a daily service tailored to suit individual and news agency needs; and the Weekly Newsbrief gives an at-a-glance headline summary of the news from the previous seven days. The eIINXmail content is also available by fax and standard post.

Executive/Syndicate daily news costs $449.00 per year and comes with FREE access to the web-site news channel. The Weekly Newsbrief service costs £149.00 per year.

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Instant off-line access to the IINoil directories, up-dated quarterly.

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IP THE INSTITUTE OF PETROLEUM

HAVE YOU TAKEN UP THE MEMBERSHIP CHALLENGE YET?

Individual Members continue to join the Institute of Petroleum despite the continuing downsizing of the oil and gas industry. 1998 was our nineth continuous year of growth.

For the second year running, British Airways has agreed to act as the official sponsor to our winter competition. British Airways has agreed to donate two business class tickets to an exotic location to the IP Member who recruits the most new members between 1 November 1998 and 31 July 1999.

At this time of year, we like to award all our proposers for their good work!! All Members who recruit a single new Member will be entered into a prize draw to win two tickets to Paris - the draw will be made at The Annual Branches meeting in September of 1999.

Who would you propose?

We believe that our current Members are the best people to recruit new Members and the statistics would seem to prove us right. Over 50% of the IP's Individual Members stated that they joined the IP on the personal recommendation of an existing member.

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- Use of the suffix **M Inst Pet** after your name
- Receive a **free** monthly copy of *Petroleum Review*
- Join any of our specialist **Discussion Groups** or become involved in the **Branches network**
- Obtain substantial **discounts** on attending any of the Institutes conferences or seminars
- A **free** entry in our Consultants handbook
- Gain **free** access to our Library
- Obtain **discounts** on on-line searches using a variety of databases and the Reuters Business service from our Information Service
- Receive a **free** copy of our Lifetime Learning Workbook and Plan
- The opportunity to establish **new contacts** through discussion groups and branch meetings
- Obtain information from our **web page** when you click on www.petroleum.co.uk

ABOUT YOU & YOUR INTERESTS

1 HOW WERE YOU INTRODUCED TO THE IP? (PLEASE TICK ONE BOX ONLY)

- ❑ Personal recommendation
- ❑ Company requirement
- ❑ Via library/information services
- ❑ Via IP conferences/meetings
- ❑ Via IP's technical work
- ❑ Via *Petroleum Review*
- ❑ Other
- ❑ By the IP contacting me

2 ACADEMIC OR PROFESSIONAL QUALIFICATIONS AND SUBJECTS (HIGHER FIRST)

Qualification	College/University	Year	Subject

MEMBERSHIP OF PROFESSIONAL BODIES (EG INSTITUTION OF MECHANICAL ENGINEERS)

Professional Body	Grade of Membership	Chartered Status (eg CEng)

3 EMPLOYMENT STATUS

❑ Employed ❑ Self-employed ❑ Retired ❑ Student ❑ Other

4 TYPE OF ORGANISATION BY WHICH YOU ARE CURRENTLY, OR WERE MOST RECENTLY, EMPLOYED (PLEASE TICK ONE BOX ONLY)

- 00 ❑ Major international integrated oil company
- 01 ❑ Other integrated oil company
- 02 ❑ Independent oil company upstream
- 03 ❑ Independent oil company downstream
- 04 ❑ Supply/distribution/storage
- 05 ❑ Other energy industry (gas/coal etc)
- 06 ❑ Eng. contractors/manufacturers/suppliers of equip.
- 07 ❑ Shipping
- 08 ❑ E&P services
- 09 ❑ Inspection/laboratory service company
- 10 ❑ Chemical/additive company
- 11 ❑ Transport industry & retail services
- 12 ❑ Information technology/computing/publishing
- 13 ❑ Traders/brokers
- 14 ❑ Investment/finance/banking/legal
- 15 ❑ Educational/training establishment
- 16 ❑ Government/military/local authority
- 17 ❑ Consultancy
- 18 ❑ Industry association
- 19 ❑ Research establishment
- 20 ❑ Geophysical/seismic company
- 21 ❑ Aviation
- 22 ❑ Other (please specify) _____

5 JOB FUNCTION (PLEASE TICK MAXIMUM OF 2 FUNCTIONS WHICH BEST DESCRIBE YOUR CURRENT OR MOST RECENT JOB)

- 00 ❑ Director/general manager
- 01 ❑ Planning/economics/project management
- 02 ❑ Financial/computer services/information technology
- 03 ❑ Personnel/industrial relations/training
- 04 ❑ Administration/legal/public affairs
- 05 ❑ Product & process research & development
- 06 ❑ Exploration & geophysical
- 07 ❑ E&P services/offshore support/subsea
- 08 ❑ Drilling & production
- 09 ❑ Supply & trading
- 10 ❑ Transport/pipelines/shipping
- 11 ❑ Refining/manufacturing
- 12 ❑ Marketing/sales/distribution
- 13 ❑ Product quality/analysis/testing/measurement
- 14 ❑ Engineering/design/construction
- 15 ❑ Medical/health & safety
- 16 ❑ Environment
- 17 ❑ Academic
- 18 ❑ Gas
- 19 ❑ Media/publications
- 20 ❑ Storage
- 21 ❑ Microbiology
- 22 ❑ Loss control
- 23 ❑ Retail
- 24 ❑ Inspection
- 25 ❑ Lubricants
- 26 ❑ Petrochemical
- 27 ❑ Library/information services
- 28 ❑ Other (please specify) _____

6 INTERESTS PLEASE INDICATE, USING THE CODE NUMBERS IN '5' ABOVE, THE THREE SUBJECT AREAS WHICH MOST INTEREST YOU:

❑ ❑ ❑

7 IS/WAS YOUR WORK PRIMARILY:

❑ Upstream? ❑ Downstream? ❑ Both?

DATA PROTECTION ACT 1984

Any information provided by you may be held by the IP in its computer records. Please tick the box if you do not want to receive details of products or services from other organisations with whom we may associate. ❑

PAYMENT

Applications for the year commencing 1st January 1999 must be accompanied by payment, as follows:

Applicants of 25 years of age or more – £56.00

Applicants of under 25 years of age – £10.00

THE IP'S PREFERRED METHOD OF PAYMENT IS DIRECT DEBIT

1. DIRECT DEBIT

INSTRUCTION TO YOUR BANK/BUILDING SOCIETY TO PAY DIRECT DEBITS

DIRECT Debit

1. Name and full postal address of your Bank or Building Society

To The Manager

Bank or Building Society _____

Address _____

_____

2. Name of Account Holder _____

3. Branch Sort Code
(from the top right hand corner of your cheque)

❑❑ ❑❑ ❑❑

Banks/Building Societies may refuse to accept to pay Direct Debits from some types of account

Originator's Identification Number

9 9 2 5 6 7

4. Bank or Building Society account number

❑❑ ❑❑ ❑❑ ❑❑

5. Instruction to your Bank or Building Society
Please pay The Institute of Petroleum Direct Debits from the account detailed on this instruction subject to the safeguards assured by the Direct Debit guarantee

Signature(s) _____

Date _____

OTHER METHODS

2. CREDIT CARD

Please debit the sum of £_____ to my: Diners Club ❑ Eurocard ❑ Mastercard ❑ Visa ❑

Switch ❑ Issue number ❑

CARD NO: ❑❑❑❑ ❑❑❑❑ ❑❑❑❑ ❑❑❑❑ Expiry date: _____

Card Holder's Name: _____ Card Holder's Signature: _____

Registered Address: _____

3. CHEQUE

Please make cheques payable to 'The Institute of Petroleum'. If you have no bank account in the UK, please pay by sterling bank draft drawn on a London bank. Please do not send cheques drawn on a bank outside the UK, as bank charges can be as high as £25.00.

PERSONAL DETAILS

Surname

First Name(s)

Mr/Mrs/Miss/Ms/Dr etc

Date of Birth

Home address

Postcode

Country

Telephone

Fax

E-mail

Job Title

Name of Company

Company Address

Postcode

Country

Direct Telephone

Direct Fax

E-mail

Preferred mailing address ❑ home ❑ business

You require a proposer who is an IP Member, or, if you do not know one, a letter of recommendation from someone who knows you professionally

PROPOSER

I, being an individual member of the Institute of Petroleum (membership no .....) or nominated representative of a collective member (company name .....) and having known the candidate personally for ..... years, propose and recommend him/her in accordance with the By-Laws as a fit and proper person to belong to the Institute.

Signature: _____

Date: _____ Name: _____

APPLICANT

I, the undersigned, declare that the statements made herein are correct to the best of my knowledge and belief. I agree, if admitted to membership, to be governed by the rules and regulations of the Institute of Petroleum as they now exist and as they may hereinafter be altered. I agree that the information given on this form may be held at the IP and its branches and that my name may be published in *Petroleum Review*.

Signature: _____

Date: _____

Photo: David Hayes

Economic crisis forces power development delays

Thailand's economic crisis has had a severe impact on the country's electricity industry, causing a drop in power consumption for the first time in over 30 years in 1998. With the economy unlikely to recover for another year or two, the state-run Electricity Generating Authority of Thailand (EGAT) has been forced to negotiate a slow-down in plans to commission a series of private power plant projects for at least a year to avoid the build-up of excess generating capacity while deferring its own development plans for even longer. *David Hayes* reports.

Gas production platform, Erawan gas field, Asian Development Bank, Thailand

The government's decision to request assistance from the International Monetary Fund (IMF) will result in a complete restructuring of Thailand's electricity industry in the future. EGAT already had formed Electricity Generating plc (Egco) as a private company to operate two gas-fired power stations totalling 2,100 MW and was preparing to buy in electricity from private power producers in the future. Now, under the IMF agreement reached in April 1998, EGAT will sell off its various other gas-fired and lignite-burning stations, retaining its hydroelectric stations as its only power generation facilities. However, EGAT also will continue to own and operate Thailand's national power transmission system, buying in electricity from privatised and new private producers to supply the Metropolitan Electricity Authority, Provincial Electricity Authority and large customers, acting as a common carrier and not as an electricity pool operator.

Drop in demand

Thailand's power sector problems became evident early in 1998 after the slowdown in industrial activity quickly caused a sharp drop in electricity use. According to EGAT peak load electricity demand reached 14,180 MW in April, representing a 2.25% drop compared with peak load demand of 14,506 MW recorded in May 1997, two months before the economic downturn hit the kingdom. The fall in peak demand brought an abrupt end to Thailand's previously high peak electricity load growth rate which had averaged about 12% annually during most of the past decade.

Initially optimistic that the economic crisis would be short term, Thailand's energy sector is now resigned to the fact that an economic turnaround is likely to take two or three years. EGAT originally expected a 0.5% drop in power demand to occur in 1998, although it is now clear the economic slowdown caused power demand to drop by about 2% last year. At present there is little prospect of a sudden upturn in demand in 1999.

According to an EGAT spokesman, based on current macroeconomic forecasts, energy consumption is forecast to rise 2.4% in financial year 1999 while power demand will grow 1.5%. At the same time Thailand's economy is expected to record a slight growth of about 1% this year after a decline of 8% in real GDP growth in 1998.

Delayed development

Using these figures EGAT is forecasting that the authority's reserve generation margin will increase to a worse case scenario of 54% of installed capacity in 2001, depending on the country's actual economic performance and the implementation of Phase One of the government's independent private power (IPP) programme. Faced with the prospect of

a huge excess of generating capacity, EGAT already has been forced to delay its own power development programme and has been negotiating with IPP developers to slow down their project completion schedules.

'We are delaying by three to four years all of EGAT's own projects within our power development plan for which no commitments have been signed,' the EGAT spokesman said. 'This means we will continue to implement the Ratchaburi gas-fired station and Krabi power plant projects on schedule, but we will delay almost everything else.'

Depending on what happens this year EGAT's management is considering the possibility of mothballing some of its excess power plant capacity. Although no firm decisions have been taken, oil-fired units at Bang Pakong power station would be the first to be taken out of service.

'We will keep the Mae Moh lignite-fired station in northern Thailand because that is our cheapest power source and keep natural gas generation,' the spokesman said. 'In terms of primary energy mix there will be a clear shift in favour of natural gas.'

Increased gas use

Thailand's reliance on gas-fired power stations will grow in the future following a recent government directive to EGAT to convert various existing and planned oil-fired power stations to gas-burning. At present gas-fired stations account for almost half of Thailand's installed electricity generating capacity while oil-fired power plants generate about 20% of electricity production. The kingdom's remaining power capacity is provided by various hydro-electric and lignite-fired schemes.

Government directives to increase the proportion of gas-fired electricity generation are aimed at several purposes. Industrial consumption of gas has slumped since the start of the economic recession. Consequently the government is looking to EGAT to increase gas consumption to make up for the forecast shortfall in gas demand over the next few years and create sufficient demand for planned new gas supplies from indigenous gas fields, the Yadana field in Burma and the Malaysia–Thailand Joint Development Area.

The government also wants to reduce Thailand's dependence on imported oil and substitute oil use with indigenous gas. Following the fall in the value of the Thai baht, Thailand's total oil import bill rose 18.2% in 1997 on a 1.2% rise in oil import volume. Natural gas currently is between 10% to 20% cheaper than the fuel oil which it would replace in EGAT's power plants. Thai energy officials say that gas use at the 1,300 MW Bangkok South power plant which burns both oil and gas could rise if more gas were available. The smaller 200 MW Bangkok North and 20 MW Surat Thani power plants also could convert from oil-firing to burn gas if gas pipelines were built to supply these stations.

In fact, natural gas consumption is continuing to grow in Thailand in spite of the economic crisis. In 1998 the Petroleum Authority of Thailand (PTT) supplied an average of 1,555mn cf/d of gas, up 5.4% from the previous year's average of 1,474mn cf/d and one-third more compared with 1,182mn cf/d in 1996.

Electricity generation is Thailand's largest consumer of gas with about 85% of gas supplies being used in power stations. In 1998 EGAT took an average of 1,161mn cf/d, accounting for 74% of gas supplies, while small power producers used 138mn cf/d, representing 8% of gas use. Gas consumption for power generation also includes cogeneration operators who took 25mn cf/d, accounting for a further 2% of supplies.

Although gas use for power generation grew in 1998, gas consumption by industry declined, reflecting the impact of Thailand's economic crisis on the manufacturing sector. Last year the 120 or so industrial customers that PTT supplies took an average of 75mn cf/d, representing 5% of gas supplies, while gas separation plants took the remaining 156mn cf/d, equivalent to 10% of gas use.

At present most of Thailand's gas supplies are domestically produced. All production is sold to PTT which then supplies gas to customers through its pipeline transmission grid. Unocal Thailand is the kingdom's largest gas supplier supplying almost 1,000mn cf/d from 11 offshore fields including Erawan, Platong and Satun in the Gulf of Thailand.

The other major gas supplier is the offshore Bongkot gas field in the southern Gulf of Thailand which supplies 550mn cf/d. Bongkot is operated by a consortium of PTT Exploration & Production of Thailand, Total of France and British Gas after Statoil of Norway sold its Bongkot stake to the three remaining partners late last year. Apart from offshore gas supplies a small amount of gas is produced onshore in northeastern Thailand.

Burmese gas imports

Thailand's gas supply mix is about to change this year when piped imported gas is due to begin arriving in commercial volumes from the Yadana gas field in Burma operated by a consortium led by Total of France, in which Unocal also has a major stake. To accommodate the arrival of Burmese gas PTT has recently announced plans to reduce purchases from Unocal Thailand by about 4.8% in 1999. Unocal as a result is forecasting that average gas sales from its fields in the Gulf of Thailand will drop by 48mn cf/d to about 935mn cf/d in 1999, a 4.9% decrease compared with 983mn cf/d in 1998 but still well above the minimum 740mn cf/d contractual level that PTT has contracted to offtake from Unocal.

Photo: David Hayes

Petroleum Authority of Thailand head office, Bangkok

According to PTT's present revised schedule Yadana gas will begin flowing in April or May 1999 once work is completed installing the first two 200 MW gas turbines at Ratchaburi power station which is located 120 km west of Bangkok. Due to technical problems faced by the project contractors, EGAT has been forced to delay starting up Rathchaburi power station by eight months.

EGAT's problems at Ratchaburi have meant that PTT has had to delay offtaking Yadana gas in commercial volumes. Since the contractual start-up date in July 1998, PTT has been able to take only 5mn cf/d of Yadana gas compared with the 65mn cf/d contractual start-up level. Talks are already underway between PTT and the Yadana consortium over payment for non-offlifted gas under a 30-year take-or-pay contract the parties signed to launch the Yadana gas scheme.

Even with two gas-fired turbines in service the volume of gas that PTT can take to supply Ratchaburi power station will be well below the contracted plateau volume of 525mn cf/d that PTT is supposed to take 15 months after the July 1998 contractual start-up date. According to PTT's current timetable EGAT's Ratchaburi plant will be the only consumer of Yadana gas until mid-year 2000 when a project is due to be completed to

build a pipeline extension from Ratchaburi power plant to Wang Noi in Ayutthya, about 65 km north of Bangkok, where the pipeline will feed Yadana gas into PTT's existing gas transmission grid.

PTT is keen to see the pipeline extension completed on time. Recently it awarded an Italian-Japanese consortium of Saipem and Mitsui & Co a $145mn contract to build a 154-km long pipeline from Ratchaburi power plant to Wang Noi. The 30-inch diameter, high pressure pipeline is due for completion in May 2000 and will allow PTT to supply Yadana gas to other customers through its grid network.

Project deferrals

Meanwhile, Thailand's economic crisis will slow down the growth of gas-fired power generation for the next few years as plans to build several gas and coal-fired IPP power plant projects have all recently have been deferred by about one year. At the end of 1998 EGAT had a total installed electricity generating capacity of about 17,800 MW at its disposal, including contracted hydroelectric power capacity in Laos. The government's long-term power development programme plans originally called for the total available installed capacity to grow three-fold during the next 12 years to reach 47,277 MW by the end of 2011. This programme is now under revision and it is anyone's guess when the government will announce a new long-term power plant start-up timetable.

Under the government's original plan a total of 31,100 MW installed capacity was to be added by 2011 while 2,578 MW was expected to be retired from service. Of the total new capacity, some 17,244 MW, over half, was due to be built by IPP plant operators. Plans called for about one-third of the IPP capacity to be built by 2003 while the remaining IPP capacity was due to start up between 2006 to 2011.

Small power producer plants

Apart from IPP plants, the government's long-term plans called for the construction of 34 small power producer (SPP) plants supplying 1,776 MW. These units are planned for construction as captive power plants by industrial users, who will sell their excess capacity to EGAT. About 17 plants are expected to be completed on schedule while the rest will be delayed by six months or more due to the power plant owners' own electricity requirements falling because of Thailand's economic crisis.

EGAT also is committed to buy 3,000 MW of electricity from Laos by 2006 where several hydroelectric and lignite-fired stations are due to be built to generate electricity for export to Thailand. Power purchase agreements have still to be negotiated, raising doubts whether the projects will be completed on schedule.

IPP phase one

Meanwhile, Thailand's Phase One IPP programme due for completion by 2003 is expected to be completed largely on time, although with commissioning of most new units delayed by one year until 2002 or 2003. Phase One involves construction of seven IPP schemes totalling 5,944 MW installed capacity for which EGAT already has signed contracts to purchase a total of 5,800 MW.

At present only two of the seven approved IPP Phase One schemes has arranged project finance. In July 1998 Tri Energy became the second IPP to complete project financing following the onset of Asia's regional economic crisis which has shaken investors' confidence in Thailand's IPP programme. In fact, the Tri Energy scheme took three years to secure financial backing after the project originally was approved in June 1995.

Tri Energy, in which the shareholders are Banpu of Thailand, Texaco and Edison Mission of the US, has arranged funding with a nine-member international bank consortium. Tri Energy has awarded General Electric (GE) a contract to build a 700 MW gas-fired combined cycle station which GE also has contracted to operate for the investing consortium.

With finance now in place, Tri Energy is looking to start up its plant in July 2000, three months after the original proposed start-up date. The company will buy gas from PTT under a 20-year supply contract.

The other IPP scheme with investors lined up for its power plant is Independent Power (Thailand) Co Ltd, formed by a consortium of Thai Oil, Unocal Corp and Westinghouse. Also building a 700 MW gas-fired combined cycle station, but with an earlier start-up date in late 1999, Independent Power already had arranged project finance before Thailand's economic crisis erupted in July 1997.

Recently, in February EGAT announced that four of the five other international consortia planning to build Phase One IPP power projects valued at more than $4bn had agreed to delay their projects for at least a year to help EGAT cope with its excess generating capacity problems and to overcome their own financing difficulties. EGAT originally had hoped to delay all five projects by two to three years. However, the four consortia have agreed to delay their projects by 12 to 13 months while a fifth group is expected to delay its project for two to three years.

In agreeing to the delay the four consortia will be paid 3% on top of an availability tariff once their power projects start up. This is in addition to a previously agreed contract revision to limit the projects' currency exposure follow the severe devaluation of the Thai baht. In fact, none of the consortia have obtained financing for their projects because of banks' worries about lending risk due to Thailand's recession.

Two of the IPP consortia that have negotiated a delay to their projects are due to build gas-fired power plants. Bowin Power Co Ltd, owned by Hemaraj, Tractebel and Intergen is due to construct a 673 MW combined cycle plant. Start-up is delayed from April 2001 to April 2002.

Eastern Power & Electric Co Ltd, set up by MDX Power of Thailand and Marubeni of Japan plans to build a 321 MW gas-fired station. Plant commissioning has been delayed from January 2001 to January 2002.

The two other consortia plan to build coal-fired stations. The largest scheme involves a 1,400 MW coal-fired station to be built by Union Power Development Co in which the shareholders are Southern Co, Union Energy of Thailand, Tomen of Japan and Imatran Voima Oy of Finland. The start-up of the 700 MW unit one will be delayed from September 2001 to October 2002 while commissioning the 700 MW unit two will be put back from December 2001 to January 2003.

Gulf Power Generation Co Ltd is due to build a 734 MW coal-fired station. Owned by a consortium including Siam City Cement and Lanna Lignite and Mission Energy, start-up of the 367 MW unit one will be delayed from October 2001 to October 2002 while commissioning of the 367 MW unit two will be put back from April 2002 to April 2003.

Meanwhile, BLCP Power Ltd, a Thai-British partnership involving Banpu, Loxley of Thailand and PowerGen of Britain, has told EGAT the company may need to delay commercial start-up by two to four years from the original date of October 2002 for the 673 MW unit one of its proposed 1,346 MW coal-fired station in Rayong. Now expected to be the last of the seven Phase One IPP projects to start up, BLCP is reconsidering whether to use coal as fuel after Rio Tinto Group, the British-Australian mining group which was to supply the BLCP plant with coal, recently decided to sell its 10% shareholding in the consortium. BLCP would need about 200mn cf/d of gas to fuel its power plant which Thailand's various local producers would all be keen to supply.

IT solutions to optimise fuel distribution

Distributing fuel on a national and international scale is both complicated and costly. There are complexities created by the regulations and optimising the scheduling of deliveries to multiple locations to meet fluctuating demands from a number of depots is highly problematic. *David Edgar,* consultant in CMG's Oil and Gas Division, describes the way large fuel distributors, including Shell International, are using increasingly sophisticated computer systems to bring efficiencies to the distribution process.

The challenge for fuel distributors is to smooth the total supply chain of fuel over five-, six- or seven-day cycles. By predicting demand and planning deliveries as accurately as possible they can strip costs out of the distribution network, reduce customer stock-holding and maximise the capabilities of correctly sized vehicle fleets.

Companies encounter a number of problems when working to achieve those aims. Every customer site may have different delivery constraints – limited opening hours, busy trading hours, access restrictions and acceptance or otherwise of automated re-ordering. Such constraints must be foreseen and accounted for in any scheduling plan.

A second issue is the differences in requirements and regulations in different countries governing product combinations on the same vehicle, retention of vehicle stability in a multi-drop situation, axle weight restrictions, access to city centres during certain times of day and driver break rules.

Demand levels fluctuate, but are, to a certain extent, predictable. Daily fuel sales can be affected by factors such as national holidays, local events, extremes of weather, time of day and road conditions. Fuel supply companies may need to forecast demand from their own operations as well as third-party dealers so that loads can be balanced over a weekly (or longer) cycle with consequent savings in fleet size, driver overtime and third-party hire charges.

From man to machine

In the past, planning and forecasting processes have been handled manually, often by ex-delivery drivers with the experience of customers and the routes involved. Ever increasing complexity and the need to calculate optimum schedules have led to manual systems being replaced by computer-based ones.

Modern computer assisted systems are based around order pre-planning and complex algorithms which take account of variables such as site to site distances, average travelling speeds at different times of day, configured vehicle (driver + tractor + trailer{s}) options, depot stocks and loading capabilities for each product, site constraints, loading and drop times and regulatory requirements.

Completed shift schedules are normally passed to a despatch function at stock depots via an administration system. Future versions of current automated systems will allow dynamic re-scheduling during the course of a shift for emergency orders or to cover vehicle breakdowns. Vehicles normally affected by ever changing schedules would be those making several trips to local customers per shift.

Shell's solution

An example of how automated systems work in practice can be found at Shell International. For a number of years the company has operated two systems known as CROSS 2 (Customisable Routing and Scheduling System) and CPP (CROSS Pre-Planner). These are used to plan optimum delivery schedules and to manage stock holding and ordering for retail service stations and some large commercial customers in 12 countries worldwide. The use of these systems has meant that distribution costs have been reduced, while meeting fuel requirements at lower stock holding costs.

In 1997, CMG worked with Shell to complete the development of an updated system – CROSS 3. This will replace CROSS 2 and CPP and a variety of manual and semi-automatic processes. The CROSS 3 project had been designed and partially delivered when CMG took it over from Shell's previous supplier. CMG's main challenge was to significantly improve system performance and to complete outstanding development including testing within tight time-scales. The initial performance criteria were met early in 1998 and a process of continual improvement assisted by the use of more powerful computers has led to significant progress since then.

CROSS 3

Shell operating companies handle distribution operations for bulk fuels to retail service stations and commercial clients. Retail service stations are either run as company owned, company operated sites or as independent businesses. In most of the Shell operating companies this involves centralised scheduling and, in many, pre-planning.

Pre-planning takes the burden of ordering bulk fuel away from service stations and some large commercial customers. Potential deliveries are calculated using factors including fuel tank capacities, daily stock level readings, derived sales patterns and predicted exceptional demands – for each grade of fuel. Service stations sell fuels at low margins and need to avoid having working capital tied up in expensive bulk stocks.

By pre-planning deliveries, Shell can meet service station requirements and also optimise its own resources (including its tanker fleet) and flatten the fuel delivery workload – which otherwise goes through peaks and troughs according to reaction to daily demand fluctuations at retail sites and commercial customers.

'The motivation for developing CROSS 3 was to replace our ageing CROSS 2 and CPP systems with a new system. This would allow us to continue enhancing the utilisation of our delivery fleet, reduce working capital tied up in stocks, and reduce the back-office workload and overheads associated with the delivery scheduling and distribution of bulk fuels,' says Len van der Westhuizen, Product Manager for CROSS/CPP at Shell International. 'An increasing part of our business is in retail operations, and we constantly strive to reduce the cost of delivering fuel whilst satisfying agreed customer service requirements. CROSS 3 is an enabler for this and also supports the centralisation of back-office processes.'

Algorithms

Shell first developed its core algorithms for scheduling deliveries of fuel in the 1970s. Since then, these algorithms have evolved in Shell's research labs to become highly flexible and sophisticated. The issue that Shell faced in the early 1990s was that while it had a powerful engine to optimise deliveries in a variety of markets, this was accessed from the relatively antiquated user interface of CROSS 2.

CROSS 2 is built around a character-based interface. It has not kept pace with other office applications used at Shell, and users have to access a non-graphical system from a mainly Windows-based environment.

'CROSS 2 and CPP were sophisticated from the point of view of internal algorithms and engines,' explains van der Westhuizen. 'We wanted to upgrade these systems to include the use of a good GUI (graphic user interface), and to have a common database between scheduling and pre-planning.'

Having looked at packaged applications for scheduling available on the market, Shell decided that it would be better to re-develop the front-end of CROSS 2, but to leave its algorithms intact as far as possible. CMG took over the resulting development project in January 1997, when it was at a relatively advanced stage. The system that had been developed for Shell was rich in functionality but had serious performance issues and Shell decided to appoint another partner to improve the system.

The project demanded strong project management skills, high levels of technical competence and also an understanding of Shell's business requirements. CMG met the criteria and went on to successfully implement a prototype system in February 1997. Further project performance checkpoints were passed in August and December 1997 and the final targets were met at the end of March 1998.

A beta version of the system, which supported the scheduling process, was completed by October 1997. Pre-planning and digitised mapping were integrated early in 1998.

The CROSS 3 pre-planning module performs the same functions as the earlier CPP by generating potential orders on behalf of retail sites and some commercial customers. The delivery scheduling part of CROSS 3 integrates telephoned orders from service stations and commercial customers with orders pre-planned for other retail sites and commercial customers. The delivery requirements of service stations and commercial customers (both pre-planned and ad hoc) are then scheduled by the system in a way which optimises on delivery costs whilst providing the required levels of customer service.

The system appears deceptively simple, but it handles massive numbers of variables. According to van der Westhuizen: 'those combinations would have been impossible to handle with the originally developed CROSS 3 system, without the changes implemented by the team led by CMG, which led to massive improvements in system performance.'

'For example, Shell had specified that it should take 60 minutes to run CROSS 3's automatic scheduling engine for a set number of orders and sites reducing to 10 minutes after further tuning. The original CROSS 3 took 2,162 minutes (36 hours), and the system delivered by CMG in March 1998 took only 54 minutes – and that has since been reduced to 4 minutes. The original system took 276 seconds to handle a request to change one trip and check vehicle availability, while CMG's system now takes less than two seconds.'

In parallel to the performance improvement project CMG worked with Shell International consultants to develop on-line business help text, training programmes for prospective users, technical guidelines for system set-up and a 'Best Implementation Practices' planning guide – all of which assist in the implementation and running of the system.

Global implementation

CROSS 3 is now fully implemented in Belgium and implementation has started in the UK (with more than 30% of all deliveries already automatically scheduled). Implementation will start in Brazil and the USA later this year and trials have already started in Australia and Germany. Shell will follow these with a programme of roll-outs across a significant number of its operations around the world over the next two years.

'One of the biggest challenges for Shell when rolling out CROSS 3 globally will be managing business change,' says van der Westhuizen. 'Distribution and scheduling specialists will be asked to work with different tools to those they are used to, and delivery schedules themselves will look different to those which they would have created in the past.'

But whatever the challenges that lie ahead, there is no doubt that Shell has developed a system which will help it and all of its partners in the global fuel supply chain to become more efficient. The system will also improve key business processes, reduce overheads and increase the utilisation of Shell's delivery fleet.

CMG provides a full back-up service to both CROSS 2/CPP and CROSS 3 clients using the Shell network and the Internet for communications. A private (to Shell) website has been developed and users are able to view up-to-date details of all reported problems and their resolution status as well as share experiences using a bulletin board. ●

Getting in stride just at the right time?

Nigeria, sub-Saharan Africa's most populous country, which is poverty-stricken despite its rich hydrocarbon resources, now has the opportunity to move forward to a new era of progress and prosperity – if only it can sort itself out politically. The possibility is opportune at this time when high-cost non-Opec oil production is on the verge of decline, writes *Fred Thackeray*.

The renaissance of Nigeria after decades of corruption and mismanagement is to get powerful support from the plans and projects of the international oil and gas industry. The prerequisites are, however, that the new civilian government is successfully installed on 29 May 1999 and that it is able to implement the reforms promised by the interim President, General Abdulsalami Abubakar. If these things happen, the country's huge international debts will be rescheduled and a new international loans programme is expected. In the wake of these developments will come a massive injection of oil and gas investments which will transform Nigeria's economic prospects within the next decade.

Major projects proposed

Evidently taking this view, Shell recently proposed a programme of integrated oil and gas projects to be implemented over the next 8 to 10 years by itself together with other companies at an estimated cost of $8.5bn. It is envisaged that Shell's existing partners in its Nigerian operations will contribute to this programme – i.e. Esso, Elf, Agip and NNPC (National Nigerian Petroleum Company). The Nigerian contribution is expected to be 25%.

The projects focus principally on two inter-related developments. These are the NLNG (Nigeria Liquefied Natural Gas) plant to export liquefied natural gas, now nearing completion at Funiwa on Bonny Island, and the giant deep-water Bonga oil and gas field in OPL 212. Overall, if agreed and implemented, 12 projects are proposed which are estimated to increase Nigeria's oil production capacity by 600,000 b/d or some 30% over today's level of around 2.1mn b/d. They will also establish Nigeria as a major force in the international LNG industry. Other projects, independent of Shell's initiative, promise to raise Nigeria's production still further.

The Bonga field itself, 100 km offshore in water depths of some 1,000 metres, is held under a production sharing contract by Shell's affiliate, Snepco (operator, 55%), Esso (20%), Elf (12.5%,) and Agip (12.5%). Production of possibly as much as 350,000 b/d is anticipated. Also offshore, two shallow-water fields are planned for development – Ea in OML 79 and a field lying in blocks H and K (OML 72). The development of Bonga and other fields will require an extensive infrastructure of pipelines and other facilities which between them will raise the total number of projects offshore to six. Six onshore developments are also included in the $8.5bn programme. These include expansion of the NLNG plant and five other related projects.

An urgent need to reduce flaring of associated gas underlies the whole programme. Shell has committed itself to a policy that all new developments in Nigeria must in future cater for expected gas production before authorisation. It has pledged that it will eliminate 'all unnecessary flaring' by 2008. Owing to the typical instability of wells in Nigeria's main oil fields in the Delta – occasioned by the high water table – gas reinjection is generally impracticable, resulting in an exceptionally high incidence of flaring. Currently, some 2bn cf/d, or 75%, of Nigeria's natural gas production is flared.

Faced with this wasteful and environmentally harmful disposal of associated gas, Nigeria has established a favourable tax regime for gas projects and increased the penalties for flaring. Taxation of gas projects is 35% com-

	('000 b/d)
Shell	800
Mobil	515 **
Chevron	418 **
Elf	120
Agip	140
Texaco	65 **
Total Nigerian production in 1998:	2,090 ***

**There is also production by a number of small Nigerian independents.*
***Estimate supplied by the company.*
****Opec estimate.*

Estimated Nigerian crude oil production by the major companies* in 1998

pared with 85% for oil; royalty rates for gas are 7% onshore and 5% offshore compared with 20% and 18.65% respectively for oil (to 100 metres water depth; but progressively lower rates down to nil for 1,000 metres water depth). The penalty for flaring gas was sharply hiked in the 1998 budget from 0.5 Naira/mn cf to 10 Naira ($.006 to $0.13). Penalties and taxation are one thing, however, while the opportunities for gas-using projects are another – not so simple in a country with average income per head of around $250/y.

The most immediate project is the NLNG plant. At a time when the international LNG business is in the doldrums, the first two trains of the NLNG plant are scheduled to go onstream with annual output capacity of 8.0bn cm – nearly all sold under long-term contracts – in October this year. The equity in the plant is held by Shell (25.6%, technical operator), NNPC (49%), Elf (under the name Cleag, 15%) and Agip (10.4%). Gas input of 8.7bn cm/y to the plant will comprise 4.6bn cm from Shell and about 2.3bn cm each from Agip and Elf.

A third train of 4bn cm (input capacity) is due in onstream 2001, and possibly two further trains – each with capacity of about 6bn cm/y – subsequently. These expansions, bringing the annual capacity ultimately to some 24bn cm, will establish Nigeria as one of the world's biggest LNG exporters. The third train is a necessary accompaniment of the development of the Bonga field, since it will be able to take the associated gas which would otherwise have to be flared. Over 70% of the gas produced by the third train has been sold to Enagas of Spain. The gas sales contract is for a 21-year period.

Deepwater prospects entice

Towards the end of 1998, it was reported that the demand for deepwater rigs in Nigeria had sharply diminished. This doubtless reflected the cut-backs of exploration activity worldwide due to $10/b oil. But taking last year as a whole, it is apparent that the oil companies are keen to concentrate their efforts offshore. Exploration wells spudded – wildcats plus outsteps – totalled 41 offshore against six onshore. Comparable figures for 1997 were 33 wells offshore and five onshore. Moreover, this drilling recorded high success ratios. In 1998, when 35 of the 41 offshore exploration wells spudded finished drilling during the year, 17 were reported as oil, oil and gas or 'assumed oil' completions.

The most impressive discovery was announced – unusually without the benefit of a flow test result – by Texaco in January 1999. This is the Agbami field about 110 km offshore in a water depth of 1,433 metres in OPL 216. Hailing the field as possibly the company's 'most significant exploration success globally in 1998', John O'Connor, President of Texaco Worldwide Exploration and Production, added that: 'Nigeria has been identified as one of the key focus areas of Texaco's upstream business strategy'. Texaco, as the technical operator, holds what it terms a 100% contractor's interest in the block. Its equity interest through its subsidiary, Star Petroleum, is 40% and that of its Nigerian partner, Famfa, 60%. There is a possibility that another un-named company or companies may farm in. Flow testing has to await the availability of a suitable deepwater rig later this year or next spring.

Escravos gas plant

Texaco is also keen to develop its Anyala-Madhu fields in OML 83 and 85, the production potential of which has been unofficially claimed to be 50,000 b/d. The company needs to establish new production sources to replace its existing production from the long-standing Funiwa field which is now declining.

Gas utilisation

It has long been recognised that Nigeria is gas-prone, albeit with major oil potential also. Without looking for gas – because there was nothing they could do with it – the oil companies have discovered reserves estimated today by the Nigerian government at a total of some 300tn cf (equivalent to 50bn barrels of oil). The corresponding estimate for oil is 22bn barrels.

Today, natural gas has acquired new status as an economic and environmentally preferable fuel, which is extremely wasteful to flare. Hence, the companies operating in Nigeria are seeking ever more urgently to develop and expand gas export projects.

Chevron, producing last year 418,000 b/d of crude oil for export at Escravos, has big expansion plans in hand. It has therefore been increasingly active to initiate projects to utilise the accompanying associated gas. Its Phase 1 project, completed in 1997, has established processing of 175mn cf/d of wet gas from two of its fields, Okan and Mefa. Output is 8,000 b/d of LPG, 2,000 b/d of condensate and 100mn cf/d of dry gas, which it sells to NGC (NNPC's gas subsidiary). Phase 2, Chevron tells *Petroleum Review*, will expand the existing plant to take a further 120mn cf/d from Chevron's Swamp fields, with the dry gas being sold to NGC or fed into the projected West Africa Gas Pipeline (see box). Phase 3 will comprise a second processing plant to take between 300mn cf/d and 500mn cf/d of associated (and possibly non-associated) gas from offshore fields in the Delta. From this the dry gas could be sold to a projected gas-to-liquids (GTL) plant.

Chevron's venture into GTL takes it into the front line as an investor in the revolutionary technologies of the Fischer-Tropsch GTL processes. A plant proposed at Escravos will use some 300mn cf/d of Chevron's associated gas output to produce about 30,000 b/d of petroleum products, principally a high

cetane low-emissions diesel. It is sponsored jointly by Chevron and South Africa's SASOL to use the latter's extensive expertise in Fischer-Tropsch technology. Significantly, Chevron has said that it sees its partnership on this project with SASOL 'as a cornerstone for future projects with SASOL including the expansion of this new technology to other worldwide applications'.

Mobil too has been pressing forward the development of NGLs (natural gas liquids) production from the offshore Oso condensate field in OML 70, currently producing 110,000 b/d of condensate. Production of NGL's from about 600mn cf/d of Oso and other associated gas started last August. At its peak rate the Phase 1 plant is running at 50,000 b/d, comprising 54% propane, 28% butane and 18% pentane or heavier.

Realism is the key

A critical problem of the Nigerian oil industry in recent years has been the inability of the NNPC to provide its equity shares of capital expenditures in the joint venture operations which cover most of the onshore and near-shelf exploration and production activities (further offshore fields are under production sharing contracts). But in a 'Budget of Realism' – based on an assumed oil price of $9/b, Finance Minister Malam Ismaila Usman announced in January that the oil companies' 'cash calls' of $2.5bn for 1998 have now been met in full. However, this still left $0.5bn of previous arrears unpaid and the promise for 1999 was only $2bn against the $3.7bn requested by the companies.

Importantly, however, the Finance Minister also foreshadowed a radical change in the 'funding of the government share of the joint venture operations with a view to solving the cash call problems permanently'. His remarks related to ongoing discussions with Shell, Elf and other companies which envisage external funding of NNPC's share of onshore joint venture investments in *de facto* production sharing arrangements. The foreign partner would take responsibility for these and gain reimbursement from production before the equity split is established for 'profit oil'.

There remains the vital political dimension. Tribally inspired disturbances in low-income oil producing regions – which feel they benefit insufficiently from local oil activity – have caused significant interruptions to the activities of most of the companies throughout 1998 and are continuing still. In November, December and early January, for example, a total of 21 such incidents resulted in shutdowns, abductions, blockades and in one instance 30 deaths. Of the 21 incidents, 8 affected Shell facilities, 7 Chevron and 2 Texaco. The government is making strenuous efforts 'to preserve peace in the Niger Delta and promote the unity of all the communities'.

The international oil companies' plans for major investments could transform the Nigerian economy within a few years, but it will be up to the new government and the people of Nigeria to create the conditions in which the investments will be successfully made. ●

In writing this article extensive reference has been made to information and data made available by Petroconsultants SA of the IHS Group.

West African gas pipeline

In response to *Petroleum Review*'s enquiries, Chevron provided the following clarification of the prospects for the first inter-country natural gas pipeline in sub-Saharan Africa.

The project favoured by Chevron is a pipeline from Nigeria to Ghana, Benin and Togo, which will run coastwise offshore to western Ghana. The probable diameter of the pipeline will be 18 inches to provide an initial capacity of about 180mn cf/d. Its 'foundation' markets will be three or possibly four power plants plus a small quantity for immediate industrial users. Depending on requirements, future expansion of capacity could be obtained 'by increased compression, looping or both.'

A feasibility study has recently been completed by the German consultancy PLE (a subsidiary of Ruhrgas). Endorsement of the study's recommendations by the governments of the three countries is expected 'within the next several months'. Following this, in the 'pre-development phase' engineering will commence. The 'critical path' activity during this phase will be the negotiation of licensing arrangements with the governments. Following this, the construction of the pipeline will start. Currently, Chevron says that it foresees the pipeline going onstream in 2002.

Financing of the project is expected 'to be provided principally by sponsor equity, with some possibility of export credit arrangements' if these are attractive.

Chevron's choice of an offshore route, starting at Escravos, was made on the basis of a detailed evaluation by the company which determined that this will produce the lowest transportation tariff. Chevron also anticipates that an offshore route can be developed more quickly in view of the fact that ROW (right-of-way) licensing will be fully under authority of the federal governments. In addition, environmental issues can be better addressed than on an onshore route which would cross agricultural areas and wetlands.

It is understood from other sources that the PLE study was financed jointly by Chevron, Shell and the governments of the three countries concerned. Shell, however, appears to have indicated that it prefers an onshore route for the pipeline. The capital cost of the proposed offshore line, according to a speech made recently by Chevron's Project Manager, Chris Williams, is expected to be about $400mn. ●

Crine drives down development costs

The cost base in the North Sea must be cut to $8/b by 2002 or the UK will be 'totally left behind in the market for crude oil'. This was the blunt warning delivered by Amerada Hess UK Managing Director, Francis Gugen, at the 1999 Crine Network conference in March, writes *Jeremy Cresswell*. The following paragraphs outline some of the factors that will play a major role in the drive to cut costs offshore.

In his final rallying call as Chairman of the Crine (Cost Reduction in a New Era) Network movement, Gugen told a packed house in Aberdeen that technology, coupled with smarter supply chains, was the key to the $8/b of North Sea crude. 'We really need to find radically new techniques to search for oil, exploit it and transport it to market,' he said, 'and we need to do that quickly. Specifically, we need to take another $2 out of the cost base from technology change. Some might say we need to do even more than that, but that is Crine Network's target'.

Gugen also said that contractors and suppliers were crucial to this process. On that basis, operators starved profit out of the supply chain at their peril. 'It is not a hopeless situation. We have clarity at what we need to aim at. There is a route to the future... let's seize it.'

Radical thinking

While the offshore industry has made immense strides forward during the six or seven years that Crine has been around, even more radical thinking will be required to push the cost frontier back to $8 and preferably $6/b.

Regarding technology, nothing short of 'very large step changes' will be required to achieve the goal, according to Dick Winchester, Technology Programmes Director of the Centre for Maritime and Petroleum Technology (CMPT). He argued that incremental improvements were no longer enough and highlighted marginal field development and exploration drilling as two areas requiring dramatically different thinking.

'The current cost of wells, subsea hardware and the other equipment needed to develop a tie-back are out of all proportion to the size of many of these fields,' said Winchester. 'They are certainly completely uneconomic in the present situation and could well be uneconomic even at much higher prices.'

On drilling, he said: 'Given an exploration failure rate of about 75% for the North Sea as a whole, this topic has to be given high priority in order to lower the economic risk of exploration and to enable it to become affordable.' While finding technology solutions would be tough enough, Winchester argued that changing mindsets with regard to their acceptance could be even more difficult. Moreover, existing suppliers could become casualties, with newcomer firms with better ideas displacing them.

Using past experience

One of the ironies of the current situation was that delving back into the past could yield solutions for the future. Likewise, thinking laterally and taking ideas from other industries could prove worthwhile.

Homing in on subsea trees and their associated control systems as an important area where huge sums of money could be saved, Winchester said the typical tree cost around £1mn, and its control pod much the same... unnecessarily expensive. He singled out Exxon's SPS-fabricated tree, which is used on the 3,000–feet deep West Delta 73 well in the Gulf of Mexico, stating that this 'simple' technology was first developed in 1974 but had largely been ignored by an industry traditionally bent on bespoke engineering. 'Fabricated trees are cheap, so why aren't we doing this stuff now? This is not rocket science. It's just simple, solid engineering.'

Referring to the so-called Zero Surface Facilities initiative and the downhole tree concept, Winchester said it was not a new idea. 'We've been talking about this for as long as I can remember.' The tree could be put downhole or in a caisson. There are big advantages to putting it in a simple concrete of GRP caisson and getting it below the mud line – such set-ups could eliminate the need for expensive downhole safety valves which are costly in terms of intervention and maintenance.

New ideas

Turning outwith the confines of the oil and gas industry for new ideas, Winchester said that the possibilities were amazing: 'You'd be staggered at some of the things we come across. For example, bimodal carbon fibre composite tubing developed by a very small company for use by British Nuclear Fuels for sticking instrumentation inside reactors.' When rolled up, the

tubing resembles flat tape. However, when unrolled it can be flipped into a tube. It can also be welded longitudinally using ultrasonics.

While further development would be required before it could be made fit for offshore flowline applications, Winchester told his audience that this type of composite tubing was surely a lightweight, tough technology that could be adopted for deepwater use.

Targeting higher yields

A technology set to have a far more dramatic impact on the future of the North Sea than oilfield hardware advances to date is multi-well imaging of reservoir fluids.

Edinburgh University Professor of Petroleum Science, Anton Ziolkowski, told the conference that just £2mn was needed to produce a useable package within two years. Most of the components of the technology existed – it was just a question of linking them up.

'The petroleum industry needs to aim now for much higher yields from existing and future fields, say 80% instead of the more common 40% to 50%', he stated. 'Multi-well seismic methods have the potential to obtain the most vital information we need to achieve this goal.'

He explained that a large gap existed between conventional 3D seismic reflection data and core/well data. Seismic samples the earth well, but is generally limited to about 20 metres resolution and, normally, the top and bottom of a reservoir cannot be seen as distinct reflections in the data. Core and well data sample sparsely but with very high resolution ranging from 1 metre to fractions of a millimetre.

Ziolkowski explained that, to obtain information throughout a reservoir at the 1 metre scale, it would be necessary to explore in the 50–2,000 Hz seismic frequency range. 'This is possible with multi-well imaging, in which many three-component receivers are installed permanently in wells near or in the reservoir. Borehole seismic sources are used to generate broad bandwidth seismic waves in the reservoir.

'Time-lapse multi-well seismic surveys can image changes, particularly the movement of fluids,' he said. 'Unswept, unaccessed hydrocarbons will show up as volumes within the reservoir in which no changes occur.'

Double your money

Reporting on progress made by the 'Double the Value of Wells by 2000' Crine working party, Conoco UK General Manager John Williams highlighted the successful recent completion of phase one of the four-stage project which comprises finder wells, development wells, alliances and new technologies.

He said that the basic objective of finder wells, where simplicity could lead to a cost reduction of as much as 30%, should be to locate hydrocarbons. But too often, companies were not content with keeping the first phase of exploration drilling simple. They often went way beyond logging the presence of hydrocarbons, perhaps including carrying out drill-stem tests, multiple logging, sidetracks etc, thus ramping up exploration well costs unnecessarily. 'We can spend a lot of money if we aren't focused on the critical uncertainty of an exploration well – the key question is: "Is it [hydrocarbon] there?"'

Williams pointed out that no new technology was needed to implement finder wells. Moreover, the stripped down approach could mean more wells for the same money.

'The only thing that is required is a cultural change away from the way we have always done things'.

The North American onshore oil crisis

In the second part of our series on the Third Oil Crisis, *Petroleum Review* looks at the onshore industry in North America. Here, as elsewhere in the world, the continued low oil price is leading to oil companies implementing major cost-cutting programmes. Mergers and massive job losses are the result.

Steve Curtis is a 44-year-old geophysicist based in Calgary, Canada. For the last 20 years, he has explored for oil and natural gas in the Canadian oil patch, as well as internationally in Australia and Southeast Asia. In early February 1999, Curtis and half a dozen other exploration staff were called in by their employer, Union Pacific Resources, and laid off as part of the Texas-based company's worldwide cost-reduction programme. 'Nobody had a clue it was coming,' said the father of two. 'I had not prepared at all.'

Curtis is just one of thousands of North American oil patch professionals who find themselves suffering from the calamitous drop in oil prices. In early 1997, before Opec production increases and the collapse of many Asian economies created a chronic overproduction situation, West Texas Intermediate benchmark crude averaged $27/b. In January 1998, the wellhead price that oil producers received in the US averaged just $9/b, the lowest inflation-adjusted crude oil price since the Great Depression of the 1930s.

The money disappears

And, like the Great Depression, most American oil companies are suffering. Mobil of Virginia, in the midst of a merger with Exxon, saw 1998 profits drop 48% to $1.7bn, from $3.27bn the year before. Unocal of California had 1998 earnings of $130mn, compared with $581mn in 1997. Houston-based Conoco saw profits plummet to $450mn from $1.09bn.

Canadian companies fared no better. Gulf Canada Resources of Calgary lost C$560mn in 1998. Imperial Oil's net income for the year dropped 35% from 1997's C$847mn to C$554mn. PanCanadian Petroleum's earnings fell 55%, from C$330mn to C$150mn.

The plunge in profits sent investors fleeing from the sector. Gulf Canada shares lost 55% of their value in 1998. The Toronto Stock Exchange Oil & Gas sub-index fell from a high of nearly 8,000 in early 1997 to below 4,000 this spring.

Lack of financing

Equity investment in the sector also dried up. Canadian oil industry financings in 1998 dropped to C$6bn, a 24% decrease from 1997's C$7.9bn. '1997 was a phenomenal year [for equity investment],' says Tom Ebbern, a researcher at Newcrest Capital, a major investment firm. 'Now, there is none – it's completely closed off.'

Low oil prices also hit petroleum company cash flows. Gulf Canada's cash flow was C$371mn, down from C$592mn in 1997. Unocal's total discretionary cash flow fell by over half, from $3.3bn in 1997 to $1.5bn last year.

Cash flow is especially important to bankers. 'Most banks lend on proven, producing reserves and projected future after-tax-cash flow (cash flow in which all expenses have been deducted),' says John Swendsen, Vice President of the National Bank of Canada, Western Region, which has approximately C$750mn exposure to junior and smaller oil companies.

According to Swendsen, banks use a 'debt-to-cash flow' ratio as a rule-of-thumb to gauge acceptable leverage. The ratio is measured as the number of years that a company takes to pay off its debt with annual cash flow. If the debt-to-cash flow is two, ie the company owes $1mn and has a cash flow of $500,000, then the company is in good shape. If the cash flow drops to $250,000 because of low prices, then the debt-to-cash flow rises to four, which is getting to the upper limit of acceptability. 'Most companies are reasonably healthy because they are not highly leveraged,' says Swendsen. 'But the ratios are starting to creep up now.'

When an oil company gets into financial trouble, banks generally recommend they cut costs, sell assets, or merge.

Slimming down

Cutting costs is the first step. According to US investment bank Salomon Smith Barney, worldwide spending on oil and gas exploration and production is set to decline 11% in 1999, to $79.2bn.

Canadian companies foresee a 3.6% drop to C$11bn, after an 18% drop in 1998. Gulf Canada Resources, for instance, will reduce capital spending to C$300mn, from C$1bn in 1998.

US companies expect a 20% drop, to $22.1bn. Occidental Petroleum of California is reducing its capital spending budget 67% to $250mn, down from $1.06bn in 1998.

The decline in exploration budgets has already had a profound impact on drilling. In the US well completions for all of 1998 were down to 24,884, down 13% from 28,118 in 1997. The active rig count for the week of 18 February 1999 stood at 531, the lowest weekly rig count on record.

In Canada, drilling fell to 10,000 wells last year, compared to more than 18,000 in 1997, and activity is expected to drop to 8,300 wells this year. The Canadian drill rig count fell to 330 in February, down 36% from the previous year.

Seismic acquisition is also suffering. According to *International Geophysical News* (a publication of IHS Energy Group of Boulder, Colorado), Canada had 35 seismic crews working in February 1999, compared to 81 for the

same time a year ago. 'The low price has been quite significant to a lot of our member companies,' said Ken Lengyel, Chairman of the Canadian Association of Geophysical Contractors. 'We are running at 40–50% of last year's capacity.' Out of the 5,000 CAGC-member staff in total, Lengyel estimates that 50–60% are currently out of work. 'And when you see seismic crews idle, other sectors of the industry are going to be idle in six months.'

The sack

North American oil companies have also been cutting jobs in an effort to reduce overheads. Since the end of 1997, the American Petroleum Institute reports that the US industry has lost 42,000 jobs, a drop of more than 12%. Union Pacific Resources of Texas announced plans to cut 300 jobs; BP Amoco says it is cutting 2,200 jobs in Texas and Alaska; and Texaco of New York is eliminating 1,000 jobs worldwide, including 287 in the Gulf of Mexico.

In Canada, the energy sector, which employs approximately 75,000 workers across the country, shed 10–15% of its workforce. Amoco Canada Petroleum laid off 275 workers; Canadian Occidental Petroleum shed 112 jobs; and Chevron Canada looks to reduce its 800 staff by 10%.

Companies have also been selling assets to pay down debt. Gulf Canada Resources cut its long-term debt to C$2.2bn last year by peddling C$1.2bn of assets. It is withdrawing from the majority of its international projects, including Libya, Mongolia and Yemen (many of the properties were acquired in the C$1bn takeover of Clyde Petroleum in 1997). Union Pacific Resources, which purchased Norcen Energy Resources for C$5bn in 1998, has since disposed of C$380mn in properties in Canada. According to industry analysts, there is a significant backlog of assets on the sales block, about $1.5bn in Canada and $6bn in the US.

The urge to merge

Mega-mergers were the talk of the industry in 1998, but most had only tangential impact on the mature North American industry. 'The BP Amocos are backing off North America,' says Ebbern. 'Except for the Gulf of Mexico, returns in North America are pathetic.'

This year, mergers in North America will be governed by the need to service debt loads. Dominion Resources, an energy and electricity giant based in Virginia, purchased debt-laden Remington Energy of Calgary at a bargain-basement price, buying proven and half-probable reserves for $4/b.

Enertec Resources Services of Calgary, which reported a 50% decline in business in the last 12 months, is being acquired by Houston-based Veritas DGC in a C$24mn stock swap.

Natural gas – a bright spot

Not all is doom-and-gloom in the North American oil patch; prices for natural gas in the 4Q1998 averaged $2.40/GJ, up 50% over the same period in 1997, and, in spite of a mild winter, are expected to remain strong in 1999.

Buoyant natural gas prices are keeping many a company afloat. Revenues for gas-heavy AEC of Calgary were C$1.9bn for 1998, up from C$1.7bn in 1997. Earnings were C$24.4mn, compared with C$21.7mn in 1997. The company, which has C$1bn to invest, intends to ramp up production 26% to 900mn cf/d, and top 1bn cf/d by 2000.

Shell Canada, with a strong gas position, is another success story. In contrast to parent Royal Dutch/Shell Group, which recently posted its worst results a one hundred years (see *Petroleum Review*, March 1999), Shell Canada showed 1998 earnings of C$432mn. Its oil products division, which makes gasoline and other products at three refineries and operates a national chain of petrol stations, pumped out record operating earnings of C$275mn, up from C$252mn in 1997.

'I'm very bullish on gas,' says Ebbern, who cites a combination of declining supplies in strategic locations, reduction in transportation bottlenecks, and long-term growth in demand to keep the price high. 'One-third of US gas comes from the Gulf Coast, about 19bn cf/d. Most of it is from shallow water, and those reserves are in steep decline – as much as 20%. In the past few years, they've been able to replace the decline by drilling, but now, drilling is way off.'

This is positive news for Canadian gas producers. 'There is no longer trapped gas in Canada,' says Ebbern. 'A few years ago, there was a 2.3bn cf/d transportation shortage, but now, thanks to expansion of the pipeline system, we're 1bn cf/d over. Alberta produces about 13bn cf/d and exports 8bn cf/d. They could export 9bn cf/d.'

Finally, the Canadian Gas Association says total domestic gas consumption is set to increase 30% to 100bn cm by 2010, with similar growth expected in the energy-hungry US northeast.

Whither oil?

Until global oil production drops below demand, however, the price of crude – and the long-term viability of the industry – will remain in doubt.

According to Oil Market Intelligence, total worldwide supply was 74.5mn b/d in December 1998, and consumption around 2mn b/d less.

There is already evidence that low oil prices are forcing marginal wells out of production. The American Petroleum Institute estimates that more than 136,000 oil wells have been shut down since oil prices crashed in November of 1997. 'Production is falling off,' says Ebbern. 'If you assume that Canada, the US, the North Sea and Venezuela are all in a situation where they can't afford capital (to maintain drilling programmes), you can assume there will be a drop of 2mn b/d just from natural decline.'

'I think you will see worldwide oil production sub-72mn b/d by the end of July,' said Martin Molyneaux, an analyst with FirstEnergy Capital Corporation, in an interview recently. 'We're of the view that oil volumes are going to fall very quickly.'

Surplus reduction

Another serious concern is the overhang of oil in the system. The American Petroleum Institute estimated that total stocks of all oils were slightly over 1bn barrels at the end of January 1999.

The US Department of Energy (DOE), however, is predicting that world demand, fuelled by historically low prices, will increase by at least 1.2mn b/d in 1999. The DOE will also begin replacing oil that earlier had been withdrawn from the Strategic Petroleum Reserve (SPR), helping to soak up the overhang.

'It will cross over from oversupply to undersupply quickly,' says Ebbern. 'When it crosses that critical supply balance, it doesn't have to go far below to cause a sharp increase in price. It will go up $5–$6 in a month or so. I foresee it occurring in the 3Q or 4Q of this year.'

And, for those who have money to survive that long, it is a good time to be in business, with drilling and seismic at decade-low prices. 'A kilometre of seismic that was going for C$5,000 two years ago is now down to C$3,750,' says Lengyel. 'You pay the same price you did 10 years ago, and the quality is a lot better.'

As for Steven Curtis, the geophysicist laid off from Union Pacific, he found a job with Calgary-based Cabre Exploration the following week. 'I think that things are going to turn around,' he says. 'The long-term outlook for oil is still very good, and I think that world demand will exceed world supply soon.'

Going, going, gone...

On 1 April 1999, the UK upstream sector ceased to exist – at least as far as the London stockmarket is concerned. The sector was given its own index at the end of 1993 when it included 15 companies and accounted for around 1% of the total market. But, since then, the sector's market weighting has plunged to a negligible 0.28% of the total, and the nine survivors[1] were merged with the three integrated oil stocks on 1 April. Apart from tidying up the sector, this change will also bring the UK into line with the FTSE Actuaries European Oil Index, thus making cross-border comparisons easier, writes *Chris Chew*.

Although the disappearance of a very small market sub-sector may seem largely irrelevant to ordinary investors, there could, in fact, be profound implications for the long-term share price performance of some of the smaller companies.

This is because, in market capitalisation terms, the exploration and production (E&P) stocks are dwarfed by the integrated companies (see **Table 1**). Fund managers, in order to reduce risk, will generally attempt to have some exposure to each sub-sector of the market index by investing in the most liquid and most comprehensively researched stocks. In the case of the oil sector, this usually means the integrated companies and some of the larger upstream players. But the index changes could leave the mid-range companies in a dangerous investment no-man's land – too small to be included in the mainstream oil sector, but too big to appeal to the small company specialists. If institutional interest falls because a company becomes too small, brokers' research coverage will also contract, and the company's rating will suffer as investors move to larger companies which are perceived to benefit from greater transparency and familiarity.

In the short term, Geoff Auld of Goldman Sachs believes that the upstream sector has already shrunk so much that the immediate impact will be largely neutral. But he does foresee an increasing divergence between the two largest UK upstream companies, Lasmo and Enterprise, and smaller companies such as British-Borneo or Monument. Although one of the possible consequences of the abolition of the E&P index will be an impulse to merge, both Lasmo and Enterprise are comparable with the biggest US E&P companies, and would be ranked in the first six in terms of size if they were listed in the US. This suggests that size is not everything.

Provided the investment story is compelling enough, there is no reason why investors should ignore Enterprise or Lasmo, even if the current merger discussions lead nowhere. However, the problems facing the smaller E&P companies in stimulating investor interest do not stop at size. Louita Gericke at Panmure Gordon is concerned that the very different valuation approach demanded by upstream and integrated companies may cause confusion, especially among non-professional investors. Faced with the difficulty of trying to value an upstream asset story, many investors may prefer to opt for the relative simplicity of the integrated oil companies which are commonly valued on yield and earnings.

A year to forget

1998 was a year to remember for all the wrong reasons, and this month's crop of full-year upstream results provided further numerical evidence of just how difficult 1998 was. Lasmo, Enterprise and Cairn all reported losses at both the operating and pre-tax level in 1998. A slump in profitability was inevitable,

	12 March (£/pence)	1 mth % change	High–Low (1 yr) (pence)	PER* (est. 1999)	% yield	Mkt Value (£mn)
BP Amoco	975p	14.3	1021–708	35.5	2.60	94,711
Shell T&T	386p	16.3	499–299	21.5	3.50	38,458
Royal Dutch	£30.80	12.8	36.2–24.5	na	3.20	66,277
TOTAL	£71.30	13.2	81.8–56.5	na	1.90	17,200
Enterprise	341p	36.8	697–213	na	2.00	1,698
Lasmo	135p	20.5	305–83.5	130	1.70	1,308
British-Borneo	129p	24	430–83.5	52	2.70	487
Monument	42p	8.4	83–32.5	34.1	na	370
FTSE100	6288.2	5.6	–	25.6	2.53	–
FTSE Actuaries:						
UK Oil Integrated	5193.6	14.8	–	39.55	3.07	–
UK Oil E&P	1644.9	21.8	–	negative	1.95	–
Europe Oil	930.4	16.1	–	na	2.99	–

Source: Financial Times; PER data from Hemmington Scott Consensus Forecasts
** Price earnings ratio.*
na= not available

Table 1: European oils – stockmarket performance

given the time-lags involved in reducing costs to reflect the sharp fall in oil prices. But the sector's misery was compounded by the introduction this year of FRS 11, the new accounting rule governing impairment of the carrying value of fixed assets.

Lasmo was the worst hit by FRS 11, where £360mn was written off its oil and gas assets. This caused the after-tax loss for the year to rise to £408mn and shareholders' funds contracted by over a third to £830mn. Year-end fixed assets fell from £2.2bn to £1.9bn. Exploration expenditure was cut by 10% to £85mn, but committed development and production spending, largely due to Venezuela, jumped by almost 40% to £246mn. Total capital spending will be cut by 10% in 1999 and other cost savings, including a 55% reduction in head office staff, should reduce the break-even oil price by $3/b to $12/b.

Enterprise emerged from FRS 11 relatively lightly, with asset write-downs of only £31mn, compared to year-end fixed assets of £2.1bn. Although the group succeeded in reducing its cost of sales by 12% to £5.63/b, this was nowhere near enough to compensate for the 40% fall in revenues. As a result, last years' operating profit of £246mn was converted to an operating loss of £61mn. Total capital spending expanded by a third to £675mn but this should fall back to around £470mn this year. Enterprise is also aiming to save a further £20mn a year from 2000 through internal reorganisation, including 200 job losses.

Cairn was also caught by FRS 11. Asset write-downs totalled £71mn against year-end fixed assets of £250mn, including £11.7mn to account for the decline in Cairn's 9.9% holding in Soco. The write-downs helped to turn 1997's pre-tax profit of £15.8mn into a pre-tax loss of £71.6mn in 1998, while shareholders' funds fell by 23% to £256mn.

Future prospects

The jury is still out on the prospects for 1999. Last year gave the companies a perfect opportunity to rationalise operations, prune their cost base, and re-think their strategy. This year could, therefore, be a little easier on the profit and loss (P/L) – provided the oil price does not suffer any further relapse – but the biggest challenge is likely to be translating last year's good intentions into practise. ●

[1] At the end of February 1999 the constituents of the E&P index were Abbot, British-Borneo, Cairn Energy, Enterprise Oil, Expro, Fortune Oil, Lasmo, Monument and Premier. The integrated oil index consisted of BP Amoco, KBC, and Shell Transport & Trading.

UK Retail Marketing '99 Survey

Latest information

Following the publication of the 1999 Retail Marketing Survey, *BP has supplied us with a number of amendments, mainly affecting National branded sites.*
As a result of last year's changeover of most BP brand distributor sites to the National brand, the National brand distributor site network has grown significantly. Previously, most National brand site information was submitted by Ellis & McHardy, which runs about 30+ of the National brand sites. However, following the transition, this understates the total number of BP National brand sites by about 80.

LPG – There is also an error in the LPG site count figure. This showed the expected number of LPG retail sites (125) when in reality there were only 2 operational sites.

The 1999 figures should be as follows:

BP	Total number of self-service sites – Petrol	1,438
	Total number of sites retailing auto-LPG	2
Nozzle count:	Total number of dispensing nozzles – Petrol	15,185
	Total number of dispensing nozzles – Diesel	5,530
	Number of sites having less than 5 nozzles – Petrol	99
National		
Petrol	Total number of retail sites branded National	115
	Total number of self-service sites	49
	Total number of sites retailing super unleaded petrol	14
	Regional Breakdown	
	England	57
	Wales	4
	Scotland	42
	Isle of Wight	12
	Outlets operating Stage 1B Vapour Recovery	12
Diesel	Total number of retail sites branded National	112
	Total number of self-service sites	49
	Regional Breakdown	
	England	56
	Wales	4
	Scotland	42
	Isle of Wight	10
Nozzle count:	Total number of dispensing nozzles – Petrol	420
	Total number of dispensing nozzles – Diesel	158
	Number of sites having less than 5 nozzles – Petrol	75
	Number of shops attached to petrol retail outlets	41

Morrisons has now advised that all its 70 supermarket sites are branded 'Morrisons' although the petrol being retailed is partly sourced from Texaco. In this year's survey the Morrisons' sites have been included in the Texaco totals.

There were also some small errors in the tables in the RMS as follows: in the main entry, the total number of sites for Q8 should have 435, rather than 434; in the same table, the number of sites for Sainsbury's should have been 214, rather than 211, bringing the grand total of operational UK forecourts up to 13,762.

NEW Publications

Oil and Gas on the Internet – 1Q1999

Editor: Bill Crowley (Competitive Analysis Technologies, 11702-B Grant Road, Suite 112, Cypress, Texas 77429, USA). Price: $79.94, single issue; $289 annual subscription (p&p: $8.50 USA, $22.50 elsewhere).

Now in its fourth year of publication, this directory (updated quarterly) now includes 2,309 website listings that are relevant to the oil and gas industry. Entries include 635 oil and gas companies, 690 companies supporting this sector, 220 industry associations, 117 industry journals, 37 sources for pricing information and 118 databases for industry information. Seventeen chapters contain abstracts of all sites listed and an extensive index provides for easy site retrieval. Each hard copy directory comes with a disk containing all sites in a hotlist, or bookmark file, so that online users may quickly go directly to the website required without surfing the Internet.

Prospects for the World Offshore Oil and Gas Industry 1998–2000*

Tony Mackay and James Adam (Mackay Consultants, Albyn House, Union Street, Inverness, Scotland IV1 1QA). Price: £850.

This publication, the fourth in the report series (earlier ones were published in 1990, 1993 and 1996), provides a wealth of statistics on past, present and future production, exploration, development and operating costs in the global offshore oil and gas industry. Information is presented on a regional basis: North and Central America, South America, North Sea and Western Europe, Eastern Europe, Mediterranean, West and East Africa, Middle East, and Asia-Pacific. The study indicates that in the period 1987 to 1997, world oil production increased by nearly 18% to 3,474mn tonnes, the offshore contribution to this figure increasing by 53% over the same period. Total world gas production increased by 23% to reach 2,223bn cm in 1997, offshore gas production rising by 57% over 1987 to 1997.

The Energy Report: Transforming Markets

(Available from branches of The Stationary Office. London branch: 123 Kingsway, London WC2B 6PQ, UK). ISBN 0 11 515446 9. 300 pages. Price: £38.

The UK energy sector is changing rapidly as the opening of markets brings all kinds of commercial pressures. This report provides an overview of the various energy industries and highlights the issues with far-reaching impact on the UK use of energy, including the problems encountered during deregulation of the utilities, and policies governing emissions and protection of the environment. A range of statistical information is provided in the Appendices. A separate booklet, entitled *Energy Sector Indicators 1998*, is also available which supplements the key energy indicators outlined in the annex to Chapter 3 of the report. The booklet contains over 100 charts covering all aspects of the energy industries, from production and consumption through to prices and environmental effects.

Energy Demand in Asian Developing Economies*

M Hashem Pesaran, Takamasa Akiyama and Ron P Smith (Oxford Institute for Energy Studies, 57 Woodstock Road, Oxon OX2 6FA, UK). ISBN 0 19 7300 20 0. 224 pages. Price (hardback): £39.50.

This book analyses energy demand in ten Asian developing economies over the period 1974–1990. It introduces new econometric techniques and uses them to analyse energy demand by each individual economy and the region as a whole on a sector (industrial, commercial, residential and transport), industry (iron and steel, chemicals, etc), and fuel (electricity, petroleum products, etc) basis. Models evaluated on forecasts for energy demand in the period 1990–1994 are used to produce forecasts of energy demand until 2015. The policy implications of these forecasts for the political economy of these countries and for global economic processes are then addressed.

A Survey of European Gasoline Qualities*

(Available from CONCAWE, Madouplein 1, 1210 Brussels, Belgium). 84 pages.

This report (no. 5/98) describes the quality of automotive gasoline grades in the European market over the sampling period of summer 1996. Over 1,100 samples were collected from 16 countries. Statistics – including fuel density at 15°C, lead, sulfur and total aromatic contents, RON, MON, and Reid Vapour pressure – are summarised by country

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Latest from the Library

Recent additions to library stock

- *Russian Petroleum Refineries Handbook*. By: Rudin, Mikhail G. 1st edition. New York, Begell House Inc, 1998.
- *Upstream Oil and Gas Agreements*. Edited by: David, Martyn R. 1st edition. London UK, Sweet & Maxwell, 1996.
- *Who's Who in World Oil & Gas 1999*. Edited by: Mirzoeff, Judith. 13th edition. FT Energy Yearbooks, London UK, FT Energy, 1998.

At least one of these titles was bought following a suggestion by an IP member. Your ideas on what you would like us to hold are always welcome and will always be seriously considered. To find out what we already hold, visit our website and see our Library holdings catalogue.

Back issues

Refurbishment of our basement storeroom is now complete and we have regained access to our older material. Some of the periodicals we hold are more than 100 years old and many date from the early part of this century – so if you are doing historical research into the oil industry, we are a good place to start. One of our collections which is heavily used is that of superseded API standards.

Library refurbishment – a reminder

During July and August of 1999 the IP Library at 61 New Cavendish Street will be refurbished. As a result, we will be temporarily closed to visitors – although you will still be able to contact us by post, telephone, fax and e-mail.

Library shelving

The existing library shelving will be available for sale following the refurbishment. Anyone interested in purchasing it should contact Catherine Cosgrove.

Contact details

- Information queries to:
  Chris Baker, Senior Information Officer, +44 (0)171 467 7114
  Sue Tse, Information Officer, +44 (0)171 467 7115
- Library holdings and loans queries to:
  Liliana El-Minyawi, LIS Assistant, +44 (0)171 467 7113
- Careers and educational literature queries to:
  Octavia Leigh, Information Assistant, +44 (0)171 467 7116
- Website queries to:
  Catherine Pope, Webmaster, +44 (0)171 467 7112
- LIS management queries to:
  Catherine Cosgrove, Head of LIS, +44 (0)171 467 7111

Fax any of the above on +44 (0)171 255 1472 or e-mail on **lis@petroleum.co.uk** Visit our website at **www.petroleum.co.uk**

Forecourt arena unveils new products and services

This year's Forecourt International exhibition, held alongside the Convenience Retailing Show at the Birmingham NEC from 9–11 March, was packed with all that you would expect to find on a service station site – from car washes, petrol pumps and drainage systems to retail automation equipment, vapour recovery systems and BSI accredited manhole covers. *Kim Jackson* reports on some of the show's highlights.

A number of innovative new products were on show at the 1999 Forecourt International, including what is claimed to be the world's first completely automatic refuelling system from Autofill Products, a new fibre-optic camera from Tanksafe that 'looks' into an underground pipe and pumps out excess dirt and water, and Linpac's new multi-functional forecourt unit which contains a litter bin, paper towels and glove dispensers as well as storage for a fire extinguisher, bucket and screenwash. (Some of the new developments unveiled at the show will be featured in forthcoming issues of *Petroleum Review*.)

Leading suppliers such as Veeder Root, PetroTechnik, Wayne Dresser and PDI supported the show as usual. Veeder Root launched two new products, Simplicity Petroleum Data Services – an outsourcing solution to delivering around-the-clock active monitoring (see *Petroleum Review*'s *Retail Marketing Survey*, March 1999) – and the TLS-NT – a PC based inventory management leak and detection solution. Wayne Dresser exhibited Wayne Trac, its innovative fuel payment method where the customer waves a small keyring tag fitted with a remote activation device in front of the pump which reads the signal and processes the transaction via the customer's credit card automatically. The company was also showing pump video screens which can run adverts for specific promotions, and gathering show participant feedback for a brand new customer-friendly pump, still in its development stage.

Alfons Haar launched its new Galaxy gauging system which provides full leak detection, static and dynamic, auto reconciliation and calibration. It also announced an alliance with Emco Electronics that is to provide a one-stop-shop for measurement and control of fuel products from 'terminal to nozzle'.

Categy, the newly formed joint venture between Catalist and GMAP, showcased Site 99, a service station benchmarking system which produces reports drawn from industry survey material from Catalist and qualitative analysis of the findings of GMAP (see *Retail Marketing Survey*, March 1999).

Ryko International exhibited its new Contour automatic rollover vehicle wash at the show while Wesumat presented its car wash with integrated underbody wash, which unlike conventional systems is said to wash not only the underbody but also the front, rear and lower valance panels.

On the oil company side Texaco and Elf exhibited at the show, the latter launching its new loyalty scheme for independent retailers. The independents were represented by Bayford Thrust, exhibiting for the second time and promoting its new Gator loyalty scheme and franchising of the Thrust brand (see *Petroleum Review*, March 1999).

Photo by Kim Jackson

Autofill's automatic refuelling system at work

The Petrol Retailers Association was also present, launching a new training initiative designed to encourage members to train staff in-house.

Interestingly, Shell's presence was not seen on the forecourt side of the exhibition hall but across the way at the Convenience Retailing Show (which once again ran alongside Forecourt International), providing those from the service station sector with the opportunity to source new shop products and take advantage of 'profit making' ideas such as fast food and franchising. Shell Global Solutions was launching its Retail Food Consultancy business which offers a flexible service ranging from one day's consultancy on how to implement HACCP (Hazard Analysis Critical Control Points) to large global projects covering all areas of food safety.

The Institute of Petroleum's European Retail Conference and half-day seminar on the 'Growing Retail Markets in Russia, Central and Eastern Europe' also coincided with Forecourt International, providing further scope for industry discussion. One of the seminar papers – 'The Downstream Petroleum Market in Europe', presented by Russell Caplan, Vice President, Shell European Oil Products – will be featured in the May issue of *Petroleum Review*.

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And they're off – Texaco's racing game pulled in the punters

High performance valves vent offshore

The new Atmospheric Vent System (AVS) from Elmac VentSafe, which incorporates Winn high performance butterfly valves as the critical vent valves, is said to allow the safe, controlled venting of flammable gases resulting from routine maintenance or emergency discharge without causing process downtime.

The AVS comprises a number of different sized Winn vent valves – offering a high flow capacity, quick opening action and corrosion resistant properties – integrated with Keystone pneumatic actuators which are controlled electronically via the system's programmable logic controller (PLC).

As the pressure transmitter installed in the header pipe detects an increase in system pressure, the PLC transmits a signal to open the correct size of vent valve until the pressure has dropped to the required level. The Keystone high visibility indicators enable operators to identify at a glance the position of the valve.

Although the system has a working pressure of 35 bar, it must be able to accommodate extreme pressures in the event of an emergency situation, explains Winn. The company's valves are said to be capable of handling service temperatures up to 220°C and pressures up to 54 bar.

The soft-seated butterfly valves are supplied with stainless steel bodies, shafts and discs to ensure corrosion resistance. They feature a double offset disc to ensure bubble-tight

shut-off in both directions while minimising seat wear. The gland packing can be quickly adjusted using easy access bolts, says Winn, and the seat can be replaced by removing the retaining ring.

The pneumatic actuators are constructed from hard, anodised aluminium which is protected by an electrostatic powder coating.

Elmac Tel: +44 (0)1636 707262
Fax: +44 (0)1636 605147
Winn Tel: +44 (0)141 810 3121
Fax: +44 (0)141 810 4724

'Cuddly' car wash system unveiled

Otto Christ of Memmingen, Germany, has developed and patented a jointed side brush system for automatic car washes. The jointing allows the side

brushes to change shape and 'hug' the contours of the car during cleaning of the vehicle sides, on both the forward and return wash cycles. This ensures that the top and lower sections of the vehicle side are given a perfect clean, areas normally missed by traditional standard brush arrangements, says the manufacturer.

The Top 4 car wash also features a high pressure, swivelling roof wash with five discharge nozzles, a powerful under-chassis and wheel wash, hot foam and hot wax. The guidance tracks are fitted with 132 pairs of red LEDs to ensure that the driver knows exactly where to place the car, even at night.

The system is operated by a pre-paid, pre-programmed card which is designed to handle a number of car wash options.

Tel: +44 (0)1635 862800
Fax: +44 (0)1635 860200

Wash and blow dry

Leif Dige UK has developed a 'Buff' manual vehicle dryer which is designed to complement an existing jet wash installation. Normally customers using jet washes either dry their cars by hand or leave them to dry in the wind. In the latter situation, the car can often dry 'streaky' – spoiling the effect of washing the car in the first place. The hand-operated dryer incorporates a revolving nozzle with a powerful air jet which blows the water from the car, drying it in a matter of minutes, explains the company.

Special features include coin or token operation, a stainless steel swing arm to enable all parts of the vehicle to be dried, a soft cover for the hose to protect the vehicle bodywork and a small profile making it easy to install on restricted sites. A powerful second short nozzle which is said to blow air from the smallest crevices is also available for drying 'sports' and 'rostyle' wheels. The system is suitable for use on cars, vans, motorcycles and mopeds, as well as shampooed carpets and mats.

Tel: +44 (0)1703 444877
Fax: +44 (0)1703 447791

Kitemark compliant covers

Fibrelite Composites reports that it has received a 'Kitemark' for three of its composite covers designed for service stations. Its other products are being upgraded to qualify as the months progress. The Kitemark indicates compliance with the BS EN 124/PAS 26 British and European standard for gulley tops and manhole covers in vehicle and pedestrian areas, which was introduced to the industry in October 1998.

Tel: +44 (0)1756 799773
Fax: +44 (0)1756 799539

NEWS Technology

Loyalty card with a difference you can see

Visual Loyalty is a new loyalty card system designed by Arciris for use by a range of retail outlets including service stations. Claimed to be the first system of its kind in the market today, it is said to enable individual-tailored promotional material to be generated quickly and cheaply whenever and however the retailer needs it.

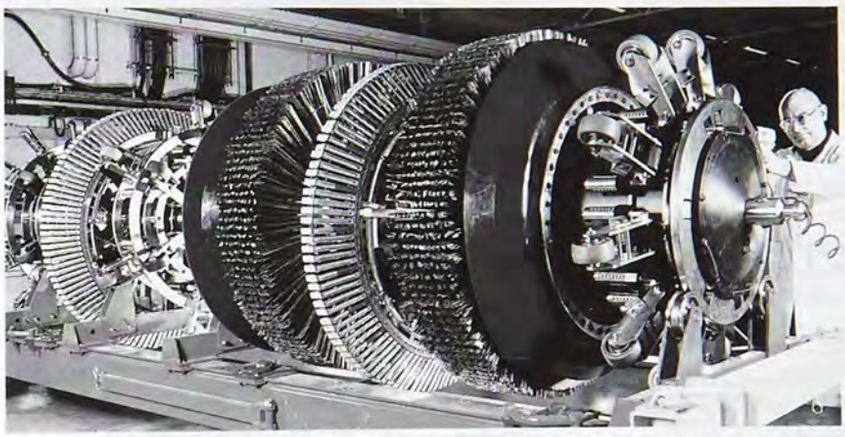
An area of foil set into the surface of the card is thermally imprinted with wording or an image of the retailer's choice. The card itself is slim, lightweight and durable, and can be imprinted in excess of 500 times without deterioration, claims the company.

The imprintable image is configured by means of an easy-to-use software package and can be quickly redesigned in response to the retailer's advertising needs. The compact thermal printer reimages the card in a few seconds while the card's magnetic stripe is being updated with the additional loyalty points. A running total of the loyalty points accrued on the card is also imprinted so that the customer can see at a glance how many points the card is holding at any one time. This facility can also be used for pre-payment schemes, for example where the card is imprinted with visual tokens in payment towards a car-wash. The card can also be personalised to show either the customer's or the retailer's name, or both.

If required, the system can be set up and run from a remote head office via a modem, enabling corporate control and a consistent approach, comments the company.

Tel: +44 (0)1392 449503
Fax: +44 (0)1392 445257

Big Bertha tackles eastern European pipelines



Pipeline Integrity International (PII) has added a 56-inch high resolution magnetic flux leakage (MFL) internal inspection tool to its pipeline pigging equipment portfolio. According to Andy Bain, PII Project Manager, development of the pig – nicknamed Big Bertha – was the result of the company's work with Slovtransgaz, the Slovakian gas transporter with which PII has a five-year inspection contract.

Operators experience a number of problems that are specific to 56-inch pipelines. Their sheer size and the pressures at which they operate at mean that they ship enormous quantities of oil and gas – a revenue earner vital to both operators and national economies. Such lines also tend to run over long distances, often transiting a number of countries. Even when pigging, volume agreements must be met, and much liaising with many operators may be necessary. The cold winters in eastern Europe, where many 56-inch lines are found, often keep inspection/maintenance/repair windows to no more than six months. These pressures mean that fast, accurate and reliable results are required from a single inspection run.

Tel: +44 (0) 0191 247 3200
Fax: +44 (0) 0191 247 3101

Benchtop fuel analysis

In response to recent legislation enforcing maximum limits on the amount of sulfur in automotive fuels, Oxford Instruments has launched the Lab-X 3000 S benchtop analyser. The unit is capable of measuring ultra-low sulfur concentrations below the 50 ppm maximum level which will be allowed in diesel and gasoline in Europe from 2005.

The analyser can be sited either in a laboratory or on the production site, and is designed for operation 24 hours a day, seven days a week.

A data sheet for the determination of ultra-low sulfur gives full details of parameters including calibration ranges, precision, stability and ruggedness test.

Tel: +44 (0)1235 532123
Fax: +44 (0)1235 535416

New generation coating

A new long-life coating for the most aggressive environments has been launched by International Protective Coatings. Interzone 505 is a second-generation glass flake epoxy product, intended to supercede the company's Interzone 1000 which has been used on many North Sea oil rigs since the 1970s.

The new coating can be applied in a more controlled fashion – down to 250 microns – to provide a better cosmetic finish than Interzone 1000, says the company. It is also said to cure better at lower temperatures than its predecessor, thereby extending the viable working calendar in exposed fabrication yards or in maintenance situations.

Tel: +44 (0)171 479 6423
Fax: +44 (0)171 479 6555

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
Deputy Editor, *Petroleum Review*
61 New Cavendish Street, London W1M 8AR, UK

EVENTS Forthcoming

APRIL

6–7 **Houston**
3rd Annual Worldwide Independents Forum
Details: Global Pacific & Partners, US
Tel: +1 281 597 9578
Fax: +1 281 597 9589
e-mail: GLOPACAMER@aol.com

12–13 **Amsterdam**
Drilling and Completion Chemicals in the Oil Industry
Details: Center for Professional Advancement, The Netherlands
Tel: +31 20 638 28 06
Fax: +31 20 620 21 36

12–14 **Amsterdam**
Introduction to Petroleum Refinery Processing
Details: The Center for Professional Advancement, The Netherlands
Tel: +31 20 638 28 06
Fax: +31 20 620 21 36

12–16 **Paris**
1st Biennial Show of Technologies and Industrial Processes
Details: Nathalie Geraud, Comité des Expositions de Paris
Tel: +33 1 49 09 61 33
Fax: +33 1 40 09 61 07

14–15 **London**
Doing Business in Turkmenistan: Focus on Energy Development
Details: Penny Richards, IBC UK Conferences
Tel: +44 (0)171 453 5491
Fax: +44 (0)171 636 6858
e-mail: cust.serv@ibcuk.co.uk

14–16 **Amsterdam**
Production Chemicals in the Oil Industry
Details: Center for Professional Advancement, The Netherlands
Tel: +31 20 638 28 06
Fax: +31 20 620 21 36

15–16 **Vienna**
European Innovations for Enhanced Petroleum Reservoir Characterisation and Management
Details: Jane Kennedy, CMPT, UK
Tel: +44 (0)870 608 3440
Fax: +44 (0)870 608 3480
e-mail: j.kennedy@cmpt.com

19–20 **Tehran**
The IR of Iran Petrochemical Investment Forum
Details: Middle East Infrastructure Development Congress, UAE
Tel: +971 4 314552
Fax: +971 4 318710
e-mail: infocntr@emirates.net.ae

19–20 **London**
Petroleum Trading and Cargo Shortages
Details: Abacus International, UK
Tel: +44 (0)1245 328340
Fax: +44 (0)1245 323429

20 **Birmingham**
Industrial Distillation Forum
Details: Carol Johnstone, ETSU, UK
Tel: +44 (0)1235 432383
Fax: +44 (0)1235 433737

27 **London**
A One-Day Overview of Current Pigging Technology
Details: The Pigging Products & Services Association, UK
Tel: +44 (0)1285 760597
Fax: +44 (0)1285 760470
e-mail: ppsa@gdhbiz.demon.co.uk

20–21 **Dubai**
Eco-Arabia '99
Details: IIR Holdings, United Arab Emirates
Tel: +971 4 528400
Fax: +971 4 518604

20–21 **London**
Kuwaiti Petroleum Summit
Details: Ben Willbond, SMi, UK
Tel: +44 (0)171 827 6174

20–21 **Singapore**
The Lloyd's Shipping Economist Asia Briefing
Details: The Conference Division, LLP, UK
Tel: +44 (0)171 553 1350
Fax: +44 (0)171 553 11103
e-mail: conferences@llplimited.com

21–22 **London**
Petroleum Trading and International Law
Details: Abacus International, UK
Tel: +44 (0)1245 328340
Fax: +44 (0)1245 323429

21–23 **Perth**
AustralAsian Oil & Gas Exhibition & Conference
Details: Colin Hay, Swan Exhibitions, Australia
Tel: +61 8 9443 3400
Fax: +61 8 9242 1811
e-mail: energy@energy-pubs.com.au

22–23 **London**
CGES 9th Annual Conference: Investment Opportunities Under Low Oil Price Scenarios: The Opening of the Middle East and North Africa
Details: CGES or CW Associates, UK
Tel: (CGES) +44 (0)171 235 4334
(CW Associates) +44 (0)171 704 3176

25–29 **Houston**
Intertanko Houston Tanker Event
Details: Mr Anders Baardvik, Intertanko, Oslo
Tel: +47 22 12 26 52
Fax: +47 22 12 26 41
e-mail: anders.baardvik@intertanko.com

25-30 **Houston**
Corrosion 99, NACE International's 54th Annual Conference and Exhibition
Details: NACE Membership Services Department
Tel: +1 281 228 6223
Fax: +1 281 228 6300
e-mail: msd@mail.nace.org

26–27 April
London: *Second International Conference on Emerging Markets for Emissions Trading*
Details: Paul Haley, Global Village Conferences, PO Box 779, Ascot, Berkshire SL5 9YT
Tel: +44 (0)171 538 1700
Fax: +44 (0)171 538 4244

26–27 **London**
The International Utility Strategy Conference
Details: The Strategic Planning Society, UK
Tel: +44 (0)171 636 7737
Fax: +44 (0)171 323 1692
e-mail: events@sps.org.uk

26–28 **Ghana**
Oil & Gas Africa '99
Details: FSG MediMedia, UK
Tel: +44 (0)1638 743633
Fax: +44 (0)1638 743998
e-mail: info@fsg.co.uk

26–29 **Istanbul**
Mediterranean & Black Sea Oil & Gas Summit
Details: IBC UK Conferences
Tel: +44 (0)171 453 5491
Fax: +44 (0)171 636 6858
e-mail: cust.serv@ibcuk.co.uk

27–28 **London**
Supply Chain Management in Oil & Gas
Details: Customer Services, SMi, UK
Tel: +44 (0)171 252 2222
Fax: +44 (0)171 252 2272

27-29 **Singapore**
Oceanology International 99
Details: Spearhead Exhibitions, UK
Tel: +44 (0)181 949 9222
Fax: +44 (0)181 949 8168 8186
e-mail: oi99@spearhead.co.uk

Membership News

NEW MEMBERS

Mr S H Ahmed, Britannic Maritime Ltd
Mr M Baligh, Egypt
Mr J K Benton, Burnham-on-Crouch
Mr A W A Berkeley, London
Mr A S Berry, London
Mr S R Bertram, Ramco Energy plc
Mr D R Burton, Aqumen
Mr P R Chawner, EBW Apt Catlow
Mr D S W Christison, Huntingdon
Mr G Davis, T&S Ltd
Dr J Dunlop, JD Horizons Ltd
Mr T Elrick, Ward Lester Group
Mr A Fisher, Workshaw Ltd
Mr T N Foster, Tim Foster Marketing Ltd
Mrs L Frieda, London
Mr D Gault, Aberdeen
Mr H Gieslec, Cambridge Management Consulting
Mr G B Grice, Kings Lynn
Mr M Hawtin, Knowledge Support Systems Ltd
Dr I Holdaway, Markfield
Mr S Jones, DKV Euro Service UK Ltd
Mr P M Julian, Nimir Petroleum Ltd
Mr S Kataoka, The Sakura Bank Ltd
Mr O Kolawole, Harrow
Mr G Lambrou, Cyprus Petroleum Refinery Ltd
Mr J A Lee, Battersea
Mr M Maeso, Hampshire
Mr S Mansfield, Wilcomatic Ltd
Mr A E Marriott, France
Ms L Marshall, Ascot
Mr M H Marston, West Wickham
Mr A J McAllister, Kerr Duncan McAllister
Mr G McCormick, Minale Tattersfield & Partners
Mrs I M McNicoll, Edinburgh
Mr D Mehta, Petrowatch-India
Mr J F Moloney, London
Mr P A Mutton, Guildford
Mr S A Nabi, Southend-on-Sea
Mr P Nair, London
Mr T Obame Mezui, Dundee
Ms L Owens, Petroleum Economics Ltd
Ms A Pegrum, Orpington
Mr J Pitts, Hong Kong
Mr E J Sankey, Maulden
Mr K R Simpson, Stonehaven
Mr J Smith, Basingstoke
Mr P Soodarram, Thailand
Ms J Westwood, Keighley
Mr G Wiegner, Wiegner & Weber Absatzforschung GmbH
Mr G L Williamson, Billingham

NEW STUDENTS

Mr Y A Akbar Agha, Pakistan
Ms N Foley, Silsoe College
Mr R W Jarmain, Orpington
Mr L I Menagarishvilj, London
Mr B J Seligman, Dorchester
Ms R Wei, Exeter
Mr J B G Wright, Bedford

NEW CORPORATES

Oil Recruitment Ltd, Regent House, Bexton Lane, Knutsford, Cheshire WA16 9AB, UK
Tel: +44 (0)1565 654830 Fax: +44 (0)1565 755607
e-mail: mail@oilrecruitment.co.uk

Representative: Mr Nick Smith, Director
The Oil Recruitment Agency is dedicated to the downstream oil industry. Oil Recruitment handles senior management, middle management and technical roles in petroleum distribution, marketing, retailing, refining, storage, inspection, trading and broking. Although only recently formed, the company already has an extensive database of experienced individuals seeking challenging positions in the industry.

G Stiller Transport Ltd, Boeing Way, Preston Farm Industrial Estate, Stockton-on-Tees, Teeside TS18 3TE, UK
Tel: +44 (0)1642 607777 Fax: +44 (0)1642 607711

Representative: Mr P Stiller, Managing Director
G Stiller Transport Ltd is an experienced specialist in tanker movements throughout the UK and Europe. The company is proud to operate a high specification, modern fleet, superbly equipped and maintained to the highest safety standards so that the customer can have confidence in the handling of the consignment.

CMP Products, Glasshouse Street, St Peters, Newcastle-upon-Tyne NE6 1BE, UK
Tel: +44 (0)191 265 7411 Fax: +44 (0)191 265 0581

Representative: Mr V Patterson, General Manager
CMP Products is a cable gland and cable connection specialist. It designs, manufactures and distributes a wide range of cable connectors for both industrial and hazardous area environments. It is a specialist in the offshore industry.

Kelton Engineering Ltd, The Mackenzie Building, 168 Skene Street, Aberdeen AB10 1PE, UK
Tel: +44 (0)1224 630000 Fax: +44 (0)1224 630004

Representative: Mr Gilbert M Tonner, MD
Kelton Engineering Ltd is active in the provision of flow measurement consultancy services including engineering studies, project support, documentation, design/operational charts and training. It has produced software including Flicare, a flow colouration package; KMS-Calibration package; and K-Track, meter proof validation package.

Forestal Del Atlantico SA, Punta Promontoiro S/D, Mugardos, A Coruna 15620, Spain
Tel: +34 981 470750 Fax: +34 981 470161

Representative: Mr F S Castano, General Manager
Forestal Del Atlantico SA handles oil products developments storage. The company is an independent power producer and is involved in adhesives and resin manufacturing and oil product distribution.

Millham Communications, Fourth Floor, 4 City Road, London EC1Y 2AA, UK
Tel: +44 (0)171 256 5756 Fax: +44 (0)171 638 7370

Representative: Ms Judith Parry, Director
Millham Communications is a financial public relations company which specialises in the oil and gas sector.

Jorin Ltd, 4a Vulcan Close, Sandhurst, Berks GU47 9DB, UK
Tel: +44 (0)1252 861221 Fax: +44 (0)1252 861551

Representative: Mr N J Roth
Jorin Ltd handles the design and manufacturer, and sales and support of online instrumentation for optimisation of oil production and processing.

IP Discussion Groups & Events

Energy, Economics, Environment

'Merger or Dismemberment – the Future for the UK Independents'

Thursday 8 April 1999, 17.00 for 17.30 until 19.00

Tony Craven Walker, Chairman, Monument Oil & Gas plc

(A follow-up to this presentation will be given by Nick Antill of Morgan Stanley on Tuesday 25 May)

IP Contact: Jenny Sandrock

IChemE

Energy Conversion Group

Tuesday 20 April 1999
14.00–17.00, with buffet lunch from 12.30
Seminar on
Gasification Technology – An Update
Co-sponsored by the Institute of Petroleum

Venue: The Institute of Petroleum, London
Cost: £30 (includes VAT), payable in advance

Details: John Picken, IChemE, 165–189 Railway Terrace, Rugby CV21 3HQ
Tel: +44 (0)1788 578214 Fax: +44 (0)1788 560833
e-mail: jpicken@icheme.org.uk

Midlands Branch

'Urban Transport for the Millennium'

Wednesday 21 April 1999, Austin Court, Birmingham

The cost of the Seminar will be £20 per person, including lunch.

The Seminar is organised in association with Birmingham City Council and Elf Oil UK Ltd.

For further information on the Seminar, please contact
W M Ward C.Eng, BSc, MInstE, FInstPet.
Tel: +44 (0)1299 896654 Fax: +44 (0)1299 896955
e-mail: wm_ward@msn.com

All meetings are held at the Institute of Petroleum unless otherwise stated. Please tell the IP contact if you plan to attend any of these free meetings.
Tel: +44 (0)171 467 7100
Fax: +44 (0)171 255 1472

Energy, Economics, Environment

'The UKOOA Drill Cuttings Initiative'

Thursday 29 April 1999, 17.00 for 17.30 until 19.00

Eric Faulds, Decommissioning Manager, Shell UK Exploration & Production

IP Contact: Jenny Sandrock

London Branch

'Thrust-Super Sonic Car Project'

Tuesday 4 May 1999, 17.30 for 18.00

Ron Ayers, Chief Aerodynamicist, Thrust-SSC Project

This meeting will be preceded by the London Branch AGM at 17.00. Nominations, appropriately seconded, must be received in advance of the meeting.

Tea will be served beforehand and light refreshments afterwards.

Contact: Carol Reader on +44 (0)181 852 9168 if you plan to attend the talk

Energy, Economics, Environment

Half-day Seminar on

'Oil and Gas Taxation in the Caspian Region'

Thursday 20 May 1999, 14.00–19.00
Organised jointly with Arthur Andersen

ARTHUR ANDERSEN

Chaired by **Peter Ellis Jones,** Vice President, Institute of Petroleum, with speakers from Arthur Andersen and Monument Oil & Gas plc

Cost (members and non-members): £130 + VAT
Prior registration essential.

IP Contact: Jenny Sandrock

'Size and Integration: the Changing Shape of Integrated Oil Companies'

Tuesday 25 May 1999, 17.00 for 17.30 until 19.00

Nick Antill, Oil Analyst, Morgan Stanley
(This follows the presentation given by Tony Craven Walker of Monument Oil & Gas plc on 8 April)

IP Contact: Jenny Sandrock

***For a complete and up-to-date listing of all IP Events see our website:* www.petroleum.co.uk**

IP Conferences and Exhibitions

International Conference on

'Tankers: Current Commercial and Regulatory Issues'

London: 27 May 1999

organised with the support of The Nautical Institute

This Conference continues the successful collaboration between the Nautical Institute and the Institute of Petroleum in promoting informed discussion on issues affecting the safe and economic transportation of oil by tanker.

This event concentrates on current commercial and regulatory issues including the latest developments on safety issues at tanker ports and in marine pilotage and also the oil companies' development of formal safety assessment systems.

Who should attend?
This Conference will provide a valuable insight into current issues and problems facing the tanker industry for:

- Oil company shipping and supply staff
- Shipowners and charterers
- Port and pilotage authorities
- Local authority personnel
- Oil traders
- Oil company planners
- Marine insurers
- Oil pollution specialists

Workshop on

'The Control of Legionnaires' Disease in the Oil Industry'

London: 10 June 1999

Legionnaires' Disease bacteria may occur whenever water is held between 20°C and 50°C and the presence of organic materials will further increase the risk of their proliferation. Humans coming into contact with such water run the risk of contracting Legionnaires' Disease. In order to assist in the control of this disease, the Institute of Petroleum has arranged a one-day Workshop that will address aspects of *Legionella* infections with particular reference to the oil industry.
Presentations will be made on clinical aspects of the disease; detection, risk assessment and control of Legionnaires' Disease bacteria; HSG 70 and legal implications of *Legionella* outbreaks. In addition, there will be specific case studies from the oil industry. To augment these presentations, there will be an exhibition with invited water treatment companies demonstrating their techniques of controlling the disease.

Who should attend?

- Oil company Health and Safety Officers
- Operators of retail sites
- Water treatment companies
- Local authority health officers
- Microbiologists and occupational hygienists

The programme and registration forms are now available

International Conference and Exhibition on

Offshore Marine Support (OMS '99)

Southampton: 12–13 October 1999

A joint IP/ABR Company Conference

The Conference will discuss developments in the offshore oil industry and the opportunities and challenges they present to marine support contractors in the coming decade. For the first time in many years, it will present a unique opportunity for naval architects, yards and vessel owners to present their capabilities and new ideas to the oil industry.

Exhibition
An Exhibition of related equipment and services will be held in association with the Conference.

The programme and registration form will be available in May

Training Courses

The Institute of Petroleum is organising a portfolio of nine energy related training courses. Further information is available from Clive Waters, Training Development Manager at the IP. Tel: +44 (0)171 467 7122, Fax : +44 (0)171 255 1472 or e-mail: **cwaters@petroleum.co.uk**

The programme of 1999 Training Courses is now available

Programmes and registration forms for all events are available from:

Pauline Ashby, Conference Administrator, at the Institute of Petroleum

Tel: +44 (0)171 467 7100 Fax: +44 (0)171 255 1472

e-mail: pashby@petroleum.co.uk

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

IFEG
Information for Energy Group

Internet and On-line Services relevant to the Energy Industries

Sponsored by DIALOG ONDISC.

Afternoon Seminar, 1pm to 5pm, 19 April 1999
Institute of Petroleum, 61 New Cavendish Street, London, W1M 8AR

This seminar on on-line and Internet sources of information that can be subscribed to will focus on the subject of energy. The aim of the seminar is to introduce sources of information to people not familiar with them, and to give tips for better use of the services for those people who do already subscribe.

Participants include: Reuters; Institute of Marine Engineers; Everett's and the International Energy Agency

Admission free to IFEG members, £20 to non-IFEG members.
A light lunch will be available before the seminar. Please let us know you are coming. For more details contact Sue Tse on +44 (0)171 467 7115 or Catherine Cosgrove on +44 (0)171 467 7111, Fax +44 (0)171 255 1472; e-mail: **lis@petroleum.co.uk**

(For your Diary – on 30 June 1999 we will be holding another seminar on the subject of energy information available free on the Internet)

MOVES People

David Gresham is the new Chairman and Managing Director of Elf Atochem UK, following the retirement of **James Puckridge** as Chairman. Gresham joined Elf Atochem in 1980 as Chief Executive–Polystyrene Division. He became Industrial Director in 1991 and then Deputy Managing Director in 1995. In February 1997 he became Managing Director of Elf Atochem UK.

After heading the company for six years, **Joel Mendes Renno**, President of Petroleo Brasileiro (Petrobas) has resigned. Brazil's Mines and Energy Minister **Rodolfo Tourinho** has reportedly been elected Board Chairman of the company following Renno's resignation.

Sir Sydney Lipworth QC has become a Non-Executive Director of Centrica, and will also become a member of the company's Audit and Remuneration Committees. At present he is Chairman of Zeneca Group, Deputy Chairman of the National Westminster Bank, a Director of Carlton Communications and Chairman of the Financial Reporting Council. He was formerly Chairman of the Monopolies and Mergers Commission.

The Society of Petroleum Evaluation Engineers (SPEE) officers for 1999 have been announced as: **Andrew A Merryman**, President (PricewaterhouseCoopers); **Richard J Miller,** Vice President (Richard J Miller & Associates); and **J D Hughes,** Secretary/Treasurer (Aggieland Salt Water Disposal). **Gene B (Skip) Wiggins III** (Spirit Energy 76), Immediate Past President, is the fourth member of the Executive Committee. New Board members include: **Mark A Doering** (Classic Resources Inc); **Robin B LeBleu** (Vintage Petroleum Inc); and **Marilyn Wilson** (H J Gruy & Associates Inc), who join existing Board members **William D Anderson**, **Brian E Ausburn**, **Harry J Gaston, Jr** and **John Thibeaux**.

Martin Ferron has been elected President and Chief Operating Officer of Cal Dive International. Ferron joined the company in 1997, and previously held senior management positions with McDermott Marine Construction and Oceaneering International. **Bernard Duroc-Danner**, Chairman and Chief Executive Officer of Weatherford International, fills the open Independent Director seat, and **Ben Guill**, President of First Reserve Corporation, replaces **David Kennedy** as one of the First Reserve designated Directors. **Kevin Wood** replaces **Ken Hulls** as one of the Coflexip Designated Directors. Wood is Executive Vice President of the Coflexip Stena Offshore group.

Former UK Gas Industry Regulator **Clare Spottiswoode** has joined PA Consulting Group's Energy, Resources and Chemicals Division spearheading the company's energy work in mainland Europe, with an emphasis on the forthcoming EU market liberalisation initiatives. Spottiswoode left Ofgas at the end of her term of office in September 1998 and has since been working with the Azurix water company focusing on water regulation issues.

Van Ommeren ENOC Fujairah has appointed *Richard Denyer* as Terminal Manager. Denyer was previously Operations Manager at Van Ommeren Tank Terminal, London, and before that spent 17 years with BP, finally as a Master Mariner. He is a Member of the IP Essex Branch.

ITS Caleb Brett (UK) has appointed *Don Garwood* FInstPet, who has more than 45 years' experience within the oil, petrochemical and gas industry, as South East Area UK Manager, Inspection Division. Garwood has been particularly prominent within the Essex Branch of the Institute of Petroleum for many years including two terms as Chairman, and his work was recognised by the Institute with an Award of Council in 1997.

Louise Evans has been appointed Secretary and Chief Executive of the Council of The Institute of Energy. Evans has been with the Institute for six years in various roles, most recently as Deputy Secretary and Chief Executive since 1996.

The Gas Consumers Council has appointed two new members. **Timothy Cole** is now North of England Representative and **John Hanlon** is Scottish Representative. Both terms are until 30 September 2001.

Keith Read, a former Royal Navy engineer, has been appointed Director General of The Institute of Marine Engineers, succeeding **Jolyon E Sloggett**. After leaving the Navy in 1996, Read became Manager for South East Europe for an international finance company specialising in emerging markets where he was involved in negotiations with industry and governments over fund licensing and regulations, establishing the first licensed fund management company in Croatia.

Councillor **Sir John Harman** has been appointed Deputy Chairman of the Environment Agency. Harman is already a Member of the Environment Agency Board (since 1995) and before that served as a Member of the Environment Agency Advisory Committee. His other associations include: Chair of the Urban Commission of the Local Government Association; Member of the Government's New Deal Task Force; Member of the UK Round Table on Sustainable Development; and Board Member of the Energy Saving Trust.

Hungarian oil and gas company Mol has announced that **Janos Csak** is to succeed **Laszlo Pal** as its new President. Amongst several other major Board changes was the election of **Sandor 'Sanki' Lamfalussy**, President of the IFC and a former Executive of the World Bank, as a Member of the Supervisory Board.

Callum McCarthy, Director General for Electricity and Gas Supply, has announced a new corporate structure for Britain's combined electricity and gas regulatory office, which will include new management groupings, a Management Committee and an Advisory Board. Each Management Grouping will be the responsibility of a Deputy Director General, as follows: **Tony Boorman** (customers and the social and environmental aspects of regulation); **Dr Eileen Marshall** (supply chains); and **Richard Morse** (regulation and price control. The Management Committee is headed by Callum McCarthy with the three Deputy Directors General listed above, along with **Peter Carter** as Acting Chief Operating Officer. The Advisory Board consists of **Lord Borrie**, **Lord Currie**, **Dr Gill Owen**, **John Roques**, and **Sir Nigel Rudd**.